TOWN OF HEBRON

EMERGENCY ELECTRIC GENERATOR UPGRADE PROJECT

PHASE 1
CONCRETE PAD AND UNDERGROUND ELECTRICAL CONDUITS AND CONDUCTORS INSTALLATIONS
LOAD, DELIVER, PLACE AND ACTIVATE EMERGENCY ELECTRIC GENERATOR

RHAM Middle and High School
85 Wall Street
Hebron, Connecticut

PROJECT MANUAL

TOWN OF HEBRON PROJECT #2026-04
ENGINEER'S PROJECT # 2023159
September 26, 2025

ENGINEER
Van Zelm Engineers
10 Talcott Notch
Farmington, CT 06032-1800

Building Official: Scott Phelps	_____ (Signature)	_____ (Date)
Fire Marshal: Christopher Bray	_____ (Signature)	_____ (Date)

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Legal Notice Bid #2026-04

GENERATOR CONCRETE PAD AND UNDERGROUND ELECTRICAL CONDUITS AND CONDUCTORS INSTALLATIONS
LOAD, DELIVER, PLACE AND ACTIVATE GENERATOR
RHAM MIDDLE/HIGH SCHOOL
85 WALL STREET
HEBRON, CONNECTICUT

The Town of Hebron is seeking sealed bids for **Generator Concrete Pad and Underground Conduits and Conductor Installations, Load, Deliver, Place and Activate Generator, RHAM Middle/High School, 85 Wall Street, Hebron, CT.** Bid Documents are available and posted on the Town of Hebron's website and can be accessed at https://hebronct.com/bids/

All bids must be sealed and must be received at the Town Manager's Office prior to the due date. Bids will be submitted to Andrew J. Tierney, Town Manager, Town Office Building, 15 Gilead Street, Hebron CT 06248. Proposals shall include one (1) printed original and six (6) printed copies and one (1) digital proposal. All bids are due no later than **Friday, October 31, 2025, at 10:00 a.m.** Bids must be in a sealed envelope and clearly marked **"Bid# 2026-04, Generator Concrete Pad and Underground Conduits and Conductor Installations, Load, Deliver, Place and Activate Generator, RHAM Middle/High School, 85 Wall Street, Hebron, Connecticut"** on the outside of the envelope. The bids will be opened publicly and read aloud at the Town Office Building.

> The Specifications include (**Sitework, Site Concrete Work, Crane Services, Trucking, Generator Installation, Generator Activation, Electrical Conduits and Conductors Installations, and Bituminous Paving)**

There will be a **Non-Mandatory Pre-Bid meeting held at the RHAM High School, 85 Wall Street, Hebron, CT on Tuesday, October 21, 2025, at 9:00 a.m.** Bidders are not required to attend but are encouraged to attend to familiarize themselves with the Project Site**. All Bidders who intend to participate in the Pre-Bid Meeting must provide a valid ID in order to access the site and buildings and must report the High School Main Office.**

Any questions can be directed to **Andrew J. Tierney** 860 228-5971 ext.0, but **preferably by email to atierney@hebronct.com**. The Town of Hebron will award the bid to the lowest responsible bidder and reserves the right to waive any technical defects in the bids and to reject any bids which do not conform to the terms and conditions in the bid specifications.

The Town of Hebron also reserves the right to reject any or all bids and waive the informalities or irregularities in the bid procedure or bids when it is deemed by the Board of Selectmen that it is in the best interest of the Town to reject.

After opening of Bids, all Bids shall stand available for acceptance for a period of ninety (90) days. Bid security in the form of a certified check or bid surety bond, issued by a bonding company licensed to do business in the State of Connecticut, is required in the amount of 10% of base bid. Bid security shall be made payable to the Town of Hebron.
A completed Statement of Bidders Qualifications (Section 00600) shall accompany the bid.

A completed CHRO-Notification to Bidders/Contract Compliance Monitoring Report (Section 08900) shall accompany the bid.

The successful Bidder shall furnish to the Town of Hebron on the form specified, prior to the execution of the Contract, a performance and labor and material payment bond in an amount not less than one hundred percent (100%) of the Contract sum.

The classification for which Contractors are being sought is Sitework and Electrical Trade Contractors.

The Town of Hebron is an Affirmative Action, Equal Opportunity Employer.

The Contractor and all Sub-Contractors must comply with State Prevailing Wage Provisions (C.G.S. 31-53).

All Bidding Contractors must comply with DAS Contractor Prequalification requirements (C.G.S 4a-100.)

The Contractor must comply with the CHRO-Affirmative Action requirements (C.G.S. 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

The contract is subject to state set aside and contract compliance requirements.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services (DAS) under the provisions of CONN. GEN. STAT. 4a-60g. (25% of the total state-funded value with DAS- certified Small businesses and 6.25% of the total state-funded value with DAS Certified Minority, Women and/or Disabled owned businesses). The Contractor must demonstrate good faith effort to meet the 25% set-aside goals.

The Town of Hebron reserves the right to reject or accept any or all Bids and to waive any informalities, omissions, excess verbiage or technical defects in the bidding if, in the opinion of the Town of Hebron, it would be in their best interest to do so.

An Affirmative Action/Equal Opportunity Employer. Minority/Women's Business Enterprises are encouraged to apply. This contract is subject to state set-aside and contract compliance requirements.

END OF SECTION

INSTRUCTIONS TO BIDDERS

TOWN OF HEBRON, CONNECTICUT 06248
GENERATOR CONCRETE PAD AND
UNDERGROUND ELECTRICAL CONDUITS AND CONDUCTORS
INSTALLATIONS
LOAD, DELIVER, PLACE AND ACTIVATE GENERATOR
RHAM MIDDLE/HIGH SCHOOL
85 WALL STREET
HEBRON, CONNECTICUT

The following instructions and specifications shall be observed by all Bidders:

I. GENERAL CONDITIONS

INTENT: The name of the Project is **Generator Concrete Pad and Underground Electrical Conduits and Conductors Installations, Load, Deliver, Place and Activate Generator, RHAM Middle/High School, 85 Wall Street, Hebron, CT.**

The purpose of these specifications is to obtain Sealed bids for the **Generator Concrete Pad and Underground Conduit and Conductors Installations, Load, Deliver, Place and Activate Generator, RHAM Middle/High School, 85 Wall Street, Hebron, CT.**

1. Bid Opening

Sealed bids will be accepted by the Town Manager's Office, Town of Hebron, 15 Gilead Street, Hebron, Connecticut 06248 ***no later than*** **10:00 p.m. Friday, October 31, 2025,** at which time they shall be publicly opened and read. **Bids received by the Town after the date and time specified will not be accepted.**

2. Withdrawal of Bid

Bids may be withdrawn 90 days after bid opening if no award has been made.

3. Award of Bid

Award of bid shall be made to the lowest responsible, and qualified bidder, who is qualified to perform the work. The lowest responsible bidder is that person or firm whose bid to perform is lowest, who is qualified and competent to do the work, whose past performance of work is satisfactory to the Town and whose bid documents comply with the procedural requirements stated herein and is prequalified pursuant to C.G.S. 4a-100.

The Town of Hebron reserves the right to reject any and all bids, or part of such bid, or waive any defect, irregularity or informality of any bid when it is determined to be in the best interest of the Town.

Failure to completely fill out the bid form could result in rejection of bid submission. If an option is not available, it should clearly be stated on the bid form.

4. Bid Return Envelope

Bids are to be submitted in an envelope clearly marked with the bid title, bid number and opening date so as to prevent opening a sealed bid prior to the date specified. Any bids not so marked and opened by the Town prior to the date specified shall be rejected.

5. No Bid

Failure to return a bid could result in the removal of your firm's name from the Bid List. No Bids and responsive bids could result in your firm's retention on the Bid List. It is very helpful for the Town to obtain a better understanding as to why a vendor decides not to bid. We would appreciate the completion of the "No Bid" form and send it back to us so we can put improvements or changes in place that might be warranted.

6. Bid Security

Bid security in the form of a certified check or bid surety bond, issued by a bonding company licensed to do business in the State of Connecticut, is required in the amount of 10% of base bid.

Bid security shall be made payable to the Town of Hebron.

10% Bid Bond required. Bids from vendors that have previously failed to satisfactorily complete performance on a contract with the Town, will not be considered.

7. Acceptance of Subcontractor

Submission of name of Subcontractor in Bid shall be deemed to constitute an acceptance by Contractor, if awarded the Contract, of Bid of such Subcontractor. Any alteration therein, after award of contract, shall be subject to approval of the Town of Hebron.

8. Changes and/or Additions

All changes or additions to these specifications shall only be done by written communication bearing the signature of the Town Manager.

9. Questions Relating to Specifications

Any request from prospective bidders for interpretation of meaning of specifications or other contract documents shall be made in writing, **preferably by email to atierney@hebronct.com**, to the Town Manager, 15 Gilead St, Hebron, Connecticut 06248, and to be given consideration must be received at least seven (7) days prior to date fixed for opening of bids. If necessary, interpretations will be made in the form of a written Addendum to Bid Documents, which Addenda shall become a part of Contract. Not later than four (4) days prior to date fixed for opening of Bids, Addenda will be provided to all persons who obtained Bid Documents. Failure of any Bidder to receive any such Addenda shall not relieve bidder from any obligation under this bid as submitted.

10. Equal Opportunity - Affirmative Action

The successful bidder shall comply in all aspects with the Equal Employment Opportunity Act. All bidders must certify that they agree and warrant that it will not discriminate against any person or group of persons on the grounds of sex, race, color, religion, age, marital status, ancestry, national origin, past history of mental disorder, mental retardation, or physical disability or other basis in any manner prohibited by the laws or ordinances of the United States, the State of Connecticut, or the Town of Hebron. Findings of non-compliance with applicable State and Federal regulations could be sufficient reason for revocation or cancellation of this contract.

The Town of Hebron is an Affirmative Action, Equal Opportunity Employer.

11. Price and Discounts

Prices bid shall not include any taxes, Local, State or Federal, as the Town is not liable. In addition to the prices bid each bidder may quote binding discounts which will be considered in making the award. All labor and materials shall be included in the prices quoted on the bid form. Tax exempt certificates are available upon request from the Town of Hebron Finance Office.

12. Applications for Payment:

All Applications for Payments will be subjected to retainage being held in the amount of five (5%) percent.

13. Insurance Requirements

The Insurance Requirements shall comply with the following listed requirements. Please note that these, and other, requirements are listed in AIA Document, A101- Exhibit A for Insurance and Bond Requirements.

All insurance coverage shall be provided by the Contractor and by or for any of their Subcontractors at no additional expense to the Town of Hebron. The scope and limits of insurance coverages specified are the minimum requirements and shall in no way limit or exclude the Town of Hebron from additional limits and coverage provided under the Contractor's policies and/or their Subcontractors' policies. The Contractor shall either require each of their Subcontractors to produce identical insurance coverage requirements as detailed hereinafter or the Contractor shall secure the coverage of all Subcontractors under the Contractor's own policies.

The Contractor and/or Subcontractors shall be responsible for maintaining the stated insurance coverage in force for the life of the Contract with insurance carriers licensed and authorized to underwrite such insurance in the State of Connecticut.

The type and limits of insurance coverage shall not be less than the type and limits designated herein, and the Contractor and/or Subcontractors agree that the coverage or the acceptance by the Town of Hebron of Certificates of Insurance indicating the type and limits of insurance shall in no way limit the liability of the Contractor and/or Subcontractor to any such type and limits of insurance coverage.

The insurance coverage hereinafter afforded by the Contractor and/or Subcontractor shall be primary insurance, except when stated to apply in excess of or contingent upon the absence of other insurance. The amount and type of insurance shall not be reduced by the existence of other insurances held by the Town of Hebron or any other additional insured.

The Contractor and/or Subcontractor shall provide coverages that are not impaired or the aggregate is not to be impaired by any other risk, past or present, and the limits required shall be fully available to the Town of Hebron and any other additional insured if depleted below the required levels during the course of the contract and/or any extensions thereto.

The Contractor and/or Subcontractor shall not commence work under the terms of this contract until they have obtained the liability insurance coverage required by this article and have filed Certificates of Insurance and policy

endorsements acceptable to the Town of Hebron on same with the Town of Hebron and the Town of Hebron has approved the Certificates of Insurance, and endorsements and the represented coverage.

Each Certificate of Insurance shall include the following pertinent information:

•Name of Insurance Carrier writing policy

•Name Insured

•Address of Named Insured

•Description of coverage (Workers' Compensation certificates should evidence the state(s) of operation including Connecticut)

•Policy Periods (effective and expiration dates)

•Limits of liability and terms

•Brief description of operations performed and property covered

•Name and address of certificate holder

•Authorized agent's name and address

•Date and signature of the issuing agent (original only)

•All additional named insured endorsement

•All cross liability endorsements

•All indemnification and hold harmless agreements (must be supported by Contractual Liability Insurance)

•60 day written notice provision

•A deletion of any disclaimer wording relative to providing the holder with notice of cancellation- example: "endeavor to" provide notice or wording to the effect the Carrier will not be responsible should notice not be furnished.

Each insurance policy (with the exception of OPC shall contain an endorsement naming the Town of Hebron, the Hebron Public Building Committee and the RHAM Emergency Electrical Generator Upgrade Building Committee, the

State of Connecticut, the RHAM Board of Education, the Engineer, the Engineer's Consultants, and the members, agents and employees of any of them as Additional Insured, evidence of a Cross Liability endorsement so that each insured's interests are considered and treated separately in the case of claims between the insureds, and an endorsement providing a 60 Day advance Notification to the Town of Hebron in the event of any material change, modification, cancellation, or non-renewal of insurance coverage.

The Contractor and/or Subcontractors shall include a waiver of subrogation rights, on all insurance policies, so that the Town of Hebron, the Hebron Public Building Committee, and the RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Engineer, the Engineer's Consultants, and the members, agents and employees of any of them cannot be sued by the Contractor's insurer to recover any payments made on behalf of the Contractor and/or Subcontractor.

All insurance policies provided by the Contractor and/or Subcontractors shall include an endorsement indicating that any breach of warranty, by the named insured, will not be imputed to another insured.

During the course of execution of the work, whenever there is a lapse in the insurance requirements as stated herein, through cancellation, expiration, failure to renew, or any other cause, the Town of Hebron shall order the cessation of all construction activities until such time as the insurance requirements are complied with. The Contractor shall have no claim or claims whatever against the Town of Hebron or other parties to the contract.

To the fullest extent allowed by law, Contractor and their Subcontractors shall indemnify and save harmless the Town of Hebron, the State of Connecticut, and all additional named insured and all appointed or elected officers, officials, directors, committee members, employees, volunteer workers, commissioners, and any affiliated, associated, or allied entities and/or bodies of, or as may be participated in by the Town of Hebron, or as may now or hereinafter be constituted or established from and against all claims, damages, and losses and expenses including attorney's fees arising out of or resulting from the performance of the work under this contract, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to, or destruction of tangible property, including the loss of use resulting there from; but only to the extent caused in whole or in part by any negligent or willful act or omission of the Contractor, and their Subcontractors, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the execution of the contract.

The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury, or loss to; 1) all employees on the work and all other persons who may be affected thereby; 2) all the work and all the materials and equipment to be incorporated therein, whether in storage in or on the site, under the care, custody, or control of the Contractor or any of their Subcontractors; and 3) other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designed for removal, relocation, or replacement in the course of construction.

The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards promulgating safety regulations and notifying Owners and users of adjacent utilities.

The Contractor and/or Subcontractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders for any public authority bearing on the safety of persons or property or their protection from damage, injury, or loss.

When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of work, the Contractor and/or their Subcontractors shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

The Contractor shall designate a responsible member of their organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Town of Hebron.

In any emergency affecting the safety of persons or property, the Contractor shall act to prevent threatened damage, injury, or loss.

The Contractor, Subcontractor, and their insurer(s) shall waive governmental immunity as a defense and shall not use the defense of governmental immunity in the adjustment of claims or in the defense of any suit, action or claim brought against the Town of Hebron. Nothing shall limit the Town of Hebron from utilizing the defense of governmental immunity.

INSURANCE REQUIREMENTS

A. **Insurance:**

A.1. The Town reserves the right to waive any portion or adjust downward the amount of insurance required depending on the exposures to the Town. The Contractor shall furnish a certificate of insurance to the Town Manager or his designee for the following insurance coverage within ten (10) days from contract execution. All insurance coverage shall be written with an insurance company licensed to conduct business in the State of Connecticut. Insurance coverage shall remain in full force for the duration of the contract term including any and all extensions. Such certificate of insurance shall specify that the Town of Hebron will receive thirty (30) days written notice of any cancellation, non-renewal or reduction in coverage and limits originally provided.

A.2. Any aggregate limit shall apply per project. Trade Contractor's insurance shall be primary over any other valid and collectible insurance. Any deductibles are the sole responsibility of the Trade Contractor. Such policy shall name the State of Connecticut, Town of Hebron, the Hebron Public Building Committee, the RHAM Board of Education, the Engineer, the Engineer's Consultants, and the members, agents and employees of any of them as "additional insureds".

A.3. **Commercial General Liability including Premises-**Operations, Independent Consultants or Sub-Consultants, Sub-Trade Contractors and Sub-Sub Trade Contractors, Blanket Contractual, Products and Completed Operations, Broad Form Property Damage:
$1,000,000 Property Damage and Bodily Injury per Occurrence
$2,000,000 Combined Single Limit/Aggregate
Property damage Liability for the following hazards if applicable: X (Explosion), C (Collapse), U (Underground damage).

A.4. **Comprehensive Automobile Liability covering owned, non-owned,** hired or leased vehicles.
$1,000,000 Bodily Injury per Occurrence
$1,000,000 Property Damage per Occurrence
$1,000,000 Combined Single Limit

A.5. **Owners Protective Liability:**
On purchase orders where the cost of the work, or contract price, exceeds $100,000 or is hazardous in nature, there shall also be a $4,000,000 umbrella or excess liability layer over the underlying described above. In such case there shall also be required an Owners and Consultants Protective Liability policy

issued naming the Town as named insured, with a $1,000,000 per occurrence limit.

The wording for both named insured and additional insured shall read as follows: The Town of Hebron, RHAM Board of Education, RHAM Middle School, and RHAM High School (where appropriate), and its respective Officers, agents and servants.

A.6. **Worker's Compensation:**
In accordance with Connecticut State Statutes.
Employers Liability Limit - $1,000,000.

A.7. **Professional liability - $5,000,000 limit** - Additional coverage and limits may be required based upon the particular services contracted.

14. Non-collusive Affidavit and Town of Hebron Code of Ethics Policy

Any act or acts of misrepresentation or collusion shall be the basis for disqualification of any bid or proposal submitted by such person or company guilty of said misrepresentation or collusion. If the bidder has made any misrepresentations or has been involved in collusion and such conduct is discovered after the execution of an Agreement with the Town, the Town may cancel the Agreement without incurring liability, penalty, or damages. The attached Non-collusive Affidavit of Proposer form and acknowledgement of the Town Code of Ethics Policy must be submitted with the formal bid proposal.

15. Severability

If any terms or provisions of this bid shall be found to be illegal or unenforceable, then such term or provision shall be deemed stricken and the remaining portions of this bid shall remain in full force and effect.

16. Trade Contractor Classification

The classification for which contractors are being sought is Sitework and Electrical Contractors.

17. Prevailing Wage Provisions

The Contractor and all Sub-Contractors must comply with State Prevailing Wage Provisions (C.G.S. 31-53).

18. DAS Contractor Prequalification Requirements

All Bidding Contractors must comply with DAS Contractor Prequalification requirements (C.G.S 4a-100.)

19. CHRO-Affirmative Action Requirements

The Contractor must comply with the CHRO-Affirmative Action requirements (C.G.S. 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

The Contractor shall be required to comply with the requirements concerning nondiscrimination and affirmative action under sections 4a-60 and 4a-60a. As a result of the foregoing, the Contractor shall (A) set aside at least twenty-five per cent of the total value of the state's financial assistance for such contract for award to Subcontractors who are small contractors, and (B) of that portion to be set aside in accordance with subparagraph (A) of this subdivision, reserve a portion equivalent to twenty-five per cent of the total value of the Contract or portion thereof to be set aside for awards to Subcontractors who are minority business enterprises.

20. **CHRO Contract Compliance Regulations Notifications to Bidders-Mandatory Attachment to Bid Proposal**

All bidders must complete, sign, and return the "CHRO Contract Compliance Regulations Notification to Bidders" form to the grantee at the time of bid opening. Bids not including this form shall be considered incomplete and rejected. This form is attached, and can also be found at:
http://www.ct.gov/chro/lib/chro/pdf/notificationtobidders.pdf

II. TECHNICAL SPECIFICATIONS/ADDITIONAL REQUIREMENTS

1. Completion Date

In regard to the offloading, erection, activation, testing and acceptance of the Emergency Electric Generator, the successful bidder must complete the project by **August 14, 2026**. Failure to comply with this deadline will result in a liquidated damages of **$1,000 per day** for every day the vendor fails to comply with the deadline.

2. Rejection of Bids

Any bid received that does not contain the information requested in bidder's qualifications shall be rejected. The Town reserves the right to waive certain missing information if it does not have a bearing on the overall decision to award the bid.

3. Specifications

See Table of Contents section of this Project Manual for description of Specification Sections.

4. Pre-Purchase of Electric Generator - Offsite Storage and Future Onsite Delivery

PHASE 1 WORK-Pre-Purchase of Electric Generator - Offsite Storage and Future Onsite Delivery-The Town of Hebron is pre-purchasing the Electric Generator for a variety of reasons. One of them is to be sure that when it is required to be on the campus of the middle and high school that it is available for delivery. There is a significant amount of electrical work that will need to be undertaken to connect the new generator and then disconnect the existing electrical generator. As such, it is prudent that this work be undertaken after both the middle and high school have been dismissed for the summer recess which would begin in the middle of June 2026. As such, this will require that after the generator is manufactured it will be shipped and stored until it can be received on the site. It shall be this Trade Contractors' responsibility for arranging for Crane Service and the Trucking to load the generator onto truck(s) at the storage facility and transporting them to the Project Site. At the project site, it shall also be this Trade Contractors' responsibility for arranging for Crane Service to offload the generator and setting them in the appropriate locations. This Trade Contractor shall also be responsible for connecting and activating the generator. This Trade Contractor shall also be responsible for the installation of the concrete pad, underground conduits, conductors, connections to existing Fire Pump Control Panel, Panel GDP and bituminous paving and the acceptance and erection of the perimeter walkway and guardrail system around the generator enclosure and the project sign.

5. **ALLOWANCE-Offsite Storage, Delivery, Rigging and Crane Costs**
   As part of the bid proposal, the trade contractor shall include in their Bid Proposal a $20,000 Allowance for the costs associated with accepting the generator at the rigger/storage facility, including the off-loading and storage costs. In addition, this Allowance shall be used to cover the costs incurred for the delivery of the generator from the rigger/storage facility to the project site, including all costs associated with loading/off-loading, transportation and crane costs.
6. **Phase 1-Part 1 Work-Middle and High Schools in Session-**The schedule is for the work to begin on or about **February 16, 2026,** with the Milestone goal of **June 11, 2026** in achieving the following work, including but not limited to: the installation of the concrete pad, underground and above ground conduits and conductors, etc. It is during this period of time that the Contractor shall also be responsible for installing the conduit and conductors from the concrete generator pad to the future location of the annunciator panels in the lobbies of the middle and high schools.
7. **Phase 1-Part 2 Work-Middle and High School-Summer 2026-**The schedule for the second part of the work is called begin once school has dismissed for the summer on **June 12, 2026** and must be substantially completed by **August 14, 2026.** That work includes, but is not limited to, the loading of the generator at the riggers yard, the delivery of the generator, the craning and installation of the generator on the concrete pad, its final connection, activation, testing and acceptance.
8. **Mandatory Non-Fraternization with Staff, Teachers and Students**-At no time shall any of the Contractor and any of their Subcontractors fraternize or socialize with any student, staff or teachers. In addition, proper decorum, behavior and language shall be exercised by all workers. All work activities shall be undertaken in such a manner that any excessive noise shall be minimized to mitigate any impact on the educational process and environment.
9. **Access Roads and Driveways Fully Accessible-**Under no circumstances shall the Contractor and their Subcontractors be allowed to close and/or in any way imped the access roads and driveways around the Middle and High Schools.
10. **No Deliveries of Any Materials During Bus Drop Off and Pick Up Times-**All Contractors and Subcontractors must carefully review the school calendar for the Academic Year 2025-2026, (which is included in these bid documents) and coordinate all deliveries to occur outside of the times when the school buses drop off and pick up students. During Full Day Sessions **no** deliveries can be permitted between the hours of 7:00 am to 7:30 am and 1:45 pm to 2:15 pm. During Half Day Sessions **no** deliveries can be permitted between the hours of 7:00 am to 7:30 am and 11:25 to 11:55 am.
11. **Concrete Trucks and Concrete Pump Trucks-**In advance of committing to date(s) for the concrete trucks and/or concrete pump trucks being on the campus, the Contractor(s) must coordinate and ascertain approval from both the Middle and High School.

12. **Site Logistics Plan-**The Contractor should carefully review and understand the Site Logistic Plan. They shall be responsible for furnishing and maintaining the Portable Chain Link Fencing and Fencing Windscreen Privacy Screen as detailed in Specification Section 015000.
13. **Building Permit-**All Contractors should assume that the Town of Hebron will waive the building permit portion of the fees. However, all Contractors must carry the cost of the fees associated with the State Education Fund.
14. **Crane Plan-**A crane plan must be submitted before the hoisting work related to the placement of the generator is undertaken. All Contractors should assume that the plan will not be required to stamped and sealed by a Connecticut Licensed Engineer.
15. **Installation of Conduits and Wiring to Annunciation Panels:** The Middle and High Schools will be fully active from September through June. As such, the Electrical Trade Contractor must plan on installing the conduits and wiring for the annunciation panels from the generator concrete pad to the middle and high school entry lobbies after school dismisses for the day.
16. **State Funding-**The entire overall costs of the project are being funded by the State of Connecticut through the Department of Economic Development (DECD).
17. **Form of Contract-**The form of contract to be utilized on the project is a modified version of the AIA A101-2017, AIA A101-2017, Ex. A, and AIA A201-2017, all as modified, and included in the bidding documents. By submitting a bid for the project, the Contractor warrants and represents that it shall execute the form of contract without modification, exception, or condition.
18. **Retention of Outside Third-Party Firm to Conduct Background Checks on All Employees**

All Respondents must include the costs associated with retaining an outside Third-Party Firm to conduct background checks on all personnel that will not only be inside both the RHAM Middle and High School buildings, but also on the grounds of the campus. There will be no exceptions to this requirement. All personnel will be required to sign-in at the Main Office of the High School. Any personnel that arrive on site in which background checks have not been received by the administration of the High School will be escorted off the school campus.

END OF SECTION

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BID PROPOSAL FORM

TOWN OF HEBRON, CONNECTICUT 06248
GENERATOR CONCRETE PAD AND
UNDERGROUND ELECTRICAL CONDUITS AND CONDUCTORS INSTALLATIONS
LOAD, DELIVER, PLACE AND ACTIVATE GENERATOR
RHAM MIDDLE/HIGH SCHOOL
85 WALL STREET
HEBRON, CONNECTICUT

BID # 2026-04

Opening Date: **10:00 a.m., Friday, October 31, 2025**

Town Manager's Office
Town of Hebron
15 Gilead St
Hebron, CT 06248

In accordance with the Drawings, Specifications, Bidding and Contract Document, the undersigned agrees to the following:

Provide ALL Labor, Material and Equipment that is necessary to complete the Generator Concrete Pad, Underground Electrical Conduits and Conductors Installation, Load, Deliver, Place and Activate Generator, and Bituminous Concrete Paving.

References:

We have performed work or provided services for the following municipalities and on these dates:

1_____

2_____

3_____

SUBMITTED BY:

(Bidder's full Company Name)……..

(Bidder's full address)……

……

(Bidder's telephone and fax numbers)……

(Bidder's email address)…….

1. OFFER

Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Bidding and Contract Documents prepared by Van Zelm Engineers for the above-mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work of the Base Bid for the Sum of:

BASE BID $…….dollars (……...)
(amount in words) (amount in figures)

2. ALTERNATES-NOT USED

3. UNIT PRICES

We propose and agree that the following unit prices for work performed in accordance with Contract Documents, measured in place, shall be used to compute cost to the Town of Hebron should amount of work required by the Contract Documents be changed by order of the Town of Hebron. Unit prices include all necessary material, overhead and profit, and applicable taxes.

The unit price amounts will be added or deducted from the Contract Sum by Change Order. For work added to Contract, these unit prices include all costs, overhead and profit for all parties involved including the Contractor and Subcontractors. For work deleted from Contract, credit to the Town of Hebron for such work shall be computed on the basis of unit price.

Schedule of Allowances included in Base Bid

ITEM NO.	UNIT	UNIT PRICE
A. Provide all labor, material, equipment, overhead and profit to form, place, pour, finish, strip an additional cubic yard of concrete for the slab.	CY	$_____
B. Provide all labor, material and equipment, overhead and profit to remove and dispose of properly all soils that are deemed as unsuitable and provide, place and compact structural fill as specified in the Project Manual.	CY	$_____
C. Provide all labor, material, equipment, overhead and profit to form, place, pour, finish, strip an additional cubic yard of concrete for the walls.		

4. ACCEPTANCE

This offer shall be open to acceptance and is irrevocable for ninety (90) days from the bid closing date.

If the Town of Hebron accepts this bid within the time period stated above, we will:

- Execute the Agreement within ten days of receipt of notice of acceptance of this bid.
- Furnish the required bonds and insurance certificates within ten (10) days of receipt of notice of acceptance of this bid in the form described in the Supplementary Conditions.

- Commence work within ten days after award of Contract and written Notice to Proceed.

If this bid is accepted within the time stated, and we fail to enter into an Agreement or we fail to provide the required Bonds, the Bid Security shall be forfeited as damages to the Town of Hebron by reason of our failure.

In the event our bid is not accepted within the time stated above, the required Bid Security shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period of time.

We understand the Town of Hebron reserves the right to accept any Bid or reject any or all Bids and to waive any informality in the Bidding.

5. CONTRACT TIME

If this Bid is accepted, we will be required to complete the Work in accordance with the following schedule:

Final Punch List for the Sitework and Concrete and Underground Conduit work shall be complete, all temporary facilities removed, and site restored no later than **August 14, 2026,** as designated by the Town of Hebron. Final Punch List for the offloading install, erection and activation of the Emergency Electrical Generator, work shall be complete, all temporary facilities removed, and site restored no later than **August 21, 2026,** as designated by the Town of Hebron.

6. ADDENDA

The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.

Addendum No. ……. Dated ……..

Addendum No. ……. Dated ……..

Addendum No. ……. Dated ……..

7. APPENDICES

In accordance with the Instructions to Bidders, we include the following required Appendices concurrent with Bid submission. The information provided shall be an integral part of our Bid.

Bid Bond - Section 005100

Statement of Bidder's Qualifications – Section 006000

Non-Collusive Affidavit of Proposer – Section 008600

CHRO-Notification to Bidders/Contract Compliance Monitoring Report - Section 008900
All bidders must complete, sign, and return the "CHRO Contract Compliance Regulations Notification to Bidders" form to the grantee at the time of bid opening. Bids not including this form shall be considered incomplete and rejected. This form is attached, and can also be found at: http://www.ct.gov/chro/lib/chro/pdf/notificationtobidders.pdf

8. The undersigned is familiar with the conditions surrounding this call for bids, is aware that the Town of Hebron reserves the right to reject any and all bids, and is submitting this bid without collusion with any other person, individual or corporation.

_____	_____
Signature	Witness
_____	_____
Printed Name & Title of Signer	Date
_____	_____
Company Name	Phone
_____	_____
Address	Fax

_____

Town/City State Zip

9. SUBCONTRACTORS

List all Subcontractors to be used on this project (or attach list to back of Bid Form)

a. _____
_____

b. _____
_____

CHRO/AFFIRMATIVE ACTION PLAN

BIDDERS PROPOSED SET ASIDE SUBCONTRACTORS

The Contractor who is selected to perform this State Project must comply with CONN. GEN. STAT. 4a60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services (DAS) under the provisions of CONN. GEN. STAT. 4a-60g. (25% of the total state-funded value with DAS- certified Small businesses and 6.25% of the total state-funded value with DAS Certified Minority, Women and/or Disabled owned businesses). The Contractor must demonstrate good faith effort to meet the 25% set-aside goals.

LIST THE SUBCONTRACTORS THAT YOU PLAN TO RETAIN TO COMPLY WITH THIS REQUIREMENT

NAME	ADDRESS	SCOPE OF WORK	CONTRACT AMOUNT	DAS CERTIFICATION (SMALL BUSINESS, MINORITY, WOMEN, DISABLED)

END OF SECTION

SECTION 005000

AGREEMENT FORMS

PART 1 GENERAL

1.01 Standard AIA Document Forms to be used for this Contract are as follows (note: provide the latest edition of each form listed below):

AIA Document A101-2017 Standard Form of Agreement Between Owner and Contractor

AIA Document A101-2017 Exhibit A

AIA Document A201-2017 General Conditions of the Contract for Construction

A312 Performance Bond and Labor and Material Payment Bond

G702 Application for Payment

G703 Certificate for Payment

G705 Certificate of Insurance

G706A Contractor's Affidavit of Release of Liens

G707 Consent of Surety Company to Final Payment

END OF SECTION

SECTION 005100

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned

_____ as Principal; and _____ as Surety are here by held and

Firmly bound unto the **Town of Hebron, Connecticut**, in the penal sum of

_____ Dollars ($_____), for the payment of which, well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 20_____

The condition of the above obligation is such that whereas the Principal has submitted to the **Town of Hebron, Connecticut,** a certain Bid, attached hereto and hereby made a part hereof, to enter into a Contract in writing, for the _____

NOW, THEREFORE,

a) If said Bid shall be rejected, or, on the other hand,

b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached thereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said Contract, and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then this obligation shall be void; otherwise, the same shall remain in force and effect, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of the said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Town of Hebron may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ Seal)
Principal Surety

By _____

END OF SECTION

SECTION 006000

STATEMENT OF BIDDER'S QUALIFICATIONS

Submitted by:

_____

Name

_____

Address

A Corporation _____ A Co-Partnership _____ An Individual _____

How many years has your organization been in business:

As a General Contractor? _____ As a Subcontractor? _____

How many years has it been in business under its present name? _____

Does your firm conform to the EEO requirements? Yes _____ No _____

If a Corporation: Date of Incorporation: ____ State of Incorporation ____

Name, Title and Address of all principal officers:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

If a Co-Partnership: Date of Organization: _____ Date,

Title and Address of all Partners:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

BONDING COMPANY _____

Have you ever defaulted on a Contract?: _____ If so, attach separate statement listing location and circumstances.

Bidder may be required to submit financial information at the Town of Hebron's request.

Remarks:

_____

_____

List projects of similar size, specification (Site Concrete Work, Generator Pad Installations, Electrical Conduit and Conductor Installations), and character your organization has completed within the past three (3) years for the Town of Hebron's references:

Project (Name & Address)	Owner (Name & Address)	Contract Architect	Date of Amount	Completed on Time Completion	Work Done With Own Force (Yes or No)	% of Work	Trades

Attach separate statement if necessary to fully describe qualifications for this work.) Name and experience of key personnel to be associated with this project.

Person in Charge		Superintendent		Foreman (men)	
Name	Experience	Name	Experience	Name	Experience

Trade Contractor to identify what their Worker's Compensation Modification Factor is:

_____

_____

_____

_____

Bidder to identify if they have been cited by OSHA for any safety infractions in the last five (5) years:

_____

_____

_____

_____

State of:)

) ss:

County of:)

being duly sworn deposes and says that his
is of

and that answers to the foregoing questions and all statements therein contained are true and correct.

Sworn to before me this_____day of_____20 _____

Notary Public:

My Commission Expires:

END OF SECTION

SECTION 008600
TOWN OF HEBRON
Department of Finance
NON COLLUSIVE AFFIDAVIT OF PROPOSER

The undersigned proposer, having fully informed themselves regarding the accuracy of statements made herein certifies that;

(1) the proposer developed the bid independently and submitted it without collusion with, and without any agreement, understanding, or planned common course of action with any other entity designed to limit independent bidding or competition;

(2) the proposer, its employees and agents have not communicated the contents of the bid to any person not an employee or agent of the proposer and will not communicate the proposal to any such person prior to the official opening of the proposal, and

(3) acknowledges that the Town of Hebron's Code of Ethics Policy has been received and understood.

The undersigned proposer further certifies that this statement is executed for the purpose of inducing the Town of Hebron to consider the proposal and make an award in accordance therewith.

_____
_____
Legal Name of Proposer/Firm Business Address

_____
_____
Signature and Title Date

_____
Printed Name of Title Person

Subscribed and Sworn to me this _____day of _____, 20___

Notary Public
My Commission Expires
_____

END OF SECTION

SECTION 008700
HEBRON CODE OF ETHICS

Hebron Code of Ethics Effective November 5, 2019

I. Persons Governed by this Code

This code shall apply to all Town officials, officers and employees, whether elected and/or appointed, including members of boards, commissions, and committees, full time or part time, paid or unpaid and shall hereinafter be referred to collectively as "persons governed by this code."

II. Purpose

Public office is a public trust. The trust of the public is essential for government to function effectively. Policy developed by government officials and employees affects every citizen of the town, and it must be based upon honest and fair deliberations and decisions. This process must be free from threats, favoritism, undue influence and all forms of impropriety so that the confidence of the public is not eroded. By enacting this Code, the Town seeks to avoid any loss of trust and to maintain and increase the confidence of our citizens in the integrity, fairness and transparency of their government.

Persons governed by this code shall strive to conduct themselves in a professional, courteous, honest manner and otherwise according to the highest moral and personal standards of integrity, such that their behavior reflects favorably upon themselves and the Town of Hebron, including but not limited to conduct or communication in any public forum or media.

III. Definitions

As used in this Chapter, the following listed words and phrases shall have these specific meanings:

A. ***Conflict of Interest***: A conflict between one's obligation to the public good and one's self-interest.

B.

C. ***Financial Interest:*** Any monetary benefit accruing to persons governed by this code that is not equally available to the general public.

D. ***Gift:*** Anything having value whether in the form of service, loan, tangible property, promise or any other form. However a gift shall not include political contributions made in accordance with campaign financing regulations; nor tokens of appreciation, recognition or other incidental gratuities not exceeding $100 per year.

E. ***Immediate Family:*** Includes spouse/domestic partner, siblings, child(ren), parents, of persons governed by this code or the spouse/domestic partner and any individual residing in the same household.

F. ***Independent Contractor:*** Any general contractor, subcontractor, consultant, person, firm, corporation, vendor or organization currently providing or formerly providing, goods or services to the Town of Hebron in exchange for compensation.

G. ***Personal Interest:*** Any non-monetary benefit, special consideration, treatment or advantage accruing to persons governed by this code which is not equally available to the general public.

IV. Conflicts of Interest

No person governed by this code shall use his position or office for the financial or personal interest of himself, a business with which he is associated, an individual with which he is associated or a member of his immediate family.

No person governed by this code shall engage in or participate in any business or transaction, including outside employment with a private business, or have an interest, direct or indirect, that is incompatible with the proper discharge of his official responsibilities in the public interest or that would tend to impair his independent judgment or action in the performance of his official responsibilities.

No person governed by this code or a business with which he is associated or member of his immediate family shall enter into a contract with the Town unless it is awarded through a process of public notice and/or competitive bidding.

No person governed by this code or independent contractor shall knowingly counsel, authorize or otherwise sanction action that violates any provision of this code.

V. Disclosure and Recusal

A person governed by this code shall refrain from participating on behalf of the Town of Hebron in any matter pending before any agency of the town if he, a business with which he is associated, an individual with whom he is associated or a member of his immediate family has a financial or personal interest in that matter and such interest is not shared by a substantial segment of the town's population.

If such participation is within the scope of said person's official responsibility, he shall be required to provide written disclosure, that sets forth the nature and extent of such interest to the Town Clerk, and this disclosure shall be included in the official record of all proceedings on this matter.

Notwithstanding the prohibition outlined above, a person governed by this code may vote or otherwise participate in a matter that involves a determination of general policy if said person's interest in the matter is shared with a substantial segment of the population of the Town.

No person governed by this code shall appear on behalf of private interests before any agency of the Town, nor shall he represent private interests in any action, proceeding or litigation against the town.

Nothing contained in this code shall prohibit or restrict a person governed by this code from appearing before any agency of the Town on his own behalf, or from being a party in any action, proceeding or litigation brought by or against such person to which the Town is also a party.

For a period of one (1) year after termination of service to the Town, no former employee or Town official who participated in the negotiation or award of a town contract valued in excess of $25,000 shall accept employment with, appear on behalf of, or represent any private interest concerning matters related to this same contract.

VI. Gifts

No person governed by this code or member of such individual's immediate family or business with which he is associated shall solicit or accept any gift that could reasonably be expected to influence or create an appearance of influencing the actions or judgment of such person.

If a prohibited gift is offered to a person governed by this code, he shall refuse it, return it, pay the donor the market value of the gift or donate it to a nonprofit organization provided he does not take the corresponding tax write-off. Alternatively, such prohibited gift may be considered a gift to the Town provided it remains in the Town's possession.

VII. Use of Town Assets

No person governed by this code or independent contractor shall request or permit the use of town funds or services, Town owned or leased vehicles, equipment, facilities, materials or property for personal convenience or profit, except when such assets and services are available to the public generally or are provided as Town policy for the use of persons governed by this code in the conduct of official business.

VIII. Use of Confidential Information

No person governed by this code, former employee or independent contractor shall disclose confidential information concerning Town affairs, nor shall such persons governed by this code use this information for the personal or financial interests of themselves or others.

END OF SECTION

CURRENT PREVAILING WAGE RATES

IN COMPLIANCE WITH SECTION 31-53 OF THE CONNECTICUT GENERAL STATUTES (C.G.S.)

SEE FOLLOWING PAGES FOR WAGE RATES

ANNUAL ADJUSTMENT OF WAGE RATES
WILL BE AS REQUIRED
PER C.G.S. SECTION 31-55a

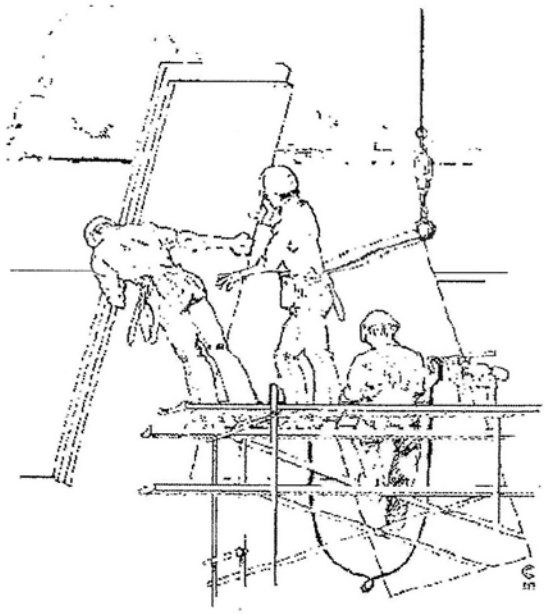
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860) 263-6790.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Weekly **Payroll Certification For Public Works Projects (Continued)**

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S M T W TH F S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA / FEDERAL WITHHOLDING / STATE WITHHOLDING / LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
						$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $				
						$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $				
						$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $				
						$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $				
						$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $				

*IF REQUIRED

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____ _____ _____

(Signature) (Title) Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****

*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

POLICY #

EFFECTIVE DATE:
EXPIRATION DATE:

PAYROLL NUMBER | Week-Ending Date | PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours HOURS WORKED EACH DAY	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER ____ OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative — title

for _____, located at _____,
contracting agency — address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number — address

shall be $_____, which includes all work, regardless of whether such project consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature — Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007*, where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate
1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate
1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems.
License required per Connecticut General Statutes: F-1,2,3,4.

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ***License required, drivers only, per Connecticut General Statutes.***

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*

Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6790.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

Minimum Rates and Classifications
for Building Construction

ID#: 25-8088

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number:
State#:
Project Town: Hebron
FAP#:
Project: Town of Hebron: Emergency Electrical Generator System

CLASSIFICATION	Hourly Rate	Benefits
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	48.81	34.05
2) Boilermaker	48.21	30.01
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	42.61	34.89 + a
3b) Tile Setter	40.0	32.75
3c) Tile and Stone Finishers	33.0	27.43
3d) Marble & Terrazzo Finishers	34.2	26.23
3e) Plasterer	44.52	29.63

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3f) Terrazzo Mechanics & Marble Setters	40.6	34.93
------LABORERS------		
4) Group 1: General laborers, carpenter tenders, concrete specialists, wrecking laborers and fire watchers.	35.7	28.85
4) Group 1a: Acetylene Burners (Hours worked with a torch)	36.7	28.85
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofer/mixer/nozzleman (Person running mixer and spraying fireproof only).	35.95	28.85
4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	36.2	28.85
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections).	36.7	28.85
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	36.45	28.85
4e) Group 6: Blasters, nuclear and toxic waste removal.	38.7	28.85
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	38.7	28.85
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	36.2	28.85

4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	35.7	28.85
4i) Group 10: Traffic Control Signalman	21.42	28.85
4j) Group 11: Toxic Waste Removers A or B With PPE	38.7	28.85
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	42.03	29.19
5a) Millwrights	43.25	29.13
5b) Carpenter - Welder	42.53	29.19
5c) Carpenter: Working with creosote lumber or acid	43.03	29.19
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	48.25	35.22+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	66.72	38.435+a+b
-----OUTSIDE LINE CONSTRUCTION----		
Groundman	30.87	13.91
Linemen/Cable Splicer	56.12	32.85
8) Glazier (Trade License required: FG-1,2)	43.13	26.50+ a

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9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	45.25	43.62 + a
----OPERATORS----		
Group 1: Crane Handling or Erecting Structural Steel or Stone; Hoisting Engineer (2 drums or over). (Trade License Required)	58.19	29.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and Over	53.33	29.80 + a
Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	57.78	29.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	56.79	29.80 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver ($3.00 premium when operator controls hammer)	52.92	29.80 + a
Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Finegrade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	51.92	29.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper); Goldhofer.	51.42	29.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Spreader, Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24 mandrel).	50.63	29.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	50.63	29.80 + a

Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	50.22	29.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under mandrel).	49.77	29.80 + a
Group 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welding; Work Boat Under 26 ft.; Transfer Machine; Rigger Foreman.	49.25	29.80 + a
Group 9: Front End Loader (under 3 cubic yards); Skid Steer Loader regardless of attachments; (Bobcat or Similar); Forklift, Power Chipper; Landscape Equipment (including Hydroseeder); Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).	48.67	29.80 + a
Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	45.96	29.80 + a
Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	45.96	29.80 + a
Group 12: Wellpoint Operator.	45.87	29.80 + a
Group 13: Compressor Battery Operator.	45.12	29.80 + a
Group 14: Elevator Operator; Tow Motor Operator (solid tire no rough terrain).	43.6	29.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	43.06	29.80 + a
Group 16: Maintenance Engineer.	42.2	29.80 + a

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Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator; Portable Grout Plant Operator; Portable Water Filtration Plant Operator.	47.91	29.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL license); Rigger; Signalman.	44.7	29.80 + a
Surveyor: Chief of Party	48.16	29.80 + a
Surveyor: Assistant Chief of Party	44.41	29.80 + a
Surveyor: Instrument Man	42.73	29.80 + a
Surveyor: Rodman or Chainman	36.78	29.80 + a
----PAINTERS (Including Drywall Finishing)------		
10a) Brush and Roller	39.57	26.50
10b) Taping Only/Drywall Finishing	40.32	26.50
10c) Paperhanger and Red Label	40.07	26.50
10d) Spray	42.57	26.50
10e) Spray Helper	40.57	26.50
10f) Blast	44.57	26.50

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10g) Blast Helper	40.57	26.50
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	50.58	36.30
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
13) Roofer (composition)	45.15	22.44
14) Roofer (slate & tile)	45.65	22.44
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	44.7	44.38
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	50.58	36.30
------TRUCK DRIVERS------		
17) Block Truck	37.48	32.68 + a
17a) 2 Axle	36.16	32.68 + a
17ab) Helpers	34.66	32.68 + a
17b) 3 Axle, 2 Axle Mixer	36.27	32.68 + a
17c) 3 Axle Mixer	36.33	32.68 + a

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17d) 4 Axle	36.39	32.68 + a
17e) 4 Axle Mixer	37.19	32.68 + a
17ef) 5 Axle	36.39	32.68 + a
17eg) 5 Axle Mixer	37.19	32.68 + a
17f) Heavy Duty Trailer (40 Tons and Over)	38.66	32.68 + a
17g) Euclids and Semi-Trailer	36.44	32.68 + a
17h) Heavy Duty Trailer up to 40 tons	37.39	32.68 + a
17i) Snorkle Truck	36.54	32.68 + a
17j) Swivel Dump and Tack Truck	36.39	32.68 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	53.76	33.44 + a
19) Theatrical Stage Journeyman	25.76	7.34

Welders: Rate for craft to which welding is incidental.
Surveyors: Hazardous material removal: $3.00 per hour premium.
*Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.
**Note: Hazardous waste premium $3.00 per hour over classified rate.
Truck Drivers: Trainers Premium: $3.00 over wage rate.
Truck Drivers: Night Premium - Mixer Drivers: $2.00 over wage rate.

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Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: August 6, 2025

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
CONTRACT COMPLIANCE REGULATIONS
NOTIFICATION TO BIDDERS

(Revised 09/3/15)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to "aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials." "Minority business enterprise" is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: "(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n." "Minority" groups are defined in Section 32-9n of the Connecticut General Statutes as "(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4)Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . ." An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder's qualifications under the contract compliance requirements:

(a) the bidder's success in implementing an affirmative action plan;
(b) the bidder's success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
(c) the bidder's promise to develop and implement a successful affirmative action plan;
(d) the bidder's submission of employment statistics contained in the "Employment Information Form", indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
(e) the bidder's promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

INSTRUCTIONS AND OTHER INFORMATION

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder's good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) Definition of Small Contractor

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding fifteen million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

MANAGEMENT: Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

BUSINESS AND FINANCIAL OPERATIONS: These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

MARKETING AND SALES: Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

LEGAL OCCUPATIONS: In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

COMPUTER SPECIALISTS: Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists

ARCHITECTURE AND ENGINEERING: Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

OFFICE AND ADMINISTRATIVE SUPPORT: All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving o f written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, bill and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail and file).

BUILDING AND GROUNDS CLEANING AND MAINTENANCE: This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

CONSTRUCTION AND EXTRACTION: This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category.

INSTALLATION, MAINTENANCE AND REPAIR: Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

MATERIAL MOVING WORKERS: The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

PRODUCTION WORKERS: The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grinding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.

White (not of Hispanic Origin)-All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East. Black (not of Hispanic Origin)-All persons having origins in any of the Black racial groups of Africa. Hispanic- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.	Asian or Pacific Islander- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa. American Indian or Alaskan Native- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

BIDDER CONTRACT COMPLIANCE MONITORING REPORT

PART 1 – Bidder Information

Company Name: Street Address: City & State: Chief Executive:	Bidder Federal Employer Identification Number: Or Social Security Number:
Major Business Activity: (brief description)	Bidder Identification (response optional/definitions on page 1) -Bidder is a small contractor? Yes ☐ No ☐ -Bidder is a minority business enterprise? Yes ☐ No ☐ (If yes, check ownership category) Black ☐ Hispanic ☐ Asian American ☐ American Indian/Alaskan Native ☐ Iberian Peninsula ☐ Individual(s) with a Physical Disability ☐ Female ☐ -Bidder is certified as above by State of CT? Yes ☐ No ☐
Bidder Parent Company: (If any)	
Other Locations in CT: (If any)	

PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? Yes ☐ No ☐	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? Yes ☐ No ☐
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? Yes ☐ No ☐	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? Yes ☐ No ☐
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy? Yes ☐ No ☐	9. Does your company have a mandatory retirement age for all employees? Yes ☐ No ☐
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes ☐ No ☐	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? Yes ☐ No ☐ N/A ☐
5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes ☐ No ☐	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? Yes ☐ No ☐ N/A ☐
6. Does your company have a collective bargaining agreement with workers? Yes ☐ No ☐ 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes ☐ No ☐ 6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of CT? Yes ☐ No ☐	12. Does your company have a written affirmative action Plan? Yes ☐ No ☐ If no, please explain. 13. Is there a person in your company who is responsible for equal employment opportunity? Yes ☐ No ☐ If yes, give name and phone number:

1. Will the work of this contract include subcontractors or suppliers? Yes ☐ No ☐

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above? Yes ☐ No ☐

PART IV - Bidder Employment Information Date:

JOB CATEGORY *	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Management											
Business & Financial Ops											
Marketing & Sales											
Legal Occupations											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support											
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction											
Installation , Maintenance & Repair											
Material Moving Workers											
Production Occupations											
TOTALS ABOVE											
Total One Year Ago											
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices											
Trainees											

*NOTE: JOB CATEGORIES CAN BE CHANGED OR ADDED TO (EX. SALES CAN BE ADDED OR REPLACE A CATEGORY NOT USED IN YOUR COMPANY)

PART V - Bidder Hiring and Recruitment Practices

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination
SOURCE	YES	NO	% of applicants provided by source	(X)		
State Employment Service	☐	☐			Work Experience	
Private Employment Agencies	☐	☐			Ability to Speak or Write English	
Schools and Colleges	☐	☐			Written Tests	
Newspaper Advertisement	☐	☐			High School Diploma	
Walk Ins	☐	☐			College Degree	
Present Employees	☐	☐			Union Membership	
Labor Organizations	☐	☐			Personal Recommendation	
Minority/Community Organizations	☐	☐			Height or Weight	
Others (please identify)	☐	☐			Car Ownership	
	☐	☐			Arrest Record	
	☐	☐			Wage Garnishments	

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature)	(Title)	(Date Signed)	(Telephone)

State of Connecticut
COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
Contract Compliance Unit – 450 Columbus Blvd., Suite 2, Hartford, CT 06103
Promoting Equality and Justice for all People

NOTICE CONCERNING CONTRACT COMPLIANCE RESPONSIBILITIES

To All Labor Unions, Workers Representatives, and Vendors:

Any State of Connecticut-funded contract that this contractor holds shall be performed in accordance with Conn. Gen. Stat. §§ 4a-60, 4a-60a, and 4a-60g.

This means that this contractor:

1. Agrees to provide the Commission on Human Rights and Opportunities ("CHRO") with any information concerning this contractor's employment practices and procedures which relates to the Commission's responsibilities under Conn. Gen. Stat. §§ 4a-60, 4a-60a, 4a-60g or 46a-56; and
2. Agrees to include the provisions of Conn. Gen. Stat. §§ 46a-60(a) and 4a-60a in each and every subcontract and purchase order and to take whatever action the CHRO deems necessary to enforce these provisions.

WITH REGARD TO RACE, COLOR, RELIGIOUS CREED, AGE, MARITAL STATUS, NATIONAL ORIGIN, ANCESTRY, SEX, GENDER IDENTITY OR EXPRESSION, STATUS AS A VETERAN, STATUS AS A VICTIM OF DOMESTIC VIOLENCE, INTELLECTUAL DISABILITY, MENTAL RETARDATION OR PHYSICAL DISABILITY, INCLUDING, BUT NOT LIMITED TO, BLINDESS, this means that this contractor:

1. Shall not discriminate or permit discrimination against anyone;
2. Shall take affirmative action so that persons applying for employment are hired on the basis of job-related qualifications and that employees once hired are treated without regard to race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, status as a victim of domestic violence, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;
3. Shall state, in all solicitations or advertisements for employees placed by or on behalf of the contractor, that it is an affirmative action-equal opportunity employer;
4. Shall comply with Conn. Gen. Stat. §§ 4a-60, 46a-68e, and 46a-68f and with each regulation or relevant order issued by the CHRO pursuant to sections 46a-56, 46a-68e, 46a-68f, and 46a-86
5. Shall make good faith efforts to employ minority business enterprises as subcontractors and as suppliers of materials.

WITH REGARD TO SEXUAL ORIENTATION AND GENDER IDENTITY OR EXPRESSION:

1. The contractor will not discriminate or permit discrimination against anyone, and employees will be treated without regard to their sexual orientation, gender identity or expression once employed; and
2. The contractor agrees to fully comply with Conn. Gen. Stat. § 4a-60a and each regulation or relevant order issued by the CHRO under Conn. Gen. Stat. § 46a-56.

Persons having questions about this notice or their rights under the law are urged to contact the:

COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
AFFIRMATIVE ACTION AND CONTRACT COMPLIANCE UNIT
450 Columbus Boulevard, Suite 2
Hartford, CT 06103
(860) 541-3434

COPIES OF THIS NOTICE SHALL BE POSTED IN CONSPICUOUS PLACES AVAILABLE TO ALL EMPLOYEES AND APPLICANTS FOR EMPLOYMENT

Submit a CHRO project-specific Set-Aside Plan ("SAP") to the CHRO when

- The project does not have a construction manager; your company has a contract with the owner; and the State-funded portion of your company's contract value is $50,000.00–$999,999.99.
- The project has a construction manager; and the State-funded portion of your company's contract value is $50,000.00 or more.

Submit a CHRO project-specific Affirmative Action Plan ("AAP") to the CHRO when

- The project does not have a construction manager; your company has a contract with the owner; and the State-funded portion of your company's contract value is $1,000,000.00 or more.
- Your company is the construction manager.

If you have any questions, please contact the Contract Compliance Unit at (860) 541-3434.

SET-ASIDE PLAN (SAP) FORMAT

Effective 11/20/2024

COVER PAGE

Company Name: _____

Company Address: _____

Telephone No.: _____

Facsimile No.: _____

E-mail Address: _____

Web Site Address: _____

Date Submitted: _____

SAP Prepared By: _____
(Please Print)

_____
(Please Print)
Name of AA/EOE Officer

_____
(Please Print)
Name and Title of the Head of the Company

This Set-Aside Plan is submitted for: _____
(Name of Project)

State Contract (Project) Number: _____

Awarding Agency: _____

Contract Value: _____

M/W/DisBE Value as Assigned by the Awarding Agency: _____% / $_____

SBE Value as Assigned by the Awarding Agency: _____% / $_____

TABLE OF CONTENTS

NOTE: A Set-Aside Plan (SAP) meeting all the requirements of the following sections must be filed for *each* state-funded project.

NOTE: A submission that does not adhere to this AAP's formatting may be rejected before it is reviewed. Any section that does not include a response to said section and/or its subsections herein will not be in compliance. [Connecticut General Statutes § 46a-68e]

Section Number and Title: Page Number:

Section 1, Affirmative Action/Equal Opportunity Employment Policy Statement 3

Sec. 2, Internal Communications 6

Sec. 3, External Communications 7

Sec. 4, Project Description, Timeline, and Trades Involved 8

Sec. 5, Subcontractor Availability Analysis 9

Sec. 6, Minority Business Enterprise Goals and Timetables 13

Sec. 7, Project Reporting and Monitoring Procedures 16

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SECTION 1

Affirmative Action/Equal Opportunity Employment (AA/EOE) Policy Statement

Point of Statutory and/or Regulatory Reference: Connecticut General Statutes ("C.G.S.") §§ 4a-60(a)(1), 4a-60a(a)(1), 46a-68c, and 46a-68d; Public Acts 2007, No. 07-142; and the Regulations of Connecticut State Agencies ("R.C.S.A.") § 46a-68j-27(1).

Contractors shall create a policy statement that includes, but is not limited to, the following information:

A. Identify the individual assigned affirmative action responsibilities;

B. Affirm the Contractor's commitment to achieve Equal Opportunity Employment through affirmative action for certain defined protected classes of persons;

C. Pledge the Contractor's best good faith efforts to attain the objectives of the plan.

INSTRUCTIONS:

On the next page is an EXAMPLE of an *Affirmative Action/Equal Opportunity Employment (AA/EOE) Policy Statement* that illustrates what may be included in your company's *AA/EOE Policy Statement*.

NOTE: If your company's *AA/EOE Policy Statement* lists the protected classes or if it lists each basis that, under Connecticut law, an employer cannot discriminate then your lists must be inclusive.

This policy statement must be signed and dated by the head of the company. The signature must be original.

SAMPLE

AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYMENT POLICY STATEMENT

XYZ Company will not discriminate or permit discrimination against any person or group of persons on the basis of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, status as a veteran, status as a victim of domestic violence, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless such disability, even with reasonable accommodation, prevents the applicant from being able to perform the work involved, or in any manner prohibited by the laws of the United States or of the State of Connecticut. Further, **XYZ Company** will not retaliate against or condone retaliation against any person or group of persons who oppose actions, treatment, or conduct that they believe to be discriminatory.

As an Equal Opportunity Employer, it is the policy and practice of **XYZ Company** to assure that no person will be discriminated against, or be denied the benefit of any activity, program or employment process, in areas including but not limited to recruiting, advertising, hiring, upgrading, promotion, transfer, demotion, lay off, termination, rehiring, employment, rates of pay and/or other compensation or any other terms and conditions of employment on the basis of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, status as a veteran, status as a victim of domestic violence, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless such disability prevents performance of the work involved.

XYZ Company shall take affirmative action to ensure that applicants with job-related qualifications are employed and to ensure that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, sexual orientation, status as a veteran, status as a victim of domestic violence, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved. If an individual has a disability for which a reasonable accommodation is requested, **XYZ Company** will engage in an interactive process with the individual/representative to determine the individual's needs and accommodation.

(If XYZ Company is a union contractor) **XYZ Company** assures that each labor union or representative of its workers has been provided with a copy of this statement and has been informed that **XYZ Company** is an Affirmative Action/Equal Opportunity Employer and has been informed of **XYZ Company**'s obligations to comply with state and federal law.

XYZ Company also assures that each of its subcontractors, vendors, and manufacturers has been informed that **XYZ Company** is an Affirmative Action/Equal Opportunity Employer and of **XYZ Company**'s obligations to comply with state and federal law.

XYZ Company will implement, monitor, and enforce this *Affirmative Action/Equal Opportunity Employment Policy Statement* and program in conjunction with all applicable federal and state laws,

regulations and executive orders. In order to implement our Affirmative Action/Equal Opportunity Employment Program, **XYZ Company** will develop written strategies and plans designated to correct any deficiencies identified. Furthermore, this policy statement, as well as the posters regarding labor, sexual harassment, and discrimination laws, shall be posted and otherwise made known to all workers in the company's home office, each satellite office, and at each job site.

Management and supervisory staff will be advised of their responsibilities to ensure the success of this program. Ultimate responsibility for this Affirmative Action/Equal Opportunity Employment Program will be with the **Insert Head of Company's Name and Official Title**. The day-to-day duties for the plan will be coordinated by **Insert the name of the company's Affirmative Action/Equal Opportunity Employment Officer**, who is hereby designated the Affirmative Action/Equal Opportunity Employment Officer for **XYZ Company**.

I have expressly advised **Insert the name of the company's Affirmative Action/Equal Opportunity Employment Officer** of their legal responsibilities as **XYZ Company**'s Affirmative Action/Equal Opportunity Employment Officer pursuant to the Regulations of Connecticut State Agencies Section 46a-68j-27(4).

This Affirmative Action Plan has my total support and **XYZ Company** pledges it best good faith efforts to achieve the objectives of this Affirmative Action Plan. I expect each manager, supervisor, and employee of this Company to aid in the implementation of this program and be accountable for complying with the objectives of this Affirmative Action Plan.

Date	Signature of Head of Company
	Printed Name and Title of Head of Company

SECTION 2
Internal Communications
Information Provided to Employees/Work Force

Point of Statutory and/or Regulatory Reference: Connecticut General Statutes § 4a-60(a)(3); Regulations of Connecticut State Agencies § 46a-68j-27(2).

The policy statement and a summary of the objectives of the plan shall be posted and otherwise made known to all workers. The plan shall indicate what steps the contractor undertook to make information on the plan available to its workforce. [R.C.S.A. § 46a-68j-27(2)]

An employer, employment agency or labor organization is required to post notices regarding statutory provisions, as the commission shall provide. [C.G.S. § 46a-54(13)]

An employer with three or more employees is required to post in a prominent and accessible location a notice concerning the illegality of sexual harassment and the remedies available to victims of sexual harassment. [C.G.S. § 46a-54(15)]

INSTRUCTIONS:

1. Describe the specific actions your company takes to communicate its Affirmative Action/Equal Opportunity Employment (AA/EOE) Policy Statement (see Section 1) and its AA/EOE hiring commitment to its workers. For example, do you distribute your AA/EOE Policy Statement (found in Section 1) to your new hires during orientation? Do you include a copy of your AA/EOE Policy Statement to all your employees with their paycheck every month? Do you post your AA/EOE Policy Statement in prominent and accessible locations? Please describe the locations.

2. Demonstrate that your company complies with posting requirements prohibiting discrimination by describing in detail where in your business office, and on project sites your company posts the *Discrimination Is Illegal* notice. Please attach a copy of the notice your company posts.

3. Demonstrate that your company complies with posting requirements prohibiting sexual harassment by describing in detail where in your business office, and on project sites your company posts the *Sexual Harassment Is Illegal* notice. Please attach a copy of the notice your company.

NOTE: Please be sure the notices posted by your company are current. Updated notices can be obtained at the CHRO website: https://portal.ct.gov/CHRO/Commission/Publications/CHRO-Publications.

SECTION 3
External Communications
Information Provided to the Public

Point of Statutory and/or Regulatory Reference: Connecticut General Statutes §§ 4a-60(a)(2), 4a-60(a)(3), and 4a-60a(a)(2); Regulations of Connecticut State Agencies §§ 46a-68j-23(9) and 46a-68j27(3)

The contractor shall, in all advertisements and business with the public, indicate that it is an affirmative action/equal opportunity employer. The plan shall include information on what steps the contractor undertook to advise the public concerning its affirmative action requirements. [R.C.S.A. § 46a-68j-27(3)]

INSTRUCTIONS:

1. In this section of the SAP, contractors should include a statement indicating that in all advertisements **and** business with the public, it will hold itself out as an

   "Affirmative Action/Equal Opportunity Employer or AA/EOE."

2. To demonstrate your company's commitment to its statement, please attach examples of three different forms of external communication (e.g., letterhead, letters of transmittal, bid notification, purchase order, fax cover sheet) sent out by your company indicating that you are an AA/EOE.

NOTE: If your company's forms of external communication do not currently indicate your company is an AA/EOE, and your company's forms of external communication are not created in-house, please include a statement ensuring that upon reordering such forms; your company's external communication will indicate it is an AA/EOE. Please include samples of how your revised forms of external communication will appear. **Statements that have been made to such for more than one (1) year are unacceptable.**

SECTION 4
Project Description, Timeline, and Trades Involved

INSTRUCTIONS:

This section of the SAP must detail everything that will be needed to perform the work of this specific project. "N/A" is an acceptable response.

1. In 1–3 sentences, briefly describe the project and the work involved.

2. Estimate (mm/dd/yyyy) when construction will commence. If the project has already begun, provide the actual project mobilization date (mm/dd/yyyy). Specify whether the date provided is actual or estimated.

3. Estimate (mm/dd/yyyy) when construction will be completed. If the project is complete, provide the project end date (mm/dd/yyyy). Specify whether the date provided is actual or estimated.

4. List all of the types of trades-related for which your company will be hiring a subcontractor(s). Do not provide the name of the subcontractor(s). Only identify the specific work, not the type of worker. Attach a copy of the applicable section of the agency bid document (for example: project manual, ITB, etc.), that specifies all the trades-related work required for your company's work this project. Only include the portions necessary to verify your company's responses.

5. List all specific types of materials to be used for this project that your company will be purchasing. Do not provide the name of the vendor(s). Attach a copy of the applicable section of the agency bid document (for example: project manual, ITB, etc.), that specifies all the materials required for your company's work on this project.

6. List all specific types of non-trades-related services to be used for this project that your company will hire a service company to provide. Do not provide the name of the company. Attach a copy of the applicable section of the agency bid document (for example: project manual, ITB, etc.), that specifies all non-trades-related services needed for this project.
   Ex: Portable Toilets
   Trucking Driver Only – No Labor Involved

7. List all trades-related services that will be self-performed by your company's employees. Only identify the specific work, not the type of worker.

8. List all supplies that will be manufactured by your company for use on this project.

SECTION 5
Subcontractor Availability Analysis

Point of Statutory and/or Regulatory Reference: Connecticut General Statutes §§ 4a-60 and 4a-60g (Rev. to 2015), as amended by Public Acts, Spec. Sess., June, 2015, No. 15-5; Regulations of Connecticut State Agencies § 46a-68j-28(2):

Applicable portions of Connecticut General Statutes § 4a-60, as amended, state:

(a) Except as provided in section 10a-151i, every contract to which an awarding agency is a party, every contract for a quasi-public agency project and every municipal public works contract shall contain the following provisions:

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e, 46a-68f and 46a-86; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56.

(b) If the contract is a public works contract, municipal public works contract or contract for a quasi-public agency project, the contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works or quasi-public agency project.

(f) Determination of the contractor's good faith efforts shall include, but shall not be limited to, the following factors: The contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission on Human Rights and Opportunities may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(g) The contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission on Human Rights and Opportunities, of its good faith efforts.

Regulations of Connecticut State Agencies § 46a-68j-28(2) states the following:

In addition to the elements in Section 46a-68j-27, plans subject to the requirements of Section 46a-68d of the Connecticut General Statutes as amended shall contain the following elements as described below:

2. *Subcontractor Availability Analysis.* When a contractor intends to subcontract all or part of the work to be performed under a State contract to one or more subcontractors, the contractor shall consult the listing of minority business enterprises maintained by the Department of Administrative Services, the practical experience of other contractors, contacts developed by the contractor itself, trade publications and similar sources to develop a base from which the contractor might reasonably be expected to draw minority business enterprises from. The plan shall indicate what sources were consulted and whether the enterprise was ready and able to perform the required work or supply necessary materials;

See also General Statutes §§ 4a-60g, 46a-68b, 46a-68c, 46a-68d, and 46a-68e.

When a contractor intends to subcontract all or part of the work to be performed under a state contract to one or more subcontractors, the contractor shall consult the listing of minority business enterprises maintained by the Department of Administrative Services, the practical experience of other contractors, contacts developed by the contractor itself, trade publications and similar sources to develop a base from which the contractor might reasonably be expected to draw minority business enterprises. The plan shall indicate what sources were consulted and whether the enterprise was ready and able to perform the required work or supply necessary materials. [R.C.S.A. § 46a-68j-28(2)]

INSTRUCTIONS: Use DisBE for a business owned by a person(s) with a disability, WBE for a woman-owned business that is not a DisBE, MBE for an ethnic minority-owned business that is neither a DisBE nor a WBE, and SBE for a certified small business that is not one of the aforementioned.

It is within your company's discretion to combine the responses to Parts B and C, so long as all required information is included.

Design-Build Projects: When projects are design-build (or similar as in multi-phase contracts) where subcontractors/vendors are solicited for bids at different stages of the project, contractors must continuously file this section at each stage of the bidding process, until the contractor has provided evidence of its good faith efforts to achieve the set-aside goals at each stage.

PART A: Please list the DAS Supplier Diversity Program database as the source used to find S/M/W/DisBE subcontractors and/or vendors:

https://ct-gateway.formverse5.com/AUTOCENESERVER/WebApp/FillFormWO.aspx?templateId=8cef7c4b-4e15-4e10-8390-2ee371bdcdff

PART B: List every SBE/MBE/WBE/DisBE subcontractor and/or vendor that your company solicited to bid on ***this*** contract, as shown in the example below.

For each subcontractor, indicate the trades-related work for which it was solicited. For each vendor, indicate the non-trades-related work or the materials for which it was solicited.

For example:

ABC Construction	SBE	Rough Carpentry
Carpenter's LLC	DisBE	Rough Carpentry
Hard Knocks Woodwork	MBE	Rough Carpentry
Rumor Mill	MBE	Mill Work
The Mill Worm	MBE	Mill Work
Piece Mill	WBE	Mill Work
XYZ Material Suppliers	WBE	Hardwood Supplier
Best Floor Co.	DisBE	Hardwood Supplier
Got 2 Go	SBE	Portable toilets
Number 1	MBE	Portable toilets
When Nature Call	SBE	Portable toilets

PART C: Indicate the bid outcome for each company listed in Part B. Your company must be able to explain and to document to the CHRO the reason(s) why your company did not award a subcontract to each of the companies solicited in Part B. An overly vague response, such as "Bid Received," "Called/Left Message," "Said Will Bid" etc., is insufficient. For those companies that you will utilize for this project, use "Awarded" as the bid result.

For example:

ABC Construction	Rough Carpentry	Bid Incomplete
Carpenter's LLC	Rough Carpentry	Bid Too High
Hard Knocks Woodwork	Rough Carpentry	Bid Too High
Rumor Mill	Mill Work	Awarded
The Mill Worm	Mill Work	Bid Too High
Piece Mill	Mill Work	Bid Not Accepted – Received Late
XYZ Material Suppliers	Hardwood Supplier	Bid Too High
Best Floor Co.	Hardwood Supplier	Declined To Bid
Got 2 Go	Portable toilets	Declined To Bid
Number 1	Portable toilets	Bid Too High

When Nature Call	Portable toilets	Scheduling Conflict

PART D: List all non-S/M/W/DisBE companies (i.e., companies not already accounted for in Part B & Part C) that your company will use on this project. This list must inform CHRO of all trade-related work, materials, and/or non-trades-related services that the companies listed will provide. Any company performing a specialized trade or supplying specialized materials/services must be indicated and accompanied by a letter attesting to such from (i.e., signed) by the awarding agency. See the example below.

Ex:

Color Coded Painting, LLC	Rough Carpentry
Pristine Port-a-lets	Portable toilets
Boltz, Inc.	High and Low Voltage Installation*

*The electrical portion of this project is specialized and can only be performed by Boltz, Inc. Please see the attached letter verifying such, in detail, from the project manager at the awarding agency.

****** *RECORDS RETENTION NOTICE* ******

The CHRO is authorized to audit your company records regarding contract compliance at any time during or after the performance of this project. You must develop and maintain detailed records of your solicitation of and responses from each company in the event that the CHRO requests documentation. See Conn. Gen. Stat. §§ 4a-60(a)(5) and 4a-60g(g). If you solicit in writing, you must keep those written documents (e.g., letters, facsimiles, emails). If you solicit by phone, you must keep written notes about those solicitations. The CHRO may seek phone or any manner of other records. Records are subject to the CHRO's verification with any or all contractors, subcontractors, and/or suppliers of materials solicited. Records must be retained for at least two years after the CHRO issues, to your company, a Notice of File Closure letter.

SECTION 6
Minority Business Enterprise Goals and Timetables.

Point of Statutory and/or Regulatory Reference: Regulations of Connecticut State Agencies § 46a-68j-28(3)

Based upon the availability of minority business enterprises calculated in the Regulations of Connecticut State Agencies Sec. 46a-68j-28(2), the contractor shall set goals for awarding all or a reasonable portion of the contract to qualified minority business enterprises. The Plan shall detail what steps it took to make such opportunities available.

Design-Build Projects: When projects are design-build (or similar as in multi-phase contracts) where subcontractors are solicited for bids at different stages of the project, contractors must file Attachment IIIa by week, month, or quarter (as determined by the CHRO) and list all S/M/W/DisBEs subcontractors/vendors with whom contracts have been signed up to then.

INSTRUCTIONS:

On Attachment III:

- Provide all the information requested in the Attachment III.
- List all the MBEs, WBEs, and DisBEs you designated in Section 11–Part C as "Awarded" in the top portion ("A") of Attachment III.
- List all the SBEs you designated in Section 11–Part C as "Awarded" in the bottom portion ("B") of Attachment III.
- Input all percentages requested in the Attachment III.

Once your company's Plan is approved, your company may not add or delete any of the companies nor alter any of the contract values as listed on the Attachment III of your company's approved Plan, except as follows. After your company's Plan is approved, Attachment III may be altered only if your company submits the following items:

I) A cover letter that
   A) Requests acknowledgement of the change and
   B) Details the reason(s) why the CHRO should grant the change.

II) Documentation that verifies the reason(s) for removal or addition
   A) For removal: confirmation that the business is closed, a change order from the owner that eliminates a subcontractor's portion of the project, etc.
   B) For addition: a copy of the company's current DAS S/M/W/DisBE certification;

II) A Revised Attachment III listing the date of the revision (in mm/dd/yyyy format) and incorporating the requested change.

NOTE: Upon a project's completion, only those companies that are listed on the latest approved Attachment III, and who have maintained a current DAS Supplier Diversity certification throughout the duration of the project, will be utilized in the CHRO's final calculations of actual goal achievement upon the project's completion.

Attachment III
Small Contractor and Minority Business Enterprise Goals and/or "Good Faith Effort"

Total state-funded contract value $ _____. Project has SBE requirement of _____ %, which include MBE requirement of _____%; OR, Project requires only "good faith effort" for MBE contractors _____.

A. Please identify MBE/WBE/DisBE subcontractors/vendors who will participate on the project.

Company Name	Address	DAS Certification Type (MBE/WBE/DisBE)	DAS Certification Expiration Date	Contract Value
			Total amount of MBE, WBE, & DisBE contract values: $_____	(Total amount of MBE, WBE, & DisBE contract values ÷ project value **x** 100) = _____%

B. Please identify SBE contractors/vendors who will participate on the project.

Company Name	Address	DAS Certification Type (SBE)	DAS Certification Expiration Date	Contract Value
			Total amount of SBE contract values: $_____	Total amount of SBE contract values ÷ project value **x** 100= _____%
Total amount of all contract values listed in A & B =				Total amount of all contract values listed in A & B ÷ project value **x** 100 = _____%

Please use additional sheets if necessary

*******The CHRO encourages your company to not just meet its set-aside goals, but to surpass them in order to ensure project circumstances (e.g., delays, change orders, decrease between estimate amount and contract amount) do not cause your company to fall below the set-aside utilization, as projected in its approved Set-Aside Plan.*******

A current copy of the DAS certificate must be attached to this section for each subcontractor/vendor listed on Attachment III. ***Without a current copy of each company's valid DAS Supplier Diversity certification, the value of the contract will not be taken into account for the determination of whether your company has met its set-aside goals.***

Attachment IIIa

For Design-Build (multi-phase contract) Only

Small Contractor and Minority Business Enterprise Goals and/or "Good Faith Effort"

Date Submitted: _____ Project Number: _____ Project Name: _____

Project Start Date: _____ Estimated Project Completion Date: _____

Total state-funded contract value $ _____. Project has SBE requirement of _____ %, which include M/W/DisBE requirement of _____%; OR, Project requires only "good faith effort" for MBE contractors _____.

The head of the company has read this Attachment IIIa and confirms that its information is true and correct to the best of his or her knowledge and belief. The company pledges its best good faith efforts to achieve the set-aside goals outlined in this Attachment IIIa. Furthermore, the company is aware of its continuing obligation to remain vigilant in filing an Attachment IIIa on a **monthly bases**, unless new developments require an additional filing of an amended Attachment IIIa prior to the monthly filing due date.

Signature of the Head of the Company/Title Date

Signature of the AA/EOE Officer Date

A. Please identify MBE/WBE/DisBE subcontractors/vendors who will participate on the project.

Company Name	Address	DAS Certification Type (MBE/WBE/DisBE)	DAS Certification Expiration Date	Contract Value
		Total amount of MBE, WBE, & DisBE contract values = $_____		(Total amount of MBE, WBE, & DisBE contract values ÷ project value **x** 100) = _____%

B. Please identify SBE contractors/vendors who will participate on the project.

Company Name	Address	DAS Certification Type (SBE)	DAS Certification Expiration Date	Contract Value
		Total amount of SBE contract values = $ _____		Total amount of SBE contract values ÷ project value **x** 100= _____%
Total amount of all contract values listed in A & B = $_____				Total amount of all contract values listed in A & B ÷ project value **x** 100 = _____%

Please use additional sheets if necessary

SECTION 7
Project Reporting and Monitoring Procedures

Point of Statutory and/or Regulatory Reference: Regulations of Connecticut State Agencies §§ 46a-68j-23(6) and 46a-68j-23(8); Connecticut General Statutes §§ 4a-60(a)(5) and 46a-68e

Each contractor shall file, and shall cause each of his subcontractors to file, with the commission such compliance reports at such times as the commission may direct. Compliance reports shall contain such information as to the practices, policies, programs, and employment policies, employment programs, and employment statistics of the contractor and each subcontractor and be in such form as the commission may prescribe. [C.G.S. § 46a-68e]

INSTRUCTIONS:

Please provide a statement that your company will file all monthly reports as directed by the CHRO and will require its subcontractors and/or vendors to do likewise. This statement should also indicate that your company will forward the original reports to the CHRO and that copies will be sent to the awarding agency.

While required, the following monthly forms need not be included in the contractor's Set-Aside Plan submission.

- Forms are due each month of the project's duration with filing to commence thirty (30) days after the project's start date.
- Forms must contain original signatures, printed names & titles of persons signing.
- A copy must be kept at the General Contractor, Subcontractor, Supplier, or Service Provider's office for reference when filing Form 257b.
- A copy of all reports must be sent to the awarding agency.

Each month, the contractor submitting the Set-Aside Plan sends the following reports to CHRO:

- Form cc-258a (Monthly Small Contractor and Minority Business Enterprise Payment Status Report).
- Form cc-257 & Form cc-257a (Monthly Employment Utilization Report) from subcontractors.
- Form cc-257 & Form cc-257a (Monthly Employment Utilization Report) from the company submitting the Set-Aside Plan.
- Form cc-257b (Cumulative Employment Utilization Report) from subcontractors & the company submitting the Set-Aside Plan. [Only once, after end of project]
- Form cc-259 (Monthly Materials Consumption Report) from Material Suppliers & Service Providers.

I. **Company submitting Set-Aside Plan:**

- Form cc-257 (Monthly Employment Utilization Report)
  - Fill out every month from the date that the project started.
  - For the months employee(s) did not work on the project site, fill out one form for each month & check the box marked "Did not perform work on this project for this month" which is located at the bottom of the form.
  - If employee(s) then returned to the project site and began working after the months they were not working at the project site, fill out a Form cc-257, one for each month.
    Example:
    If employee(s) did not work in Jan. fill out a Form cc-257 for the month of Jan. & check the "Did not perform work on this project for this month" box.
    If employee(s) worked Feb & Mar fill out a Form cc-257, one for each month, indicating the hours these employees worked during those months.
  - The last month any of the employee(s) worked on the job (i.e., the month the company walked off the project site) fill out a Form cc-257 & write at the bottom of the form in BIG BOLD letters **"FINAL".**

- Form cc-257a (Monthly Employment Utilization Report)
  - Fill out every month from the date that the project started only if "On Site Personnel (Other than Trade Workers)" worked on the job.
  - Follow instructions above for Form cc-257 when a non-trade worker employee is on the site.
  - If no non-trade worker employee(s) are on the site, do not submit Form cc-257a.

- Form cc-257b (Cumulative Employment Utilization Report)
  - The last month any of the employee(s) worked at the project site, the fill out a Form cc-257b (as well as the FINAL Form cc-257 mentioned above) & write at the bottom of the form in BIG BOLD letters **"FINAL".**
  - Form cc-257b is a total of all the work hours the employees have worked on the project. Therefore, if you add up all of the hours from each of the Form cc-257's that have been filed for this project, that number should correspond with the number of total work hours reported on the Form cc-257b.

- Punch List Items or Other Events
  - If an employee returns to the job to do punch list items or other events after filling out **FINAL** filings a Revised FINAL Form cc-257 for the months that they worked on the punch list items, as well as a Revised FINAL Form cc-257b must be filed.
  - These revised reports should be marked in BIG BOLD letters "REVISED MM/DD/YYYY."

- Form cc-258a (Monthly Payment Status Reports)
  - Fill out Form cc-258a every month from the date that the project started.
  - If you are filing out a Form cc-258a for the last month of the project write at the bottom of the form in BIG BOLD letters **"FINAL".**

II. Material Suppliers & Service Providers:

- Form cc-259 (Monthly Materials Consumption Report)
  - Material Supplier/Service Supplier submits every month from the date that the project started. The officer of the company signs in the box that corresponds as to whether they "Did Supply Materials" that month or they "Did Not Supply Materials" that month.
  - At the end of the last month in which the material/service provider provided material or service for this project, the officer of the company must write at the bottom of the form in BIG BOLD letters "**FINAL".**

III. Subcontractors:

- Form cc-257 (Monthly Employment Utilization Report)
  - Sub submits every month from the date that the project started and not from the date that specific sub began.
  - For the months in which the sub did not work on the project site, the sub still fills out one Form cc-257 for each month & checks the box marked "Did not perform work on this project for this month" which is located at the bottom of the form.
  - For whatever months the sub does work on the project site, the sub fills out a Form cc-257, one for each month indicated the hours its employee(s) worked on the project for the month specified on the Form cc-257.

    Example:

    If the sub did not work in Jan. they fill out Form cc-257 & check the "Did not perform work on this project for this month" box. If the sub worked Feb. & March they fill out the hours on Form cc-257, one for each month.

    If the sub finishes its work in April they fill out Form cc-257 & write at the bottom of the form in BIG BOLD letters **"FINAL".**

- Form cc-257a (Monthly Employment Utilization Report)
  - Sub submits every month from the date that the project started only if "On Site Personnel (Other than Trade Workers)" worked on the job.
  - Follow instructions above for Form cc-257 when a non-trade worker employee is on site.
  - If no non-trade worker employees are on the site, then the sub need not submit Form cc-257a.

- Form cc-257b (Cumulative Employment Utilization Report)
  - The last month the sub finishes its work on the project site, that sub must fill out Form cc-257b (as well as a **FINAL** Form cc-257 mentioned above) & write at the bottom of the form in BIG BOLD letters **"FINAL".**
  - Form cc-257b is a total of all the work hours the trade personnel have worked on the project. Therefore, if you add up all of the hours for each of the Forms cc-257 that have been filed for this project, that number should correspond with the number of total work hours reported on the Form cc-257b.

- Punch List Items or Other Events
  - If a sub returns to the job to do punch list items or other events after filling out **FINAL** filings, a Revised Final Form cc-257 for the months that they worked on the punch list items, as well as a Revised Form cc-257b must be filed.
  - These revised reports should be marked in BIG BOLD letters "REVISED MM/DD/YYYY."

Additional copies of the CHRO forms and further instructions can be obtained at https://portal.ct.gov/CHRO/Contract-Compliance/Contract-Compliance/Contract-Compliance-Forms-and-Reports.

Commission on Human Rights and Opportunities Contract Compliance Unit 450 Columbus Blvd., Ste. 2 Hartford, CT 06103	1. MONTHLY EMPLOYMENT UTILIZATION REPORT ***(CHRO Form cc-257)***	PROJECT AREA (MSA): _____ 2. EMPLOYERS FEIN NO.	3. PROJECT AAP GOALS MINORITY: _____ FEMALE: _____	4. REPORTING PERIOD FROM: _____ TO: _____
GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):		STATE AWARDING AGENCY:	

5. CONSTRUCTION TRADE (please identify)	CLASSIFICATION	6. **WORK HOURS OF TRADE WORKERS EMPLOYED ON PROJECT**										7. MINORITY PERCENT	8. FEMALE PERCENT	9. TOTAL NUMBER OF EMPLOYEES		10. TOTAL NUMBER OF MINORITY EMPLOYEES	
		6a. TOTAL HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE							
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
TOTAL JOURNEY WORKERS TOTAL APPRENTICES TOTAL TRAINEES GRAND TOTAL																	

11. COMPANY OFFICIALS SIGNATURE, PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

☐ **Did not perform work on this project for this month (Please place an "X" in the box if your company did not perform work on this project for this month only.)**

CHRO Form cc-257

Commission on Human Rights and Opportunities Contract Compliance Unit 450 Columbus Blvd, Ste. 2 Hartford, CT 06103	1. MONTHLY EMPLOYMENT UTILIZATION REPORT ***(CHRO Form cc-257a)***	PROJECT AREA (MSA): 2. EMPLOYERS FEIN NO.	3. PROJECT AAP GOALS MINORITY: _____ FEMALE: _____	4. REPORTING PERIOD FROM: _____ TO: _____

GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):	STATE AWARDING AGENCY:

5. ON SITE PERSONNEL (OTHER THAN TRADE WORKERS) ***(please identify specific job title)***	6. **WORK HOURS OF WORKERS *(OTHER THAN TRADE WORKERS)* EMPLOYED ON PROJECT**												9. TOTAL NUMBER OF EMPLOYEES		10. TOTAL NUMBER OF MINORITY EMPLOYEES	
		6a. TOTAL HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE		7. MINORITY PERCENT	8. FEMALE PERCENT				
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
GRAND TOTAL WORKERS																	

11. COMPANY OFFICIALS SIGNATURE, PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

Form CHRO cc-257a

Commission on Human Rights and Opportunities Contract Compliance Unit 450 Columbus Blvd, Ste. 2 Hartford, CT 06103	1. **CUMULATIVE EMPLOYMENT UTILIZATION REPORT** ***(CHRO Form cc-257b)***	PROJECT AREA (MSA): _____ 2. EMPLOYERS FEIN NO.	3. PROJECT PLAN GOALS MINORITY: _____ FEMALE: _____	4. PROJECT DURATION START DATE: _____ END DATE: _____

GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):	STATE AWARDING AGENCY:

5. CONSTRUCTION TRADE (please identify)	CLASSIFICATION	6. **CUMULATIVE WORK HOURS OF TRADE WORKERS EMPLOYED ON PROJECT**										7. CUMULATIVE MINORITY PERCENT	8. CUMULATIVE FEMALE PERCENT	9. CUMULATIVE NUMBER OF EMPLOYEES		10. CUMULATIVE NUMBER OF MINORITY EMPLOYEES	
		6a. CUMULATIVE HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE							
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
CUMULATIVE TOTAL JOURNEY WORKERS CUMULATIVE TOTAL APPRENTICES CUMULATIVE TOTAL TRAINEES CUMULATIVE GRAND TOTAL																	

11. COMPANY OFFICIALS SIGNATURE, PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

CHRO Form cc-257b

**** NOTE: The purpose of this report is to be a CUMULATIVE Employment Utilization Report (cc-257b); cumulative meaning the total sum of all the cc-257s filed by your company throughout the duration of this project. Please submit this *Cumulative Employment Utilization Report* (cc-257b) with your *FINAL* cc-*257* filing. If punch list items or other events require your company to return to the project after such filings, than please submit a *Revised cc-257b* with your *Revised FINAL cc-257*.**

MONTHLY SMALL CONTRACTOR AND
MINORITY BUSINESS ENTERPRISE
PAYMENT STATUS REPORT

Month Ending _____

1) General Contractor Name

2) State Contract Number

3) State Contract Award Agency

4) Project Name 5) Estimated Completion Date ____

6) Project Value (Indicate & attach all Change Orders) 7) Percent Completed to Date ____

8) Actual Project Mobilization Date (MM/DD/YYYY)

9) Listing of all small contractors and minority business enterprise contractors on the project to comply with contractual small business set aside provisions:

Company Name	Total Contract Amount (Indicate & attach all Change Orders)	Total Payment this Month	Total Payment to Date

_____ _____
Signature of Company Official Date of Report

_____
Printed Name and Printed Title of Person Signing

Original to: CHRO, 450 Columbus Blvd., Ste. 2, Hartford, CT 06103
Copies to: 1) Awarding Agency
2) Contractor's Company File

CHRO Form cc-258a

(CHRO Form cc-259)

Contract Compliance Unit The Commission on Human Rights and Opportunities 450 Columbus Blvd., Ste. 2 Hartford, CT 06103	**MONTHLY MATERIALS CONSUMPTION REPORT** **(CHRO Form cc-259)*** * TO BE FILLED OUT BY SBE/MBE/WBE/DIS CONTRACTORS/VENDORS WHOSE SOLE ROLE IN THE CONTRACT DESCRIBED BELOW IS THAT OF A "SUPPLIER OF MATERIALS."
NAME AND ADDRESS OF SBE/MBE/WBE/DIS CONTRACTOR/VENDOR (submitting report): _____ _____ _____ _____	STATE CONTRACT NUMBER:_____ PROJECT NAME:_____ STATE AWARDING AGENCY_____ REPORTING PERIOD FROM:_____ TO:_____
The SBE/MBE/WBE/DisBE Contractor / Vendor, submitting this report, ***DID SUPPLY MATERIALS*** to the General Contractor, or its Subcontractors, for the monthly reporting period listed above and for use in the aforesaid contract. I Agree: _____/Date:_____ Signature of the Head of the Company _____ Printed Name and Printed Title of Person Signing	The SBE/MBE/WBE/DisBE Contractor / Vendor, submitting this report, ***DID NOT SUPPLY MATERIALS*** to the General Contractor or its Subcontractors, for the monthly reporting period listed above and for use in the aforesaid contract. I Agree: _____/Date:_____ Signature of the Head of the Company _____ Printed Name and Printed Title of Person Signing

SECTION 8
Concluding Statement

Point of Statutory and/or Regulatory Reference: Regulations of Connecticut State Agencies § 46a-68j-27(10)

Set-Aside Plans shall contain a concluding provision signed and dated by the contractor stating that the contractor:

A) has read the plan and that the contents of the plan are true and correct to the best of his or her knowledge and belief;

B) pledges his or her best good faith efforts to achieve the objectives of the plan within established timetables.

INSTRUCTIONS:

The *Concluding Statement* must be signed and dated by the head of the company and by the AA/EOE Officer. The signatures must be original.

SAMPLE

CONCLUDING STATEMENT

I have read and pledge my full support to all sections of this Set-Aside Plan, and that the commitments therein, are true and correct to the best of my knowledge. I pledge my "best good faith efforts" to achieve the objectives of the Plan within the established time frames.

The implementation of the goals in this Plan will be evidence that XYZ Company is willing to cooperate with the Commission on Human Rights and Opportunities in its effort to promote Equal Opportunity Employment and affirmative action in the State of Connecticut. I will continue my commitment and total support to the principles of a strong Set-Aside Plan for this Company.

Date	Head of Company's Signature
	Printed Name and Printed Title
Date	AA/EOE Officer's Signature
	Printed Name

Instructions for Filing CHRO Reporting Forms

Please note, all reports filed with CHRO must have the original signature (blue ink preferred) and official title of the company's authorized agent. A copy must be sent to the Awarding Agency/CMR and a copy should be kept for your records.

Form 257	Monthly Employment Utilization Report • To be completed every month from the date that the project started. • For the months employee(s) did not work on the project site, fill out one form for each month & check the box located at the bottom of the form marked, "Did not perform work on this project for this month." • The last month the employee(s) worked on the job (i.e. the month the company walked off the project site) please fill out a Form 257 & write at the bottom of the form in BIG BOLD letters "**FINAL**".
Form 257a	Monthly Employment Utilization Report for non-trade workers on site (i.e. Bookkeeper, Project Manager, Receptionist) • To be completed every month from the date that the project started **only if** "On Site Personnel (Other than Trade Workers)" worked on the job. • Follow instructions above for Form 257 when a non-trade worker employee is on the site. If there are no non-trade worker employee(s) on the site, do not submit Form 257a.
Form 257b	Cumulative Employment Utilization Report • The last month the employee(s) worked at the project site, please fill out a Form 257b (as well as the FINAL Form 257 mentioned above) & write at the bottom of the form in BIG BOLD letters **"FINAL".** • Form 257b is a total of all the work hours the employees have worked on the project. Therefore, if you add up all of the hours from each of the Form 257's that have been filed for this project, that number should correspond with the number of total work hours reported on the Form 257b.
Revised Forms 257 & 257b	Punch List Items or Other Events • If a sub returns to the job to do punch list items or other events after filling out FINAL filings, a Revised Final Form 257 for the months that they worked on the punch list items, as well as a Revised Form 257b must be filed. • These revised reports should be marked in BIG BOLD letters "**REVISED MM/DD/YYYY**."
Form 258	Quarterly Payment Status Report (project > 12 months) • Effective January 1, 2017, the Commission has suspended the use of Form 258 Quarterly Payment Status Report. Thereafter, only Form 258a Monthly Payment Status Report will be used for all projects, regardless of their duration. Going forward, all reporting requirements will be on a monthly basis. This measure is being implemented to facilitate the reporting requirements.
Form 258a	Monthly Payment Status Report • Effective January 1, 2017, Form 258a Monthly Payment Status Report is required for all projects. • If you are filling out a Form 258a for the last month of the project, write at the bottom of the form in BIG BOLD letters "FINAL".
Form 259	Monthly Materials Consumption Report • Material/Service Supplier submits every month from the date that the project started until the final delivery of material/service. • The officer of the company signs in the box that corresponds as to whether they "Did Supply Materials" that month or they "Did Not Supply Materials" that month. • At the end of the last month in which the material/service provider provided material or service for this project, write at the bottom of the form in BIG BOLD letters "**FINAL**".

Copies of CHRO reports can be obtained by logging onto www.ct.gov/chro and go to "*Forms*" and select the required form under the second heading "*Forms and Reports for Construction Workers*."

Commission on Human Rights and Opportunities Contract Compliance Unit 450 Columbus Blvd Ste 2 Hartford CT 06103	1. MONTHLY EMPLOYMENT UTILIZATION REPORT ***(FORM chro cc–257)***	PROJECT AREA (MSA): _____ 2. EMPLOYERS FEIN NO.	3. PROJECT AAP GOALS MINORITY: _____ FEMALE:_____	4. REPORTING PERIOD FROM:_____ TO:_____
GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):			STATE AWARDING AGENCY:

5.		6. **WORK HOURS OF TRADE WORKERS EMPLOYED ON PROJECT**												9.		10.	
CONSTRUCTION TRADE (please identify)	CLASSIFICATION	6a. TOTAL HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE		7. MINORITY PERCENT	8. FEMALE PERCENT	TOTAL NUMBER OF EMPLOYEES		TOTAL NUMBER OF MINORITY EMPLOYEES	
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
	Journey Worker Apprentice Trainee SUB-TOTAL																
TOTAL JOURNEY WORKERS TOTAL APPRENTICES TOTAL TRAINEES GRAND TOTAL																	

11. COMPANY OFFICIALS SIGNATURE , PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

☐ **Did not perform work on this project for this month (Please place an "X" in the box if your company did not perform work on this project for this month only.)**

Form CHRO 257

Commission on Human Rights and Opportunities Contract Compliance Unit 450 Columbus Blvd Ste 2 Hartford CT 06103	1. MONTHLY EMPLOYMENT UTILIZATION REPORT ***(FORM chro cc–257A)***	PROJECT AREA (MSA): _____ 2. EMPLOYERΣ FEIN NO.	3. PROJECT AAP GOALS MINORITY: _____ FEMALE:_____	4. REPORTING PERIOD FROM:_____ TO:_____
GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):			STATE AWARDING AGENCY:

5. ON SITE PERSONNEL (OTHER THAN TRADE WORKERS) ***(please identify specific job title)***		6. **WORK HOURS OF WORKERS *(OTHER THAN TRADE WORKERS)* EMPLOYED ON PROJECT**										7. MINORITY PERCENT	8. FEMALE PERCENT	9. TOTAL NUMBER OF EMPLOYEES		10. TOTAL NUMBER OF MINORITY EMPLOYEES	
		6a. TOTAL HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE							
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
GRAND TOTAL WORKERS																	

11. COMPANY OFFICIALS SIGNATURE , PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

Form CHRO 257a

Commission on Human Rights and Opportunities Contract Compliance Unit 450 Columbus Blvd Ste 2 Hartford CT 06103	1. **CUMULATIVE EMPLOYMENT UTILIZATION REPORT** (FORM chro cc–257b)	PROJECT AREA (MSA): _____ 2. EMPLOYERS FEIN NO.	3. PROJECT PLAN GOALS MINORITY: _____ FEMALE:_____	4. PROJECT DURATION START DATE:_____ END DATE :_____

GENERAL CONTRACTOR: PROJECT NAME: CONTRACT NUMBER:	NAME AND LOCATION OF CONTRACTOR (submitting report):	STATE AWARDING AGENCY:

5. CONSTRUCTION TRADE (please identify)	CLASSIFICATION	6. **CUMULATIVE WORK HOURS OF TRADE WORKERS EMPLOYED ON PROJECT**										7. CUMULATIVE MINORITY PERCENT	8. CUMULATIVE FEMALE PERCENT	9. CUMULATIVE NUMBER OF EMPLOYEES		10. CUMULATIVE NUMBER OF MINORITY EMPLOYEES	
		6a. CUMULATIVE HOURS BY TRADE		6b. BLACK (Not of Hispanic Origin)		6c. HISPANIC		6d. ASIAN OR PACIFIC ISLANDERS		6e. AMERICAN INDIAN OR ALASKAN NATIVE							
		M	F	M	F	M	F	M	F	M	F			M	F	M	F
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
	Journey Worker Apprentice Trainee CUMULATIVE TOTAL																
CUMULATIVE TOTAL JOURNEY WORKERS CUMULATIVE TOTAL APPRENTICES CUMULATIVE TOTAL TRAINEES CUMULATIVE GRAND TOTAL																	

11. COMPANY OFFICIALS SIGNATURE , PRINTED NAME AND PRINTED TITLE	12. TELEPHONE NUMBER (Including area code)	13. DATE SIGNED	PAGE _____OF_____

FORM CHRO 257b

**** NOTE: The purpose of this report is to be a CUMULATIVE Employment Utilization Report (257b); cumulative meaning the total sum of all the 257s filed by your company throughout the duration of this project. Please submit this *Cumulative Employment Utilization Report* (257b) with your *FINAL 257* filing. If punch list items or other events require your company to return to the project after such filings, than please submit a *Revised 257b* with your *Revised FINAL 257*.**

TOWN OF HEBRON
Purchasing Office

15 Gilead St

HEBRON, CT 06248

"NO BID" RESPONSE

Name of Bid/RFP/RFQ: 2026-04

Date of Bid Opening: October 31, 2025

For tracking, audit, and record-keeping purposes, we would very much appreciate knowing the reason why you have chosen not to submit a proposal for the above-referenced Public Bid, RFP or RFQ.

Would you please take a moment to provide a brief explanation below for not submitting a proposal to us for this purchase?

_____

_____

Please also indicate if you would like to continue to receive bids and quotes from us in the future for above-referenced related purchases. If we do not receive this form back, we will assume you are no longer interested in receiving bids and quotes from us.

Please continue to send me bids, quotes, and RFPs. Yes _____ No _____

Company name _____

Mailing address _____

Your name _____ Date _____

This may be mailed, faxed, or e-mailed back to us at:

Town of Hebron

Attn: Town Manager's Office

Hebron, CT 06248

Fax: 860 228-4859

E-mail: dwolf@hebronct.gov

Thank you for your response.

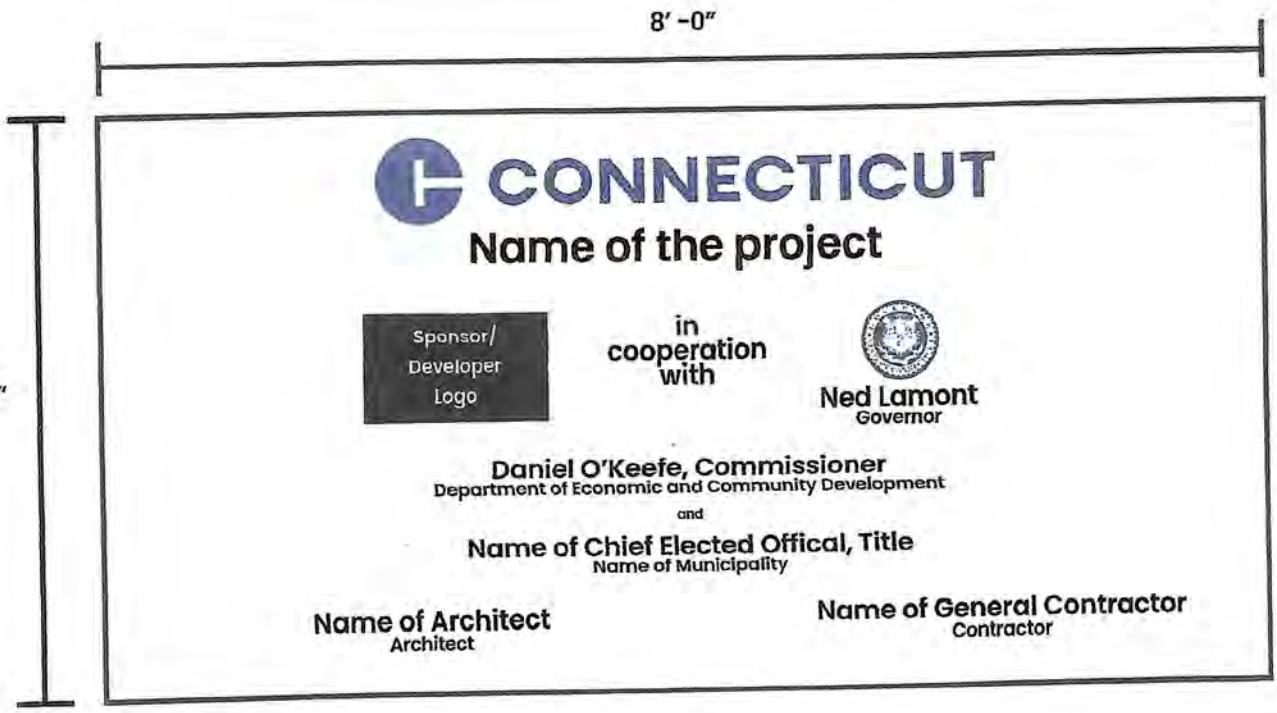
SECTION 008950-NO BID RESPONSE FORM

Project Sign-Layout and Specifications: The cost to furnish, install and ultimately to remove the Project Sign shall be carried in the Prime Contractors Base Bid. The exact location of the installation of the Project Sign will be determined by the RHAM Administration.

END OF SECTION

CONNECTICUT

Department of Economic and Community Development
Project Sign



Sign Panel	¾" MDO-EXT-APA PLYWOOD SUPPORTED WITH (2) 4X4 TREATED WOOD COLUMNS AND SECURED 4' INTO GRADE. TOP OF SIGN AT 8'-0" ABOVE GRADE
Colors	ALL LETTERS AND SYMBOLS ARE TO BE BLACK. THE BACKGROUND WILL BE WHITE ENAMEL. BACK OF PLYWOOD AND SUPPORT STRUCTURE SHALL BE PAINTED MATTE BLACK
Typeface	POPPINS SEMI-BOLD. NAME OF PROJECT IS TO BE BIGGER THAN ANY NAMES. TITLES OF LEADERS IS TO BE SMALLER THAN THEIR NAMES. FONT IS ATTACHED.
Colors	ALL LETTERS AND SYMBOLS ARE TO BE BLACK. THE BACKGROUND WILL BE WHITE ENAMEL. BACK OF PLYWOOD AND SUPPORT STRUCTURE SHALL BE PAINTED MATTE BLACK
Location	SIGN MUST BE LOCATED WHERE IT IS CLEARLY VISIBLE TO THE PUBLIC
Timing	INSTALL AT THE START OF CONSTRUCTION AND REMOVE AT CONSTRUCTION COMPLETION
State & Governor Logo	ATTACHED

SECTION 008960-PROJECT SIGN

SECTION 008980 REG. SCHOOL DISTRICT 8-2025-2026 ACADEMIC CALENDAR

September 26, 2025

PART 1 GENERAL

Regional School District 8-2025-2026 Academic Calendar-Attached is the Academic Calendar for 2025-2026 for all Trade Contractors' information, use and coordination.

END OF SECTION

REGIONAL SCHOOL DISTRICT 8
2025-2026 ACADEMIC CALENDAR

August/September 23

M	T	W	Th	F
[illegible]	[illegible]	[illegible]	28	29
[illegible]	2	3	4	5
8	9	10	11	12
15	16	17	18	19+
22	23	24	25	26
29	30			

25-27 - Staff Development
28 - First Day of School
1 - Labor Day
19 - Early Dismissal - PD

October 21

M	T	W	Th	F
		1	2	3
6	7	8	9	[illegible]
[illegible]	14	15	16	17
20	21	22	23	24+
27	28	29	30	31

10 - Staff Development
13 - Columbus Day
24 - Early Dismissal - PD

November 16

M	T	W	Th	F
3	[illegible]	5	6	7
10	[illegible]	12	13	14
17	18	19	20	21
24	25	26+	[illegible]	[illegible]

4 - Staff Development
11 - Veterans' Day
26 - Early Dismissal
27-28 - School Recess

December 17

M	T	W	Th	F
1	2	3	4	5
8	9	10+	11	12
15	16	17	18	19
22	23+	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]		

10 - Early Dismissal - PD
23 - Early Dismissal
24-31 - School Recess

January 19

M	T	W	Th	F
			[illegible]	[illegible]
5	6	7	8	9
12	13	14	15	16+
[illegible]	20+	21+	22+	23
26	27	28	29	30

1-2- New Year's Recess
16 - Midterm Exams - Early Dismissal
19 - Martin Luther King Day
20-22 - Midterm Exams - Early Dismissal

February 18

M	T	W	Th	F
2	3	4	5	6
9	10	11	12	13+
[illegible]	[illegible]	18	19	20
23	24	25	26	27

13 - Early Dismissal - PD
16-17 - Presidents' Day Recess

March 21

M	T	W	Th	F
2	3	4	5	6+
9	10	11	12	13
16	17	18	19	[illegible]
23	24	25	26	27
30	31			

6 - Early Dismissal - PD
20 - Staff Development

April 16

M	T	W	Th	F
		1	2	[illegible]
6	7	8	9	10+
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	21	22	23	24
27	28	29	30	

3 - Good Friday
10 - Early Dismissal - PD
13-17 - School Recess

May 20

M	T	W	Th	F
				1
4	5	6	7	8
11	12	13	14	15
18	19	20	21	22+
[illegible]	26	27	28	29

22 - Early Dismissal - PD
25 - Memorial Day

June 9

M	T	W	Th	F
1	2	3	4	5
8+	9+	10+	11+	12
15	16	17	18	19
22	23	24	25	26
29	30			

8 -11 - Final Exams – Early Dismissal
11- 180th day of school Early Dismissal

First Day of School: August 28, 2025
Last Day of School: June 11, 2026

[illegible] No School
+ Early Dismissal

*If weather or other emergencies require the closing of school, the missed days will be made up by extending the school year in June up to 8 days. If additional days are needed, they will be taken from the April Recess, beginning April 17.

Marking Periods

1st Marking Period - Aug. 28 through Nov. 3
2nd Marking Period - Nov. 5 through Jan. 22
3rd Marking Period - Jan. 23 through March 31
4th Marking Period - April 1 through last day of school

Accepted: December 16, 2024

SECTION 008980
REGIONAL SCHOOL DISTRICT 8
2025-2026-ACADEMIC CALENDAR

AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year 2025
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

Town of Hebron, CT
15 Gilead Street
Hebron, CT 06248

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

Emergency Electric Generator Upgrade Project, Phase I, Concrete Pad and Underground Electric Conduit and Conductors Installations , Load, Deliver, Place and Activate Emergency Electric Generator
RHAM Middle and High School
85 Wall Street, Hebron, CT

The Architect:
(Name, legal status, address and other information)

VanZelm Engineers
10 Talcott Notch
Farmington, CT 06032-1800

The Owner and Contractor agree as follows.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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User Notes: (1147364663)

TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

5 PAYMENTS

6 DISPUTE RESOLUTION

7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[ ] The date of this Agreement.

[X] A date set forth in a notice to proceed issued by the Owner.

[ ] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

Init. /

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User Notes: (1147364663)

[ ] Not later than ( ) calendar days from the date of commencement of the Work.

[X] By the following date: **Offloading, erection, activation, testing, and acceptance of the Emergency Electrical Generator by August 14, 2026.**

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit ($0.00)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

The Contractor acknowledges that time limits stated in the Contract Documents are of the ESSENCE of the Contract. The parties agree that if the date of Substantial Completion established herein, as may be amended by Change Order, is not attained, the Owner will suffer material damages, the exact amount of which will be difficult to determine and accurately specify. The Contractor agrees that if Substantial Completion is not achieved within the Contract Time for the portions of the Work set forth in Section 3.3.1, the Contractor shall pay to the Owner, as liquidated damages and not as a penalty, the following per diem amounts: One Thousand dollars ($1,000.00) per day. Such liquidated damages are hereby agreed to be a reasonable pre-estimate of damages the Owner will incur as a result of delayed completion of the Work. The Owner may deduct liquidated damages from any unpaid amounts then or thereafter due the Contractor. The parties agree that said liquidated damages do not constitute a penalty.

Init.
/

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User Notes: (1147364663)

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the 25th day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the last day of the following month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than thirty (30) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the ~~most recent~~ schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201™–2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 That portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction, or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect or Owner has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document ~~A201–2017;~~ A201–2017 or elsewhere in the Contract Documents;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect or Owner may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document ~~A201–2017;~~ A201–2017 or elsewhere in the Contract Documents; and

.5 Retainage withheld pursuant to Section 5.1.7.

Init.
/
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§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

Five Percent (5%) plus an additional 2% until the Contractor's Commission on Human Rights and Opportunities ("CHRO") Utilization Plans are approved by CHRO and the 2% retainage is approved for release by CHRO.

§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

None.

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

At the Owner's sole discretion.

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

Not applicable. Retainage shall be paid at the time of final payment unless the Owner agrees otherwise in writing in the Owner's sole discretion.

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201–2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201–2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

0 % Zero Percent. No interest shall be paid.

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ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201–2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201–2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2017

[X] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2017.

§ 7.1.1 If the Contract is terminated for the Owner's convenience in accordance with Article 14 of AIA Document A201–2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner's convenience.)

No termination fee shall be paid. Compensation for a termination for convenience by the Owner shall be pursuant to Article 14 of AIA Document A201-2017.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:
(Name, address, email address, and other information)

To be disclosed by the owner in writing within ten (10) days after the execution of this Contract.

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§ 8.3 The Contractor's representative:
(Name, address, email address, and other information)

The Contractor shall designate a representative within 10 days after the full execution of this Contract. The Contractor's designated representative shall have authority to accept instructions, make decisions, attend all required meetings, act for and bind the Contractor at all times and shall not be changed without the Owner's prior consent, unless the Contractor's designated representative ceases to be employed by the Contractor, at which time the Contractor shall assign another designated representative, with Owner approval

§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with ~~a building information modeling exhibit,~~ AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with ~~a building information modeling exhibit,~~ AIA Document E203–2013, insert requirements for delivering notice in electronic format such as name, title, and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 8.7 Other provisions:

§ 8.7.1 The Contractor agrees that all persons working on behalf of the Contractor shall obey the rules and regulations established by the Owner and shall obey the reasonable directions of the Owner's employees. The Contractor shall be responsible for the acts and conduct of its employees, Subcontractors, Suppliers, and agents while on the Owner's premises. The Contractor shall take all necessary measures to prevent injury and loss to persons and property located on the Owner's premises. The Contractor shall be responsible for all damages to persons or property caused by the Contractor, its employees, Subcontractors, Suppliers, and agents. The Owner reserves the right to approve and /or reject any personnel assigned to any portion of the Project for any reason the Owner deems appropriate in its sole discretion.

§ 8.7.2 If the Contract entails any exposure to a regulated material, including, but not limited to, asbestos or lead, the Contractor certifies that it and each of its subcontractors and their employees shall be certified and trained under all OSHA and other relevant regulations for such Work.

§ 8.7.3 State, federal, or other grant programs may fund some or all of the Work. The Contractor is advised that such funding programs may include contractual provisions binding on contractors and which may, for example, require audits or certifications under oath that the Contractor has not been debarred, suspended or excluded from any publicly funded project or programs.

§ 8.7.4 The Contractor is required to comply with all provisions of the Civil Rights Act of 1964, the Equal Employment Opportunity Act of 1972, Executive Orders 11246, 11375, 11478 and, if applicable, the Connecticut Fair Employment

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Practice Law. The following are incorporated by reference into this Agreement as though fully set forth and stated herein: The 13th, 14th and 15th Amendments of the United States Constitution, Civil Rights Act of 1964, Equal Pay Act of 1963, Title VI and VII of the 1964 United States Civil Rights Act, Presidential Executive Orders 11246, 11375, 11478 (nondiscrimination under federal contracts), Act 1, Section 1 and 20 of the Connecticut Constitution, Governor Grasso's Executive Order Number 11, Governor O'Neill's Executive Order Number 9, the Connecticut Fair Employment Practices Law (Sec. 46a-60-69) of the Connecticut General Statutes, Connecticut Code of Fair Practices (46a-70-81), Deprivation of Civil Rights (46a-58 (a)(d)), Public Accommodations Law (46a-63-64), Discrimination against Criminal Offenders (46a-80), definition of blind (46a-51(1)), definition of Physically Disabled (46a-51 (15)), definition of Mentally Retarded (46a-51-13), cooperation with the Commission on Human Rights and Opportunities (46a-77), Sexual Harassment (46a-60 (a)-8), Connecticut Credit Discrimination Law (360436 through 439), Title 1 of the State and the Local Fiscal Assistance Act 1 1972, and the affirmative action provisions provided in the Connecticut General Statutes Section 4a-60a. This Agreement is subject to the provisions of Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, concerning the listing of employment opening and Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, all of which are incorporated into and are made a part of the contract as if they had been fully set forth in it. The contract may also be subject to Executive Order No. 7C of Governor M. Jodi Rell, promulgated July 13, 2006, concerning contracting reforms and Executive Order No. 14 of Governor M. Jodi Rell, promulgated April 17, 2006, concerning procurement of cleaning products and services, in accordance with their respective terms and conditions.

§ 8.7.5 § 8.7.5 Pursuant to Conn. Gen. Stat. Sect. 4a-60, (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the Work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the Contractor further agrees to take affirmative action to ensure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, status as a veteran, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the Work involved;

(2) The Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission on Human Rights and Opportunities;

(3) The Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The Contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, 46a-68e, 46a-68f and 46a-86; and

(5) The Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this section and section 46a-56.

(b) The contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works or quasi-public agency project.

(c) Except as provided in section 10a-151i:

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(1) Any Contractor who has one or more contracts with an awarding agency or who is a party to a municipal public works contract or a contract for a quasi-public agency project shall include a nondiscrimination affirmation provision certifying that the Contractor understands the obligations of this section and will maintain a policy for the duration of the Contract to assure that the contract will be performed in compliance with the nondiscrimination requirements of subsection (a) of this section. The authorized signatory of the Contract shall demonstrate his or her understanding of this obligation by (A) initialing the nondiscrimination affirmation provision in the body of the Contract, (B) providing an affirmative response in the required online bid or response to a proposal question which asks if the Contractor understands its obligations, or (C) signing the Contract.

(2) No awarding agency, or in the case of a municipal public works contract, no municipality, or in the case of a quasi-public agency project contract, no entity, shall award a contract to a contractor that has not included the nondiscrimination affirmation provision in the contract and demonstrated its understanding of such provision as required under subdivision (1) of this subsection.

(d) For the purposes of this section, "contract" includes any extension or modification of the contract, "contractor" includes any successors or assigns of the Contractor, "marital status" means being single, married as recognized by the state of Connecticut, widowed, separated or divorced, and "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders. For the purposes of this section, "contract" does not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state, as defined in section 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3) or (4) of this subsection.

(e) For the purposes of this section, "minority business enterprise" means any small contractor or supplier of materials fifty-one per cent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) Who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of section 32-9n; and "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations. "Good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements.

(f) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission on Human Rights and Opportunities may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(g) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission on Human Rights and Opportunities, of its good faith efforts.

(h) The Contractor shall include the provisions of subsections (a) and (b) of this section in every Subcontract or purchase order entered into in order to fulfill any obligation of a Contract with the state or municipality, and in every subcontract entered into in order to fulfill any obligation of a municipal public works contract or contract for a quasi-public agency project, and such provisions shall be binding on a Subcontractor, vendor or manufacturer, unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. The Contractor shall take such action with respect to any such Subcontract or purchase order as the commission may direct as a means of enforcing such provisions, including sanctions for noncompliance in accordance with section 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the commission regarding a state contract, the contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

Pursuant to Conn. Gen. Stat. Sect 4a-60a, (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the

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grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

(2) The Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Ccontractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(3) The Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56; and

(4) The Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56.

(b) Except as provided in section 10a-151i:

(1) Any Contractor who has one or more contracts with an awarding agency or who is a party to a municipal public works contract or a contract for a quasi-public agency project shall include a nondiscrimination affirmation provision in the Contract certifying that the Contractor understands the obligations of this section and will maintain a policy for the duration of the Contract to assure that the Contract will be performed in conformance with the nondiscrimination requirements of this section. The authorized signatory of the Contract shall demonstrate his or her understanding of this obligation by either (A) initialing the nondiscrimination affirmation provision in the body of the Contract, or (B) providing an affirmative response in the required online bid or response to a proposal question which asks if the Contractor understands its obligations.

(2) No awarding agency, or in the case of a municipal public works contract, no municipality, or in the case of a quasi-public agency project contract, no entity, shall award a contract to a contractor who has not included the nondiscrimination affirmation provision in the contract and demonstrated its understanding of such provision as required under subdivision (1) of this subsection.

(c) For the purposes of this section, "contract" includes any extension or modification of the contract, and "contractor" includes any successors or assigns of the contractor. For the purposes of this section, "contract" does not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, unless the contract is a municipal public works contract or quasi-public agency project contract, (2) any other state, as defined in section 1-267, (3) the federal government, (4) a foreign government, or (5) an agency of a subdivision, state or government described in subdivision (1), (2), (3) or (4) of this subsection.

(d) The Contractor shall include the provisions of subsection (a) of this section in every Subcontract or purchase order entered into in order to fulfill any obligation of a contract with the state or municipality, and in every subcontract entered into in order to fulfill any obligation of a municipal public works contractor contract for a quasi-public agency project, and such provisions shall be binding on a Subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission on Human Rights and Opportunities. The Contractor shall take such action with respect to any such Subcontract or purchase order as the commission may direct as a means of enforcing such provisions, including sanctions for noncompliance in accordance with section 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or vendor as a result of such direction by the commission regarding a state contract, the Contractor may request the state of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the state and the state may so enter.

§ 8.7.6 The Contractor shall be required to comply with the provisions of this section and the requirements concerning nondiscrimination and affirmative action under sections 4a-60 and 4a-60a. As a result of the foregoing, the Contractor shall (A) set aside at least twenty-five per cent of the total value of the state's financial assistance for such contract for award to Subcontractors who are small contractors, and (B) of that portion to be set aside in accordance with subparagraph (A) of this subdivision, reserve a portion equivalent to twenty-five per cent of the total value of the Contract or portion thereof to be set aside for awards to Subcontractors who are minority business enterprises.

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§ 8.7.7 This Contract is above the prevailing wage threshold as defined by Connecticut law, section 31-53, as amended, the Contractor shall include the costs of such wages including all yearly adjustments in the Contract Price. The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund, as defined in subsection (h) of this section, shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such employees to any such employee welfare fund shall pay to each employee as part of his wages the amount of payment or contribution for his classification on each pay day

§ 8.7.8 Compliance with Immigration Laws. The Contractor, during the term of this Agreement will comply, with the Immigration Reform and Control Act ("IRCA") and that each person it provides under the Agreement will at all times be authorized for employment in the United States of America. The Contractor confirms that it has a properly completed Employment Eligibility Verification, Form I-9, for each person who will be assigned under the Agreement and that it will require each subcontractor or consultant, if any, to confirm that it has a properly completed Form I-9 for each person who will be assigned under the Contract. The Contractor shall defend, indemnify, and hold harmless the Owner and its employees, officers, officials, agents, volunteers and independent contractors, including any of the foregoing sued as individuals (collectively, the "Town Indemnified Parties"), against any and all proceedings, suits, actions, claims, damages, injuries, awards, judgments, losses or expenses, including fines, penalties, punitive damages, attorney's fees and costs, brought or assessed against, or incurred by, the Town Indemnified Parties related to or arising from the obligations under IRCA imposed upon the Contractor or its subcontractors/consultants. The Contractor shall also be required to pay any and all attorney's fees and costs incurred by the Town Indemnified Parties in enforcing any of the Contractor's obligations under this provision, whether or not a lawsuit or other proceeding is commenced, which obligations shall survive the termination or expiration of the Agreement.

§ 8.7.9 Non-Resident Contractor 5% Tax For Contracts. Conn. Gen. Stat. Sec. 12-430(7) requires non-resident contractors who perform services or furnish materials, or both, for the construction, alteration or improvement of any project in which the contract price is at least $250,000, to furnish the Department of Revenue Services (DRS) a Guarantee Bond for 5% of the total cost of the work, issued under a contract using Form AU-766, Guarantee Bond. This form is available on the State DRS website. Form AU-766 must be submitted for each additional change order or supplement issued against the contract. Non-resident contractors must have completed and submitted to the DRS Form REG-1, Business Tax Registration Application, to register with the DRS and have been issued a Connecticut Tax Registration Number. This form is available on the DRS website. Non-resident contractors have 120 days from the commencement of the contract to file the Guarantee Bond with the State. Commencement of the contract, as defined by law, "means the time when the non-resident contractor signs the contract, but, in any event, occurs no later than when the work under the contract actually starts." As soon as the guarantee bond is filed with the DRS, the non-resident contractor shall submit the copy of such Guarantee Bond together with the non-resident contractor's Connecticut Tax Registration Number to the Town department for whom the project is required. After the non-resident contractor receives its Certificate of Compliance from the DRS confirming that the Guarantee Bond requirement has been met, the non-resident contractor shall submit a copy of the same to the department, for whom the work is being performed, with a copy to the Owner's purchasing department.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

- **.1** AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor
- **.2** AIA Document A101™–2017, Exhibit A, Insurance and Bonds
- **.3** AIA Document A201™–2017, General Conditions of the Contract for Construction
- ~~**.4** Building information modeling exhibit, dated as indicated below:~~
  ~~*(Insert the date of the building information modeling exhibit*~~ *(Insert the date of the E203-2013 incorporated into this Agreement.)*

- **.5** Drawings

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Number	Title	Date
See, Exhibit B		

.6 Specifications

Section	Title	Date	Pages
See, Exhibit B			

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201™–2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

Exhibit B – List of Drawings, Specifications, and other Contract Documents

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
Town of Hebron, Connecticut	
(Printed name and title)	*(Printed name and title)*

Init.
/
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Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with this certification at 09:31:43 ET on 04/21/2025 under Order No. 4104242227 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A101™ – 2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum,other than changes shown in the attached final document by underscoring added text and striking over deleted text.

_____

(Signed)

_____

(Title)

_____

(Dated)

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AIA® Document A101® – 2017 Exhibit A

Insurance and Bonds

This Insurance and Bonds Exhibit is part of the Agreement, between the Owner and the Contractor, dated the day of in the year 2025
(In words, indicate day, month and year.)

for the following **PROJECT**:
(Name and location or address)

Emergency Electric Generator Upgrade Project, Phase I, Concrete Pad and Underground Electric Conduit and Conductors Installations , Load, Deliver, Place and Activate Emergency Electric Generator

THE OWNER:
(Name, legal status and address)

Town of Hebron, CT
15 Gilead Street
Hebron, CT 06248

THE CONTRACTOR:
(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document is intended to be used in conjunction with AIA Document A201®–2017, General Conditions of the Contract for Construction. Article 11 of A201®–2017 contains additional insurance provisions.

TABLE OF ARTICLES

A.1 GENERAL

A.2 OWNER'S INSURANCE

A.3 CONTRACTOR'S INSURANCE AND BONDS

A.4 SPECIAL TERMS AND CONDITIONS

ARTICLE A.1 GENERAL

The Owner and Contractor shall purchase and maintain insurance, and provide bonds, as set forth in this Exhibit. As used in this Exhibit, the term General Conditions refers to AIA Document A201™–2017, General Conditions of the Contract for Construction.

ARTICLE A.2 OWNER'S INSURANCE

§ A.2.1 General

Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Article A.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by Section A.2.3. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ A.2.2 Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual general liability insurance.

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§ A.2.3 Required Property Insurance

§ A.2.3.1 Unless this obligation is placed on the Contractor pursuant to Section A.3.3.2.1, the Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed and materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section A.2.3.1.3, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ A.2.3.1.1 Causes of Loss. The insurance required by this Section A.2.3.1 shall provide coverage for direct physical loss or damage, and shall not exclude the risks of fire, explosion, theft, vandalism, malicious mischief, collapse, earthquake, flood, or windstorm. The insurance shall also provide coverage for ensuing loss or resulting damage from error, omission, or deficiency in construction methods, design, specifications, workmanship, or materials. Sub-limits, if any, are as follows:
(Indicate below the cause of loss and any applicable sub-limit.)

Causes of Loss	Sub-Limit

§ A.2.3.1.2 Specific Required Coverages. The insurance required by this Section A.2.3.1 shall provide coverage for loss or damage to falsework and other temporary structures, and to building systems from testing and startup. The insurance shall also cover debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and reasonable compensation for the Architect's and Contractor's services and expenses required as a result of such insured loss, including claim preparation expenses. Sub-limits, if any, are as follows:
(Indicate below type of coverage and any applicable sub-limit for specific required coverages.)

Coverage	Sub-Limit

§ A.2.3.1.3 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section A.2.3.1 or, if necessary, replace the insurance policy required under Section A.2.3.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 12.2.2 of the General Conditions.

§ A.2.3.1.4 Deductibles and Self-Insured Retentions. If the insurance required by this Section A.2.3 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ A.2.3.2 Occupancy or Use Prior to Substantial Completion. The Owner's occupancy or use of any completed or partially completed portion of the Work prior to Substantial Completion shall not commence until the insurance company or companies providing the insurance under Section A.2.3.1 have consented in writing to the continuance of coverage. The Owner and the Contractor shall take no action with respect to partial occupancy or use that would cause cancellation, lapse, or reduction of insurance, unless they agree otherwise in writing.

§ A.2.3.3 Insurance for Existing Structures

If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage from the causes of loss identified in Section A.2.3.1, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

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§ A.2.4 Optional Extended Property Insurance.
The Owner shall purchase and maintain the insurance selected and described below.
(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. For each type of insurance selected, indicate applicable limits of coverage or other conditions in the fill point below the selected item.)

[ ] **§ A.2.4.1 Loss of Use, Business Interruption, and Delay in Completion Insurance,** to reimburse the Owner for loss of use of the Owner's property, or the inability to conduct normal operations due to a covered cause of loss.

[ ] **§ A.2.4.2 Ordinance or Law Insurance,** for the reasonable and necessary costs to satisfy the minimum requirements of the enforcement of any law or ordinance regulating the demolition, construction, repair, replacement or use of the Project.

[ ] **§ A.2.4.3 Expediting Cost Insurance,** for the reasonable and necessary costs for the temporary repair of damage to insured property, and to expedite the permanent repair or replacement of the damaged property.

[ ] **§ A.2.4.4 Extra Expense Insurance,** to provide reimbursement of the reasonable and necessary excess costs incurred during the period of restoration or repair of the damaged property that are over and above the total costs that would normally have been incurred during the same period of time had no loss or damage occurred.

[ ] **§ A.2.4.5 Civil Authority Insurance,** for losses or costs arising from an order of a civil authority prohibiting access to the Project, provided such order is the direct result of physical damage covered under the required property insurance.

[ ] **§ A.2.4.6 Ingress/Egress Insurance,** for loss due to the necessary interruption of the insured's business due to physical prevention of ingress to, or egress from, the Project as a direct result of physical damage.

[ ] **§ A.2.4.7 Soft Costs Insurance,** to reimburse the Owner for costs due to the delay of completion of the Work, arising out of physical loss or damage covered by the required property insurance: including construction loan fees; leasing and marketing expenses; additional fees, including those of architects, engineers, consultants, attorneys and accountants, needed for the completion of the construction, repairs, or reconstruction; and carrying costs such as property taxes, building permits, additional interest on loans, realty taxes, and insurance premiums over and above normal expenses.

§ A.2.5 Other Optional Insurance.
The Owner shall purchase and maintain the insurance selected below.
(Select the types of insurance the Owner is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance.)

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[ ] **§ A.2.5.1 Cyber Security Insurance** for loss to the Owner due to data security and privacy breach, including costs of investigating a potential or actual breach of confidential or private information *(Indicate applicable limits of coverage or other conditions in the fill point below.)*

[ ] **§ A.2.5.2 Other Insurance**
(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage	Limits

ARTICLE A.3 CONTRACTOR'S INSURANCE AND BONDS

§ A.3.1 General

§ A.3.1.1 Certificates of Insurance. The Contractor shall provide certificates of insurance and policy endorsements acceptable to the Owner evidencing compliance with the requirements in this Article A.3 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate and policy endorsement evidencing continuation of commercial liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the periods required by Section A.3.2.1 and Section A.3.3.1. The certificates ~~will show the Owner as an additional insured~~ and policy endorsement will show the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect, and the Architect's consultants, and the members, agents and employees of any of them as additional insureds on the Contractor's Commercial General Liability and excess or umbrella ~~liability policy or policies,~~liability, pollution and automobile policy or policies on a primary and non-contributory basis. The Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect, and Architect's consultants, and the members, agents, and employees of any of them shall be named as additional insureds under the Contractor's Subcontractor's commercial general liability policy, excess policy, automobile policy, and pollution policy or as otherwise described in the Contract Documents on a primary and non-contributory basis.

§ A.3.1.2 Deductibles and Self-Insured Retentions. The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the ~~Contractor.~~Contractor, which shall be the sole responsibility of the Contractor to pay.

§ A.3.1.3 Additional Insured Obligations. ~~To the fullest extent permitted by law, the~~ The Contractor shall cause the commercial general liability coverage ~~to include (1) the Owner, the Architect, and the Architect's consultants~~ (both primary and excess), pollution policy, and automobile policy to include (1) the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect, and the Architect's consultants, and the members, agents and employees of any of them as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) ~~the Owner as an additional insured~~ the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect and the Architect's consultants, and the members, agents and employees of any of them as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any ~~of the Owner's~~ of the Owner's, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee's, the RHAM Board of Education's the State of Connecticut's, the Architect's, and the Architect's consultants' general liability insurance policies and shall apply to both ongoing and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's consultants, CG 20 32 07 04. The Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect, and Architect's consultants, and the members, agents and employees of any of them shall be named as additional insureds under the

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Contractor's Subcontractor's commercial general liability policy or as otherwise described in the Contract Documents on a primary and non-contributory basis.

§ A.3.2 Contractor's Required Insurance Coverage

§ A.3.2.1 The Contractor shall purchase and maintain the following types and limits of insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain insurance for a duration other than the expiration of the period for correction of Work, state the duration.)

§ A.3.2.2 Commercial General Liability

§ A.3.2.2.1 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than one million ($ 1,000,000) each occurrence, two million ($ 2,000,000) general aggregate, and two million ($ 2,000,000) aggregate for products-completed operations hazard, providing coverage for claims including

.1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;

.2 personal injury and advertising injury;

.3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;

.4 bodily injury or property damage arising out of completed operations; ~~and~~

.5 the Contractor's indemnity obligations under Section 3.18 of the General ~~Conditions.~~Conditions;

.6 aggregate limits shall apply per project.

§ A.3.2.2.2 The Contractor's Commercial General Liability policy under this Section A.3.2.2 shall not contain an exclusion or restriction of coverage for the following:

.1 Claims by one insured against another insured, if the exclusion or restriction is based solely on the fact that the claimant is an insured, and there would otherwise be coverage for the claim.

.2 Claims for property damage to the Contractor's Work arising out of the products-completed operations hazard where the damaged Work or the Work out of which the damage arises was performed by a Subcontractor.

.3 Claims for bodily injury other than to employees of the insured.

.4 Claims for indemnity under Section 3.18 of the General Conditions arising out of injury to employees of the insured.

.5 Claims or loss excluded under a prior work endorsement or other similar exclusionary language.

.6 Claims or loss due to physical damage under a prior injury endorsement or similar exclusionary language.

.7 Claims related to residential, multi-family, or other habitational projects, if the Work is to be performed on such a project.

.8 Claims related to roofing, if the Work involves roofing.

.9 Claims related to exterior insulation finish systems (EIFS), synthetic stucco or similar exterior coatings or surfaces, if the Work involves such coatings or surfaces.

.10 Claims related to earth subsidence or movement, where the Work involves such hazards.

.11 Claims related to explosion, collapse and underground hazards, where the Work involves such hazards.

§ A.3.2.3 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than one million ($ 1,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance and use of those motor vehicles along with any other statutorily required automobile coverage.

§ A.3.2.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as the coverages required under Section A.3.2.2 and A.3.2.3, and in no event shall any excess or umbrella liability insurance provide narrower

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coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ A.3.2.5 Workers' Compensation at statutory limits.

§ A.3.2.6 Employers' Liability with policy limits not less than one million ($ 1,000,000) each accident, one million ($ 1,000,000) each employee, and one million ($ 1,000,000) policy limit.

§ A.3.2.7 Jones Act, and the Longshore & Harbor Workers' Compensation Act, as required, if the Work involves hazards arising from work on or near navigable waterways, including vessels and docks

§ A.3.2.8 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than five million ($ 5,000,000) per claim and five million ($ 5,000,000) in the aggregate. Professional Liability or Errors and Omissions Liability Insurance appropriate to the profession shall be maintained in force for the duration of the contract. Coverage shall apply to liability for a professional error, act, or omission arising out of the scope of services as defined by contract. If coverage is on a claims-made basis, Contractor warrants that any retroactive date applicable to coverage under the policy precedes the effective date of the Contract; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of years equal to the applicable statute of limitations for claims against design professionals.

§ A.3.2.9 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than five million ($ 5,000,000) per claim and five million ($ 5,000,000) in the aggregate. Contractor shall maintain Contractor's Pollution Liability covering losses caused by pollution incidents that arise from the operations of the Contractor under the scope of services. Pollution liability coverage shall apply to bodily injury, property damage, including loss of use of damaged property or of property that has not been physically insured, cleanup costs and defense, including costs and expenses incurred in the investigation, defense, or settlement of claims. If Pollution Liability coverage is written on a claims-made basis, any retroactive date applicable to coverage under the policy precedes the effective date of the contract, and continuous coverage must be maintained or an extended discovery period will be exercised for a period of six (6) years, beginning from the time that work under the contract is complete.

§ A.3.2.10 ~~Coverage under Sections A.3.2.8 and A.3.2.9 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than ($) per claim and ($) in the aggregate.~~

§ A.3.2.11 Insurance for maritime liability risks associated with the operation of a vessel, if the Work requires such activities, with policy limits of not less than ($) per claim and ($) in the aggregate.

§ A.3.2.12 Insurance for the use or operation of manned or unmanned aircraft, if the Work requires such activities, with policy limits of not less than olne million ($ 1,000,000) per claim and one million ($ one million) in the aggregate.

§ A3.2.13 Excess/Umbrella: Four Million ($4,000,000) over all liability coverages.

§ A3.2.14 Policies written on a claims-made basis shall have an extended reporting period of three (3) years after final completion of the Project.

§ A.3.3 Contractor's Other Insurance Coverage

§ A.3.3.1 Insurance selected and described in this Section A.3.3 shall be purchased from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 12.2.2 of the General Conditions, unless a different duration is stated below:
(If the Contractor is required to maintain any of the types of insurance selected below for a duration other than the expiration of the period for correction of Work, state the duration.)

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§ A.3.3.2 The Contractor shall purchase and maintain the following types and limits of insurance in accordance with Section A.3.3.1.
(Select the types of insurance the Contractor is required to purchase and maintain by placing an X in the box(es) next to the description(s) of selected insurance. Where policy limits are provided, include the policy limit in the appropriate fill point.)

[ ] § A.3.3.2.1 Property insurance of the same type and scope satisfying the requirements identified in Section A.2.3, which, if selected in this section A.3.3.2.1, relieves the Owner of the responsibility to purchase and maintain such insurance except insurance required by Section A.2.3.1.3 and Section A.2.3.3. The Contractor shall comply with all obligations of the Owner under Section A.2.3 except to the extent provided below. The Contractor shall disclose to the Owner the amount of any deductible, and the Owner shall be responsible for losses within the deductible. Upon request, the Contractor shall provide the Owner with a copy of the property insurance policy or policies required. The Owner shall adjust and settle the loss with the insurer and be the trustee of the proceeds of the property insurance in accordance with Article 11 of the General Conditions unless otherwise set forth below:
(Where the Contractor's obligation to provide property insurance differs from the Owner's obligations as described under Section A.2.3, indicate such differences in the space below. Additionally, if a party other than the Owner will be responsible for adjusting and settling a loss with the insurer and acting as the trustee of the proceeds of property insurance in accordance with Article 11 of the General Conditions, indicate the responsible party below.)

[ ] **§ A.3.3.2.2 Railroad Protective Liability Insurance,** with policy limits of not less than ($) per claim and ($) in the aggregate, for Work within fifty (50) feet of railroad property.

[ ] **§ A.3.3.2.3 Asbestos Abatement Liability Insurance**, with policy limits of not less than ($) per claim and ($) in the aggregate, for liability arising from the encapsulation, removal, handling, storage, transportation, and disposal of asbestos-containing materials.

[ ] § A.3.3.2.4 Insurance for physical damage to property while it is in storage and in transit to the construction site on an "all-risks" completed value form.

[ ] § A.3.3.2.5 Property insurance on an "all-risks" completed value form, covering property owned by the Contractor and used on the Project, including scaffolding and other equipment.

[ ] **§ A.3.3.2.6 Other Insurance**
(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage	Limits

§ A.3.4 Performance Bond and Payment Bond
The Contractor shall provide surety bonds, from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located, as follows:
(Specify type and penal sum of bonds.)

Type	Penal Sum ($0.00)
Payment Bond	100% of the Contract Sum
Performance Bond	100% of the Contract Sum

Payment and Performance Bonds shall be AIA Document A312™, Payment Bond and Performance Bond, or contain provisions identical to AIA Document A312™, current as of the date of this Agreement.

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ARTICLE A.4 SPECIAL TERMS AND CONDITIONS

Special terms and conditions that modify this Insurance and Bonds Exhibit, if any, are as follows:

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AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

Emergency Electric Generator Upgrade Project, Phase I, Concrete Pad and Underground Electric Conduit and Conductor Installations , Load, Deliver, Place and Activate Emergency Electric Generator
RHAM Middle and High School
85 Wall Street, Hebron, CT

THE OWNER:
(Name, legal status and address)

Town of Hebron, CT
15 Gilead Street
Hebron, CT 06248

THE ARCHITECT:
(Name, legal status and address)

VanZelm Engineers
10 Talcott Notch Road
Farmington, CT 06032

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™, Guide for Supplementary Conditions.

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14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements. The Contract Documents actually executed by both parties shall prevail in case of an inconsistency with subsequent versions made through manipulable electronic operations involving computers.

§ 1.1.1.1 The Owner and Contractor intend that the Contract Documents complement one another. If, and to the extent of, any inconsistency, ambiguity, or discrepancy in the Contract Documents, such inconsistency, ambiguity or discrepancy shall be resolved based on the greater quantity, higher quality or level of performance, most expensive, more time-consuming item as determined by the Architect. The decision of the Architect shall be final and binding on the parties.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties. The parties acknowledge that the provisions of this Agreement are the subject of arms-length negotiations between parties and agree that no provision of this Agreement shall be construed against the other party by reason of such party having drafted such provision of this Agreement.

§ 1.1.2.1 Nothing contained in this Agreement shall be construed to confer upon any person other than the parties hereto, any rights, remedies, privileges, benefits or causes of action to any extent whatsoever. No provision of this Agreement shall in any way inure to the benefit of any third person so as to constitute such person a third-party beneficiary of this Agreement or of any one of the terms and conditions of the Contract Documents or otherwise give rise to a cause of action in any person not a party hereto.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's ~~obligations.~~ obligations including Contractor's obligations during the correction period provided for in Section 12.2. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

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§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. The Contractor acknowledges that the Contract Documents are adequate and sufficient to provide for the completion of the Work, and include all Work, whether or not shown or described, which reasonably may be inferred to be required for the completion of the Work in accordance with all applicable laws, codes and professional standards.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. It shall be the Contractor's responsibility in subcontracting portions of the Work to arrange or group items of Work under particular trades to conform to then-prevailing customs of the trade, and in accordance with applicable requirements of law. The Owner shall have no liability arising out of jurisdictional issues raised or claims advanced by Subcontractors, trade organizations or other interested parties based on the arrangement or subdivision of Work in the Contract Documents. In the event of any claim arising out of any duplication, conflict, inconsistency or discrepancy within the Contract Documents as to the allocation of the Work among the Subcontractors and Contractor's own forces, the Contractor shall be solely responsible for resolving the claim and shall be responsible for ensuring that all the Work is completed regardless of where it appears in the Contract Documents.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. When applied to materials and equipment required for the Work, the words "furnish", "install" and "provide" shall mean the following:

.1 The word "provide" shall mean to furnish, pay for, deliver, install, adjust, clean and otherwise make materials and equipment fit and ready for their intended use.

.2 The word "furnish" shall mean to secure, pay for, deliver to site, unload and uncrate materials and equipment.

.3 The word "install" shall mean to place in position, incorporate in the Work, adjust, clean, make fit and ready for use and perform all services except those included under the term "furnish".

.4 The phrase "furnish and install" shall be equivalent to the word "provide". Each shall be interpreted to mean "the Contractor shall furnish all labor, material and equipment and install....".

.5 "As required" shall mean as required to produce a fully completed Project or result to the satisfaction of the Architect and Owner.

.6 In case of a difference between Drawings or Specifications or within either document itself in describing the Work, the better quality, greater quantity or more costly, more time-consuming Work, as determined by the Architect, will be assumed to be and shall be included in the Contract

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Sum. The Contractor shall not proceed with such Work until the Architect and Owner have been contacted for clarification and proper direction.

.7 Instructions or specifications of a particular manufacturer as referred to herein shall be binding as a part of the Specifications if a higher or more detailed standard is imposed thereby. Obtain such written instructions and maintain on the Project with the Specifications.

.8 Schedules of materials in various sections of the Contract Documents are furnished to assist the Contractor. Contractor shall verify the schedules with the Contract Documents and shall provide any additional materials indicated on the Contract Documents but not included in the schedules. The greater quantity or highest quality will govern as determined by the Architect.

§ 1.2.4 The Contractor shall not take advantage of obvious error or apparent discrepancy in the Contract Documents. Notice of any discovered error or discrepancy shall immediately be given in writing to the Architect to make such corrections and interpretations as he may deem necessary for completion of the Work in a satisfactory and acceptable manner.

§ 1.2.5 All work shown or referred to in the Contract Documents shall be included in the Contract excepting those items which are specifically noted as being "provided under another contract" or "provided by the Owner", or "not in contract (NIC)".

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 ~~The~~ Unless otherwise provided in the agreement between Owner and Architect, the Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon ~~written~~ protocols governing the transmission and use ~~of, and reliance on,~~ of Instruments of Service or any other information or documentation in digital form.

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§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to ~~written~~ protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in the agreement governing the use of such information, shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

§ 1.7 Contractor's Knowledge

The terms "knowledge," "recognize," "discover," and "observe," their respective derivatives, and similar terms in the Contract Documents, as used in reference to the Contractor shall be interpreted to mean that which (1) the Contractor knows, recognizes, discovers and observes, and (2) the Contractor should, in exercising the care, skill, and diligence required by the Contract Documents, know, recognize, discover or observe, as the case may be. Analogously, the expression "reasonably inferable" and similar terms in the Contract Documents shall be interpreted to mean reasonably inferable by a party familiar with the Project and exercising the care, skill, and diligence required by the Contract Documents (including any Work that the party should be able to reasonably anticipate or infer based on Contract Documents then existing).

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 ~~The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.~~Intentionally Omitted.

Intentionally Omitted.

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~~**§ 2.2 Evidence of the Owner's Financial Arrangements**~~

~~**§ 2.2.1** Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.~~

~~**§ 2.2.2** Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.~~

~~**§ 2.2.3** After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.~~

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~~§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.~~

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for any other necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor ~~to whom the Contractor has no reasonable objection~~ and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 ~~The~~ If requested by the Contractor in writing, the Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The ~~Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but~~ Owner does not warrant such information and the Contractor shall satisfy itself as to the accuracy of such information. In all events, Contractor shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services ~~under~~ in the Owner's ~~control~~ possession and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 ~~Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.~~ Contractor shall be furnished up to three (3) sets of Contract Drawings and Specifications, and two (2) copies of each drawing which is issued after the date of the Contract. The Contractor shall pay costs of reproduction for any additional copies of Drawings or Specifications he requires.

§ 2.3.7 To the extent Owner provides Contractor with tests, studies, soils investigation reports, maps or other reports in connection with site or material conditions, other than the Contract Documents, such tests, studies and reports shall be deemed to be for the benefit of Owner. Owner shall not be responsible for nor assume any responsibility for any conclusions that Contractor may draw. Contractor waives any claims of any kind or nature including but not limited to claims for delay, impact, additional compensation, inaccuracy, misrepresentation, inappropriateness or incompleteness arising from or relating to such items.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or ~~repeatedly~~ fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. This right shall be in addition to and not in restriction of any of Owner's other rights under this Contract

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents ~~and fails within a ten-day~~ including without limitation the failure by the Contractor to diligently and continuously perform the

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Work so as not to cause a delay in the date of Substantial Completion or the failure to achieve a milestone date, and fails within a three-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or ~~neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may,~~ neglect including but not limited to commencing and continuing to carry out the Work by whatever means the Owner deems expedient. The Architect may also, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's ~~expenses~~ expenses, including attorneys' fees, and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully ~~licensed, if required~~ licensed in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited ~~the site, become generally familiar with~~ and carefully examined the site and that the Contractor is thoroughly familiar with the nature and location of the Work, the specific local conditions under which the Work is to be performed, ~~and correlated personal observations with requirements of the Contract Documents.~~ seasonal and weather-related conditions, and all matters which may affect the Work or its performance and correlated such personal observations with requirements of the Contract Documents.. The Contractor represents that as a result of such examination and investigation, the Contractor thoroughly understands the Contract Documents and their intent and purpose, and is familiar with all applicable codes, ordinances, laws, regulations and rules as they apply to the Work, and will abide by same at no additional cost to the Owner.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and ~~are not~~ for the purpose of discovering errors, omissions, or inconsistencies in the Contract ~~Documents; however, the~~ Documents. The Contractor shall promptly report to the Architect and Owner any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect and Owner any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 The Contractor shall conduct its inspection and review of the Contract Documents as provided in 3.2.2 well in advance of the Work as to afford the Architect sufficient time to correct or otherwise supplement the Contract Documents in the event of an error, omission or inconsistency therein. The Contractor shall also allow sufficient time

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for the Contractor to assess the impact of such error, omission or inconsistency and for the Owner to evaluate same. If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.2.5 After reporting to the Architect any error, inconsistency or omission the Contractor may discover in its review of the Contract Documents, the Contractor shall not proceed with any Work so affected without the Architect's written modification to the Contract Documents unless otherwise directed in writing by the Owner. In the event that the Contractor proceeds with the Work so affected prior to the Architect's written response or written direction from the Owner, then Contractor shall be responsible for the cost of remedial work in the event the Contractor's actions are inconsistent with the Architect's written modification(s) to the Contract Documents or written direction from the Owner.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors. The Contractor shall not be relieved from its obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Architect in its administration of the Contract, by the activities or duties of the Owner or by inspections, tests, or approvals required or performed under the Contract Documents by persons other than the Contractor.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

3.3.5 The Contractor shall inspect all materials delivered to the jobsite and reject, within two (2) business days after receiving delivery of such materials, any materials that will not conform with the Contract Documents when such materials are properly installed.

3.3.6 If any of the Work is required to be inspected or approved by any authority with jurisdiction, the Contractor shall cause such inspection or approval to be performed. No inspection performed or failed to be performed by the Owner or Architect shall be a waiver of any of the Contractor's obligations hereunder or be construed as an approval or acceptance of the Work or any part thereof.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

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§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive. The Contractor shall be responsible for determining that all materials and equipment furnished for the Work meet all requirements of the Contract Documents. Any additional cost, or any loss or damage arising from the substitution or proposed substitution of any material, equipment or method for those originally specified shall be borne by the Contractor, including costs of any structural, mechanical, electrical, architectural or other changes necessary to accommodate substitute materials or equipment, and costs of modifying documents and other additional fees of the Architect or other consultants notwithstanding approval or acceptance of such substitution by the Owner or Architect unless such substitution was made at the written request or direction of the Owner or Architect.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them. The Contractor shall furnish labor that can and will work in harmony with all other elements of labor employed or to be employed on the Project. The Contractor shall promptly resolve any labor or jurisdictional dispute so as not to cause any delay on the Project.

§ 3.4.4 Wherever the terms "or equal" "equal" "approved equal" or the like are used in the Contract Documents it shall be understood that other products other than those specified shall be considered for use in the Work. It is also understood that such products or materials proposed by the Contractor shall, in all respects, be equal to the look, feel, performance, warranty, utility requirements, physical characteristics, maintenance and service life to the specified products or material as determined by the Architect. Should the Contractor wish to substitute another product or method for products or methods specified or shown in the Contract Documents, whether specified or shown in Contract Documents, whether or not such phrases as "equal to" or "based on" are used, he shall apply in writing for approval. He shall enclose such data as Architect requires to evaluate products. The Architect's decision shall be final. Contractor is responsible for space requirements of substitutions, he shall execute necessary changes in adjacent and relocated situations, he shall execute necessary changes in adjacent and relocated work which are due to such substitutions, without additional cost and he shall be responsible for delays required for evaluation of proposed substitutions.

§ 3.5 Warranty

§ 3.5.1 ~~The~~ In addition to any extended warranties required by the Contract Documents, the Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty applies to both patent and latent defects. This warranty shall not be limited to its duration. For those materials, equipment or products furnished by Contractor under this Contract Documents which have an express twelve (12) month warranty, Contractor shall notify Owner of the pending expiration of the warranty at the eleven (11) month mark for purposes of undertaking a walk through with Owner to observe the condition of those materials, equipment or products prior to expiration of the warranty.

~~§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.~~

§ 3.5.2 Specified Product Warranty and Guarantee. The Contractor shall provide to the Owner any specified product warranties and guarantees issued by the manufacturer or fabricator where required by the Contract Documents.

§ 3.5.3 Coincidental Product Warranty and Guarantee. The Contractor shall identify and provide manufacturers published warranties and guarantees on products incorporated into the Work where available which are issued without regard to the specific application and are not individually specified in the Contract Documents.

§ 3.5.4 Warranties and Guarantees required by the Contract Documents shall not deprive the Owner of any actions, rights and remedies otherwise available if the Contractor fails to fulfill the requirements of the Contract Documents.

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§ 3.5.5 The Contractor shall provide a bound copy of all fully executed warranties and guarantees required by the Contract Documents and in this Section within ten (10) days of the ate of Substantial Completion or as otherwise provided for Work accepted before or after such date.

§ 3.5.6 Project Warranty: Unless otherwise specified, Contractor shall warrant (guaranty) all Work against defects resulting from the use of material, workmanship or equipment which is inferior, defective or not in accordance with the terms of the Contract Documents. This warranty, unless stated otherwise in the Contract Documents, shall be for a period of one (1) year from the date of issuance of the Certificate of Substantial Completion for the Project.

§ 3.5.7 Warranty Obligations

.1 Contractor shall restore or remove-and-replace warranted Work to its originally specified condition, at such time during warranty as it does not comply with or fulfill terns of warranty.

.2 Contractors shall restore or remove-and-replace other Work which has been damaged by failure or warranted Work, or which must be removed and replaced to gain access to warranted Work.

.3 Cost of restoration or removal-and-replacement is Contractor's obligation, without regard to whether Owner has already benefited from use of failing Work.

.4 Warranties shall cover consequential damage to property other than the Work of the Contract.

.5 Upon restoration or removal and-replacement of warranted Work which has failed, Contractor shall reinstate the warranty by issuing newly executed form, for at least the remaining period of time of the original warranty, but for not less than half of the original warranty period.

.6 Warranties and warranty periods shall not diminish implied warranties, and shall not deprive Owner of actions, rights and remedies otherwise available if the Contractor fails to fulfill the requirements of the Contract Documents.

.7 Owner reserves the right to reject coincidental product warranties which conflict with or are less than the requirements of the Contract Documents.

§ 3.5.8 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. No amount shall be included in the bid for State Sales Tax or for Federal Excise Tax on materials or supplies purchased for this project. The Owner will supply tax exempt number.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded. The Contractor shall pay costs charged by utility companies for service connections, inspections and tests, and related utility company fees normally assessed as part of the construction process.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide

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notice to the Owner and the Architect before conditions are disturbed and in no event later than ~~14~~ 7 days after first observance of the conditions. ~~The~~ If the Contractor fails to provide the Owner and the Architect with the aforesaid written notice within said seven (7) day period, the Contractor shall not be entitled to any adjustment in the Contract Sum or Contract Time and said claim shall be deemed waived and abandoned. If said notice is provided, the Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a full-time competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect or Owner may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect or Owner to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the ~~Work.~~ Work in the form of a detailed critical path method ("CPM") schedule acceptable to the Owner and Architect. The schedule shall depict each trade in detail and depict the sequence of activities within each trade and the interrelationships between activities. The schedule shall contain detail

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appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised and updated at appropriate intervals as required by the conditions of the Work and ~~Project.~~Project or as reasonably requested by the Architect or Owner.

§ 3.10.1.1 An updated Contractor's construction schedule, in CPM format, must be provided with each Application for Payment. The updated Contractor's construction schedule shall include all information and data required to assess the progress of the Work, identify delaying events (if any), and predict the duration and sequence of future Work. Failure of the Contractor to provide an updated Contractor's construction schedule as provided herein shall entitle the Owner to suspend any obligation to pay any portion of the Contractor's general conditions costs then due or to become due until the Contractor provides such updated Contractor's construction schedule.

§ 3.10.1.2 In addition to the CPM schedules noted above, the Contractor shall submit a two-week look-ahead schedule that will define the Work anticipated to occur over the next two weeks. A two-week look-ahead schedule shall be submitted on a weekly basis. The two-week look ahead schedule may be in simplified bar chart format.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.2.1 An updated schedule of submittals shall be provided with each Application for Payment indicating the status of all submittals required for the Work. Failure of the Contractor to provide an updated schedule of submittals shall entitle the Owner to suspend any obligation to pay any portion of the Contractor's general conditions costs then due or to become due until the Contractor provides such updated schedule of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to and approved by the Owner and Architect.

§ 3.10.4 In all events, the Owner, in its sole discretion, shall approve or disapprove any and all changes to the Contractor's construction schedule, submittal schedule and any revisions thereto with respect to all critical path activities, milestones and/or the date of Substantial Completion.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.11.1 The Contractor shall maintain all approved permit drawings in a manner so as to make them accessible to governmental inspectors and other authorized agencies with jurisdiction. All approved drawings shall be wrapped, marked and delivered to the Owner in hardcopy and electronic form promptly upon final completion of the Work as a condition precedent to final payment.

3.11.2 Record drawings (As-Built Drawings) in both hard copy and electronic form shall be submitted to the Architect by Contractor promptly after completion of the Work as a condition precedent to final payment. Record drawings shall illustrate the as constructed condition of the Work including, but not limited to, utilities, structures, and all deviations in the construction of the Work from the Contract Documents.

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§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors. No extension of time will be granted arising out of the Contractor's failure to submit Shop Drawings, Product Data, Samples, or other submittals which do not allow adequate time for review by the Architect and the Architect's consultants and does not allow adequate time for revision and subsequent review, as required.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically and conspicuously notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific and conspicuous attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

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specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed and adequately insured design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. The Contractor shall, at all times, maintain the site in a clean and orderly condition, which minimizes dust. Access and egress ways to the site shall be kept clear at all times.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project. The Contractor shall take measures to control and ensure that no soil, mud, dust or the like is tracked from the site on to public or private roads or property. The Contractor shall, at all times, employ adequate dust control measures on the Project site.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or

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patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the Architect, Architect's consultants, the State of Connecticut, and the members, agents and employees of any of them (collectively "Indemnitees") from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.1.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Indemnitees from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from any breach or failure of the Contractor to comply with the terms and conditions of the Contract Documents but only to the extent caused by the acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.1.1 To the fullest extent permitted by law, the Contractor shall provide a defense to the Owner, the Hebron Public Building and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, and the members, agents and employees of any of them for any claims concerning, arising out of, or relating to the Contractor's or the Contractor's Subcontractor's operations concerning, the Project whether or not such claim has in part its origin in a claim that the Owner's, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee's, the RHAM Board of Education's, and the members, agents and employees of any of them conduct was in part responsible for said damage, loss or expense. The duty to defend the persons and entities set forth herein extends to situations where there is no duty to indemnify or save harmless such persons and/or entities.

§ 3.18.1.1.1 Owner reserves the right to approve or reject any counsel, expert or consultant intended to represent or work on Owner's behalf in fulfillment of the foregoing defense and indemnity obligations. Owner further reserves the right to supplement or hire additional or other counsel, experts or other consultants as Owner deems necessary to assure adequate defense and indemnity of Owner's interests. Contractor shall be responsible for, and promptly pay, all costs and expenses arising from or relating to all such counsel, experts or other consultants and the defense and indemnity obligations hereunder.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification ~~obligation under Section 3.18.1~~ and defense obligations under this Section 3.18 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

§ 3.18.3 The defense, indemnity and hold harmless provisions set forth in this Agreement shall survive termination or full or partial performance of this Agreement.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

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§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, unless otherwise provided in the agreement between the Owner and Architect, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site ~~visits,~~ visits made by the Architect, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor ~~shall~~ may include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner ~~shall promptly~~ may notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such ~~amounts.~~amounts for the Owner's review and consideration.

§ 4.2.6 The Architect and/or the Owner has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect and/or Owner considers it necessary or advisable, the Architect and/or Owner will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect or Owner nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or Owner to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design ~~concept~~ expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the

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obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic ~~effect~~ effect, and except for claims which have been waived by making or acceptance of final payment as provided by Subparagraphs 9.10.3 and 9.10.4, will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

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§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was ~~reasonably capable of performing the Work,~~ capable of performing the Work and qualified based on objective performance and financial criteria, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 or convenience pursuant to Section 14.4 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the ~~subcontract,~~subcontract after, but not before, the date of such assignment.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation ~~shall~~ may be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the ~~Owner shall nevertheless remain legally~~ successor contractor shall be solely responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to

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those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary by the Owner after a joint ~~review and mutual agreement.~~ review. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect and Owner of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's ~~delays, improperly timed activities,~~ damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

§ 6.3.1 In a dispute between the Owner and the Contractor concerning rubbish and orderliness on the site, the Owner may have the rubbish removed and charge the cost to the Contractor. Upon written notification from the Architect that the project requires cleaning, the Contractor shall within 24 hours remove all rubbish and hazards from the Project and shall arrange his material and equipment in an orderly manner on the site. If this cleaning is not completed within 24 hours, the Owner may engage labor to clean up the projects to his satisfaction and deduct the costs from any monies due the Contractor.

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ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.1.4 Upon request of the Owner or the Architect, the Contractor shall, without cost to the Owner, submit to the Architect and the Owner, in such form as the Owner may require, a "Change Proposal" including a full description of the character and scope of work involved in any proposed extra Work or change in the Work, an accurate written estimate of the cost of such proposed change including all elements of pricing in appropriate detail, and an explanation of the impact of the proposed change on the construction schedule. The cost estimate shall indicate the quantity and unit cost of each item of material or equipment to be incorporated in the Work, rental of construction plant and equipment (which shall be subject to the terms and conditions set forth in the Agreement) and other items involved in the proposed change, and the number of hours of Work and hourly rate (including wage supplements and benefits) for each trade, craft or class of labor, as well as the description and amounts of all other costs chargeable under the terms of this article. For changes to the Work performed by Subcontractors, the Contractor shall obtain and furnish to the Owner and the Architect bona fide proposals (on letterhead) from Subcontractors, Sub-subcontractors or recognized suppliers for furnishing labor and materials included in such Work, including the same itemized analysis and supporting information. The Contractor shall promptly revise and resubmit such cost estimate if the Architect or the Owners determines that it is not in compliance with the requirements of this article, or that it contains errors of fact or mathematical errors. Percentage allowances for overhead and profit included in a Change Proposal shall be in accordance with provisions of Section 7.3.4 which shall apply only if changes in the Work are priced on a lump sum or time and material basis as opposed to a unit price basis. The Contractor shall state in the Change Proposal any extension of the Contract Time that the Contractor believes is necessary if the change or extra Work is ordered or that the Contractor believes it is entitled to for any other reason. If the Contractor claims an extension of the Contract Time, the Contractor shall provide in the Change Proposal a full explanation of the need for a time extension with supporting documentation, including a schedule impact analysis (sometimes referred to as a time impact analysis) in form acceptable to the Owner and the Architect indicating the activities affected and overall impact on the schedule of the proposed change in the Work. Claims by the Contractor for any claimed extension of the Contract time shall be subject to the provisions of Section 8.3. Requests for substitutions or other changes initiated by Contractor shall be submitted with a Change Proposal in accordance with all of the provisions of this Section 7.1.4. Change Proposals shall be furnished promptly so as to occasion no delay in the Work and shall be furnished at the Contractor's expense (i.e., without increase in the Contract Sum). By submitting a Change Proposal, the Contractor shall be deemed to certify in writing that the Change Proposal includes all Work affected by the change, that the cost estimate indicated in the Change Proposal includes all costs and expenses of any kind or nature. The Contractor shall cooperate fully with the Owner and the Architect to provide sufficient substantiation and explanation of costs and schedule impacts to allow the Owner and the Architect to reasonably evaluate the Change Proposal.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.2.1.1 For any potential changes, except for concealed or unknown conditions as described in Section 3.7.4 which requires a seven (7) day notice, the Contractor shall always notify the Owner and Architect within ten (10) days of knowledge of the potential change. Failure to notify the Owner and Architect within ten (10) days of knowledge of the

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potential change shall constitute a waiver by Contractor and absolute bar to any additional compensation or request for an extension of time for the potential change.

§ 7.2.2 A Change Order duly executed by the Owner and Architect and the Contractor shall constitute an all-inclusive settlement on account of the changes in the Work described or referred therein including all direct, indirect, supplemental, consequential and cumulative costs and delays associated in any way therewith, and the Contractor's signature on a Change Order represents a waiver of any and all rights, if any, to make any further Claim on account of that instrument or the changes reflected therein. By executing a Change Order the Contractor represents to the Owner that all Subcontractors performing Work under the Change Order have agreed to the terms of the Change Order, and the Contractor assumes full responsibility for, and shall defend, indemnify and hold harmless the Owner with respect to, any claims from the Subcontractors in connection with the Change Order or the performance of the Work covered by the Change Order.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following ~~methods:~~methods as selected by the Architect and/or Owner:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage ~~fee;~~ fee not exceeding the fees set forth in Section 7.3.4; or

.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, and provided no unit prices apply, the Architect or Owner shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect or Owner may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

Unless otherwise required by applicable law, allowances for overhead and profit, under this Section 7.3.4 and under the other methods of adjustment specified in Section 7.3.3, except for unit price adjustments (which shall include overhead and profit, insurance and bonds), shall not exceed the percentages specified below, including costs of premiums for bonds and insurance, permit fees and applicable taxes (if any), and subject to any other limitations stated in the Agreement. The percentage allowance for Subcontractors stated below shall cover field and office overhead, tools, profit, general conditions, bonds, insurance, and all other indirect costs, and the percentage allowance for the

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Contractor shall cover the Contractor's field and office overhead, profit, general conditions, bonds, insurance, tools, and any other indirect costs or other expenses of the Contractor.

(a) For additions, deletions or other changes in the Work ordered under method 7.3.3.3, the Contractor may apply an allowance of up to ten percent (10%) for profit and overhead to the net cost of the work actually performed by him.

(b) Work to be performed by a Subcontractor may include an allowance for the Subcontractor's overhead and profit not to exceed ten percent (10%) of the net cost. The Contractor is permitted up to a five percent (5%) allowance to be applied against the net cost to a Subcontractor. In no case shall the total allowance exceed 15 percent (15%) of the net cost of Work performed by the Subcontractor.

(c) The Contractor's allowance of up to ten percent (10%) on changes involving more than one (1) Subcontractor shall be applied only to the combined net of cost additions and deductions of all Subcontractors.

(d) There shall be no allowance for overhead and profit for the Contractor or any Subcontractor on changes resulting in a net deduction.

(e) The provisions of this Article shall apply only to Subcontractors as defined in Article 5. Allowance for overhead and profit will be accepted only for those who are direct Subcontractor

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article ~~15.~~15, but shall perform the Work during the pendency of any dispute as required by this Agreement.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect and Owner of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost or costs based upon unit prices as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, and provided unit prices are not applicable, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the

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change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined. The term "calendar day" or "day" is a full 24-hour period starting from 12 A.M. (midnight) and includes all weekends and legal holidays. If the last day of any time period specified in the Contract Documents within which a party is required to act falls on a Saturday, Sunday or legal holiday in Connecticut, the period of time within which the required action must be taken shall be extended to the next following regular business day. The term "business day" means a full 24-hour period starting from 12 A.M. (midnight) and excludes all weekends (Saturday and Sunday) and legal holidays.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed ~~expeditiously~~ expeditiously, diligently, and continuously with adequate forces and shall achieve Substantial Completion within the Contract Time. and shall achieve critical milestone dates as set forth in the most recent Contractor's construction schedule approved by the Owner. If the Owner determines that the progress of the Work has been materially delayed, or that the date of Substantial Completion, as may be adjusted by Change Order, is in jeopardy of not being met, the Owner shall have the right to require the Contractor to take whatever steps are necessary to recover all or a portion of such delay. To the extent that the Contractor, or anyone for whom the Contractor is directly or indirectly responsible, has caused all or part of such delay the costs associated with such recovery shall be borne by the Contractor, and the activities required to effect such recovery shall not be deemed a change in the Work. The Contractor shall, within three days after the Owner's request to take such action, notify the Owner and the Architect in writing and promptly commence implementing the steps the Contractor proposes to take to effect such recovery, and provide the Owner an acceptable detailed recovery schedule setting forth the actions to be taken by the Contractor. If the Contractor disputes any direction by the Owner pursuant to this section, it shall have no right to refuse to accelerate the Work.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) ~~an act or neglect~~ a wrongful act of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, supply chain disruptions, pandemics, government orders, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 ~~This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.~~No Damage for Delay. Contractor acknowledges that delays resulting from changes in the Work, extreme weather, changes to the sequencing of the Work, late approvals, defects, errors or omissions in the Contract Documents, material shortages, supply chain disruptions, pandemics, government orders, transportation, strikes and

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other causes are inherent in the construction process. Contractor acknowledges that it has accounted for delays in the Contract Sum and agrees to bring no claim for money damages as a result of any delay or hinderance however caused. In the event that the Contractor claims that it has been delayed or hindered through no fault of its own or the fault of any Subcontractor and/or Supplier, it shall submit a request for an extension of time to the Owner and Architect in the manner and pursuant to the time periods set forth in the Contract Documents. If it is determined that Contractor has been delayed or hindered through no fault of its own or that of its Subcontractors and/or Suppliers, the time for performance hereunder will be extended and the extension of time shall be Contractor's sole remedy for delay. Under no circumstances will the Owner be liable to the Contractor for damages resulting from any delays or hinderances regardless of whether all or part of such delay or hinderance may be in any way attributable to the acts, negligence, the failure to act, or the omissions of the Owner, the Owner's agents or representatives, the Owner's consultants, if any, the Architect, or the Architect's consultants. No extension of time will be allowed for adverse weather conditions unless the number of days of inclement weather is substantially greater or conditions substantially more severe than the average for the calendar period as recorded by a recognized weather observation agency.

§ 8.3.4. Waiver of Impact Claims. In all events, the Contractor waives all forms of impact claims including but not limited to efficiency, loss of productivity, trade stacking, disruption, re-sequencing, and the like regardless of whether all or part of such impact may be in any way attributable to the acts, negligence, the failure to act, or the omissions of the Owner, the Owner's agents or representatives, the Owner's consultants, if any, the Architect or the Architect's consultants.

§ 8.3.5 The Contractor shall include similar No Damage for Delay and No Impact Claim provisions in the agreements the Contractor executes with its Subcontractors, suppliers and other persons or entities that the Contractor employs to perform the Work.

§ 8.3.6. Nothing in this Agreement shall be construed as preventing the Owner form making a claim against the Contractor for delay damages.

§ 8.3.7 No extension of time will be allowed for adverse weather conditions unless the number of days of inclement weather is substantially greater or conditions substantially more severe than the average for the calendar period as recorded by a recognized weather observation agency.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted. A material change in unit price quantities shall mean twenty-five percent (25%) or more.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect and Owner before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment. If the Contract Sum is based on unit prices, in whole or in part, a schedule of items, estimated quantities and unit prices shall be submitted by the Contractor, which shall be identical to that submitted by the Contractor in its bid for the Project.

§ 9.3 Applications for Payment

§ 9.3.1 At least ~~ten~~ fifteen days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be ~~notarized, if required,~~ notarized and

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supported by all data substantiating the Contractor's right to payment that the Owner or Architect ~~require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.~~require. Such supporting data shall include without limitation the following: (1) lien and claim releases for the Contractor and its Subcontractors and Suppliers; (2) monthly update of the Contractor's construction schedule; (3) monthly updated schedule of submittals; (4) certified payrolls from any person or entity performing Work on the Project; (5) monthly financial reporting as required by the Agreement; of any, and (6) any other supporting documentation or reporting as required by the Contract or as reasonably required by the Owner, or the Architect. Failure by the Contractor to provide the information in this Section or otherwise required by the Contract Documents, in a form acceptable to the Owner or Architect shall cause the Application for Payment to be incomplete and defective and suspend the Owner's obligation to pay until such time as the defects are cured and the Application for Payment is processed in accordance with the terms of this Agreement. In order to expedite progress payments during the course of the Project, the Contractor, prior to the submission of the Application for Payment, shall review with Owner and Architect, a draft of the Application for Payment set forth in herein in order to expedite and facilitate agreement with the amounts requested.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.1.3 During progress of the Work, the Owner will pay Contractor ninety-five percent (95%) of the total amount of each monthly payment due. The Owner shall retain an additional 2% until the Contractor's CHRO Utilization Plans are approved by CHRO and the 2% retainage is approved for release by CHRO. The remaining five percent (5%) will be retained by the Owner until the Project is substantially completed. There will be no further reduction considered until final acceptance of the Project in accordance with the Contract Documents.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable replacement value insurance, storage, and transportation to the site, for such materials and equipment stored off ~~the site.~~the site at no additional cost to the Owner. If the Contractor does not submit evidence of payment to vendor for material and equipment stored, the Owner or Architect may make a deduction for the amount previously allowed, if any, for the items stored from the current or subsequent Application for Payment.

§ 9.3.2.1 Contractor may include in Application for Payment the delivered cost of equipment and non-perishable materials delivered and stored at the site but not incorporated in the work, under the following conditions:

.1 Items to be protected from fire, theft, vandalism, weather and other damage.
.2 Storage procedures and areas to be approved.
.3 Items to be available at all times for inspection by the Owner and Architect.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner ~~shall, to the best of the Contractor's knowledge, information, and belief,~~ shall be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.3.4 Contractor shall furnish with Application for Payment an invoice establishing value of material and equipment stored at the site along with a statement of amount to be paid the vendor.

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.1 Such stored items are subject to inspection by Architect before payment is recommended.

.2 Contractor shall furnish Owner with Certificate of Insurance in accordance with Contract Documents for the full value of the items stored at the site.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not ~~remedied~~;remedied within the time frames set forth in the Contract Documents;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;

.3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

.4 reasonable evidence that it is more probable than not that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a Separate ~~Contractor;~~Contractor or any other party if such damage arises out of the Project and is caused by the Contractor or anyone for whom the Contractor may be directly or indirectly responsible;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;~~or~~

.7 ~~repeated~~ failure to carry out the Work in accordance with the Contract ~~Documents.~~ Documents; or

.8 Any other material breach of the Contract.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

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§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole ~~option,~~ option and for its sole benefit, issue joint checks to the Contractor and to any Subcontractor or supplier or other person or entity to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment. The Contractor agrees that in the event the Owner exercises its rights hereunder, the Contractor shall endorse such joint check and the Contract Sum shall be reduced by the amount of such payment(s). If the Contractor fails or refuses to execute such joint check, the Owner may, in its sole discretion and for its sole benefit, pay the Subcontractor or Supplier or other party directly and reduce the Contract Sum accordingly.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for ~~Payment,~~ Payment or pay estimate, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 ~~The~~ Unless a shorter period of time is required by applicable law, the Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.2.1 Contractor shall furnish Architect with satisfactory evidence of payment to vendors supplying material and equipment for approved storage. This shall be done within thirty (30) days after the date of progress payment. Satisfactory evidence of payment shall be one (1) of the following:

.1 Contractor's canceled check in correct amount with identification of invoices paid.

.2 A letter or telegram from vendor with authorized signature stating amounts and invoices paid.

.3 A receipted invoice.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

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§ 9.6.7.1 Payment for material and equipment delivered and stored shall not relieve Contractor of responsibility for furnishing equipment and material required for the work in the same manner as if such payment were not made.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of ~~shutdown, delay~~ shutdown and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. Substantial Completion shall not be achieved unless the Contractor obtains all permits and approvals applicable to the Work of the Contractor necessary to occupy or utilize the Project for its intended purpose from any authority having jurisdiction.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner ~~shall~~ may make payment of retainage or a portion thereof applying to the Work or designated portion ~~thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.~~thereof, otherwise retainage shall be due and payable at the time of final payment and in no event shall retainage be due and owing until the Work is fully and finally complete including the completion of all punch list items..

§ 9.8.6 The Contractor shall complete all punch list items within sixty (60) days after the date of Substantial Completion. Failure by the Contractor to do so will constitute a material breach of the Contract, if so declared by the Owner and shall entitle the Owner to exercise any remedy set forth in the Contract Documents.

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§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate and endorsement or actual insurance policy evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) ~~if required by the Owner,~~ other data establishing payment or satisfaction of obligations, such as receipts and final and absolute releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or ~~encumbrance.~~ encumbrance including attorneys' fees. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' ~~fees.~~fees on demand.

§ 9.10.2.1 As an express condition precedent to final payment and in addition to the items required in 9.10.2, the Contractor shall submit the following to the Architect and Owner for review and approval: (1) all warranties and guarantees required by the Contract Documents; (2) Project record documents (As-built drawings, surveys and specifications) as required by the Contract Documents; (3) operation and maintenance manuals required by the Contract Documents; (4) extra stock as required by the Contract Documents; and (5) any other close-out or record documents required by the Contract Documents.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the

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Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

Intentionally Omitted.

~~§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from~~
~~.1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;~~
~~.2 failure of the Work to comply with the requirements of the Contract Documents;~~
~~.3 terms of special warranties required by the Contract Documents; or~~
~~.4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.~~

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.4.1 The Contractor shall not bring hazardous materials onto the site nor use in the Work without compliance with the following conditions:

(a) The Contractor shall be solely responsible for the handling, storage, and use of explosive or other hazardous materials when their use is permitted. For such use, the Contractor shall obtain necessary permits form regulating agencies and submit copies of permits to the Architect for review before proceeding with use;

(b) The Contractor shall comply with all use instructions for such hazardous materials and shall comply with all applicable Federal, State and local regulations, codes, ordinances and laws concerning the use of such materials;

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(c) The Contractor shall obtain insurance for use of hazardous material and furnish proof of insurance as required by the Contract Documents.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.2.9 The Contractor shall defend, indemnify and save harmless the Indemnitees from any and all losses, costs and expenses, including fines and reasonable attorneys' fees incurred by the Indemnitees by reason of the violation of applicable laws, ordinances, regulations and directives, federal, state and local, which are currently in effect or which become effective in the future and caused by the negligence of the Contractor, its Subcontractors or anyone either directly or indirectly employed by any of them. This provision shall survive termination or full or partial performance of the Agreement.

§ 10.2.10 The Contractor shall provide adequate facilities to keep the site secure at all times when the Contractor's personnel are not present, from commencement of the Work until final completion, to assure that the Work, all materials and equipment stored at the site, and all property of the Owner located within the site limits or within areas occupied or controlled by the Owner, are fully and completely protected against loss or damage due to vandalism, theft, malicious mischief, pilferage or unexplained disappearances.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written

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agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 ~~To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.~~ Intentionally Omitted.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 ~~If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.~~ Intentionally Omitted.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

§ 10.5 The defense, indemnity and hold harmless provisions in this Section shall survive termination or full or partial performance of the Agreement.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the ~~jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants~~ State of Connecticut. By endorsement acceptable to the Owner, the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect, and Architect's consultants, and the members, agents and employees of any of them shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents on a primary and non-contributory basis. Policies written on a claims-made basis shall have an extended reporting period of at least three (3) years after final completion of the Project. The Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect, and Architect's consultants, and the members, agents and employees of any of them shall be named as additional insureds under the Contractor's Subcontractor's commercial general liability policy or as otherwise described in the Contract ~~Documents.~~ Documents on a primary and non-contributory basis.

§ 11.1.1.1 Failure to maintain insurance as required herein shall constitute a material breach of the Agreement entitling the Owner to terminate for cause.

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§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized and licensed to issue surety bonds in the ~~jurisdiction where the Project is located.~~State of Connecticut.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within ~~three (3) business~~ thirty (30) days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing ~~prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.~~within 10 days of Notice of award..

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. ~~Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.~~Intentionally Omitted.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The ~~Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive~~

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~~claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.~~Contractor, Subcontractors and Suppliers and their respective insurers, waive all rights of subrogation against the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect and the Architect's consultants and their respective insurance carriers the Owner, the Hebron Public and RHAM Emergency Electrical Generator Upgrade Building Committee, the RHAM Board of Education, the State of Connecticut, the Architect and the Architect's consultants and their respective insurers retain all rights of subrogation.

§ 11.3.2 ~~If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.~~Intentionally Omitted.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. ~~The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.~~

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner ~~as fiduciary~~ and made payable to the Owner ~~as fiduciary~~ for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

§11.6.1 The Contractor shall not begin Work until he has obtained all insurance and endorsements as required, nor shall any Subcontractor be permitted to commence work until he has obtained all insurance as required under the same provisions. Insurance shall be maintained throughout the life of the Contract.

§11.6.2 It shall be the responsibility of the Contractor to obtain certificates of insurance and endorsements from each Subcontractor and to make certain that all coverage is maintained throughout the life of the Contract.

§11.6.3 The Contractor, before commencing work, shall supply Owner with certificates of insurance and endorsements evidencing compliance with the insurance requirements. Each certificate and endorsement shall state that the insurance evidenced by such certificate will not be canceled or reduced without thirty (30) days prior written notice to the Owner.

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§11.6.4 Each Subcontractor, before commencing work, shall supply Owner with certificates of insurance and endorsements evidencing compliance with the insurance requirements. Each certificate and endorsement shall state that the insurance evidenced by such certificate will not be canceled or reduced without thirty (30) days prior written notice to the Owner.

§11.6.5 The Contractor shall maintain a file of certificates of insurance and endorsements received from each Subcontractor and provide Owner with copy of each certificate and endorsement.

§11.6.6 The Contractor shall furnish to the Owner copies of any endorsements subsequently issued amending coverage or limits.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's or Owner's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the ~~Architect,~~ Architect or Owner, be uncovered for the Architect's and/or Owner's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall ~~promptly~~ within seven (7) days, or such other time as the Owner may agree in writing, correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor ~~shall correct it promptly~~ shall, within seven (7) days, or such other time as the Owner may agree in writing correct it after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within ~~a reasonable time during that period~~ the time period set forth herein or as otherwise agreed in writing after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work. Any corrective work shall extend the warranty period for an additional calendar year for the Work corrected.

§ 12.2.2.3 ~~The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.~~ Intentionally Omitted.

§ 12.2.3 The ~~Contractor~~ Contractor, at its sole cost and expense, shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

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§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the ~~place where the Project is located,~~ State of Connecticut, excluding that jurisdiction's choice of law rules. ~~If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.~~

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or

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approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of ~~30~~ 60 consecutive days through no act or ~~fault~~ fault, in whole or in part, of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be ~~stopped;~~stopped provided that the resumption of the Work is not likely within a reasonable time;

.2 An act of government, such as a declaration of national emergency, that requires all Work to be ~~stopped;~~stopped provided that the resumption of the Work is not likely within a reasonable time; or

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment which the Owner has approved within the time stated in the Contract ~~Documents; or~~Documents.

~~.4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.~~

§ 14.1.2 The Contractor may terminate the Contract if, through no act or ~~fault~~ fault, in whole or in part, of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work ~~executed, as well as reasonable overhead and profit on Work not executed, and~~ executed and approved by the Architect, and reasonable and documented costs incurred by reason of such termination. The value of the executed and accepted Work shall be determined by the Architect. In all events the Contractor waives any and all claims for any other compensation and damages of any kind or nature including but not limited to claims for overhead and profit on Work not executed.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or ~~fault~~ fault, in whole or in part, of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

Init. /

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§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 ~~repeatedly~~ refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;

.3 ~~repeatedly~~ disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority;

.4 failure to maintain insurance; or

~~.4~~ .5 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate ~~employment~~ engagement of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's ~~services~~ services, the Owner's attorneys' fees and costs, and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the ~~Owner.~~ Owner on demand. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.2.5 In the event it is adjudged that the Owner has terminated this Agreement wrongfully, the parties agree that such termination shall be deemed a termination for convenience and the Contractor shall be compensated as provided in Section 14.4.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time ~~shall~~ may be adjusted for increases in the cost and time caused by ~~suspension, delay,~~ suspension or interruption under Section 14.3.1. Adjustment of the Contract Sum ~~shall~~ may include profit. No adjustment shall be made to the extent

.1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 perform such Work as may be specified by the Owner in the notice and cease all other operations as directed by the Owner in the notice;

.2 take all actions necessary, or that the Owner may direct, for the protection and preservation of the ~~Work;~~ Work, materials, equipment, and supplies; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, ~~terminate all existing subcontracts and purchase orders~~ assign such subcontracts and purchase orders to

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the Owner as it may request, terminate all other subcontracts and purchase orders (mitigating such costs to the extent practicable) and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly ~~executed;~~ executed and accepted by the Architect; reasonable and documented costs incurred by reason of the termination, including costs attributable to termination of ~~Subcontracts; and the termination fee, if any, set forth in the Agreement.~~ Subcontracts and a reasonable allowance for overhead and profit if such overhead and profit is not already included in the Schedule of Values and if not a percentage not exceeding five percent (5%). Such payment shall not include any overhead or profit on Work not executed. In all events the Contractor waives any and all claims for any other compensation and damages of any kind or nature including but not limited to claims for overhead and profit on Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by ~~either~~ the ~~Owner or~~ Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the ~~other party~~ Owner and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by ~~either party~~ the Contractor under this Section 15.1.3.1 shall be initiated within ~~21~~ 10 days after occurrence of the event giving rise to such Claim or within ~~21~~ 10 days after the claimant first recognizes the condition giving rise to the Claim, ~~whichever is later.~~ unless a shorter time is specified in the Contract Documents. If notice of the Claim to the Owner is not provided within the time period specified, then such Claim shall be abandoned and waived by the Contractor .

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently and continuously with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract ~~Documents.~~ Documents which are not the subject of a good faith dispute. A dispute over payments of any kind shall not be cause for the Contractor to cease or suspend the Work.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

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§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an ~~estimate of cost and of~~ analysis of the probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is ~~necessary.~~necessary, but the Contractor shall update the construction schedule regularly are required by the Contract Documents.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor ~~and Owner waive Claims against each other~~ waives Claims against the Owner for consequential damages arising out of or relating to this Contract. This ~~mutual~~ waiver includes

~~.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and~~

~~.2~~

.1 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of ~~profit, except anticipated profit arising directly from the Work.~~profit.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of

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the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party

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filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, ~~either party~~ the Owner may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association ~~or other applicable arbitration rules, either party~~, the Owner may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 ~~The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.~~Intentionally Omitted.

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_____

(Signed)

_____

(Title)

_____

(Dated)

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AIA® Document A312® – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

« »« »
« »

SURETY:
(Name, legal status and principal place of business)

« »« »
« »

OWNER:
(Name, legal status and address)

« »« »
« »

CONSTRUCTION CONTRACT
Date: « »
Amount: $ « »
Description:
(Name and location)

« »
« »

BOND
Date:
(Not earlier than Construction Contract Date)
« »
Amount: $ « »
Modifications to this Bond: « » None « » See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	« »« »	Name and Title:	« »« »

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

« »
« »
« »

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

« »
« »
« »
« »
« »
« »

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

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§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

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§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	« »« »	Name and Title:	« »« »
Address:	« »	Address:	« »

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Performance Bond

CONTRACTOR:
(Name, legal status and address)

« »« »
« »

SURETY:
(Name, legal status and principal place of business)

« »« »
« »

OWNER:
(Name, legal status and address)

« »« »
« »

CONSTRUCTION CONTRACT
Date: « »
Amount: $ « »
Description:
(Name and location)

« »
« »

BOND
Date:
(Not earlier than Construction Contract Date)
« »
Amount: $ « »
Modifications to this Bond: « » None « » See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	« »« »	Name and Title:	« »« »

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

« »
« »
« »

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

« »
« »
« »
« »
« »
« »

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

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§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

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§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

« »

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	« »« »	Name and Title:	« »« »
Address:	« »	Address:	« »

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SECTION 010400 - COORDINATION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Minimum administrative and supervisory requirements necessary for coordination of work on the project to be fulfilled by the Contractor include but are not necessarily limited to the following:

1. Coordination and meetings.
2. Administrative and supervisory personnel.
3. Records and reports.
4. Limitations for use of site and site utility hook-ups.
5. Special reports.
6. General installation provisions.

B. Cleaning and protection.

C. Coordination with the Town of Hebron, including all inspections.

D. Each Subcontractor must participate, where applicable, even though certain items of work may be assigned to a specific Subcontractor, and even though the Contractor may provide certain general work for overall coordination purposes.

1.2 COORDINATION AND MEETINGS

A. General: Prepare a written memorandum on required coordination activities. Include such items as required notices, reports and attendance at meetings. Distribute this memorandum to each entity performing work at the project. Prepare similar memorandum for separate contractors where interfacing of their work is required.

B. Coordination Meetings: The Contractor shall schedule general project coordination meetings as required based upon the stage of construction; at regularly scheduled times convenient for the attendance of the parties involved. These meetings are in addition to specific meetings held for other purposes, such as regular project meetings and special pre-installation meetings. Required attendance includes each entity identified by any Contractor as being currently involved in coordination or planning for the work of the entire project. Conduct meetings in a manner that resolve coordination problems. The Contractor shall preside at each meeting, and shall record meeting results. The Contractor shall record and distribute copies of the meeting results to everyone in attendance and to others affected by decisions or actions resulting from each meeting. This includes attendance to all meetings as may be conducted by the owner for these systems, inclusion into the project master schedule and all other coordination required.

1.3 ADMINISTRATIVE/SUPERVISORY PERSONNEL

A. Contractor shall provide full time, on site administrative and supervisory personnel for the proper execution of the work.

1.4 LAYOUT

A. The Contractor's licensed land surveyor shall establish and the Contractor shall maintain, bench marks and other dependable markers. Establish bench marks and markers to set lines and levels for work as needed to properly locate each element of the project. Each Subcontractor shall calculate and measure required dimensions as shown within recognized tolerances. Advise entities performing work, of marked lines and levels provided for their use.

1. Construction limits will vary during the life of the Contract. Provide additional survey and layout requirements as required to coordinate with the changing construction limits.

B. Before proceeding with the layout of actual work, Contractor shall verify and coordinate the layout information shown on the drawings, in relation to existing bench marks. Do not scale drawings. Recheck measurements and dimensions, before starting each installation. Report discrepancies to the Architect prior to proceeding with that work.

C. The Contractor shall coordinate and supervise the work performed by Subcontractors to the end that the work is carried out without conflict between trades and so that no trade, at any time, causes delay to the general progress of the Work. The Contractor shall at all times afford each trade, any separate contractor, and the Owner, every reasonable opportunity for the installation of work and the storage of materials, so long as no material delay to the general progress of the work results.

1.5 LIMITATIONS ON USE OF THE SITE

A. General: Administer allocation of available space equitably among the Subcontractors and other entities needing access and space, so as to produce the best overall efficiency in performance of the total work of the project. Schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on site.

1. Site Access: Site access is permitted between 7:00 a.m. and 5:00 p.m. Monday through Friday.
2. Contractor shall be responsible to not limit access to all primary and secondary roads with the site and the entire campus as a result of the Contractor's operations.
3. Contractor's vehicles and deliveries are restricted. Owner's Representative will determine the location of site access.
4. Variations in the above requirements may be permitted provided the Owner is notified at least one week in advance and the Owner agrees to the proposed exceptions.

5. Staging areas, access to site and Contractor's parking areas shall be addressed during the pre-bid meeting and pre-construction meeting. No change in the Contract Sum will be permitted as a result of the Owner's decisions in this matter.
6. The Contractor shall coordinate his activities with significant events on Hotchkiss' academic calendar, including, but not limited to Commencement, Homecoming, Student Arrival, and Student Departure. The Contractor's use of the site may be restricted or denied on these days.

B. The site has other buildings that are in use and will be in continuous operation during the performance of the Work. The Work shall be completed without interruption of or change in the regular schedule of operations of the other buildings. No access is permitted to the existing buildings without prior written approval of the Owner's Representative.

C. Existing utilities and services affected by the Work shall be kept in active service at all times unless permitted otherwise. Be responsible for any damage done to existing construction, work in place, facilities, utilities, services and equipment, resulting from the Contractor's operations in connection with the Work. Damage to facilities, services, connections, etc., shall be repaired immediately by competent skilled mechanics acceptable to the Owner.

D. Live circuits or working plumbing, heating, ventilating or air conditioning plant or equipment, mechanical piping, installations and connections, and/or plant and equipment related to other operating buildings shall not be disturbed without specific direction and approval.

1. Whenever such work is contemplated, the Contractor shall submit to the Owner and Engineer a written request for scheduling such work. This written request shall be received twenty (20) working days prior to the date on which the proposed work will be performed and addressed at the Project Meeting prior to the required shutdown.
2. The shutting off and turning on of electric current, active services, etc., in live circuits or active plumbing and mechanical piping, water, steam, serving lines, plant, equipment, etc., of the existing facility will be done by or under supervision of the authorized representatives of the occupants of the existing facility buildings.

E. Construction Parking and Staging

1. Construction parking, trailer and staging areas are limited to an area that will be determined by the Owner's Representative.

    a. The contractor and its subcontractors shall be allowed reasonable use of the site for parking. If the site is not sufficient from time to time to park all construction related vehicles than an offsite parking lot shall be used. Transportation to and from this lot is the responsibility of the Contractor. In no event shall the contractor or any construction related vehicle park on a lot designated for Students, Staff, or Faculty. The Owner reserves the right to tow, at the contractor's expense, any vehicle violating these parking restrictions.

2. Contractor shall furnish all labor required for loading and unloading of materials.
3. The Contractor, shall provide a field office trailer. Place trailers/field offices in an approved construction parking, staging area. Provide all facilities for field offices and

trailers, such as office equipment, computers with internet access, telephone, fax, power, heat etc.

4. Contractor shall keep access routes and parking areas used for the work clean of debris and other obstructions resulting from the work. Areas shall be kept in safe conditions.
5. Make repairs to site that is damaged as a result of the Contractor's operations. Repairs shall be to the satisfaction of the Owner.
6. Contractor shall secure all staging, equipment, trailers, surplus material, etc. supplied by the contractor and stored on site. Area shall be properly labeled and visible under normal conditions.

1.6 SPECIAL REPORTS

A. Reporting Unusual Events: When an event of an unusual and significant nature occurs at the site, the Contractor shall prepare and submit a special report. The report shall list chain of events, persons participating, the response by the personnel of the Contractors, an evaluation of the results or effects and similar pertinent information.

B. Submit special reports directly to the Owner's Representative within one day of an occurrence. Submit a copy of the report to the Engineer and other entities affected by the occurrence.

PART 2 - PRODUCTS

2.1 SUBMITTALS

A. Trades Work in a given bay or areas should not proceed until all trades foremen agree on the exact arrangements for each room or area. If a given trade proceeds prior to trades' approval, then, if necessary, that trade shall revise the Work at no extra cost in order to permit others to proceed.

B. Staff Names: Within 15 days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses, telephone numbers and include a copy of their resumes.

1. Comply with requirements contained in Section 012300, Submittals.
2. Post copies of the list in the Project Meeting Room, the temporary field office, and each temporary telephone.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Pre-installation Conferences: Schedule and hold a pre-installation meeting at the project site well before installation of each unit of work which requires coordination with other units of work. Contractors involved in the unit of work as well as the Installer and representatives of the

manufacturers and fabricators who are involved in or affected by that unit of work, and with its coordination or integration with other work that has preceded or will follow shall attend this meeting.

1. Record significant discussions of each conference, and record agreements and disagreements, along with the final plan of action and completion dates. Distribute the record of the meeting promptly to everyone concerned, including the Owner and Architect.
2. Do not proceed with the unit of work if the pre-installation conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the work and reconvene pre-installation conference at the earliest feasible date.

B. Installer's Inspection of Conditions: Require the Installer of each major unit of work to inspect the substrate to receive work and conditions under which the work is to be performed. The Installer shall report all unsatisfactory conditions in writing to the Contractor. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

C. Manufacturer's Instructions: Where installations include manufactured products, comply with the manufacturer's applicable instructions and recommendations for installation, to the extent that these instructions and recommendations are more explicit or more stringent than requirements indicated in the Contract Documents.

D. Inspect each item of materials or equipment immediately prior to installation. Reject damaged and defective items.

E. Provide attachment and connection devices and methods for securing work properly. Secure work true to line and level and within recognized industry tolerances. Allow for expansion and building movement. Provide uniform joint width in exposed work.

1. Conditions producing questionable visual effects or effects not shown or described in the Contract Documents shall be referred to the Architect for evaluation.

F. Recheck measurements and dimensions of the work, as an integral step of starting each installation.

G. Install each unit of work during weather conditions and project status which will ensure the best possible results in coordination with the entire work. Isolate each unit of work from incompatible work as necessary to prevent deterioration.

H. Enclosure of the Work: Contractor shall coordinate the closing in of the work with required inspections and tests, so as to minimize the necessity of uncovering work for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, mount individual units of work at industry recognized standard mounting heights for the particular application indicated. The Architect and Owner shall review and approve the mounting heights of all work not specifically shown or described in the Contract Documents prior to installation.

J. Noise and Vibration Control: Due to the nature of the Owner's activities at the site the Contractor is required to exercise due diligence in controlling noise and vibration resulting from construction operations. No radio playing on site is permitted by the Contractor.

1. Comply with all applicable state and local laws, ordinances, and regulations relative to noise control.
2. Equipment to be employed on this site shall not produce a noise level exceeding the 86 Db(A) at a distance of 50 feet from the equipment under test.

3.2 CLEANING AND PROTECTION

A. General: During handling and installation of work at the project site, clean and protect work in progress and adjoining work on the basis of continuous maintenance. Apply protective covering on installed work where it is required to ensure freedom from damage or deterioration at time of substantial completion.

B. Clean and perform maintenance on installed work as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures of Work: To the extent possible through reasonable control and protection methods, supervise performance of the work in such a manner and by such means which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, damaging or otherwise deleterious exposure during the construction period.

END OF SECTION 010400

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SECTION 010700 – ABBREVIATIONS AND DEFINITIONS

PART 1 - GENERAL

1.1 REFERENCES

A. Refer also to GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS for additional general definitions.

1.2 GENERAL EXPLANATION

A. Use of singular or plural reference form in these Specifications shall not be construed to limit number of units required. Specifications are intended to define quality and performance characteristics; quantity of units supplied shall be as needed to meet requirements as specified and as shown on Contract Documents.

B. Omissions of such words and phrases as "Contractor shall", "shall be", "as indicated on the Drawings", and "the" are intentional. Such words and phrases shall be supplied by inference.

C. Except as otherwise indicated, graphic symbols used on Drawings are those symbols recognized in the construction industry for purposes indicated. Where not otherwise noted, symbols are defined by "Architectural Graphic Standards" published by John Wiley & Sons, Inc., seventh edition.

1.3 DEFINITION OF TERMS

A. "Indicated", "shown", "noted", "scheduled", "specified": These terms are a cross-reference to graphics, notes or schedules on the Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. NO limitation of location is intended except as specifically noted.

B. "Directed", "requested", "authorized", "selected", "required", "permitted": Where not otherwise explained, these terms mean "directed by the Engineer", "requested by the Engineer", etc. However, NO such implied meaning will be interpreted to extend the Engineer's responsibility into Contractor's area of construction supervision.

C. "Acceptable equivalent" or "Equal": Of weight, size, design, capacity and efficiency to meet requirements specified and shown, and of acceptable manufacture, as determined in the opinion of the Engineer.

D. "Acceptable": Acceptable, as determined in the opinion of the Engineer. In no case will "acceptance" by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract Documents.

E. "Provide": To furnish and install, ready for safe and regular operation the item, material or service indicated.

F. "Furnish": To purchase, acquire and deliver to the site, complete with related accessories, ready for unloading, unpacking, assembly, installation, etc.

G. "Install": To unload, unpack, store, protect, assemble, erect, place and mount, anchor, apply, work to dimension, finish, cure, mechanically connect, clean, and otherwise complete; as applicable; by acceptable methods.

H. "Work": Labor, materials, equipment, apparatus, controls and accessories required for proper and complete installation.

I. "Installer" or "Trade": The person or firm engaged by the Contractor or its subcontractor for performance of a particular unit of work at project site. It is a general requirement that such installers or trades be expert in operations they are engaged to perform.

J. "Code": Codes and regulations of the Federal, State and local governments and of utility companies having jurisdiction, as appropriate.

K. "Concealed": Embedded in masonry or other construction; or installed in furred spaces, trenches or crawl spaces; or installed within double partitions or hung ceilings; or in enclosures.

L. "Exposed": Visible to building occupants, excluding mechanical room and utility tunnel locations.

M. "Motor Controllers": Manual or magnetic starter, individual pushbutton or Hand-Off-Automatic (HOA) switch controlling operation of equipment.

1.4 INDUSTRY STANDARDS

A. Standards, specifications and tests of following technical societies, organizations and governmental bodies, as referenced in Contract Documents, are hereby made part of Contract Documents.

B. The following acronyms or abbreviations are defined to mean the following names. Both names and addresses are subject to change and are believed to be, but are NOT assured to be, accurate and up-to-date as of date of Contract Documents:

1. AA: Aluminum Association
900 19th Street N.W., Washington DC 20006; 202/862-5100

2. ACI: American Concrete Institute
38800 Country Club Drive, Farmington Hills, MI 48331;
248/848-3700

3. AEIC: Association of Edison Illuminating Companies
600 N. 18th Street, P.O. Box 2641, Birmingham, AL 35291;
205/257-2530

4. AGA: American Gas Association
400 N. Capitol Street, N.W., Washington, DC 20001;
202/824-7000

5. AISI: American Iron and Steel Institute
1101 17th St. NW, Suite 1300, Washington DC 20036; 202/452-7100

6. AMCA: Air Moving and Conditioning Association
30 W. University Dr., Arlington Heights, IL 60004-1893; 847/394-0150

7. ANSI: American National Standards Institute
25 West 43rd Street, 4th Floor, New York NY 10018; 212/642-4900

8. APA: American Plywood Association-The Engineered Wood Assoc.
P.O. Box 11700, Tacoma WA 98411; 206/565-6600

9. ARI: American Refrigeration Institute
4100 N. Fairfax Dr., Suite 200, Arlington VA 22203; 703/524-8800

10. ASA: American Standards Association

11. ASHRAE: American Society of Heating, Refrigeration and Air Conditioning Engineers
1791 Tullie Circle NE, Atlanta GA 30329; 404/636-8400

12. ASME: American Society of Mechanical Engineers
Three Park Avenue, New York NY 10016-5990; 800/843-2763

13. ASTM: American Society for Testing and Materials
100 Barr Harbor Drive, West Conshohocken, PA 19428-2959;
610/832-9585

14. AWPA: American Wood-Preservers' Association
7735 Old Georgetown Rd., Bethesda MD 20814; 301/652-3109

15. AWPB: American Wood Preservers Bureau
P.O. Box 6085, Arlington VA 22206; 703/931-8180

16. AWS: American Welding Society
550 N.W. LeJeune Road, Miami, FL 33126; 800/443-9353

17. AWWA: American Water Works Association
6666 W. Quincy Ave., Denver CO 80235; 303/794-7711

18. CE: Corps of Engineers (U.S. Dept. of the Army)
Washington DC 20314

19. CISPI: Cast Iron Soil Pipe Institute
5959 Shallowford Rd., Suite 419, Chattanooga, TN 37421; 703/869-4617

20. CRSI: Concrete Reinforcing Steel Institute
933 Plum Grove Rd., Schaumburg IL 60173; 847/517-1200

21. CS: Commercial Standard of NBS (U.S.Dept.of Commerce)
Government Printing Office, Washington DC 20402

22. EPA: Environmental Protection Agency - New England, Region 1
One Congress Street, Suite 1100, Boston, MA 02114-2023; 888/372-7341

23. ETL: ETL Testing Laboratories, Inc. (An IITS Company)
Industrial Park, Cortland, NY 13045; 607/753-6711

24. FM: Factory Mutual Engineering Division
1151 Boston-Providence Turnpike, Norwood MA 02062;
National Association P.O. Box 70, Merrifield VA 22116

25. FSSC: Federal Specification (General Services Admin.)
1151 Boston-Providence Turnpike, Norwood MA 02062; 617/762-4300

26. GA: Gypsum Association
810 First Street, N.E., #510, Washington, DC 20002;
202/289-5440

27. ICEA: Insulated Cable Engineers Association
P.O. Box 1568, Carrollton, GA 30112;

28. IEEE: Institute of Electrical and Electronics Engineers
3 Park Avenue, 17th Floor, New York NY 10016-5997; 212/419-7900

29. IES: Illuminating Engineering Society
120 Wall Street, Floor 17, New York NY 10005; 212/248-5000

30. IRI: Industrial Risk Insurers
85 Woodland St., Hartford CT 06105; 800/243-8308

31. ISO: Insurance Services Office

32. JIC: Joint Industrial Council
c/o National Machine Tool Builders Association
2139 Wisconsin Avenue, Washington DC 20007

33. NBS: National Bureau of Standards

34. NCMA: National Concrete Masonry Association
13750 Sunrise Valley Drive, Herndon, VA, 22171-3499; 703/713-1900

35. NEC: National Electrical Code (by NFPA)

36. NEMA: National Electrical Manufacturers Association
1300 North 17th Street, Suite 1847, Rosslyn, VA 22209; 703/841-3200

37. NFPA: National Fire Protection Association
One Batterymarch Park, P.O. Box 9101, Quincy MA 02269-9101;
617/770-3000

38. NICET: National Institute for Certification in Engineering Technologies
1420 King Street, Alexandria, VA 22314-2794; 888/476-4238

39. NRCA: National Roofing Contractors Association
10255 W. Higgans Road, Suite 600, Rosemont, IL 60018; 847/299-9070

40. NSC: National Safety Council
1121 Spring Lake Drive, Itasca, IL 60143-3201; 630/285-1121

41. OSHA: Occupational Safety and Health Administration (U.S. Dept. of Labor)
200 Constitution Avenue, N.W., Washington DC 20210

42. PS: Product Standard of NBS (U.S. Dept. of Commerce)
Government Printing Office, Washington DC 20402

43. RIS: Redwood Inspection Service (Grading Rules)
627 Montgomery, San Francisco CA 94111

44. SDI: Steel Deck Institute
P.O. Box 25, Fox River Grove, IL 60021; 847/458-4647

45. S.D.I. Steel Door Institute
30200 Detroit Road, Cleveland OH 44145-1967; 440/889-0010

46. SMACNA: Sheet Metal and Air Conditioning Contractors National Association
4201 Lafayette Center Drive, Chantilly, VA 20151-1209; 703/803-2980

47. SPIB: Southern Pine Inspection Bureau
4709 Scenic Hwy., Pensacola FL 32504-9094; 850/434-2611

48. SSPC: Steel Structures Painting Council
40 24th St. 6th Floor, Pittsburgh PA 15222-4623; 412/281-2331

49. UL: Underwriters Laboratories
333 Pfingsten Rd., Northbrook IL 60062-2096; 847/272-8800

50. WCLIB: West Coast Lumber Inspection Bureau (Grading Rules)
P.O .Box 23145, Portland OR 97281; 503/639-0651

51. WWPA: Western Wood Products Association (Grading Rules)
522 S.W. 5th Avenue, Suite 500, Portland OR 97204-2122; 503/224-3930

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 010700

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SECTION 011000 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. List of requirements:

1. Title of Work
2. Type of Contract
3. Work by Others
4. Future Work
5. Use of Premises
6. Owner Occupancy

1.2 PROJECT/WORK IDENTIFICATION

A. The name of the project is Emergency Electric Generator Upgrade Project, Phase 1, New Generator Installation, Concrete Pad and Electrical Conduit and Feeder Installations. The project is located in Hebron, Connecticut.

B. The Work of this Contract has been identified in the Contract Documents prepared by van Zelm Heywood & Shadford, Inc., dated September 26, 2025.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The following outline generally describes the proposed Scope of Work. Refer to the complete set of Drawings and Specifications for more complete information.

1. Site work: Excavation, backfill, Grading and Drainage, sedimentation and erosion control, concrete work.
2. Electrical

a. New 1250kW Diesel Fired Generator Set
b. New ductbanks
c. Feeder additions, modifications and reconfigurations
d. Temporary power provisions

B. Construct Work under a fixed price contract.

C. Construct Work under single general construction contract, employing sub-prime contractors for general construction work; excavation; electrical work.

D. Relations and responsibilities between Contractor and assigned Subcontractors shall be identical to that between Contractor and Subcontractors he has selected.

1.4 COORDINATION

A. Contractor shall coordinate Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.

B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits, as closely as practicable; make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.

1.5 WORK BY OTHERS

A. None.

1.6 FUTURE WORK

A. Ensure that Work avoids encroachment into areas required for future work.

1.7 CONTRACTOR USE OF PREMISES

A. Contractor shall limit use of premises for Work, for storage, and for access to allow:

1. Owner occupancy.
2. Work by other contractors.
3. Public usage.

B. Coordinate use of premises under direction of Owner.

C. Assume full responsibility for protection and safekeeping of products under this Contract.

D. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.8 OWNER OCCUPANCY

A. The owner will occupy premises during entire construction period to conduct his normal operations. Cooperate with Owner's representative in scheduling operations to minimize conflict and to facility Owner usage.

B. Execute Certificate of Substantial Completion for each designated portion of Work prior to Owner occupancy. Contractor shall allow:

1. Access for Owner personnel.
2. Use of parking facilities.
3. Operation of electrical systems.
4. Access for public.

C. Upon occupancy, Owner will provide, for occupied areas:

1. Operation of electrical systems.
2. Maintenance.
3. Security.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011000

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SECTION 011010 – SPECIAL PROJECT PROCEDURES

PART 1 - GENERAL

1.1 INTENT

A. It is the intent of the Contract Documents to require finished work, tested and ready for operation.

B. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. DO NOT SCALE THE DRAWINGS.

C. It is not intended that Contract Documents show every pipe, wire, conduit, fitting and appurtenance; however, such parts as may be necessary to complete the systems in accordance with best trade practice and Code requirements and to Engineer's satisfaction shall be deemed to be included.

1.2 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

A. Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents.

B. Submission of a proposal will be construed as evidence that such an examination has been made. Later claims for labor, equipment or materials required or difficulties encountered, which could have been foreseen had such an examination been made, will not be recognized.

C. Where discrepancies occur within Contract Documents, notify Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

1. For material, device and equipment identified on Contract Drawings by manufacturer and model: Check Specification for ancillary requirements such as pilot lights or alarms, and include same with furnished item. If Specifications require different model, notify Engineer of discrepancy and request clarification.

D. Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

1.3 SCHEDULE OF VALUES

A. Prepare and submit to Engineer and Owner a Schedule of Values, within 10 days after award of Contract, as required below and in GENERAL CONDITIONS. Schedule shall indicate, for each item of work listed:

1. Specification Sections where item is required or specified
2. Subcontractor performing work, if any
3. Dollar value of item
4. Change order(s) which affect value, if any

B. A revised Schedule of Values shall be prepared and submitted for record, upon issuance of each Change Order.

C. Change Order items, when priced and submitted, shall indicate the applicable Specification Section(s) for the work. If more than one Section applies, price breakdown shall indicate subtotals for each Section.

1.4 PROGRESS SCHEDULES

A. Within 10 days after award of Contract, submit preliminary progress schedule outlining the dates on which the various phases of the work and the work of the various trades will be initiated and completed. Schedule shall include proposed procedures and shall be submitted to Engineer for review, so that Owner may plan for and accommodate necessary arrangements to permit work to be done.

B. Schedule shall be updated monthly and shall be submitted with, and as a prerequisite to, the monthly requisition. Revised schedules shall indicate the dates when work of various trades was actually begun and completed and the extensions, if any, granted by the Owner.

C. Schedules shall be submitted on the proper reproducible form, as required by Engineer.

D. The Schedule shall be based on substantial completion for use by the Owner as of August 14, 2026.

1.5 SUPERINTENDENT AND STAFF

A. Furnish services of experienced Superintendent who shall be constantly in charge of work, together with skilled laborers required to unload, transfer, erect, connect, adjust, start, operate and test each portion of the work.

B. Within 15 days of Contract Date, submit a listing of Contractor's principal staff assignments and consultants, naming persons and listing their addresses and telephone numbers. Off-hours emergency telephone number and contact personnel shall be included.

1.6 JOB MEETINGS

A. Contractor shall make necessary arrangements for bi-weekly job meetings which are to be scheduled by Engineer. Contractor, Engineer and each Subcontractor shall attend every meeting. Meetings shall be held at a mutually convenient location.

B. Contractor shall keep detailed minutes of these meetings and shall furnish a copy of the minutes to each participant and to Owner within five days thereafter.

1.7 PERMITS, LAWS, ORDINANCES AND CODES

A. Contractor shall obtain and pay for all permits, inspections, licenses and certificates required for work under this Contract. Pay sales taxes and other taxes of local, state and Federal governments; tax shall be included in original Contract price.

B. The Owner shall pay utility company charges associated with the Work.

C. Contractor shall comply with laws, ordinances, rules and regulations of Local, State and Federal authorities having jurisdiction; and shall comply with rules and regulations of National Board of Fire Underwriters, National Electrical Code and local utility companies.

D. Contract Documents shall govern whenever they are more stringent than Code requirements.

1.8 SPECIAL CONDITIONS OF THE SITE

A. Contractor shall note the limitations to be encountered in carrying out the work without disturbing the operation of this existing building.

B. Existing buildings are occupied on a 24 / 7 basis and it is mandatory that the building operation and services are continuous and uninterrupted to the extent possible. It shall be Contractor's responsibility to perform his work with minimum interference with the building services or operations.

C. NO SMOKING is allowed in any Campus Buildings. Smoking is not allowed within 50 feet of any Buildings.

D. At Owner's option, Owner may issue identification badges to each construction worker. Such badges shall be worn, visibly, at all times.

E. Every precaution shall be observed to completely eliminate dust and moisture during the work. Dustproof enclosures shall be provided wherever work area is open to non-work area, i.e., openings in existing walls, ductwork connection between the areas, etc.,

1. Enclosure shall be constructed of fire-retardant wood studs or metal studs, secured to floor and ceiling as necessary for a safe installation. Fire-retardant polyethylene sheeting shall be draped over studs and shall be fastened on construction side; sheeting shall be 0.004" thick.

2. Joints shall be caulked and taped so as to ensure complete dustproof and sealtight installation. Masking tape and paper tape shall NOT be used to seal joints. Tape shall be weatherproof 1-1/2" wide, pressure sensitive tape: Alumiseal AZero Perm Pressure Sensitive Tape@.
3. Dustproof enclosure shall be maintained in secure condition, until removal is directed by Engineer.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

A. Products shall be undamaged and unused at time of installation and shall be complete with accessories, trim, finish, safety guards and other devices and details needed for complete installation and for intended use.

1. Equipment and materials shall be of first quality, selected and arranged to fit properly into spaces indicated.
2. Equipment, materials and components, for which there are listings in UL Product Directories, shall bear UL labels.

B. Where available, products shall be standard products of types which have been produced and used previously and successfully on other projects and in similar applications.

C. Labels and stamps which are required for observation after installation shall be located on accessible surfaces which, in occupied spaces, are NOT conspicuous. Other labels and stamps shall be located on concealed surfaces.

D. Where equipment, piping, ductwork, conduit, etc. is exposed, color of finish or paint shall be as selected by Engineer.

2.2 PRODUCT SELECTION

A. Contractor's options for selecting products are limited by Contract Document requirements and governing regulations and are NOT controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include, but are NOT necessarily limited to, following various methods of specifying:

1. Single Product Manufacturer Named: Provide product indicated.
2. Two or More Manufacturers' Products Named: Provide one of the named products, at Contractor's option, but excluding products which do NOT comply with requirements.
3. "Acceptable Equivalent" or "Or Equal": Where named products are accompanied by this term or words of similar effect, provide one of named products or propose substitute product according to SECTION 013300, SUBMITTALS, paragraph on SUBSTITUTIONS.

4. "Named" is defined to mean manufacturer's name for product, as recorded in published documents of latest issue as of date of Contract Documents. Obtain Engineer's permission before using products of later or earlier model.
5. Standards, Codes and Regulations: Where specification requires only compliance with a standard, code or regulation, Contractor shall select any product which complies with requirements of that standard, code or regulation.
6. Performance Requirements: Provide products which comply with specific performances indicated and which are recommended by manufacturer (in published product literature or by individual certification) for application intended. Overall performance of product is implied where product is specified with only certain specific performance requirements.
7. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements using specified materials and components, and complying with specified requirements for fabricating, finishing, testing and other manufacturing processes.
8. Visual Matching: Where matching with an established material is required, Engineer's judgement of whether proposed product matches established material shall be final.
9. "Color as Selected by Engineer": Unless otherwise noted, where specified product requirements include "color as selected by Engineer" or words of similar effect, the selection of manufacturer and basic product complying with Contract Documents is Contractor's option and subsequent selection of color is Engineer's option.

B. Inclusion by name, of more than one manufacturer or fabricator, does NOT necessarily imply acceptability of standard products of those named. All manufacturers, named or proposed, shall conform, with modification as necessary, to criteria established by Contract Documents for performance, efficiency, materials and special accessories.

PART 3 - EXECUTION

3.1 GENERAL EXECUTION

A. It is assumed that the work shall be done in single shifts during normal working hours, except as specifically required in these Contract Documents. Some premium time requirements are specified under paragraph 3.6, OPERATION OF SERVICES AND UTILITIES.

B. Contractor may elect to work extended hours, for his own convenience and at his own expense, in order to comply with completion date. Contractor shall obtain Owner's approval before scheduling extended hours. Owner reserves the right to restrict work within these periods of time, to certain hours.

C. If work outside of normal working hours (other than that required in these Specifications) is ordered by the Owner, in a written change order, the additional cost thereof will be paid by the Owner in accordance with the Contract.

D. Access to the work shall be as directed by Engineer.

3.2 ARRANGEMENT OF WORK

A. If exact location of the Work is not given, obtain information from Engineer. Verify measurements in field. Base measurements on established benchmarks.

B. Install work as closely as possible to layouts shown on Contract Drawings. Modify work as necessary to:

1. Provide maximum possible headroom and space clearance on each side.
2. Provide adequate clearance and ready access to all parts of the work, for inspection, operation, safe maintenance and repair, and code conformance.
3. Coordinate and arrange work to avoid conflicts with work of other trades, to avoid unnecessary cutting and patching, and as needed for satisfactory space conditions shown on coordination drawing submittals.
4. Where space appears inadequate, consult Engineer before proceeding with installation.

C. Work shall present a neat coordinated appearance.

3.3 COORDINATION

A. Coordinate with the Owner and other contractors retained by the Owner on separate contracts.

B. Ensure coordination between all trades to facilitate the progress of the work. Advise each trade as to his responsibility in scheduling and performing his work so as to conform with established progress schedule and Contract completion date approved by Owner. Advise trades as to time when systems will be required and when testing will be done so that systems shall have been prepared in advance of final inspection.

C. Obtain information from each trade as to shape, size, and locations of openings, chases, equipment, panels, access doors, sleeves, inserts and anchor bolts required; whether temporary or permanent. Obtain information from each trade as to sizes, depths, fill and bedding requirements related to site work. Coordinate and provide such items in advance, so as to minimize cutting and patching required.

D. Do NOT permit installation of a system or item until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

E. Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

3.4 WORKMANSHIP

A. Work shall be constructed and finished in every respect in a workmanlike and substantial manner.

B. Obtain detailed information from manufacturer as to proper methods for installation and connections. This includes such tests as equipment manufacturer recommends. Where documentation regarding installation is NOT obtainable, work shall be installed in accordance with best trade practice.

1. Unless specifically indicated otherwise on Contract Documents, equipment and materials shall be installed in accordance with manufacturer's recommendations.
2. Notify Engineer of conflicts between manufacturer's recommendations and Contract Documents requirements, and obtain clarification before proceeding with installation.

C. Where equipment, piping, ductwork, conduit, etc. is exposed, color of finish or paint shall be as selected by Architect.

3.5 TEMPORARY FACILITIES

A. Power, water, and other temporary services shall be provided by this contractor.

B. Temporary lighting systems shall be provided by Contractor, using temporary power as noted.

C. Other temporary facilities shall be negotiated with, or arranged through, or as approved by the Owner

3.6 OPERATION OF SERVICES AND UTILITIES

A. During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

B. The continuity of Owner's service is of paramount importance and the Contractor shall, at all times, exercise the greatest care to prevent damage to Owner's facilities and shall NOT use any equipment or methods which, in Engineer's judgement, would endanger or might interfere with Owner's service.

C. Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as to date, time of day, and duration.

1. Notify Owner and Engineer of estimated duration of shutdown period at least twenty (20) days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Owner, before any service is interrupted.
2. Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

3.7 PROTECTION

A. Contractor shall be responsible for work and equipment until fully inspected, tested and accepted. Cover, enclose and protect open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water.

B. Carefully store materials and equipment which are not immediately installed after delivery to site. Storage location shall be as designated by Owner.

C. Protect the existing building and infrastructure against damage while the work is underway. Protection methods shall be acceptable to Engineer. Be responsible for any damage to any existing installation and repair damage, at no cost to Owner, in a manner acceptable to Engineer.

D. In areas where work of this Contract entails alterations over existing floors of resilient materials or access floors: protect these floors with plywood, heavy duty kraft paper or acceptable equivalent; and seal joints with adhesive masking tape. Passageways to admit material, equipment and Contractor's personnel shall be similarly protected. Such passageways may be used only with Owner's permission.

E. Lobby and corridors shall be kept free of debris and dust at all times. Provide floor mats at each entrance to work areas. Miscellaneous protective measures shall be adopted as directed by Engineer.

F. Exercise care at all times to maintain cleanliness in operations, avoid fire and accident hazards, and remove flammable debris promptly.

G. All work and storage areas shall be completely enclosed by a six (6) foot high, temporary chain link fence at all times so that no unauthorized person or member of the public can approach the area or the equipment. The Contractor shall provide signs posted on fence 20 feet on center that reads “Work Area - Keep Out.” The Contractor shall also maintain at all times, all exits and walkways from all Buildings; relocate as required.

3.8 CLEANING

A. Contractor shall employ every available method to reduce noise during construction to a minimum, and shall handle materials and rubbish to produce the least amount of dust.

B. Debris shall be promptly removed daily or continuously as the work progresses, to maintain such areas free from dust and moisture. Where necessary for workmen to pass through other parts of the building to remove debris, debris shall be carried in covered containers and as directed by Engineer.

C. Furnish and use a commercial vacuum cleaner to remove, as well as prevent the spread of, dust and small particles. Vacuum work areas, corridors and floor mats at the end of each workday.

D. Comply with safety standards and governing regulations for cleaning operations. Do NOT burn waste materials at the site; do NOT discharge volatile or otherwise harmful or dangerous materials into drainage systems. Remove waste materials from site and dispose of in a lawful manner.

3.9 CUTTING AND PATCHING

A. Do NOT cut-and-patch structural work in a manner resulting in reduction of load-carrying capacity or load/deflection ratio. Submit proposed cutting and patching to Engineer for structural review before proceeding.

B. Do NOT cut-and-patch operational elements and safety-related components in a manner resulting in reduction of capacities to perform in manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.

C. Do NOT cut-and-patch work which is exposed in a manner resulting in reduction of visual qualities or resulting in substantial evidence of cut-and-patch work, both as judged solely by Engineer.

D. Engage only recognized experts; employ only proven methods. Provide materials for cutting-and-patching which will result in work equal to, or better than, work being cut-and-patched in terms of performance characteristics and visual effect. Use materials identical with original materials where feasible and where recognized that satisfactory results can be produced thereby.

E. Provide adequate temporary support for work to be cut, to prevent failure. Provide adequate protection of other materials and work during cutting-and-patching, to prevent damage.

F. Cut out loose, broken or unsound surfaces back to sound materials. Cut work by methods least likely to damage work to be retained and work adjoining and so as to minimize patching required.

1. Where physical cutting action is required, cut work with sawing and grinding tools, NOT with hammering and chopping tools. Core drill openings through concrete and masonry work. Other methods in unfinished areas may be used, if acceptable to Engineer.
2. Equipment used for core drilling shall have activated light or buzzer to indicate when metal has been contacted.

G. Patch seams shall be durable and as invisible as possible. Where feasible, inspect and test patched areas to verify integrity of work.

H. Restore exposed finishes of patched areas and, where necessary, extend finish restoration onto adjoining work in a manner which will eliminate evidence of patching. Patched surfaces shall match adjacent sound material in all respects. Criteria for matching new work and materials with existing work and materials shall be that the NEW is the same in appearance, value and effect and corresponding in design, position and function as the EXISTING.

I. Remove and replace work judged to be cut-and-patched in a visually unsatisfactory or other objectionable manner.

3.10 IDENTIFICATION

A. Basic materials such as piping, tubing, sheet metal, insulation, etc., shall have following information clearly printed on the material: manufacturer's name, material grade, gauge, thickness, type, and data to identify required methods of attachment; as applicable. Unmarked material shall NOT be used.

B. Permanent nameplates shall be provided on each piece of service-connected or power-operated equipment, on easily accessible surface. Nameplate shall include product name, model number, serial number, capacity, speed, ratings, and similar essential operating data.

1. Manufacturer's nameplate, name, trademark and address shall be attached permanently to equipment and material furnished. Nameplate showing distributor or Contractor will NOT be permitted.
2. Unless otherwise specified or requested, letters and numbers shall be 1/2” high.
3. Attach nameplates with screws or rivets. Wherever covers of adjacent units are interchangeable, attach nameplates to wall or backboard rather than covers.

C. Identification labels shall be provided to number equipment according to designations used in Contract Documents. Label shall be plastic nameplate with letters and numbers 1-1/2” high. Furnish directory indicating number, location and use of each item. After finish painting is completed, apply identification label where it will be readily visible from normal operating position on floor.

3.11 LUBRICATION

A. Equipment shall be furnished and installed so that lubrication points are conveniently and readily accessible for maintenance. Make these provisions by whatever means is appropriate: extended fittings, access doors, equipment location, etc.

B. No equipment shall be operated for temporary service or for testing purposes without proper lubrication. Items requiring lubrication shall be left freshly and fully lubricated at time of substantial completion.

C. Prior to substantial completion, deliver to Owner, along with itemized list: one complete new set of special lubrication devices required for servicing, such as grease guns, fittings and adapters.

3.12 WATERPROOFING

A. Maintain integrity of waterproofing of existing structure.

3.13 BASES AND SUPPORTS

A. Ensure that equipment is provided with necessary supports, pads, bases, piers, etc., to securely attach equipment to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by Engineer. Attachment of supports to roof decking is NOT permitted. Conduit, boxes, etc. must be supported from bar joists or steel construction or additional members spanning roof steel as determined by structural engineer.

B. Provide structural steel members required for bracing and supporting equipment, as acceptable to Engineer.

3.14 TESTS

A. Make final adjustments to equipment before testing. Manufacturer's authorized representative shall verify proper installation and adjustment prior to startup of major equipment; refer to SECTION 013300, SUBMITTALS, paragraph on OPERATION AND MAINTENANCE MANUALS.

B. Furnish labor, materials, instruments, supplies and services necessary for required testing. Correct defects appearing during tests, and repeat tests until no defects are disclosed.

C. Use true RMS ammeter to measure current, for equipment which may have harmonic (non-linear) load component.

D. After the Contractor has completed the installation, checked and tested each system, the Contractor shall conduct a COMPLETE systems and operations test in the presence of the Engineer and Owner.

E. Notify Owner, Architect and Engineer of testing schedule at least 48 hours (2 full working days) in advance of tests.

F. Perform specified tests and tests required by legal authorities and by agencies having jurisdiction over this Work. Tests shall be performed to the satisfaction of legal authorities, agencies having jurisdiction, and Owner.

G. If manufacturer's startup services are specified, furnish services of factory-trained service engineering representative to provide following. If manufacturer's startup services are not required, Contractor shall furnish following services.

1. Inspection of equipment/system installation.
2. Assistance in initial startup and adjustment of equipment; including necessary time to achieve proper installation and adjustments.
3. Instruction of Owner's staff; see SECTION 017700, CONTRACT CLOSEOUT, paragraph on INSTRUCTIONS.

H. Upon completion of tests, demonstrate the following:

1. Equipment and systems are installed and operating in accordance with manufacturer's specifications and instructions and with Contract Documents.
2. Proper adjustment of equipment and systems.
3. Systems are properly cleaned and free of contaminants.
4. Electrical systems are properly phase balanced.
5. Circuits and motorized equipment are equipped with proper overload protection and are not operating under overload.
6. Instruments are recording properly.

3.15 QUIET OPERATION

A. Equipment and material provided as part of the Work shall NOT produce sound level greater than 55 decibels (or level required by Code, if more stringent) in adjacent occupied areas. Sound level shall be as measured on A-weighting scale of sound level meter or sound survey meter.

B. Methods described in ASHRAE guide and data books may be used to determine sound level of equipment when total of background sound and equipment sound exceeds the required minimum.

C. Contractor shall ensure that equipment and materials provided as part of the Work do NOT produce excessive noise/vibration and do NOT transmit excessive noise/vibration to occupied spaces. If objectionable noise/vibration occurs, Contractor shall provide systems, devices, and equipment necessary to eliminate objectionable noise/vibration at no additional cost to Owner.

D. Refer to other Sections for further requirements.

END OF SECTION 011010

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SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form acceptable to Architect.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b.
c. Substitution request is fully documented and properly submitted.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed unless otherwise indicated.

C. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

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SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
2. Section 013100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue through Construction Manager supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
2. Within 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.
d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
e. Quotation Form: Use forms acceptable to Architect/Engineer. Provide sample form for approval at start of project.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect/Engineer. Provide sample form for approval at start of project.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 012200 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Construction Manager will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 .

1.7 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Construction Manager may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.8 WORK CHANGE DIRECTIVE

A. Work Change Directive: Construction Manager may issue a Work Change Directive on EJCDC Document C-940. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

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SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect/Engineer through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.

5. Subschedules for Separate Design Contracts: Where the Owner has retained design professionals under separate contracts who will each provide certification of payment requests, provide subschedules showing values coordinated with the scope of each design services contract, as described in Section 011000 "Summary."

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

   a. Project name and location.
   b. Owner's name.
   c. Owner's Project number.
   d. Name of Architect.
   e. Architect's Project number.
   f. Contractor's name and address.
   g. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:

   a. Related Specification Section or division.
   b. Description of the Work.
   c. Name of subcontractor.
   d. Name of manufacturer or fabricator.
   e. Name of supplier.
   f. Change Orders (numbers) that affect value.
   g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

      1) Labor.
      2) Materials.
      3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

   a. Differentiate between items stored on-site and items stored off-site.

6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

7. Purchase Contracts: Provide a separate line item in the schedule of values for each Purchase contract. Show line-item value of Purchase contract. Indicate Owner payments or deposits, if any, and balance to be paid by Contractor.
8. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
9. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
10. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
11. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
12. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect/Engineer and Construction Manager and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Payment Application Times: Submit Application for Payment to Architect/Engineer by the 30th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.

D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

1. Other Application for Payment forms proposed by the Contractor may be acceptable to [Construction Manager and Owner. Submit forms for approval with initial submittal of schedule of values.

E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

G. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Construction Manager by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
5. Products list (preliminary if not final).
6. Sustainable design action plans, including preliminary project materials cost data.
7. Schedule of unit prices.
8. Submittal schedule (preliminary if not final).
9. List of Contractor's staff assignments.
10. List of Contractor's principal consultants.
11. Copies of building permits.
12. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
13. Initial progress report.
14. Report of preconstruction conference.
15. Certificates of insurance and insurance policies.
16. Performance and payment bonds.
17. Data needed to acquire Owner's insurance.

J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

    a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."

2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706.
6. AIA Document G706A.
7. AIA Document G707.
8. Evidence that claims have been settled.

9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

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SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Web-based Project management software package.
6. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 017700 "Contract Closeout" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. BIM: Building Information Modeling.

B. RFI: Request for Information. Request from Owner, Construction Manager, Architect/Engineer, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and in prominent location in each built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Coordination of Multiple Contracts: Each contractor shall cooperate with Project coordinator, who shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its own operations with operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

C. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

D. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and scheduled activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:

a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
b. Coordinate the addition of trade-specific information to coordination drawings by multiple contractors in a sequence that best provides for coordination of the information and resolution of conflicts between installed components before submitting for review.
c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
f. Indicate required installation sequences.
g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms, showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:

    a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
    c. Fire-rated enclosures around ductwork.

7. Electrical Work: Show the following:

    a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
    b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
    c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor-control center locations.
    d. Location of pull boxes and junction boxes, dimensioned from column center lines.

8. Fire-Protection System: Show the following:

    a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

9. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittals."

C. Coordination Drawing Process: Prepare coordination drawings in the following manner:

1. Schedule submittal and review of Fire Sprinkler, Plumbing, HVAC, and Electrical Shop Drawings to make required changes prior to preparation of coordination drawings.
2. Commence routing of coordination drawing files with HVAC Installer, who will provide drawing plan files denoting approved ductwork. HVAC Installer will locate ductwork and piping on a single layer, using orange color. Forward drawings to Plumbing Installer.
3. Plumbing Installer will locate plumbing and equipment on a single layer, using blue color.
4. Fire Sprinkler Installer will locate piping and equipment, using red color. Fire Sprinkler Installer shall forward drawing files to Electrical Installer.
5. Electrical Installer will indicate service and feeder conduit runs and equipment in green color. Electrical Installer shall forward drawing files to Communications and Electronic Safety and Security Installer.
6. Communications and Electronic Safety and Security Installer will indicate cable trays and cabling runs and equipment in purple color. Communications and Electronic Safety and Security Installer shall forward completed drawing files to Contractor.
7. Contractor shall perform the final coordination review. As each coordination drawing is completed, Contractor will meet with Architect to review and resolve conflicts on the coordination drawings.

D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format:

   a. Same digital data software program, version, and operating system as original Drawings.
   b. DWG, Version 2018, operating in Microsoft Windows operating system.

2. File Submittal Format: Submit or post coordination drawing files using PDF format.

3. Architect/Engineer will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

   a. Architect/Engineer makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
   b. Digital Data Software Program: Drawings are available in AutoCAD DWG files.
   c. Contractor shall execute a data licensing agreement in the form of AIA Document C106.

1.7 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.

2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Owner name.
3. Owner's Project number.
4. Name of Architect/Engineer and Construction Manager.
5. Architect's Project number.
6. Date.
7. Name of Contractor.
8. RFI number, numbered sequentially.
9. RFI subject.
10. Specification Section number and title and related paragraphs, as appropriate.
11. Drawing number and detail references, as appropriate.
12. Field dimensions and conditions, as appropriate.
13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
14. Contractor's signature.
15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716.

1. Attachments shall be electronic files in PDF format.

D. Architect/Engineer's and Construction Manager's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect/Engineer or Construction Manager of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect/Engineer and Construction Manager in writing within 5 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log **weekly**. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect/Engineer and Construction Manager.
4. RFI number, including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect/Engineer's and Construction Manager's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

F. On receipt of Architect/Engineer's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect/Engineer and Construction Manager within seven days if Contractor disagrees with response.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

A. Use of Architect's Digital Data Files: Digital data files of Architect's CAD drawings will be provided by Architect for Contractor's use during construction.

1. Digital data files may be used by Contractor in preparing coordination drawings, Shop Drawings, and Project Record Drawings.
2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Contract Drawings.
3. Digital Drawing Software Program: Contract Drawings are available in AutoCAD DWG format.
4. Contractor shall execute a data licensing agreement in the form of AIA Document C106 Digital Data Licensing Agreement.

    a. Subcontractors and other parties granted access by Contractor to Architect's digital data files shall execute a data licensing agreement in the form of AIA Document C106.

5. The following digital data files will be furnished for each appropriate discipline:

    a. Floor plans.
    b. Reflected ceiling plans.
    c. Site plans

B. Web-Based Project Management Software Package: Provide, administer, and use web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.

1. Web-based Project management software includes, at a minimum, the following features:

    a. Compilation of Project data, including Contractor, subcontractors, Architect, Architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
    b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
    c. Document workflow planning, allowing customization of workflow between project entities.
    d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
    e. Track status of each Project communication in real time, and log time and date when responses are provided.
    f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
    g. Processing and tracking of payment applications.
    h. Processing and tracking of contract modifications.
    i. Creating and distributing meeting minutes.
    j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
    k. Management of construction progress photographs.
    l. Mobile device compatibility, including smartphones and tablets.

2. Provide up to seven Project management software user licenses for use of Owner, Owner's Commissioning Authority, Construction Manager, Architect/Engineer, and Architect/Engineer's consultants. Provide eight hours of software training at Architect/Engineer's office for web-based Project software users.
3. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.

C. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.

3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of seven days prior to meeting.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner**,** Construction Manager, and Architect, within three days of the meeting.

B. Preconstruction Conference: Construction Manager will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than **15** days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, , Construction Manager, Architect/Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Responsibilities and personnel assignments.
    b. Tentative construction schedule.
    c. Phasing.
    d. Critical work sequencing and long lead items.
    e. Designation of key personnel and their duties.
    f. Lines of communications.
    g. Use of web-based Project software.
    h. Procedures for processing field decisions and Change Orders.
    i. Procedures for RFIs.
    j. Procedures for testing and inspecting.
    k. Procedures for processing Applications for Payment.
    l. Distribution of the Contract Documents.
    m. Submittal procedures.
    n. Sustainable design requirements.
    o. Preparation of Record Documents.
    p. Use of the premises and existing building.
    q. Work restrictions.
    r. Working hours.
    s. Owner's occupancy requirements.
    t. Responsibility for temporary facilities and controls.
    u. Procedures for moisture and mold control.

v. Procedures for disruptions and shutdowns.
w. Construction waste management and recycling.
x. Parking availability.
y. Office, work, and storage areas.
z. Equipment deliveries and priorities.
aa. First aid.
bb. Security.
cc. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect/Engineer, Construction Manager , and Owner's Commissioning Authority of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Sustainable design requirements.
i. Review of mockups.
j. Possible conflicts.
k. Compatibility requirements.
l. Time schedules.
m. Weather limitations.
n. Manufacturer's written instructions.
o. Warranty requirements.
p. Compatibility of materials.
q. Acceptability of substrates.
r. Temporary facilities and controls.
s. Space and access limitations.
t. Regulations of authorities having jurisdiction.
u. Testing and inspecting requirements.
v. Installation procedures.
w. Coordination with other work.
x. Required performance results.
y. Protection of adjacent work.

z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Construction Manager will schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion.

1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Construction Manager, Architect/Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

a. Preparation of Record Documents.
b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
c. Procedures for completing and archiving web-based Project software site data files.
d. Submittal of written warranties.
e. Requirements for completing sustainable design documentation.
f. Requirements for preparing operations and maintenance data.
g. Requirements for delivery of material samples, attic stock, and spare parts.
h. Requirements for demonstration and training.
i. Preparation of Contractor's punch list.
j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
k. Submittal procedures.
l. Coordination of separate contracts.
m. Owner's partial occupancy requirements.
n. Installation of Owner's furniture, fixtures, and equipment.
o. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at biweekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.

2. Attendees: In addition to representatives of Owner**,** Owner's Commissioning Authority, Construction Manager, and Architect/Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Resolution of BIM component conflicts.
        4) Status of submittals.
        5) Status of sustainable design documentation.
        6) Deliveries.
        7) Off-site fabrication.
        8) Access.
        9) Site use.
        10) Temporary facilities and controls.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) Status of RFIs.
        16) Status of Proposal Requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at biweekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority , Construction Manager, and Architect/Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    c. Review present and future needs of each contractor present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Resolution of BIM component conflicts.
        4) Status of submittals.
        5) Deliveries.
        6) Off-site fabrication.
        7) Access.
        8) Site use.
        9) Temporary facilities and controls.
        10) Work hours.
        11) Hazards and risks.
        12) Progress cleaning.
        13) Quality and work standards.
        14) Status of RFIs.
        15) Proposal Requests.
        16) Change Orders.
        17) Pending changes.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

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SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's Construction Schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Unusual event reports.

B. Related Requirements:

1. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.
2. Section 014000 "Quality Requirements" for schedule of tests and inspections.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time **is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date**.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of labor and equipment necessary for completing an activity as scheduled.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file.
2. PDF file.
3. **Two** paper copies, of sufficient size to display entire period or schedule, as required.

B. Startup construction schedule.

1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.

C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.

D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports to contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
3. Total Float Report: List of activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from **the Notice to Proceed** until most recent Application for Payment.

F. Construction Schedule Updating Reports: Submit with Applications for Payment.

G. Daily Construction Reports: Submit at **weekly** intervals.

H. Material Location Reports: Submit at **weekly** intervals.

I. Site Condition Reports: Submit at time of discovery of differing conditions.

J. Unusual Event Reports: Submit at time of unusual event.

K. Qualification Data: For scheduling consultant.

1.4 QUALITY ASSURANCE

A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

B. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to the preliminary construction schedule and Contractor's Construction Schedule, including, but not limited to, the following:

1. Review software limitations and content and format for reports.
2. Verify availability of qualified personnel needed to develop and update schedule.
3. Discuss constraints..
4. Review delivery dates for Owner-furnished products.
5. Review schedule for work of Owner's separate contracts.
6. Review submittal requirements and procedures.
7. Review time required for review of submittals and resubmittals.
8. Review requirements for tests and inspections by independent testing and inspecting agencies.
9. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
10. Review and finalize list of construction activities to be included in schedule.
11. Review procedures for updating schedule.

1.5 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.6 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Computer Scheduling Software: Prepare schedules using current version of a program that is capable of managing construction schedules.

1. Use scheduling component of Project management software package specified in Section 013100 "Project Management and Coordination," for current Windows operating system.

B. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting, using CPM scheduling.

1. In-House Option: Owner may waive requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
2. Meetings: Scheduling consultant to attend all meetings related to Project progress, alleged delays, and time impact.

C. Time Frame: Extend schedule from date established for the Notice to Proceed]to date of Substantial Completion.

1. Contract completion date to not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

D. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than **20** days, unless specifically allowed by Architect.
2. Temporary Facilities: Indicate start and completion dates for the following as applicable:

a. Securing of approvals and permits required for performance of the Work.
b. Temporary facilities.
c. Construction of mock-ups, prototypes and samples.
d. Owner interfaces and furnishing of items.
e. Interfaces with Separate Contracts.
f. Regulatory agency approvals.
g. Punch list.

3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
5. Startup and Testing Time: Include no fewer than **15** days for startup and testing.
6. Commissioning Time: Include no fewer than **15** days for commissioning.

7. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's **and Construction Manager's** administrative procedures necessary for certification of Substantial Completion.
8. Punch List and Final Completion: Include not more than **30** days for completion of punch list items and Final Completion.

E. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use-of-premises restrictions.
    f. Provisions for future construction.
    g. Seasonal variations.
    h. Environmental control.

7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Mockups.
    e. Fabrication.
    f. Sample testing.
    g. Deliveries.
    h. Installation.
    i. Tests and inspections.
    j. Adjusting.
    k. Curing.
    l. Building flush-out.
    m. Startup and placement into final use and operation.
    n. Commissioning.

8. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

    a. Structural completion.
    b. Temporary enclosure and space conditioning.
    c. Permanent space enclosure.
    d. Completion of mechanical installation.
    e. Completion of electrical installation.
    f. Substantial Completion.

F. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.

1. See Section 012900 "Payment Procedures" for cost reporting and payment procedures.

G. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

H. Contractor's Construction Schedule Updating: At biweekly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Final Completion percentage for each activity.

I. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

J. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.7 STARTUP CONSTRUCTION SCHEDULE

A. Gantt-Chart Schedule: Submit startup, horizontal, Gantt-chart-type construction schedule within seven days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 90 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

1.8 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.

1. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.9 CPM SCHEDULE REQUIREMENTS

A. Prepare network diagrams using AON (activity-on-node) format.

B. Startup Network Diagram: Submit diagram within **14** days of date established for **the Notice to Proceed**. Outline significant construction activities for the first **90** days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

C. CPM Schedule: Prepare Contractor's Construction Schedule using a time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule, so it can be accepted for use no later than **60** days after date established for **the Notice to Proceed**.

a. Failure to include any work item required for performance of this Contract must not excuse Contractor from completing all work within applicable completion dates.

2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule to coordinate with the Contract Time.

D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the startup network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

    a. Preparation and processing of submittals.
    b. Mobilization and demobilization.
    c. Purchase of materials.
    d. Delivery.
    e. Fabrication.
    f. Utility interruptions.
    g. Installation.
    h. Work by Owner that may affect or be affected by Contractor's activities.
    i. Testing and inspection.
    j. Commissioning.
    k. Punch list and Final Completion.
    l. Activities occurring following Final Completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates to be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

    a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

5. Cost- and Resource-Loading of CPM Schedule: Assign cost to construction activities on the CPM schedule. Do not assign costs to submittal activities. Obtain Architect's approval prior to assigning costs to fabrication and delivery activities. Assign costs under main subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project record documents, and demonstration and training (if applicable), in the amount of **5** percent of the Contract Sum.

    a. Each activity cost to reflect an appropriate value subject to approval by Architect.
    b. Total cost assigned to activities to equal the total Contract Sum.

E. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall Project schedule.

F. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Main events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

G. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

H. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.

1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.

    a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
    b. Submit value summary printouts one week before each regularly scheduled progress meeting.

1.10 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Meter readings and similar recordings.
13. Emergency procedures.
14. Orders and requests of authorities having jurisdiction.
15. Change Orders received and implemented.
16. Construction Change Directives received and implemented.
17. Services connected and disconnected.
18. Equipment or system tests and startups.
19. Partial completions and occupancies.
20. Substantial Completions authorized.

B. Material Location Reports: At biweekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List to be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013200

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SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Preconstruction photographs.
2. Concealed Work photographs.
3. Periodic construction photographs.
4. Time-lapse sequence construction photographs.
5. Final Completion construction photographs.
6. Preconstruction video recordings.
7. Periodic construction video recordings.
8. Time-lapse sequence construction video recordings.
9. Construction webcam.

B. Related Requirements:

1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

1.2 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.

1. Submit photos on CD-ROM or thumb-drive or by uploading to web-based Project management software site. Include copy of key plan indicating each photograph's location and direction.
2. Identification: Provide the following information with each image description in file metadata tag or in web-based Project management software site:

a. Name of Project.
b. Name and contact information for photographer.
c. Name of Architect and Construction Manager.
d. Name of Contractor.
e. Date photograph was taken.
f. Description of location, vantage point, and direction.
g. Unique sequential identifier keyed to accompanying key plan.

1.3 QUALITY ASSURANCE

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.

B. Construction Webcam Service Provider: A firm specializing in providing photographic equipment, web-based software, and related services for construction projects, with a record of providing satisfactory services similar to those required for Project.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high-definition mode. Provide supplemental lighting in low light levels or backlit conditions.

C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

D. Metadata: Record accurate date and time from camera.

E. File Names: Name media files with date, Project area and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. Photographer: Engage a qualified photographer to take construction photographs.

B. General: Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.

C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as directed by Construction Manager.

1. Flag construction limits before taking construction photographs.
2. Take 20 photographs to show existing conditions adjacent to property before starting the Work.
3. Take 20 photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction.
4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.

D. Concealed Work Photographs: Before proceeding with installing work that will conceal other work, take photographs sufficient in number, with annotated descriptions, to record nature and location of concealed Work, including, but not limited to, the following:

1. Underground utilities.
2. Underslab services.
3. Piping.
4. Electrical conduit.
5. Waterproofing and weather-resistant barriers.

E. Periodic Construction Photographs: Take 50 photographs weekly. Select vantage points to show status of construction and progress since last photographs were taken.

F. Final Completion Construction Photographs: Take 50 photographs after date of Substantial Completion for submission as Project Record Documents. Construction Manager will inform photographer of desired vantage points.

G. Additional Photographs: Architect or Construction Manager may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum or in the allowance for construction photographs.

1. Three days' notice will be given, where feasible.
2. In emergency situations, take additional photographs within 24 hours of request.
3. Circumstances that could require additional photographs include, but are not limited to, the following:

a. Special events planned at Project site.
b. Immediate follow-up when on-site events result in construction damage or losses.
c. Photographs are to be taken at fabrication locations away from Project site. These photographs are not subject to unit prices or unit-cost allowances.
d. Substantial Completion of a major phase or component of the Work.
e. Extra record photographs at time of final acceptance.
f. Owner's request for special publicity photographs.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233

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SECTION 013300 - SUBMITTALS

PART 1 - GENERAL

1.1 PRELIMINARY LIST

A. Prior to submitting shop drawings, submit for review preliminary list of intended or proposed manufacturers for all items for which shop drawings are required.

1.2 SHOP DRAWING SUBMITTALS

A. Shop drawings shall be submitted to the Engineer for review. SHOP DRAWING SUBMITTALS ARE CRITICAL WITH RESPECT TO CONSTRUCTION TIME SCHEDULES.

B. The selection and intention to use a product specified by name shall NOT excuse the need for timely submission of shop drawings for that product.

C. Each shop drawing submittal shall consist of one reproducible set and six copies. Reproducible set and five copies shall be sent to Engineer; remaining copy shall be sent directly to Owner. After review, at least two copies will be returned to Contractor for his use. Electronic shop drawings are acceptable in lieu of hard copies.

D. Contractor shall review every shop drawing for compliance with Contract Documents, before submitting it for Engineer's review. Shop drawings submitted by Contractor shall bear Contractor's stamp, indicating compliance with Contract Documents.

E. Upon completion of shop drawing review, shop drawings will be returned, marked with one of following notations: Furnish as submitted, Furnish as corrected, Revise and Resubmit, Rejected, or Submit Specified Item. Only products whose shop drawings are marked "Furnish as submitted" or "Furnish as corrected" shall be used on the project.

F. Shop drawings shall be clearly marked with following information:

1. Specification Section and Paragraph, or Drawing Schedule/Note /Detail/etc., where item is specified.
2. Identification of item, corresponding to that used in Contract Documents.
3. Indication of accessories and special or non-standard features and materials which are being furnished.

G. Shop drawings shall include the following information:

1. Date on which review is required in order to meet construction schedule. This date shall allow minimum of ten working days for Engineer's review after receipt of shop drawing.
2. Descriptive and product data necessary to verify compliance with Contract Documents.

3. Certified dimensional drawings including clearances required for maintenance or access.
4. Performance data, ratings, operating characteristics, and operating limits; including electrical ratings and characteristics.
5. Wiring and control diagrams, where applicable.
6. Certifications requested, including UL label or listing.
7. List of accessories which are required but are NOT being provided by the product manufacturer or are NOT being furnished under this Section. Identify the Section(s) under which the accessories are being furnished.

1.3 SUBSTITUTIONS

A. Contractor shall pay Architect/Engineer for time spent reviewing substitution requests. Charges shall be $150/hour. Submittal of substitution request will be construed as evidence of Contractor's agreement to pay such charges, at no additional cost to Owner.

B. Contractor's request for substitution may be submitted only after award of Contract. Requests shall be in writing on Contractor's letterhead and shall include:

1. Contractor's detailed comparison of significant qualities between specified item and proposed substitution.
2. Statement of effect on construction time, coordination with other affected work, and cost information or proposal.
3. Contractor's statement to the effect that proposed substitution will result in overall work equal to, or better than, work originally intended.

C. Substitution requests will be considered: if extensive revisions to Contract Documents are NOT required; if changes are in keeping with general intent of Contract Documents; if submitted in timely and proper manner, fully documented; and if one or more of following conditions is satisfied; all as judged by Engineer:

1. Where request is directly related to "acceptable equivalent" clause, "or equal" clause or words of similar effect in Contract Documents.
2. Where specified product, material or method can NOT be provided within Contract Time; but NOT as a result of Contractor's failure to pursue the work promptly or to coordinate various activities properly.
3. Where substantial advantage is offered Owner; in terms of cost, time, energy conservation or other valuable considerations; after deducting offsetting responsibilities that Owner may be required to bear, including additional compensation to Engineer for redesign and evaluation services, increased cost of other work by Owner or separate contractors, and similar considerations.

D. Requests for substitutions, which do NOT meet above requirements will be returned without action except to record non-compliance with these requirements.

E. The burden is upon the Contractor, supplier and manufacturer to satisfy Engineer that:

1. Proposed substitute is equal to, or superior to, the item specified.

2. Intent of the Contract Documents, including required performance, capacity, efficiency, quality, durability, safety, function, appearance, space clearances and delivery date, will be equal or better.

F. Submission of shop drawings of an unnamed manufacture or shop drawings at variance with the Contract Documents is NOT a proper request for substitution.

G. Changes in work of other trades, such as structural supports or wiring, which are required as a result of substitution and the associated costs for such changes shall be the complete responsibility of Contractor proposing substitution. Except as noted in subparagraph 1.3.C.3 above, there shall be NO additional expense to the Owner.

1.4 SAMPLES

A. Submit samples as requested by Engineer.

B. Samples that are submitted in lieu of shop drawings shall be clearly identified and shall be submitted in duplicate. Only one sample will be returned and that accepted sample shall be kept available at appropriate job site office. Accepted sample retained by Engineer will be kept available at Engineer's home office.

1.5 PROGRESS DRAWINGS

A. Furnish and keep on the job at all times, one complete and separate set of blackline prints of the work. As work progresses, record changes, revisions and additions clearly, neatly, accurately and promptly.

B. Indicate daily progress on these prints by coloring in the various items, apparatus and associated appurtenances as they are erected.

C. Approval of requisition for payment for work installed will NOT be given unless supported by prints as required above.

1.6 RECORD DRAWINGS

A. Upon completion of the work, prepare record CAD drawings with accompanying electronic files. Every change, revision and addition to the Work and the Space shall be indicated legibly, neatly, clearly, and accurately. Items to be indicated include but are not limited to:

1. Dimensional change
2. Revision to Drawing detail
3. Location and depth of underground utility
4. Revision to pipe routing
5. Revision to conduit routing
6. Revision to electrical circuitry
7. Actual equipment location

8. Location of concealed internal utility
9. Changes made by Change Order
10. Details not on original Contract Drawing
11. Information on concealed elements which would be difficult to identify or measure later

B. Record Drawings shall be submitted for review. As directed, correct and redraw revisions until Record Drawings are satisfactory to Engineer.

C. Refer to GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS for further requirements.

1.7 OPERATING AND MAINTENANCE MANUALS

A. Submit for review operating and maintenance manuals for each system or piece of equipment, at least two weeks prior to request for acceptance of same. Upon acceptance, furnish six copies of each manual to Engineer for transmittal to Owner. Operating and maintenance manual shall include:

1. Description of Unit (System) and Component Parts, including function, normal operating characteristics and limiting conditions, performance curves, engineering data and tests, and complete nomenclature and manufacturer's number for replaceable parts.
2. Operating Procedures, including start-up, break-in, routine and normal operating instructions; regulation, control, stopping, shutdown and emergency instructions; summer and winter operating instructions; and any special operating instructions.
3. Maintenance Procedures, including routine operations, guide to trouble-shooting; disassembly, repair and reassembly; alignment, adjusting and checking; servicing and lubrication schedule, and list of lubricants; manufacturer's installation and maintenance bulletins and related information.
4. Sequence of Operation and Control Diagrams, corrected for as-built conditions.
5. Parts List, including illustrations, assembly drawings and diagrams required for maintenance, predicted life of parts subject to wear, and recommendations for stocking spare parts.
6. Copies of accepted shop drawings, charts and diagrams.
7. Names, addresses and telephone numbers of manufacturer's representative and service company.
8. Other data, as required under pertinent Sections of these Specifications.
9. Letters from each manufacturer certifying that his equipment was properly installed and is operating in accordance with manufacturer's intent.

1.8 OTHER SUBMITTALS

A. Submit for review items specified elsewhere, including but not limited to:

1. Guarantees. Refer to SECTION 017400, WARRANTEES AND BONDS.
2. Test reports, as requested.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013300

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Mockups: Physical assemblies of portions of the Work constructed to establish the standard by which the Work will be judged. Mockups are not Samples.

1. Mockups are used for one or more of the following:

a. Verify selections made under Sample submittals.
b. Demonstrate aesthetic effects.
c. Demonstrate the qualities of products and workmanship.
d. Demonstrate successful installation of interfaces between components and systems.
e. Perform preconstruction testing to determine system performance.

2. Product Mockups: Mockups that may include multiple products, materials, or systems specified in a single Section.
3. In-Place Mockups: Mockups constructed on-site in their actual final location as part of permanent construction.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) in accordance with 29 CFR 1910.7, by a testing agency accredited in accordance with NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" has the same meaning as the term "testing agency."

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect or Construction Manager.

1.3 DELEGATED DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified is the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

A. Mockup Shop Drawings:

1. Include plans, sections, elevations, and details, indicating materials and size of mockup construction.
2. Indicate manufacturer and model number of individual components.
3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:

1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.

D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities and to coordinate Owner's quality-assurance and quality-control activities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections, including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and

inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.

2. Special inspections required by authorities having jurisdiction and indicated on the Statement of Special Inspections.
3. Owner-performed tests and inspections indicated in the Contract Documents, including tests and inspections indicated to be performed by Commissioning Authority.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring the Work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports, including log of approved and rejected results. Include Work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming Work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.

4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement of whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities be performed by entities who are recognized experts in those operations. Specialists will satisfy qualification requirements indicated and engage in the activities indicated.

1. Requirements of authorities having jurisdiction supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor's Responsibilities:

a. Provide test specimens representative of proposed products and construction.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
d. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
e. When testing is complete, remove test specimens and test assemblies, and mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect or Construction Manager.

3. Notify Architect and Construction Manager seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers who will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's and Construction Manager's approval of mockups before starting corresponding Work, fabrication, or construction.

    a. Allow seven days for initial review and each re-review of each mockup.

7. Promptly correct unsatisfactory conditions noted by Architect's preliminary review, to the satisfaction of the Architect, before completion of final mockup.
8. Approval of mockups by the Architect does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
9. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
10. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Payment for these services will be made from testing and inspection allowances specified in Section 012100 "Allowances," as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.

    a. Contractor will not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority, Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, Commissioning Authority, , Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.

6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspection equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.

1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
2. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority, Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner and as follows:

1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures, and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect, Commissioning Authority, Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority, through Construction Manager, with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections, and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, Commissioning Authority's, and Construction Manager's and authorities' having jurisdiction reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

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SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms, including "requested," "authorized," "selected," "required," and "permitted," have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms, including "shown," "noted," "scheduled," and "specified," have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Industry Organizations, List: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. The information in this list is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; (see FGIA).
3. AAPFCO - Association of American Plant Food Control Officials; www.aapfco.org.
4. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
5. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
6. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
7. ABMA - American Boiler Manufacturers Association; www.abma.com.
8. ACI - American Concrete Institute; www.concrete.org.
9. ACP - American Clean Power; (Formerly: American Wind Energy Association); www.cleanpower.org.
10. ACPA - American Concrete Pipe Association; www.concretepipe.org.
11. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
12. AF&PA - American Forest & Paper Association; www.afandpa.org.
13. AGA - American Gas Association; www.aga.org.
14. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
15. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
16. AI - Asphalt Institute; www.asphaltinstitute.org.
17. AIA - American Institute of Architects (The); www.aia.org.
18. AISC - American Institute of Steel Construction; www.aisc.org.
19. AISI - American Iron and Steel Institute; www.steel.org.
20. AITC - American Institute of Timber Construction; (see PLIB).
21. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
22. AMPP - Association for Materials Protection and Performance; www.ampp.org.
23. ANSI - American National Standards Institute; www.ansi.org.

24. AOSA/SCST - Association of Official Seed Analysts (The)/Society of Commercial Seed Technologists (The); www.analyzeseeds.com.
25. APA - APA - The Engineered Wood Association; www.apawood.org.
26. APA - Architectural Precast Association; www.archprecast.org.
27. API - American Petroleum Institute; www.api.org.
28. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
29. ASA - Acoustical Society of America; www.acousticalsociety.org.
30. ASCE - American Society of Civil Engineers; www.asce.org.
31. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (see ASCE).
32. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
33. ASME - ASME International; American Society of Mechanical Engineers (The); www.asme.org.
34. ASSE - ASSE International; (American Society of Sanitary Engineering); www.asse-plumbing.org.
35. ASSP - American Society of Safety Professionals; www.assp.org.
36. ASTM - ASTM International; www.astm.org.
37. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
38. AVIXA - Audiovisual and Integrated Experience Association; www.avixa.org.
39. AWI - Architectural Woodwork Institute; www.awinet.org.
40. AWMAC - Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
41. AWPA - American Wood Protection Association; www.awpa.com.
42. AWS - American Welding Society; www.aws.org.
43. AWWA - American Water Works Association; www.awwa.org.
44. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
45. BIA - Brick Industry Association (The); www.gobrick.com.
46. BICSI - BICSI, Inc.; www.bicsi.org.
47. BIFMA - Business and Institutional Furniture Manufacturer's Association; www.bifma.org.
48. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
49. BSI - British Standards Institution; www.bsigroup.com.
50. BWF - Badminton World Federation; www.bwfbadminton.com.
51. CARB - California Air Resources Board; www.arb.ca.gov.
52. CDA - Copper Development Association Inc.; www.copper.org.
53. CE - Conformite Europeenne (European Commission); www.ec.europa.eu/growth/single-market/ce-marking.
54. CEA - Canadian Electricity Association; www.electricity.ca.
55. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
56. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
57. CGA - Compressed Gas Association; www.cganet.com.
58. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
59. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
60. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
61. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
62. CMHA - Concrete Masonry & Hardscape Association; (Formerly: National Concrete Masonry Association); www.masonryandhardscapes.org.
63. CPA - Composite Panel Association; www.compositepanel.org.

64. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
65. CRRC - Cool Roof Rating Council; www.coolroofs.org.
66. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
67. CSA - CSA Group; www.csagroup.org.
68. CSI - Cast Stone Institute; www.caststone.org.
69. CSI - Construction Specifications Institute (The); www.csiresources.org.
70. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
71. CTA - Consumer Technology Association; www.cta.tech.
72. CTI - Cooling Technology Institute; www.coolingtechnology.org.
73. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
74. DHA - Decorative Hardwoods Association; www.decorativehardwoods.org.
75. DHI - Door and Hardware Institute; www.dhi.org.
76. ECIA - Electronic Components Industry Association; www.ecianow.org.
77. EIMA - EIFS Industry Members Association; www.eima.com.
78. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
79. EOS/ESD - EOS/ESD Association, Inc.; Electrostatic Discharge Association; www.esda.org.
80. ESTA - Entertainment Services and Technology Association; www.esta.org.
81. EVO - Efficiency Valuation Organization; www.evo-world.org.
82. FCI - Fluid Controls Institute; www.fluidcontrolsinstitute.org.
83. FGIA - Fenestration and Glazing Industry Alliance; https://fgiaonline.org.
84. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
85. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
86. FM Approvals - FM Approvals LLC; www.fmapprovals.com.
87. FM Global - FM Global; www.fmglobal.com.
88. FRSA - Florida Roofing and Sheet Metal Contractors Association, Inc.; www.floridaroof.com.
89. FSA - Fluid Sealing Association; www.fluidsealing.com.
90. FSC - Forest Stewardship Council U.S.; www.fscus.org.
91. GA - Gypsum Association; www.gypsum.org.
92. GS - Green Seal; www.greenseal.org.
93. HI - Hydraulic Institute; www.pumps.org.
94. HMMA - Hollow Metal Manufacturers Association; (see NAAMM).
95. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
96. IAS - International Accreditation Service; www.iasonline.org.
97. ICC - International Code Council; www.iccsafe.org.
98. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
99. ICPA - International Cast Polymer Association (The); www.theicpa.com.
100. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
101. IEC - International Electrotechnical Commission; www.iec.ch.
102. IEEE SA - IEEE Standards Association; https://standards.ieee.org.
103. IES - Illuminating Engineering Society; www.ies.org.
104. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
105. IGMA - Insulating Glass Manufacturers Alliance; (see FGIA).
106. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.org.
107. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
108. Intertek - Intertek Group; www.intertek.com.

109. ISA - International Society of Automation (The); www.isa.org.
110. ISFA - International Surface Fabricators Association; www.isfanow.org.
111. ISO - International Organization for Standardization; www.iso.org.
112. ITU - International Telecommunication Union; www.itu.int.
113. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
114. LPI - Lightning Protection Institute; www.lightning.org.
115. MBMA - Metal Building Manufacturers Association; www.mbma.com.
116. MCA - Metal Construction Association; www.metalconstruction.org.
117. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
118. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
119. MHI - Material Handling Industry; www.mhi.org.
120. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
121. MPI - Master Painters Institute; www.paintinfo.com.
122. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry, Inc.; www.msshq.org.
123. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
124. NACE - NACE International; (National Association of Corrosion Engineers International); (see AMPP).
125. NADCA - National Air Duct Cleaners Association; www.nadca.com.
126. NAIMA - North American Insulation Manufacturers Association; www.insulationinstitute.org.
127. NALP - National Association of Landscape Professionals; www.landscapeprofessionals.org.
128. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
129. NBI - New Buildings Institute; www.newbuildings.org.
130. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
131. NCMA - National Concrete Masonry Association; (see CMHA).
132. NEBB - National Environmental Balancing Bureau; www.nebb.org.
133. NECA - National Electrical Contractors Association; www.necanet.org.
134. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
135. NEMA - National Electrical Manufacturers Association; www.nema.org.
136. NETA - InterNational Electrical Testing Association; www.netaworld.org.
137. NFHS - National Federation of State High School Associations; www.nfhs.org.
138. NFPA - National Fire Protection Association; www.nfpa.org.
139. NFPA - NFPA International; (see NFPA).
140. NFRC - National Fenestration Rating Council; www.nfrc.org.
141. NGA - National Glass Association; www.glass.org.
142. NHLA - National Hardwood Lumber Association; www.nhla.com.
143. NLGA - National Lumber Grades Authority; www.nlga.org.
144. NOFMA - National Oak Flooring Manufacturers Association; (see NWFA).
145. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
146. NRCA - National Roofing Contractors Association; www.nrca.net.
147. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
148. NSF - NSF International; www.nsf.org.
149. NSI - Natural Stone Institute; www.naturalstoneinstitute.org.
150. NSPE - National Society of Professional Engineers; www.nspe.org.
151. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
152. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.

153. NWFA - National Wood Flooring Association; www.nwfa.org.
154. NWRA - National Waste & Recycling Association; www.wasterecycling.org.
155. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
156. PDI - Plumbing & Drainage Institute; www.pdionline.org.
157. PLASA - PLASA; www.plasa.org.
158. PLIB - Pacific Lumber Inspection Bureau; www.plib.org.
159. PVCPA - Uni-Bell PVC Pipe Association; www.uni-bell.org.
160. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
161. RFCI - Resilient Floor Covering Institute; www.rfci.com.
162. RIS - Redwood Inspection Service; (see WWPA).
163. SAE - SAE International; www.sae.org.
164. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
165. SDI - Steel Deck Institute; www.sdi.org.
166. SDI - Steel Door Institute; www.steeldoor.org.
167. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
168. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (see ASCE).
169. SIA - Security Industry Association; www.securityindustry.org.
170. SJI - Steel Joist Institute; www.steeljoist.org.
171. SMA - Screen Manufacturers Association; www.smainfo.org.
172. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
173. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
174. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
175. SPIB - Southern Pine Inspection Bureau; www.spib.org.
176. SPRI - Single Ply Roofing Industry; www.spri.org.
177. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
178. SSINA - Specialty Steel Industry of North America; www.ssina.com.
179. SSPC - SSPC: The Society for Protective Coatings; (see AMPP).
180. STI/SPFA - Steel Tank Institute/Steel Plate Fabricators Association; www.steeltank.com.
181. SWI - Steel Window Institute; www.steelwindows.com.
182. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
183. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
184. TCNA - Tile Council of North America, Inc.; www.tcnatile.com.
185. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.kbcdco.tema.org.
186. TIA - Telecommunications Industry Association; www.tiaonline.org.
187. TMS - The Masonry Society; www.masonrysociety.org.
188. TPI - Truss Plate Institute; www.tpinst.org.
189. TPI - Turfgrass Producers International; www.turfgrasssod.org.
190. TRI - Tile Roofing Industry Alliance; www.tileroofing.org.
191. ULSE - UL Standards & Engagement Inc.; www.ulse.org.
192. UL - UL Solutions Inc.; www.ul.com.
193. USAV - USA Volleyball; www.usavolleyball.org.
194. USGBC - U.S. Green Building Council; www.usgbc.org.
195. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
196. WA - Wallcoverings Association; www.wallcoverings.org.
197. WCLIB - West Coast Lumber Inspection Bureau; (see PLIB).
198. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
199. WDMA - Window & Door Manufacturers Association; www.wdma.com.

200. WI - Woodwork Institute; www.woodworkinstitute.com.
201. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
202. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. CPSC - U.S. Consumer Product Safety Commission; www.cpsc.gov.
2. DOC - U.S. Department of Commerce; www.commerce.gov.
3. DOD - U.S. Department of Defense; www.defense.gov.
4. DOE - U.S. Department of Energy; www.energy.gov.
5. DOJ - U.S. Department of Justice; www.ojp.usdoj.gov
6. DOS - U.S. Department of State; www.state.gov.
7. EPA - United States Environmental Protection Agency; www.epa.gov.
8. FAA - Federal Aviation Administration; www.faa.gov.
9. GPO - U.S. Government Publishing Office; www.gpo.gov.
10. GSA - U.S. General Services Administration; www.gsa.gov.
11. HUD - U.S. Department of Housing and Urban Development; www.hud.gov.
12. LBNL - Lawrence Berkeley National Laboratory; Energy Technologies Area; www.lbl.gov/.
13. NIST - National Institute of Standards and Technology; www.nist.gov.
14. OSHA - Occupational Safety & Health Administration; www.osha.gov.
15. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
16. USACE - U.S. Army Corps of Engineers; www.usace.army.mil.
17. USDA - U.S. Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
18. USDA - U.S. Department of Agriculture; Rural Utilities Service; www.usda.gov.
19. USP - U.S. Pharmacopeial Convention; www.usp.org.
20. USPS - United States Postal Service; www.usps.com.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from U.S. Government Publishing Office; www.govinfo.gov.

2. DOD - U.S. Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.dsp.dla.mil/Specs-Standards/.
3. DSCC - Defense Supply Center Columbus; (see FS).
4. FED-STD - Federal Standard; (see FS).
5. FS - Federal Specification; Available from DLA Document Services; www.dsp.dla.mil/Specs-Standards/.

    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from U.S. General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.

6. MILSPEC - Military Specifications and Standards; (see DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (see USAB).

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they are to mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. BEARHFTI; California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; (see BHGS).
2. BHGS; State of California Bureau of Household Goods and Services; (Formerly: California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation); www.bhgs.dca.ca.gov.
3. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.oal.ca.gov/publications/ccr/.
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHLB/IAQ/Pages/Main-Page.aspx.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
7. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; https://tfsweb.tamu.edu/.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

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SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary of Work" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. Installation, removal, and use charges for temporary facilities to be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use with metering. Provide connections and extensions of services and metering as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use with metering. Provide connections and extensions of services and metering as required for construction operations.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.

C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.

D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

G. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by Owner. Include the following:

1. Methods used to meet the goals and requirements of Owner.
2. Concrete cutting method(s) to be used.
3. Location of construction devices on the site.
4. Show compliance with the use and maintenance of quieted construction devices for the duration of the Project.
5. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with Owner.
6. Indicate locations of sensitive equipment areas or other areas requiring special attention as identified by Owner. Indicate means for complying with Owner's requirements.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the DOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts.

B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

D. Wood Enclosure Fence: Plywood, 8 feet high, framed with four 2-by-4-inch rails, with preservative-treated wood posts spaced not more than 8 feet apart.

E. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less in accordance with ASTM E84 and passing NFPA 701 Test Method 2.

F. Dust-Control Adhesive-Surface Walk-Off Mats: Provide mats, minimum 36 by 60 inches.

G. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

A. Field Offices:

1. Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

C. Portable Toilets:

1. Portable toilets shall be located in an obscure location within the construction area, and coordinated with the Owner.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

C. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

1. Prior to commencing work, isolate the HVAC system in area where work is to be performed in accordance with coordination drawings.

a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
b. Maintain negative air pressure within work area, using HEPA-equipped air-filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.

2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust-containment devices.
3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service:

1. Install water service and distribution piping in sizes and pressures adequate for construction.
2. Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Use of Permanent Toilets: Use of Owner's existing or new toilet facilities is not permitted.

D. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

E. Electric Power Service:

1. Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
2. Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

a. Install electric power service overhead unless otherwise indicated.
b. Connect temporary service to Owner's existing power source, as directed by Owner.

F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

G. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment and one land-based telephone line(s) for each field office.

1. At each telephone, post a list of important telephone numbers.

a. Police and fire departments.
b. Ambulance service.
c. Contractor's home office.
d. Contractor's emergency after-hours telephone number.
e. Architect's office.
f. Construction Manager's home office.
g. Engineers' offices.
h. Owner's office.
i. Principal subcontractors' field and home offices.

H. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
2. Utilize designated area within existing building for temporary field offices.

3. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas within construction limits indicated on Drawings.

1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Temporary Use of Planned Permanent Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.

1. Coordinate elevations of temporary roads and paved areas with permanent roads and paved areas.
2. Prepare subgrade and install subbase and base for temporary roads and paved areas in accordance with Section 312000 "Earth Moving."
3. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
4. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course in accordance with Section 321216 "Permanent Paving."

D. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

E. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

F. Storage and Staging: Use designated areas of Project site for storage and staging needs.

G. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

H. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs, so they are legible at all times.

I. Waste Disposal Facilities:

1. Comply with requirements of Owner specified in Section 017419 "Construction Waste Management and Disposal."
2. Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

J. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

K. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas, so no evidence remains of correction work.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 011000 "Summary."

C. Temporary Erosion and Sedimentation Control:

1. Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."
2. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, in

accordance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

a. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
b. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
c. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
d. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Tree and Plant Protection:

1. Comply with requirements of Owner specified in Section 015639 "Temporary Tree and Plant Protection."
2. Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

F. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

G. Site Enclosure Fence: Prior to commencing earthwork, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

H. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

I. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

J. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

K. Covered Walkway: Erect protective, covered walkway for passage of individuals through or adjacent to Project site. Coordinate with entrance gates, other facilities, and obstructions. Comply with regulations of authorities having jurisdiction and requirements indicated on Drawings.

1. Provide overhead decking, protective enclosure walls, handrails, barricades, warning signs, exit signs, lights, safe and well-drained walkways, and similar provisions for protection and safe passage.
2. Paint and maintain appearance of walkway for duration of the Work.

L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

M. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard, with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
2. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.

    a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.

3. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
4. Insulate partitions to control noise transmission to occupied areas.
5. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
6. Protect air-handling equipment.
7. Provide walk-off mats at each entrance through temporary partition.

N. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.

3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard and replace stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

    a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.

b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Contract Closeout."

END OF SECTION 015000

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SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. The Work of This Section Includes: Administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 011000 "Summary" for Contractor requirements related to Owner-furnished products.
2. Section 012500 "Substitution Procedures" for requests for substitutions.
3. Section 014200 "References" for applicable industry standards for products specified.
4. Section 017700 "Contract Closeout" for submitting warranties.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products unless otherwise indicated.
3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.

1. Evaluating Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight,

dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.

D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
2. Data indicating compliance with the requirements specified in "Comparable Products" Article.

E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittals."

F. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.3 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Resolution of Compatibility Disputes between Multiple Contractors:

a. Contractors are responsible for providing products and construction methods compatible with products and construction methods of other contractors.
b. If a dispute arises between the multiple contractors over concurrently selectable but incompatible products, Architect will determine which products will be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is inconspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

    a. Name of product and manufacturer.
    b. Model and serial number.
    c. Capacity.
    d. Speed.
    e. Ratings.

3. See individual identification Sections in Division 26 for additional equipment identification requirements.

1.4 COORDINATION

A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.

C. Storage:

1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
2. Store products to allow for inspection and measurement of quantity or counting of units.
3. Store materials in a manner that will not endanger Project structure.

4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections are to be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of Owner or endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of Owner or endorsed by manufacturer to Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Architect through Construction Manager in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by Architect, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

    a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.

a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.

a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitutions Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitutions Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

E. Sustainable Product Selection: Where Specifications require product to meet sustainable product characteristics, select products complying with indicated requirements. Comply with requirements in Division 01 sustainability requirements Section and individual Specification Sections.

1. Select products for which sustainable design documentation submittals are available from manufacturer.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for a comparable product. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

1. Architect's Approval of Submittal: Marked with approval notation from Architect's and Construction Manager's action stamp. See Section 013300 "Submittals."
2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

C. Submittal Requirements, Two-Step Process: Approval by Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

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SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:

1. Construction layout.
2. Field engineering.
3. Installation.
4. Cutting and patching.
5. Coordination of Owner's portion of the Work.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Requirements:

1. Section 011000 "Summary" for coordination of limits on use of Project site.
2. Section 013300 "Submittals" for submitting surveys.
3. Section 017700 "Contract Closeout" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.3 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Architect and Construction Manager of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

a. Contractor's superintendent.
b. Trade supervisor responsible for cutting operations.
c. Trade supervisor(s) responsible for patching of each type of substrate.
d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

B. Layout Conference: Conduct conference at Project site.

1. Prior to establishing layout of new perimeter and structural column grid(s), review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect and Construction Manager of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:

a. Contractor's superintendent.
b. Professional surveyor and/or professional engineer responsible for performing Project surveying and layout.
c. Professional surveyor and/or professional engineer responsible for performing site survey serving as basis for Project design.

2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.
3. Review requirements for including layouts on Shop Drawings and other submittals.
4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For land surveyor and/or professional engineer.

B. Certified Surveys: Submit two copies signed by land surveyor and/or professional engineer.

C. Certificates: Submit certificate signed by land surveyor and/or professional engineer, certifying that location and elevation of improvements comply with requirements.

D. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.

5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

E. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 CLOSEOUT SUBMITTALS

A. Final Property Survey: Submit 10 copies showing the Work performed and record survey data.

1.6 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

B. Professional Engineer Qualifications: Refer to Section 014000 "Quality Requirements."

C. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Plumbing piping systems.
    f. Mechanical systems piping and ducts.
    g. Control systems.
    h. Communication systems.
    i. Fire-detection and -alarm systems.
    j. Conveying systems.

k. Electrical wiring systems.
l. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

a. Water, moisture, or vapor barriers.
b. Membranes and flashings.
c. Exterior curtain-wall construction.
d. Sprayed fire-resistive material.
e. Equipment supports.
f. Piping, ductwork, vessels, and equipment.
g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

C. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect through Construction Manager in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architect and Construction Manager promptly.

B. Engage a professional land surveyor and/or professional engineer experienced in laying out the Work, using the following accepted surveying practices:

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish limits on use of Project site.
3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
4. Inform installers of lines and levels to which they must comply.
5. Check the location, level and plumb, of every major element as the Work progresses.
6. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.4 FIELD ENGINEERING

A. Identification: Owner will identify existing benchmarks, control points, and property corners.

B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

D. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

E. Final Property Survey: Engage a professional land surveyor and/or professional engineer to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by professional land surveyor and/or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

3.5 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb, and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

3.6 CUTTING AND PATCHING

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of Work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, in accordance with regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces in accordance with written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

A. Coordinate startup and adjusting of equipment and operating components with equipment manufacturers representative.

B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Restore permanent facilities used during construction to their specified condition.

D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

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SECTION 017700 – CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 REFERENCES

A. Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of Contract, occupancy by Owner, and similar actions evidencing completion of the work.

B. Specific requirements for individual items of work are specified throughout these Specifications.

1.2 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. Prior to requesting Engineer's inspection for certification of substantial completion (for entire work or portions thereof), submit the following and list known exceptions (if any) in request:

1. Progress payment request, indicating 100% completion of the work for which inspection is requested or listing each incomplete item, its value, and reasons for being incomplete.
2. Updated Schedule of Values.
3. Other documentation required in the Specification Sections applicable to the work to be inspected, such as testing reports, operating and maintenance manuals, and warranties.
4. Releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including where required occupancy permits, operating certificates, and similar releases.

B. Prior to inspection: Final cleaning and touch-up painting shall be completed, and temporary facilities shall be removed or changed over to permanent services.

1.3 PREREQUISITES TO FINAL ACCEPTANCE

A. Prior to requesting Engineer's final inspection for certification of final acceptance and final payment, submit the following and list known exceptions (if any) in request:

1. Final payment request with release of liens.
2. Updated Schedule of Values, accounting for additional (final) changes to the Contract Sum.
3. Certified copy of Engineer's punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Engineer.
4. Record Drawings and Field Copies of Contract Drawings and Specifications, Shop Drawings, etc. Field Copy of Specifications shall be annotated for Addenda and Change Orders.

5. Guarantees and warranties for the complete work and for specific work, as required in the GENERAL CONDITIONS and in the various SECTIONS of the Specifications.

B. Formal instructions to Owner's personnel, required in the various SECTIONS of the Specifications, shall be completed before request for Final Acceptance is made.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSTRUCTIONS

A. Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel at project site and instruct them in the operation and maintenance. Include instruction by manufacturer's representatives where installers are not expert in the required procedures. Instruction periods for all trades shall be minimum of 8 hours total; refer to individual SECTIONS for further requirements.

B. Instruction shall include review of maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities.

C. Start-up, shut down, emergency operations, noise and vibration adjustment, safety, economy/efficiency adjustments, and similar operations shall be demonstrated.

D. Applicable warranties shall be reviewed.

3.2 FINAL CLEANING

A. Clean each surface of each unit of work, to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples, but not limitations, of cleaning required:

1. Remove labels, which are not required as permanent labels.
2. Clean transparent materials, removing substances which are noticeable as vision-obscuring.
3. Clean exposed hard-surfaced finishes, until free of dust, stains, films and similar noticeable substances.
4. Wipe surfaces of mechanical and electrical equipment clean, remove excess lubrication and other substances.
5. Remove debris and surface dust from limited-access spaces such as plenums, shafts, and ceiling spaces.
6. Clean lighting fixtures and lamps; removing dust, smudge marks and protective wraps; so as to function with full efficiency.
7. Vacuum and damp mop all work areas and corridors. Refer to general cleaning required under SECTION 011010, SPECIAL PROJECT PROCEDURES.

B. Where necessary to remove debris through other parts of the building, debris shall be carried in covered containers and as directed by Engineer.

END OF SECTION 017700

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SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory manuals.
2. Emergency manuals.
3. Systems and equipment operation manuals.
4. Systems and equipment maintenance manuals.
5. Product maintenance manuals.

B. Related Requirements:

1. Section 013300 "Submittals" for submitting copies of submittals for operation and maintenance manuals.

1.2 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:

1. Submit on digital media acceptable to Architect. Enable reviewer comments on draft submittals.
2. Submit three paper copies. Architect, through Construction Manager, will return two copies.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.

1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

E. Comply with Section 017700 "Contract Closeout" for schedule for submitting operation and maintenance documentation.

1.4 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.5 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual to contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Name and contact information for Commissioning Authority.
9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation in accordance with ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.6 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:

1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.7 EMERGENCY MANUALS

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Content: Organize manual into a separate section for each of the following:

1. Type of emergency.
2. Emergency instructions.
3. Emergency procedures.

C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:

1. Fire.
2. Flood.
3. Gas leak.
4. Water leak.
5. Power failure.
6. Water outage.
7. System, subsystem, or equipment failure.
8. Chemical release or spill.

D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

E. Emergency Procedures: Include the following, as applicable:

1. Instructions on stopping.
2. Shutdown instructions for each type of emergency.
3. Operating instructions for conditions outside normal operating limits.
4. Required sequences for electric or electronic systems.
5. Special operating instructions and procedures.

1.8 SYSTEMS AND EQUIPMENT OPERATION MANUALS

A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor has delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

C. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.

7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

D. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

F. Piped Systems: Diagram piping as installed, and identify color coding where required for identification.

1.9 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:

1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

    a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and

flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of maintenance manuals.

1.10 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017823

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SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for Project Record Documents, including the following:

1. Record Drawings.
2. Record specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Section 017300 "Execution" for final property survey.
2. Section 017700 "Contract Closeout" for general closeout procedures.
3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
3) Submit Record Digital Data Files and one set(s) of plots.
4) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit three paper-copy set(s) of marked-up record prints.
2) Submit PDF electronic files of scanned Record Prints and three set(s) of file prints.
3) Print each drawing, whether or not changes and additional information were recorded.

c. Final Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Submit Record Digital Data Files and three set(s) of Record Digital Data File plots.
3) Plot each drawing file, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files and 3 paper copies of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories and 3 paper copies of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories and 3 paper copies of each submittal.

E. Reports: Submit written report indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.

d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect and Construction Manager. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:

1. Format: Same digital data software program, version, and operating system as for the original Contract Drawings.
2. Format: DWG, Version 2018, Microsoft Windows operating system.
3. Format: Annotated PDF electronic file.
4. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
5. Refer instances of uncertainty to Architect through Construction Manager for resolution.
6. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.

a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
b. Architect will provide data file layer information. Record markups in separate layers.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Annotated PDF electronic file.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect and Construction Manager.
e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

C. Format: Submit Record Product Data as[annotated PDF electronic file.

1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's and Construction Manager's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017839

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SECTION 033000 – CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 GENERAL

A. Provide all labor, materials and equipment required to perform the work call for in this Section of the Specifications; including, but not necessarily limited to the following:

1. Provide form work for all cast-in-place concrete shown on the Drawings.
2. Provide and install all reinforcement as shown on the drawings.
3. Furnish and place all cast-in-concrete as shown on the drawings or written in the Specifications.

PART 2 - MATERIALS

2.1 CONCRETE

A. All concrete work shall be in accordance with the American Institute "Specifications for Structural Concrete for Buildings" (ACI 301), and "Building Code Requirements for Reinforced Concrete" (ACI 318), unless otherwise detailed or noted.

B. All concrete shall be Portland cement concrete for pavement, normal weight with a 28-day compressive strength of 4,000 psi, and shall be air-entrained as specified in ConnDOT Form 818, Section M.03.01.

2.2 REINFORCEMENT

A. All reinforcing shall be high strength deformed bars, ASTM A615, Grade 60, black rebar, as specified in ConnDOT Form 818 . Welded wire fabric shall conform to ASTM A185.

B. Detail all bars in accordance with "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACE 315). Show on placing drawings the number and location of all bar supports and accessories necessary to support reinforcement in position indicated.

PART 3 - EXECUTION

3.1 GENERAL

A. Place concrete in compliance with practices and recommendations of ACI 304, and herein specified.

B. During periods of hot weather proper attention shall be given to ingredients, production methods, handling, placing, protection, and curing of concrete to prevent excessive concrete temperatures or water evaporation that could impair required strength or serviceability of the concrete structure. Recommendations for hot weather concreting practices are given in the following publications:

1. ACI 305, “Hot Weather Concreting,” ACI Manual of Concrete Practice, Part 2. American Concrete Institute, P.O. Box 19150, Detroit, Michigan 48219.
2. ASTM C 150, “Standard Specification for Portland Cement,” American Society for Testing Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.
3. “Cooling Ready Mixed Concrete,” NRMCA Publication No. 106.
4. ASTM C 494, “Chemical Admixtures for Concrete.”
5. ASTM C 618, “Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.”
6. ASTM C 31, “Making and Curing Concrete Test Specimens in the Field.”

3.2 CONTROL JOINTS IN SLABS ON-GRADE

A. Provide control joints in slabs on grade to form panels or patterns shown on the Drawings. Use inserts 1/4-inch wide by 1/5, to 1/4 of the slab depth.

1. Form control joints by inserting a pre-molded hardboard or fiberboard strip into fresh concrete until top surface is flush with the slab surface.
2. After concrete has cured for at least seven days, remove inserts and clean base debris from grooves.

3.3 CONCRETE COVER

A. Minimum concrete cover for reinforcement shall be:

1. Concrete placed against earth: 3"
2. Concrete placed against forms but exposed to earth or weather: 2 1/2"

3.4 REINFORCEMENT

A. No splices or reinforcement shall be made except as detailed or approved by the structural engineer. Lap slices, where permitted, shall be a minimum of 36 bar diameters. Make all bars continuous around corner.

B. Wire mesh reinforcement must lap one-full mesh at side and end laps, and shall be wired together. Provide adequate supports for mesh to ensure its location as shown on the Drawings.

3.5 CURING

A. Curing of floor slabs and horizontal concrete surfaces shall be accomplished by the following method:

1. As soon as horizontal concrete surfaces can be walked on and before any traffic or work is allowed on them, they shall be covered with one layer of tough waterproof paper complying with ASTM CF-171, lapped 4" at all edges and sealed with waterproof cement or masking or pressure-sensitive tape. Paper shall be kept intact for a minimum of ten days as specified. For the first seven days, keep slabs wet by admitting water through windows at laps.

3.6 FINISH

A. Trowel Finish:

1. Apply trowel finish to monolithic slab surfaces that are to be exposed to view, unless otherwise shown, and to slab surfaces that are to be covered with resilient flooring, carpeting, paint, or other thin-film finish coating system.
2. After floating, begin with the first trowel finish operation using a power-driven trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.
3. Consolidate the concrete surface by the final hand-troweling operation, free from trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in 10'0" when tested with a 10'0" straightedge.
4. Grind smooth those surface defects which would telegraph through applied floor covering system.

B. Exterior Finish:

1. Apply non-slip broom finish to exterior concrete platforms, steps and ramps.

C. Immediately after trowel finishing, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use a fiber bristle broom.

D. Coordinate the required finish with the Engineer prior to application.

3.7 TESTING

A. Town of Hebron will be retaining an outside Third-Party to conduct the required Testing and Inspections.

B. The Contractor will be responsible for coordinating, communicating and arranging with the Third-Party Testing and Inspection firm to be on-site at the appropriate times. The Contractor will also be responsible for coordinating, communicating and arranging for the Town of Hebron Building Official to be on-site at the appropriate times in order for them to conduct their inspections.

C. A certified testing lab to shall be used to collect and test concrete cylinders. Break cylinders for 7-day and 28-day strengths. Collect a spare sample to be broken in the event the 28-day test cylinder fails to meet specifications. Collect samples for every pour or collect multiple samples for every interval of 20 cubic yards in larger pours. Submit name of testing lab to Engineer for approval prior to use.

END OF SECTION

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SECTION 260500 – COMMON WORK RESULTS FOR ELECTRICAL WORK

PART 1 - GENERAL

1.1 REFERENCES

A. Refer to the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS and applicable parts of DIVISION 1 for other general requirements. These requirements may be repeated in this Division for emphasis or for inclusion of more stringent/additional related requirements. Such repetition shall NOT be construed to reduce the requirements of those Divisions NOR to eliminate other requirements under those Divisions.

B. The requirements of this Section apply to ALL work specified in this Division, unless modified to be of higher quality or more stringent in another Section.

1.2 INTENT

A. The CONTRACT DOCUMENTS are inclusive of all Drawings and Specifications, both those specifically covering the work of this Division and those covering other subjects of work.

B. It is the intent of the Contract Documents to require finished work, tested and ready for operation.

C. It is not intended that Contract Documents show every pipe, wire, conduit, fitting and appurtenance; however, such parts as may be necessary to complete the systems in accordance with best trade practice and Code requirements and to Architect/Engineer's satisfaction shall be deemed to be included.

D. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. DO NOT SCALE THE DRAWINGS.

1.3 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

A. Before submitting prices or beginning work, thoroughly examine the site and the Contract Documents.

B. No claim for extra compensation will be recognized if difficulties are encountered which would have been revealed by examination of site conditions and Contract Documents prior to executing Contract.

C. Where discrepancies occur within Contract Documents, notify Architect/Engineer, in writing, of discrepancy and request clarification. Until notified of Engineer's decision, include item or arrangement of better quality, greater quantity or higher cost in Contract price.

D. For material, device and equipment identified on Contract Drawings by manufacturer and/or model: Coordinate with Specification for ancillary requirements and include with furnished item.

E. Notify Engineer, in writing, of materials and apparatus believed to be omitted, inadequate or unsuitable, or in violation of laws, ordinances, rules or regulations of authorities having jurisdiction. In absence of such written notice, it is mutually agreed that bid price for work under each Section has included the cost of items required for acceptable satisfactory functioning of entire system.

1.4 DEFINITIONS

A. Where more than one material, item, or grade is listed in same paragraph, first one named is preferred choice.

B. The following terms are used in this Division and are defined as follows:

1. "Indicated", "shown", "noted", "scheduled", "specified": These terms are a cross-reference to graphics, notes or schedules on the Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. NO limitation of location is intended except as specifically noted.
2. "Directed", "requested", "authorized", "selected", "required", "permitted": Where not otherwise explained, these terms mean "directed by the Architect/Engineer", "requested by the Architect/Engineer", etc. However, NO such implied meaning will be interpreted to extend the Architect/Engineer's responsibility into Contractor's area of construction supervision or means and methods.
3. "Provide": To furnish and install, ready for safe and regular operation the item, material or service indicated.
4. "Furnish": To purchase, acquire and deliver to the site, complete with related accessories.
5. "Install": To erect, mount and connect completely, by acceptable methods.
6. "Work": Labor, materials, equipment, apparatus, controls and accessories required for proper and complete installation.
7. “Finished Spaces”: Spaces other than the following:

    a. Mechanical and electrical equipment rooms.
    b. Furred spaces.
    c. Pipe and duct shafts.
    d. Unheated spaces immediately below roof.
    e. Spaces above ceilings.
    f. Unexcavated spaces.
    g. Crawl spaces.
    h. Tunnels.

8. “Exposed”, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical or electrical equipment rooms.
9. “Exposed”, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

10. “Concealed”, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in shafts.
11. “Concealed”, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated structures.
12. "Acceptable equivalent" or "Equal": Of weight, size, design, capacity and efficiency to meet requirements specified and shown, and of acceptable manufacture, as determined in the opinion of the Architect/Engineer.
13. "Acceptable": Acceptable, as determined in the opinion of the Architect/Engineer.
14. "Contractor": General Contractor, Trade Contractor, sub-Contractor, or Construction Manager.
15. "Named" Product: Manufacturer's name for product, as recorded in published documents of latest issue as of date of Contract Documents. Obtain Architect/Engineer's permission before using products of later or earlier model.

1.5 STANDARDS

A. Standards, specifications and tests of following technical societies, organizations and governmental bodies, as referenced in Contract Documents, are hereby made part of Contract Documents.

1. ANSI: American National Standards Institute
2. ASTM: American Society for Testing and Materials
3. EPA: Environmental Protection Agency
4. FSSC: Federal Specification
5. IRI: Industrial Risk Insurers
6. ISO: Insurance Services Office
7. NBS: National Bureau of Standards
8. NEC: National Electrical Code.
9. NEMA: National Electrical Manufacturers Association
10. NETA: International Electrical Testing Association
11. NFPA: National Fire Protection Association
12. NSC: National Safety Council
13. OSHA: Occupational Safety and Health Administration
14. UL: Underwriters Laboratories
15. NRTL: Nationally Recognized Testing Laboratory (3rd Party)
16. ASHRAE: American Society of Heating Refrigeration and Air Conditioning Engineers
17. ICC: International Code Council
18. IES/IESNA: Illuminating Engineering Society of North America
19. IEEE: The Institute of Electrical & Electronics Engineering
20. BICSI: Building Industry Consulting Services International
21. INETA/NETA: InterNational Electrical Testing Association
22. NECA: National Electrical Contractors Association
23. CODE: Codes and regulations of the Federal, State and local governments and of utility companies having jurisdiction, as appropriate.

B. Use of singular or plural reference form in the Contract Documents shall not be construed to limit number of units required. Specifications are intended to define quality and performance characteristics; quantity of units supplied shall be as needed to meet requirements as specified and at a minimum, as shown on Contract Documents.

1.6 PERMITS, LAWS, ORDINANCES AND CODES

A. Contractor shall obtain and pay for permits, inspections, licenses and certificates required for work under this Division.

B. Complete Utility connections as indicated or needed, extension to Project, metering as required, and connection to building systems, including:

1. Apply for all services and pay for all fees, assessments and charges of the Utility for each connection, all in a timely manner and according to the Project Schedule.
2. Provide and install all metering equipment and accessories as required by Utility. Install entire service in accordance with the Utility's requirements or other applicable regulation.
3. Coordinate with Utility to determine scope of work provided by Utility and the part provided by Contractor so that a complete Utility connection is made.
4. Schedule all work required by utility companies in order to maintain project schedule.

C. Contractor shall pay utility company charges associated with work of this Division.

D. Contractor shall comply with laws, ordinances, rules and regulations of Local, State and Federal authorities having jurisdiction; and shall comply with rules and regulations of National Board of Fire Underwriters, National Electrical Code and local utility companies.

E. Contract Documents shall govern whenever they are more stringent than Code requirements.

1.7 COORDINATION DRAWINGS

A. Before materials are purchased or work is begun, prepare coordination drawings showing relationship of work among all trades.

B. Submit completed and signed coordination drawings to the Engineer for review.

C. Coordination drawings are for use by Contractors and Engineer during construction and are not replacements for shop, as built, or record drawings required elsewhere in the Contract Documents

1.8 SHOP DRAWING SUBMITTALS

A. General

1. Prior to submission of specific shop drawings, submit for review a preliminary list of intended or proposed manufacturers for all items for which shop drawings are required.
2. Submit through contractual channels for review.
3. Number of copies as directed.
4. Electronic Submittals: Identify and incorporate information in each electronic submittal file.
   a. Electronic Submittals: Submit in accordance with requirements of Project website submittals procedures.
   b. Assemble complete submittal package into a single submittal, incorporating submittal requirements of a single Specification Section.

B. Shop Drawings – Hard Copy: Identify and incorporate information in each submittal as follows:

1. Shop drawings shall include the following information:

   a. Descriptive and product data necessary to verify compliance with Contract Documents.
   b. Manufacturer's specifications including materials of construction, metal gauge, thickness, and finish.
   c. Certified dimensional drawings including clearances required for maintenance or access.
   d. Performance data, ratings, operating characteristics, and operating limits.
   e. Operating points on curves.
   f. Electrical ratings and characteristics.
   g. Wiring and control diagrams, where applicable.
   h. Certifications requested, including UL label or listing.
   i. List of accessories which are required but are NOT being furnished by the product manufacturer or are NOT being provided by this Section. Identify the Section(s) by which the accessories are being furnished or provided.

2. Clearly mark submittals with the following:

   a. Where equipment is specified, as follows:

      1) Specifications: Section and paragraph.
      2) Drawings: Drawing number, schedule, note, and detail, as required.

   b. Equipment or fixture identification corresponding to that used in Contract Documents.
   c. Accessories and special or non-standard features and materials, which are being provided.

3. The selection and intention to use a product specified by name shall NOT excuse the need for timely submission of shop drawings for that product.
4. For samples submitted in lieu of shop drawings, submit as follows:

    a. Submit samples in duplicate.
    b. Clearly identify the samples.
    c. All samples that are not accepted will be returned.
    d. For samples that are approved, one sample will be returned and one sample will be kept by the Engineer.

5. Upon completion of shop drawing review, shop drawings will be returned, marked with one of the following notations: Furnish as Submitted, Furnish as Corrected, Revise and Resubmit, Rejected, or Submit Specified Item. Use only products whose shop drawings are marked Furnish as Submitted or Furnish as Corrected.

C. Shop Drawings - Electronic: Identify and incorporate information in each electronic submittal file as follows:

1. Electronic Submittals: Submit in accordance with requirements of Project website submittals procedures.
2. Assemble complete submittal package into a single submittal, incorporating submittal requirements of a single Specification Section.
3. Metadata: Include the following information as keywords in the electronic submittal metadata:
    a. Project name.
    b. Number and title of appropriate Specification Section.
    c. Manufacturer name.
    d. Product name.

D. Options: Identify options requiring selection by Architect.

E. Deviations and Additional Information: Include relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

F. Resubmittals: Make resubmittals in same manner as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

G. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

H. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

I. Material Safety Data Sheets (MSDS):

1. If required by the Owner, submit MSDSs directly to the Owner.
   a. Architect will not review submittals that include MSDSs and will return without review.
   b. Do not include MSDSs and remove MSDS sheets attached to product data or included with other submittals that require submission.

J. Other Submittals

1. Refer to Sections of this Division for additional submittal requirements relating to specific equipment or systems.

K. Submission of shop drawings of an unnamed manufacture or shop drawings at variance with the Contract Documents is NOT a proper request for substitution.

L. Repeat submission of products without addressing all comments from prior review will be returned to the Contractor without review for correction. Note:

1. Contractor may be liable for additional efforts expended by the Engineer
2. Contractor WILL be liable for impact to project schedule.

M. Test reports are to be submitted to Engineer for review prior to acceptance of equipment or systems for beneficial use.

1.9 PRODUCT SELECTION

A. Options for selecting products are limited by Contract Document requirements and governing regulations and are NOT controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include, but are NOT necessarily limited to, following specifying methods in Contract Documents:

1. Single Product Manufacturer Named: Provide product indicated.
2. Two or More Manufacturers' Products Named: Provide one of the named products, at Contractor's option, but excluding products which do NOT comply with requirements.
3. "Acceptable equivalent" or "Or Equal": Where named products are accompanied by this term or words of similar effect, provide one of named products or propose substitute product according to paragraph SUBSTITUTIONS.
4. Standards, Codes and Regulations: Where specification requires only compliance with a standard, code or regulation, Contractor may select any product which complies with requirements of that standard, code or regulation.
5. Performance Requirements: Provide products which comply with specific performances indicated and which are recommended by manufacturer (in published product literature or by individual certification) for application intended. Overall performance of product is implied where product is specified with only certain specific performance requirements.
6. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements using specified materials and components, and complying

with specified requirements for fabricating, finishing, testing and other manufacturing processes.

7. Visual Matching: Where matching with an established material is required, Engineer's judgment of whether proposed product matches established material shall be final.
8. "Color as Selected by Owner": Unless otherwise noted, where specified product requirements include "color as selected by Architect" or words of similar effect, the selection of manufacturer and basic product complying with Contract Documents is Contractor's option and subsequent selection of color is Owner's and Engineer’s option.

B. Inclusion by name, of more than one manufacturer or fabricator, does NOT necessarily imply acceptability of standard products of those named. All manufacturers, named or proposed, shall conform, with modification by manufacturer as necessary, to criteria established by Contract Documents for performance, efficiency, materials and special accessories.

1.10 SUBSTITUTIONS

A. Contractor's request for substitution may be submitted only after award of Contract. Requests shall be in writing and presented through appropriate contractual channels.

B. Substitution Request to include the following:

1. Detailed comparison of significant differences in quality, construction, performance, features, options, and appearance between specified item and proposed substitution. Citation, where applicable, to where a specified requirement is located in the Contract Documents is to be provided.
2. Statement of effect on construction time, coordination with other affected work, and cost of work.
3. Contractor's statement to the effect that proposed substitution will result in overall work equal to, or better than, work originally intended.

C. Substitution requests will be considered based on all of the following:

1. If extensive revisions to Contract Documents are NOT required
2. If changes are in keeping with general intent of Contract Documents
3. If submitted in timely and proper manner, fully documented
4. If one or more of following conditions is satisfied; all as judged by Engineer:

    a. Where request is directly related to "acceptable equivalent" clause, "or equal" clause or words of similar effect in Contract Documents.
    b. Where specified product, material or method CANNOT be provided within Contract Time; but NOT as a result of Contractor's failure to pursue the work promptly or properly coordinate Contractor’s efforts.
    c. Where substantial advantage is offered Owner; in terms of cost, time, energy conservation or other valuable considerations; after deducting offsetting responsibilities that Owner may be required to bear, including additional compensation to Architect/Engineer for redesign and evaluation services, increased cost of other work by Owner or separate contractors, and similar considerations.

D. The burden is upon the Contractor, supplier and manufacturer to satisfy Architect/Engineer that:

1. Proposed substitute is equal to, or superior to, the item specified.
2. Intent of the Contract Documents, including required performance, capacity, efficiency, quality, durability, safety, function, appearance, space clearances and delivery date, will be equaled or bettered.

E. Submission of shop drawings of unspecified manufacture or shop drawings at variance with the Contract Documents is NOT a proper request for substitution.

F. Changes in work of other trades, such as structural supports, which are required as a result of substitution and the associated costs for such changes shall be the complete responsibility of Contractor proposing substitution. Except as noted in subparagraph 1.10.C.4 (a) above, there shall be NO additional expense to the Owner.

G. Substitution requests that require the Architect/Engineer to expend additional efforts for review, investigation, verification, or similar activities, will require the Contractor to compensate the Architect/Engineer at the rate of $120/hr if:

1. Architect/Engineer is not familiar with the proposed manufacturer or the proposed product from that manufacturer
2. Architect/Engineer needs to investigate proposed product, attend presentations, confer with other professionals, contact references, or similar activities that would not otherwise have been required if one of the named products was proposed.
3. Architect/Engineer must travel to the manufacturer's facilities or a representative installation of the proposed product to review, confirm, or assess product characteristics or directly communicate with manufacturer's representatives on technical or product support subjects.

1.11 SAMPLES

A. Submit samples where required or referenced elsewhere in this Division of work.

B. Where in the opinion of the Architect/Engineer, a sample is required to clarify the acceptable characteristics of a material or product, additional samples may be required.

1.12 RECORD DRAWINGS

A. Furnish and keep on the job at all times, a minimum of one complete and separate set of Contract Documents for the purpose of tracking installation of the work.

B. As work progresses, record changes, revisions and additions to the work clearly, neatly, accurately and promptly. Items to be indicated include but are not limited to:

1. Dimensional change of equipment or material.
2. Revision to Drawing Detail.

3. Location and depth of underground utilities, structures, equipment, tanks, etc - referenced from project benchmarks.
4. Location and depth of underslab utilities and distribution.
5. Actual routing of distribution systems.
6. Revision to power or control wire circuiting/source.
7. Actual equipment location.
8. Location of concealed distribution work such as pipes, conduits, ducts, etc.
9. Location of concealed work and access panels, where access for maintenance or service is required.
10. Changes made by Change Order.
11. Details not on original Contract Drawing, but used for installation of the work.
12. Information on concealed elements which would be difficult to identify or measure later.

C. Indicate daily progress on these prints by coloring in the various lines, fixtures, apparatus and associated appurtenances as they are erected.

D. Approval of requisition for payment for work installed will NOT be given unless supported by record prints as required above.

E. At the conclusion of work, prepare final record drawings reflecting all field recorded data, neatly transferred from documents used in the field to a clean paper set of the Original Contract Documents. Submit record drawings for review by Architect/Engineer. After review and acceptance, the Contractor will be furnished with an electronic set of the original contract documents to be edited to reflect modifications and field data as reported on record drawings. Electronic copy of final “as-built” contract documents to be provided to the Owner in a format agreed upon at the commencement of work.

F. Coordination Drawings are to be updated, reflecting installation of work that differs from that presented on the Coordination Drawings which were signed off at the start of work. All trades will review and sign off on these documents as accurate. Electronic copy of final “as-built” coordination drawings to be provided to the Owner in a format agreed upon at the commencement of work.

G. Refer to DIVISION 1, GENERAL CONDITIONS and SUPPLEMENTARY CONDITIONS for further requirements.

1.13 OPERATING AND MAINTENANCE MANUALS

A. Submit for review operating and maintenance (O&M) manuals for each system or piece of equipment. Applicable content, as generated, is to be collected continuously during the construction process and maintained in a DRAFT manual format for review by the Architect/Engineer at any time.

B. Completed manual will be reviewed by the Engineer and modifications made as identified, before distribution or use. Acceptance will be required prior to scheduling of Owner Training and Instructions.

C. Required modifications identified during Training and Instruction activities are to be made before final Manual is delivered to the Owner.

D. Refer to Engineer and Owner for additional requirements and procedures relating to O&M manuals.

E. Operating and maintenance manual(s) will be organized with the following fundamental content:

1. Table of Contents and Index

2. Project Information

   a. Contractor name, address, contact information, and primary contact individual specific to this project
   b. Sub-contractor names, responsibility, address, contact information, and primary contact individual specific to this project.
   c. Summary description of project scope and period of time work was executed.

3. Guarantees and Warranties

   a. Documentation describing covered work/materials, effective coverage dates, and terms/conditions
   b. Contact information for initiating a claim and responsible party

4. Each Major Building System

   a. Supplier information including

      1) Technical Support contact
      2) Source of parts / replacement units
      3) Chain of purchase (Supply house, manufacturer's sales vendor, sub-contractor, etc), including Original order number/identification for tracking purposes

   b. Operating Instructions

      1) Prepared specific for this project

         a) System Description
         b) Operating parameters
         c) Adjustable settings and purpose
         d) Warnings and cautions
         e) Sequence of Operations and Control Diagrams

      2) Description of training and instruction provided to Owner including:

         a) Date(s) of instruction/training
         b) Agenda

c) Attendee list

c. Maintenance Instructions

1) Prepared specific for this project

a) Preventative maintenance schedule
b) Summary of consumable materials / regularly replaced elements
c) Recommended stocking materials and specialized tools or equipment necessary to perform regular and preventative maintenance
d) Maintenance contracts secured under this project, or separately contracted for through this provider.

d. Commissioning and Test Reports

1) Documentation of all inspection and testing activities performed with associated reports and corrective measures undertaken (if applicable).
2) Factory test reports
3) Certification letters for equipment manufacturers attesting to the complete and satisfactory installation and operation of systems/products.
4) Seismic inspection and certification
5) Special inspections
6) Sign off by Authorities Having Jurisdiction

e. Parts / Material List

1) Bill of materials for each system or piece of equipment

f. Product Literature

1) Copy of shop drawings reflecting final acceptance by Architect/Engineer, with modifications made reflecting changes to the installed work which is not represented accurately.

g. Manufacturer's Operation & Maintenance Literature

1) Materials provided with equipment/products shipped for use on project
2) Supplementary materials which are required to provide the Owner with a complete representation of manufacturer's instructions and recommendations.

F. In addition to the above, the following Content is to be included in the Operation & Maintenance Manual(s)

1. Copy of All Panelboard, Power Panel, Distribution Panel, and Switchboard Directory
2. Copy of final Short Circuit Coordination and Arc Flash Study. Copy of all PPE labels, electronic copy and hard copy in color.

3. Copy of all electrical testing reports for cables, breakers, distribution system equipment, generation equipment, control and transfer equipment when such is included in project scope.
4. Copy of all testing reports for life safety systems as witness and signed off by Authority Having Jurisdiction.
5. Other data, as required under pertinent Sections of these Specifications.

1.14 GUARANTEE

A. Furnish standard manufacturers' guarantees for work under this Division. Such guarantees shall be in addition to, and NOT in lieu of, other liabilities under the law or by other provisions of the Contract Documents.

B. Materials, equipment and workmanship shall carry the standard warranty against defects in material and workmanship. Failure which may develop due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including damage done to areas, materials and other systems resulting from this failure.

C. Guarantee that all elements of the systems are of sufficient capacity to meet the specified performance requirements as set forth in Contract Documents.

D. Upon receipt of notice from Owner of a failure of system(s) or component(s) during the guarantee period, replace affected components within reasonable time period at no additional cost.

E. Guarantee period shall extend for one year or as required by the State of Connecticut from Date of Substantial Completion.

F. Before final request for payment, furnish written guarantee covering above requirements.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

A. Products shall be undamaged and unused at time of installation and shall be complete with accessories, trim, finish, safety guards and other devices and details needed for complete installation and for intended use.

B. Where available, products shall be standard products of types which have been produced and used previously and successfully on other projects and in similar applications.

C. Labels and Stamps

1. Locate labels and stamps required to be observed after installation on accessible surfaces. In occupied spaces, select locations that are not conspicuous.

2. Locate labels and stamps not required to be observed after installation on concealed surfaces.

PART 3 - EXECUTION

3.1 ARRANGEMENT OF WORK

A. Consult Contract Drawings and Details for exact locations of equipment. If exact location is not given, obtain information from Engineer. Verify measurements in field. Base measurements on Civil and /Engineer's established benchmarks.

B. Install all conduits concealed from view and protected from physical contact by building occupants unless otherwise indicated or when routed in equipment, rooms and service areas.

C. Install work as closely as possible to layouts shown on Contract Drawings. Modify work as necessary to:

1. Provide maximum possible headroom and space clearance on each side.
2. Provide adequate clearance and ready access to all parts of the work, for inspection, operation, safe maintenance and repair, and code conformance.
3. Coordinate and arrange work to avoid conflicts with work of other trades, to avoid unnecessary cutting and patching, and as needed for satisfactory space conditions shown on coordination drawing submittals.
4. Where space appears inadequate, consult Architect/Engineer before proceeding with installation.

D. Coordinate installation of required supporting devices.

E. Set sleeves in cast-in-place concrete for services that will need to pass through concrete. Coring of installed concrete is not intended and the Contractor will be responsible for determining the impact on structural integrity, certifying that there will be no impact, and any remedial work required to accommodate impact from coring.

F. Work shall present a neat coordinated appearance.

3.2 COORDINATION

A. Examine Contract Documents and coordinate with other trades as necessary to facilitate the progress of the work.

B. Each trade shall keep Contractor and other trades fully informed as to shape, size, and locations of openings, chases, equipment, panels, access doors, sleeves, inserts and anchor bolts required; whether temporary or permanent. Coordinate sizes, depths, fill and bedding requirements with excavation trades. Give sufficient advance notice so that coordination may be completed in advance. If information is not furnished in proper and timely fashion, the trade involved shall do own cutting and patching or have same done by Contractor, without additional cost to Owner.

C. Coordinate size and location of concrete bases with DIVISION 3 and the following:

1. Under slab utilities
2. Dimensional requirements for embedded anchors as necessary for support, vibration isolation, and seismic restraint.
3. Access and walkway requirements
4. Work of other trades

D. Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

E. Do NOT install a system until critical components of system and related systems have been coordinated and applicable shop drawings have been accepted.

3.3 WORKMANSHIP

A. Work covered under this Division shall be constructed and finished in every respect in a workmanlike and substantial manner.

B. Equipment and materials shall be new, of first quality, selected and arranged to fit properly into spaces indicated.

C. Obtain detailed information from manufacturer as to proper methods for installation and connections. This includes such tests as equipment manufacturer recommends. Where documentation regarding installation is NOT obtainable, work shall be installed in accordance with best trade practice.

1. Unless specifically indicated otherwise on Contract Documents, equipment and materials shall be installed in accordance with manufacturer's recommendations.
2. Notify Engineer of conflicts between manufacturer's recommendations and Contract Documents requirements, and request clarification before proceeding with installation.

D. Where equipment, piping, ductwork, conduit, etc. is exposed, color of finish or paint shall be as selected by Architect/Engineer.

3.4 OPERATION OF SERVICES AND UTILITIES

A. During the construction period and until finally inspected, tested and accepted, maintain new services and utilities.

B. Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as to date, time of day, and duration.

1. Notify Engineer and Owner of estimated duration of shutdown period at least ten days in advance of date when shutdown is proposed. Approval of shutdown shall be obtained from proper utility and Owner, before any service is interrupted.
2. Work during shutdown period shall be arranged for continuous performance, including overtime if required, to ensure that existing operating services will be shut down only for time actually necessary to complete connections.

3.5 PROTECTION

A. Contractor shall be responsible for work and equipment until fully inspected, tested and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or plug during construction to prevent entry of obstructing material or damaging water.

B. Equipment shall be protected against damage while in storage either on or off the construction site. The equipment shall be stored in a dry environment with temperature and controlled to within ranges specified by the manufacturer. Space heaters shall be installed and energized when required to control humidity. Store light sensitive materials where not subjected to direct sunlight.

C. Protect work and material of other trades from damage that might be caused by work of this and other Divisions and correct damage thus caused.

D. Maintain protective measures used for transport of equipment or materials to project site until ready to set and connect utilities and related work. If protective covers need to be removed for inspection or coordination of work, repair or replace to equivalent.

3.6 IDENTIFICATION

A. Distribution systems such as pipes, tubing, conduits, sheet metal, insulation, etc. shall have following information clearly printed on the material: manufacturer's name, material grade, gauge, thickness, type, and data to identify required methods of attachment; as applicable. Unmarked material shall NOT be used.

B. Permanent nameplates shall be provided on each piece of service-connected, power-operated, or distribution equipment, on easily accessible surface. Nameplate shall include product name, model number, serial number, capacity, speed, ratings, and similar essential operating data.

1. Manufacturer's nameplate, name, trademark and address shall be attached permanently to equipment and material furnished. Nameplate showing distributor or Contractor will NOT be permitted.
2. Unless otherwise specified or requested, letters and numbers shall be 1/2" high.
3. Attach nameplates with screws or rivets. Wherever covers of adjacent units are interchangeable, attach nameplates to wall or backboard rather than covers.

C. Unless specified elsewhere in this Section, labels shall be provided to indicate equipment according to designations used in Contract Documents. Label shall be plastic nameplate with letters and numbers 1-1/2" high. Furnish directory indicating number, location and use of each item. After finish painting is completed, apply identification label where it will be readily visible from normal operating position on floor.

3.7 LUBRICATION

A. Equipment shall be furnished and installed so that lubrication points are conveniently and readily accessible for maintenance. Make these provisions by whatever means is appropriate: extended fittings, access doors, equipment location, etc.

B. No equipment shall be operated for temporary service or for testing purposes without proper lubrication. Items requiring lubrication shall be left freshly and fully lubricated at time of substantial completion.

C. Prior to substantial completion, deliver to Owner, along with itemized list: one complete new set of special lubrication devices required for servicing, such as grease guns, fittings and adapters.

3.8 ATTACHMENT OF SUPPORTS TO BUILDING STRUCTURE

A. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature as determined by Architect/Engineer.

B. Attachment of supports to roof decking is NOT permitted. Pipes, ducts, conduits, boxes, etc. must be supported from building structural framing (bar joist, beams, columns) or by supplementary members installed by the Contractor, spanning structural framing in a method acceptable to the structural engineer.

C. Cut, Fit and place miscellaneous metal supports for installation of work.

D. Field Welding: Comply with AWS D1.1 or other applicable standards

3.9 ACCESSIBILITY, ACCESS PANELS AND ACCESS DOORS

A. Locate equipment which must be serviced, including panels and junction boxes, in accessible locations if at all possible. For other locations, furnish access panels .

B. Access doors shall be located to conveniently serve intended purpose and shall be installed so that adjacent piping, equipment and structures do NOT render doors unusable.

C. Access doors are not required in removable panel ceilings if suitable identifying markers are provided to indicate access locations.

D. During project closeout, Contractor shall perform walk-through identifying and demonstrating access to equipment for service and/or replacement. Walk-through shall be arranged at times convenient for Engineer and Owner to attend.

1. Equipment with insufficient access shall be relocated or provided with additional access panels at no additional cost to Owner.
2. Trade responsible for access problem shall be responsible for costs of access modifications. In general, this shall be understood to be the trade installing the equipment. If access problem was caused by architectural layout changes which occurred subsequent to equipment installation, cost of access modifications shall be borne by trade responsible for architectural changes.

3.10 WATERPROOFING

A. Where work pierces waterproofing, including waterproof concrete and floor of a wet area, submit method of installation for review by the Engineer before work is done.

3.11 GROUTING

A. Mix and install grout for equipment base bearing surfaces, base plates, and anchors

3.12 BASES AND SUPPORTS

A. Unless noted otherwise, provide necessary supports, rails, framing, bases and piers required for equipment furnished or installed under this Division.

B. Unless otherwise indicated: floor-mounted equipment shall be mounted on concrete pads. Concrete and associated reinforcing materials shall be as specified in DIVISION 3, CONCRETE.

1. Pads shall be four-inch thick minimum. Pads for seismically supported equipment shall extend at least 6 inches beyond equipment footprint. Coordinate final extension requirements with approved seismic shop drawing calculations and details. All other pads shall NOT extend more than one inch beyond equipment footprint. Top edge of pads shall be chamfered.
2. Furnish dimensional and load information so that shop drawings for pads may be submitted and reviewed prior to pad installation.
3. Equipment shall be firmly grouted into concrete pads and anchor bolted.

C. Where mounted on the floor: Foundations, supports, pads, bases and piers shall be of the same finish quality as the adjacent flooring material.

D. Equipment supports shall be designed and constructed so that equipment will be capable of resisting both vertical and horizontal movement. Refer to Section VIBRATION AND SEISMIC CONTROLS in this Division.

3.13 PAINTING

A. Unless otherwise specified, materials furnished under this Division shall have prime coat and standard manufacturer's finish.

B. Paint equipment and appurtenances in concealed and unfinished areas with one coat of rust-inhibiting paint or with an appropriate bitumastic protective product designed for the intended application. Asphalt paint is NOT acceptable. Items to be painted shall include, but not be limited to: non-insulated hangers, supports, piping, conduit, tanks and other ferrous metal work, which are concealed or inaccessible but not galvanized.

C. Special care shall be taken to avoid painting or spattering equipment nameplates.

D. Cooperate in identifying systems for painters. Refer to paragraph, IDENTIFICATION in this Section.

3.14 TESTS - GENERAL

A. Make final adjustments to equipment before testing. Manufacturer's authorized representative shall verify proper installation and adjustment prior to startup of major equipment; refer to paragraph, OPERATING AND MAINTENANCE MANUALS in this Section.

B. Furnish labor, materials, instruments, supplies and services necessary for testing required under this Division. Correct defects appearing during tests, and repeat tests until no defects are disclosed. Final tests shall be made in Architect/Engineer's presence.

C. Use true RMS ammeter to measure current, for equipment which may have harmonic (non-linear) load component.

D. Notify Owner, Architect and Engineer of testing schedule at least 48 hours in advance of tests.

E. Perform specified tests and tests required by legal authorities and by agencies having jurisdiction over this Work. Tests shall be performed to the satisfaction of legal authorities, agencies having jurisdiction, and Owner.

F. Each piece of equipment, including motors and controls, shall be operated continuously for minimum test period of one hour.

G. If manufacturer's startup services are specified under other Sections in this Division, furnish services of factory-trained service engineering representative to provide following. If manufacturer's startup services are not required, Contractor shall furnish following services.

1. Inspection of equipment/system installation.
2. Assistance in initial startup and adjustment of equipment; including necessary time to achieve proper installation and adjustments.
3. Instruction of Owner's staff; see paragraph, INSTRUCTIONS in this Section.

H. Upon completion of tests, demonstrate the following:

1. Equipment and systems are installed and operating in accordance with manufacturer's specifications and instructions and with Contract Documents.
2. Proper adjustment of equipment and systems.
3. Systems are properly cleaned and free of contaminants.
4. Systems are properly phase balanced.
5. Circuits and motorized equipment are equipped with proper overload protection and are not operating under overload.
6. Instruments are recording properly.

I. Refer to testing requirements in other Sections of this Division for addition work.

3.15 INSTRUCTIONS

A. Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel at project site and instruct them in the operation and maintenance. Include instruction by manufacturer's representatives where installers are not expert in the required procedures. Instruction periods for all trades shall be minimum of 8 hours total; refer to individual SECTIONS for further requirements.

B. Instructions include, but are not limited to, the following:

1. Review of Operation and Maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning, and similar procedures and facilities.
2. Demonstration of the following:

    a. Start up procedures
    b. Shutdown procedures
    c. Emergency operations
    d. Noise/vibration control adjustments
    e. Safety concerns and protective equipment
    f. Economy/efficiency adjustments
    g. Cleaning
    h. Similar operations

3. Review of applicable guarantees and warranties.

4. Demonstration of procedures for routine maintenance, at the equipment involved, to ensure proper accessibility to components involved.

3.16 QUIET OPERATION

A. Equipment and material provided as part of the Work shall NOT produce sound level greater than 55 decibels (or level required by Code, if more stringent) in adjacent occupied areas. Sound level shall be as measured on A-weighting scale of sound level meter or sound survey meter.

B. Methods described in ASHRAE guide and data books may be used to determine sound level of equipment when total of background sound and equipment sound exceeds the required minimum.

C. Contractor shall ensure that equipment and materials provided as part of the Work do NOT produce excessive noise/vibration and do NOT transmit excessive noise/vibration to occupied spaces. If objectionable noise/vibration occurs, Contractor shall provide systems, devices, and equipment necessary to eliminate objectionable noise/vibration at no additional cost to Owner.

D. Refer to Section VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS in this Division for further requirements.

3.17 FINAL CLEANING

A. Clean each surface of each unit of work, to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples, but not limitations, of cleaning required:

1. Remove labels which are not required as permanent labels.
2. Clean transparent materials, removing substances which are noticeable as vision-obscuring.
3. Clean exposed hard-surfaced finishes, until free of dust, stains, films and similar noticeable substances.
4. Wipe surfaces of mechanical and electrical equipment clean, remove excess lubrication and other substances.
5. Remove debris and surface dust from limited-access spaces such as plenums, shafts, and ceiling spaces.
6. Clean lighting fixtures and lamps; removing dust, smudge marks and protective wraps; so as to function with full efficiency.

3.18 DEMOLITION, RENOVATION, IMPACT TO EXISTING

A. Demolition:

1. In areas where demolition of systems of this Division are indicated, the following requirements apply:

a. Disconnect and remove from the project site, and dispose of in a legal manner, all materials not otherwise identified to be handled otherwise.
b. Investigate impact to areas outside the designated area for demolition and identify any impact that demolition may have on those areas.
c. Building structure, partitions, floors, and walls to remain shall not be impacted by demolition work.

B. Selective Demolition

1. Major changes to existing building spaces and systems have been shown on Contract Drawings; minor changes have NOT been shown. Contractor shall anticipate that there will be numerous minor changes including:

a. Removal and/or relocation of pipes, conduits, wiring, etc.
b. Removal and/or relocation of wall and ceiling mounted devices due to revisions or phasing.
c. Temporary relocation of existing devices or distribution equipment to permit installation of new work.
d. Temporary work and modifications to existing systems to maintain Owner’s use and operations in areas outside the boundaries of the work.
e. Work related to phased demolition of existing systems.
f. Work related to phased installation of new work.

2. Remove, store, clean and relocate equipment designated to be relocated and reused.

3. Material which is removed and is not designated for reuse shall, at the Owner's option, either:

a. Be delivered to Owner's storage location
OR
b. Become Contractor's property and be removed from the site and disposed of properly

END OF SECTION 260500

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SECTION 260505 – INSTALLATION OF PREPURCHASED EQUIPMENT

PART 1 - GENERAL

1.1 REFERENCES

A. This Section covers the specification of basic materials and methods for mechanical work. Refer to GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS and applicable parts of DIVISION 1 for other general requirements.

1.2 QUALITY ASSURANCE

A. Requirements given herein may be affected by other related requirements of the project specification. Correlation of contract requirements is the responsibility of the Contractor.

1.3 SCOPE

A. All materials, labor, plant and equipment required for the complete execution of the work of this Section, including but not limited to:

1. Installation of equipment prepurchased by Owner under separate Contract.

    a. Generator

2. Accepting delivery of pre-purchased equipment at the project, including checking for shipping damage, unloading, rigging of equipment from truck into final location., and temporary storage and related work if delivery is made prior to space being ready.
3. Startup and testing of equipment and all related equipment whether prepurchased by Owner or provided under this Contract.

B. Contractor shall be responsible for all coordination, including but not limited to:

1. Physical arrangement of all equipment.
2. Vendors, whether of prepurchased equipment or equipment provided under this Contract.
3. Owner, Utility Company (as applicable), and other trade contractors.

C. Contractor shall be responsible for processing of all submittal drawings whether of prepurchased equipment or equipment provided under this Contract.

D. Contractor shall include storage, loading and transportation charges required as a result of temporarily stored Owner pre-purchased equipment which is ready to deliver or is delivered before the space for said equipment is ready and/or before the Contractor is ready to install said equipment.

E. The Contractor will be provided with procurement specifications and bill-of-materials for prepurchased equipment in order to execute his work.

1.4 RELATED SECTIONS

A. Division 26 Section COMMON WORK RESULTS.

B. Division 26 Section PRODUCT COORDINATION AND COORDINATION DRAWINGS.

1.5 SUBMITTALS

A. Refer to other sections of this Division for specific submittal requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine all work prepared by others to receive work of this Section and repair any defect affecting execution.

B. Commencement of work will be construed as complete acceptance of preparatory work by Others.

C. Examine roughing-in of utilities and services to verify the following:

1. Wiring entries comply with layout requirements.
2. Service locations comply with layout requirements.
3. Services installed are of the proper type, size, characteristics and capacity.

D. Examine walls, floors, roofs, and concrete bases for suitable conditions for equipment installation.

E. Verify that ground connections are in place and comply with Division 26 Section 26056 GROUNDING.

F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 DELIVERY, STORAGE AND HANDLING

A. Protect equipment from ambient conditions below 0°C, above 40°C, and above 95% RH.

B. Coordinate with Supplier to deliver in shipping splits in sizes that can be moved past obstructions in delivery path.

C. Coordinate delivery of equipment to allow movement into designated spaces.

D. Store equipment protected from weather so condensation will not form on or in units. Provide temporary heating according to manufacturer's written instructions.

E. Equipment will be delivered to the project site in protective wrapping, containers and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is safe from such hazards.

F. Handle equipment according to manufacturer's written instructions. Use factory-installed lifting provisions.

G. Accept delivery of equipment at site, including checking for shipping damage, unloading, rigging of equipment from truck into final location and temporary storage and related work if delivery is made prior to space being ready.

3.3 INSTALLATION, STARTUP & TESTING WORK BY PREPURCHASE VENDORS

A. The following services will be provided to the Contractor by the manufacturers' representatives/field engineers to assist in fulfilling the Contractor's responsibility of providing a complete and operational system.

1. Vendor will provide services of competent service engineers during construction, installation and startup to assist in placing the equipment in operation and will instruct Owner's personnel in its proper use.

a. This service will include a minimum of one site visit by the service engineer.
b. Field service support will be provided during the normal work week.
c. Prepurchase Vendors will not be responsible for labor or materials charges, by others, associated with the startup and installation of the equipment.

3.4 INSTALLATION OF OWNER-PREPURCHASED EQUIPMENT

A. Obtain copies of manufacturer's installation drawings. System shall be installed in accordance with local codes and manufacturer's recommendations.

B. Receive, unload, inspect for damage, rig into place, and completely install and wire according to manufacturer's instructions and Contract Documents, the Owner-prepurchased equipment.

C. Furnish services of factory-trained manufacturer's representative for consultation, technical assistance and supervision during installation of new generator.

D. Coordinate layout and installation of equipment with other construction that penetrates floors and ceilings, or is supported by them, including light fixtures, HVAC equipment, and fire-suppression-system components.

E. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases.

3.5 ACCEPTANCE TESTING OF OWNER-PREPURCHASED EQUIPMENT

A. Contractor will engage testing company to perform acceptance testing on Owner-prepurchased equipment.

B. Testing shall be performed by an independent firm (NOT the installing firm) with ten years experience in testing of equipment; testing firm shall provide testing equipment necessary and temporary power to serve same and shall remove equipment and temporary power feeds when test is completed.

1. Refer to specific equipment specification sections for further testing requirements.

C. Contractor shall coordinate and schedule all testing.

3.6 IDENTIFICATION

A. Refer to applicable Section(s) of this Division for identification requirement.

3.7 STARTUP AND TESTING

A. Perform startup and testing to demonstrate complete and proper operation to satisfaction of Owner and Architect/Engineer.

END OF SECTION 260505

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SECTION 260510 PROJECT COORDINATION AND COORDINATION DRAWINGS

PART 1 - GENERAL

1.1 REFERENCES

A. This section covers the specification of coordination of electrical work for the project. Refer to Section - COMMON WORK RESULTS FOR ELECTRICAL WORK, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, applicable Sections of Division 1, and all other project instructions for other requirements.

B. GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS and DIVISION 1 paragraphs may be repeated in this Division for emphasis or for inclusion of more stringent/additional related requirements. Such repetition shall NOT be construed to reduce the requirements of those Divisions NOR to eliminate other requirements under those Divisions.

1.2 INTENT

A. The Contract Documents define a complete installation, comprised of many individual components, assemblies and systems. It is the intent of these documents that the work of all trade contractors, sub-contractors, and all sub-contracted entities performing the work be coordinated to result in finished project, meeting the performance requirements of these documents.

B. The use of the terms “contractor”, “trade contractor”, or “sub-contractor” in this Section is to be interpreted as referring to all trades, singularly and collectively.

C. Definition of roles and responsibilities as pertains to the scope of this section:

1. Contractor:

    a. Management, Schedule, and Execution of project coordination and coordination drawing process.
    b. Translation of Design Intent and Project requirements, presented within the Contract Documents, into coordinated layout and fabrication drawings.
    c. All reasonable efforts to resolve apparent conflicts in the work, identified in the coordination process, without impact to Design Intent and Project Requirements.

2. Architect/Engineer:

    a. Interpretation of Contract Documents
    b. Prioritization of Project Requirements where necessary to resolve multiple requirements determined as in conflict after Contractor’s coordination activities are exhausted.

c. Review and assistance with resolution of apparent conflicts identified by Contractor, provided that reasonable efforts by Contractor have been undertaken to first resolve apparent conflict.
d. Accept or Reject Contractor's proposed adjustments to the work.

1.3 RELATED SECTIONS

A. Refer to the following related sections:

1. DIVISION 1 – Section(s) related to Phasing, Construction Schedule, Procedures, and Coordination of the work.
2. DIVISION 26 - Section related to "Project Coordination and Coordination Drawings"

1.4 SEQUENCE OF WORK

A. Before commencement of project coordination and before procurement of materials, Contractor and all sub-Contractors, shall familiarize themselves with the work and requirements of all trades.

B. Phased Sequence of Work:

1. If provided, review phasing plans and requirements set forth in the Contract Documents and any Supplementary phasing information.
2. Contractor is responsible for generating a complete phasing plan for the project.
3. Identify work that requires careful scheduling in coordination with proposed phasing in order to meet project requirements for completion dates, and operation of systems.
4. Obtain clarifications from Owner and Engineer on requirements or conditions that directly affect scope work within specific phases of work.
5. Make adjustments to phasing plan and scope or work per phase after review and acceptance by Owner and Engineer.

C. Project Schedule(s):

1. Review schedules published in the Contract Documents and any supplementary information provided.
2. Coordinate sufficient time allocations in the Contractor's schedule for Shop Drawing submission and review, Procurement of materials, and the coordination process.
3. Identify elements that will establish the critical path to project completion at the designated date. Adjust schedule of work to accommodate the proper sequence of work as outlined herein.
4. Coordinate equipment arrival and rigging access to interface with overall project sequence.
5. Coordinate and plan with manufacturer for any equipment "splits" required to set equipment in final location. If field breakdown is required, directions shall be provided in writing from the manufacturer for procedures to be followed. Any field breakdown and reassembly is to be inspected by equipment manufacturer before final connections are

made. Ensure an adequate pathway is available, such as corridors and openings, to transport equipment.

D. Investigation and Collection of Relevant Information:

1. Review all Contract Documents and referenced standards
2. Review all Owner requirements
3. Investigate field conditions as it relates to installation and coordination of work.
4. Identify areas where investigation requiring partial deconstruction of existing or newly constructed work is required to fully inform the Contractor on conditions that are critical to coordination of the work.
5. Perform investigations in coordination with the work of other trades and/or owner's use of existing areas.

E. Equipment Shop Drawings:

1. Shop drawings for major equipment and equipment with service connections, should be submitted and accepted prior to coordination drawing efforts in areas adjacent to equipment placement. Information on utility connections, weight and dimensions, access, working clearances, rigging methods, etc are to be represented on the Coordination Drawings for the specific equipment being installed.

F. Preparation of Coordination Drawings:

1. Coordination Drawings are to be prepared as a collaborative effort between all trade Contractors working on project.
2. The following information, as a minimum, is to be represented on the Coordination Drawing – Floor Plans:

    a. Accurately scaled to no smaller than 1/4" = 1'-0". Where areas are congested and smaller scale is insufficient to clearly detail aspects of the work, Contractor to provide documents at larger scale.
    b. Floor plan layout of walls, doors, windows, equipment pads, etc
    c. Building structure, dimensionally accurate with depth and elevation
    d. Ceiling systems, including reference to height and type of ceiling. Locate coordinated position of access doors where required to gain access to work. Soffits and other ceiling contours represented.
    e. Indicate by shadow or similar means, required access points for service to above ceiling components such as valves, clean-outs, strainers, fire dampers, VAV boxes, FCU's, pull boxes, control panels, etc.
    f. Electrical Trade Work:
        1) Electrical distribution equipment
        2) Conduit runs for major feeders (panels and major equipment)
        3) Branch circuit wiring collection boxes
        4) Pull boxes for major feeders and telecom conduits
        5) Control Panels
        6) Working Clearances both at floor level access and overhead access

3. All trades contributing to the development of the Coordination Drawings are to sign off on the final completed documents, including the General Contractor (if applicable) and/or Construction Manager (if applicable).

G. Equipment Placement:

1. No equipment is to be placed before all connections and provisions have been verified and coordinated.
2. Working space and clearances for service are to be maintained and verified prior to placement of equipment support provisions such as pads, frames, supports, dunnage, curbs, or anchors.

H. Installation of Work:

1. Work is to be installed in conformance with coordination drawings that have been signed off and accepted.
2. Work installed prior to completion of the Coordination Process will be subject to removal at the Contractor's expense.

I. Changes made in the field:

1. The Coordination Drawings are to be periodically updated during the project to reflect changes to the work which are made by Change Order or adjustments for other cause.
2. Changes that result in coordination conflicts are to be resolved immediately before related work continues.

1.5 RENOVATIONS & EXISTING CONDITIONS (Where Applicable)

A. The Contract Documents do not necessarily show all existing conditions, all new work to existing work interfaces, nor the complete extent of patching, repair, and renovation.

B. Unless otherwise noted, work shall be planned and executed assuming that areas not scheduled at that time to be renovated are intended to be in use and occupied. Existing services must be maintained that serve occupied areas of the building(s) or site.

C. Thoroughly study, examine, and investigate existing field conditions including, but not limited to, conditions in areas of limited accessibility such as crawl spaces, plenums, attics, chases, and above ceilings.

D. Plan and execute investigative work, including selective demolition, of concealed spaces where new work is scheduled to be installed.

E. Coordinate investigative efforts so that the Owner's operations is not affected. Work after Owner's normal hours of operation may be required and is to be provided.

F. Interruption of building services to be scheduled to minimize impact to the Owner's operations. Interruptions may only be made after timely notification to Owner and any involved utilities. Advance notification requirements are to be investigated and incorporated into project

schedule(s) to avoid impact to the orderly installation of the work. Overtime or after hours work may be required and is part of Contractor's responsibility.

1.6 AVAILABILITY OF ELECTRONIC FILES

A. Electronic files (CAD) of the project floor or site plans may be available from the project Engineer. Refer to other Sections and Instructions of the Contract Documents to confirm if these will be made available. Unless otherwise stated, assume that electronic files will not be made available.

B. Electronic files (CAD) of the project's Mechanical and Electrical Contract Documents will not be made available unless otherwise stated.

C. Electronic Files for BIM Projects (where applicable). BIM Model content related to the Mechanical and Electrical systems will not be released for the purposes of coordination by the contractor.

1.7 SUBMITTALS

A. Submittal of Coordination Drawings to be made with sufficient time planned for review and revision. The potential for additional steps of coordination prior to the scheduled commencement of work should be anticipated.

B. Separately developed Coordination Drawings may be required for elements of the work. Refer to requirements outlined later in this Section.

C. Refer to other Sections and Divisions of these Specifications for other related Submittal requirements.

PART 2 - PRODUCTS

2.1 GENERAL

A. No specific materials are specified in this section. Refer to other sections of this Division and other Divisions of the Specifications for material specifications.

PART 3 - EXECUTION

3.1 TRADE SPECIFIC LAYOUT AND FABRICATION DRAWINGS

A. Trade or system specific layout drawings may be required in other Section of this and other Divisions. Content that is common between these layout drawings and requirements for the Coordination Drawings shall be coordinated and developed in parallel where practical.

3.2 SITE WORK AND UTILITIES

A. Coordination Drawing prepared reflecting:

1. Underground site utilities, size and invert
2. Site Structures for Utility Distribution, size, placement, invert
3. Include concrete encasement and pad dimensions where applicable.

3.3 BELOW SLAB LAYOUT DRAWINGS

A. Coordinated drawing which includes all below slab utilities and distribution. Indicate dimensions and invert of all services. Include the following as a minimum:

1. Sanitary, Storm and Vent Piping
2. Electrical Conduits
3. Sumps, Drains, and other equipment that extends below the floor plane
4. Structural footing
5. All other Mechanical or Electrical services below areas of slab on grade

3.4 COORDINATION DRAWINGS – DEMOLITION

A. For renovation projects that require selective demolition, prepare a separate coordination drawing based on existing conditions, indicating:

1. Points of cut/cap for existing systems to remain
2. Major equipment removals and associated services

3.5 COORDINATION DRAWINGS – NEW WORK

A. Coordination Drawings prepared as indicated in this Section.

END OF SECTION 260510

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SECTION 260515 - BASIC MATERIALS & METHODS - ELECTRICAL

PART 1 - GENERAL

1.1 REFERENCES

A. This Section covers the specification of basic materials and methods for electrical work. Refer to Section – COMMON WORK RESULTS FOR ELECTRICAL WORK, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, applicable sections of DIVISION 1, and all other project instructions for other requirements.

1.2 SCOPE

A. Provide labor, materials, services, equipment and transportation necessary for complete and operational electrical systems as indicated on Contract Drawings and specified herein.

B. This section includes but is not limited to the following:

1. Conduit, cable and fittings
2. Pull boxes and junction boxes
3. Backboards and equipment cabinets
4. Conduit hangers and supports
5. Wires and cables
6. Splices
7. Safety switches and fuses
8. Terminal strips
9. Labeling and identification

1.3 SUBMITTALS

A. Submit, for review, list of manufacturers and grade or type of material proposed, including wire, wiring devices, terminating systems, connectors, conduit, wireway and fittings. Submit samples if requested.

B. Submit for review shop drawings for all equipment and materials specified under this Section.

C. Prior to final inspection, submit test reports to Engineer for review.

D. Upon completion of job, furnish reproducible copies of wiring and interconnection diagrams required for clear and permanent record of interconnected equipment, such as alarms and annunciator panels.

1.4 COORDINATION DRAWINGS

A. Refer to Section, PROJECT COORDINATION AND COORDINATION DRAWINGS in this Division.

1.5 STANDARDS

A. All work shall conform to following standards:

1. NEMA Standards.
2. ANSI Standard CI: National Electrical Code (NFPA 70).
3. ANSI Standard C50: Rotating Electrical Machinery.
4. ANSI Standard C501-1: Construction and guide for selection, installation and use of electric motors.
5. ANSI Standard C52.1: Motors and generators (NEMA MG1).
6. ADA: Americans with Disabilities Act
7. Refer to Section COMMON WORK RESULTS for additional requirements

1.6 UNDERWRITERS LABORATORIES LABELS

A. Equipment, materials and components, for which there are listings in UL Product Directories, shall bear UL labels.

PART 2 - PRODUCTS

2.1 CONDUIT AND FITTINGS

A. The generic term “Conduit” when reference is made to method of installation and fittings, includes all types of conduit and EMT.

B. Rigid conduit (RMC) shall be UL listed, hot dipped galvanized steel with full cut hot dipped galvanized NPT threads. RMC shall be chromated on all surfaces for corrosion and abrasion protection. Connectors and couplings shall be galvanized steel threaded type listed for RMC use.

C. Intermediate metal conduit (IMC) shall be UL listed, hot galvanized steel with full cut hot galvanized NPT threads and factory-applied interior coating or lining for ease in pulling wires. Connectors and couplings shall be galvanized steel threaded type listed for IMC use.

D. Electric metallic tubing (EMT) shall be UL listed, hot galvanized steel with factory-applied interior coating or lining for ease in pulling wires. Connectors and couplings shall be galvanized steel, either compression type or heavy-duty set screw-type, listed for EMT use. Indent or crimp-type connectors are NOT allowed.

E. Non-metallic conduit (NMC) shall be rigid PVC, heavy-wall Schedule 40, UL rated, acceptable equivalent to Carlon "Type 40". Where non-metallic conduit is installed below paved areas, conduit shall be rigid PVC, heavy wall Schedule 80, UL rated and of same manufacturer as the Schedule 40 conduit.

F. Flexible metal conduit (FMC) shall be UL listed, single strip, spirally wound, corrosion-resistant, galvanized steel acceptable equivalent to Liquatite "Type BR". Use galvanized steel fittings and clamps listed for FMC use.

G. Liquid tight flexible metal conduit (LFMC) shall be UL listed, with a flexible core of single spiral wound strip of hot dipped galvanized steel and a liquid-tight jacket of flame-retardant, sun/oil/acid-resistant flexible PVC: Acceptable equivalent to Liquatite "Type LA". Connectors and couplings shall be zinc-plated malleable iron or steel, with engagement inspection window, locknut and sealing ring; liquid-, oil-, and rain-tight; suitable for wet locations; listed for LFMC use: acceptable equivalent to O-Z/Gedney "Type 4Q".

1. Grey/Tan Type LA liquid-tight flexible metal conduit (LFMC) shall be used for final connections to vibrating equipment and to partition furniture systems.

H. Minimum Conduit and EMT size: 3/4”

I. Minimum Flexible Metal Conduit Size: 1/2”

J. Special Fittings

1. Where conduit penetrates air handling unit walls or plenums and in hazardous (classified) locations: provide sealing fittings acceptable equivalent to Crouse-Hinds "EYS Series".
2. Where conduit from underground distribution system enters building, provide cable terminators acceptable equivalent to O.Z./Gedney "Type CSB".
3. Where conduit is exposed at building expansion joint: provide expansion fittings acceptable equivalent to O.Z./Gedney "Type EX" or "Type EXE".

K. Where conduit is in concrete at building expansion or seismic joint and where conduit is exposed at seismic joint: provide expansion/deflection fittings acceptable equivalent to O.Z./Gedney "Type DX".

L. Where conduit is run on rooftop: provide rubber pipe supports designed for electrical conduit systems.

1. Acceptable Manufacturers: Subject to compliance with these specifications, conduit support systems shall be DURA-BLOK™ design as supplied by Eaton or approved equal.
2. Materials:
   a. Curb base must be made of 100% recycled rubber and polyurethane prepolymer with a uniform load capacity of 500 pounds per linear foot of support. In addition, each base to have a reflective red stripe.
   b. Dimensions: 6-inches wide by 5 or 6.5 inches tall by length as required; Series DB or DB6.

c. Steel frame: Steel, strut galvanized per ASTM A653 or strut galvanized per ASTM A653 for bridge series.
d. Attaching hardware: Zinc-plated threaded rod, nuts and attaching hardware per ASTM B633
e. Equal products must demonstrate (meet or exceed) the same physical and performance characteristics as specified below:
    1) Density: 0.52 oz/cu in ASTM D575
    2) Durometer Hardness: 67.2A ± 1 ASTM D575
    3) Tensile Strength: 231 psi minimum ASTM D575
    4) Compression Deformation: 5% at 70psi and 72ºF ASTM D575
    5) Brittleness at Low Temp: -50ºF ASTM D746
    6) Weathering: 70 hours at 120ºF ASTM D573
        a) Hardness retained: 100% (±5%)
        b) Compressive strength: 100% (±5%)
        c) Tensile strength: 100% (±5%)
        d) Elongation retained: 100% (±5%)

2.2 WIREWAYS AND SURFACE RACEWAYS

A. Wireways shall be steel, UL listed, with hinged or screwed covers by Lee Products, Keystone or acceptable equivalent.

1. Minimum Wireway Size: 4” x 4”

B. Source Limitations: Obtain products from single manufacturer designed for use as complete, matching assembly of raceways, receptacles, and switches.

2.3 PULL BOXES AND JUNCTION BOXES

A. Boxes shall be heavy duty, stamped steel with covers attached by screws. Provide locknuts for conduit size to which boxes are connected. In finished areas, boxes shall have neatly mitered frame and flush steel cover screwed to the frame.

B. Boxes shall be sized according to NEC.

C. Boxes shall be surface mounted flush mounted

2.4 BACKBOARDS & EQUIPMENT CABINETS

A. Backboards shall be 3/4” fire-rated plywood painted on all sides before installation, stamp/cable indicating “fire-rating” shall not be painted over. [Backboards shall be used for mounting panelboards, grouped switches, starters and other equipment.]

B. Equipment cabinets shall be UL listed, sheet steel cabinet with hinged door with catch and lock; mounted on backboard. Cabinets shall be flush or surface-mounted, sized as required to suit equipment.

2.5 CONDUIT HANGERS AND SUPPORTS

A. Hangers, clips and accessories supporting conduit shall be UL listed.

B. Individual large conduits shall be supported by means of adjustable, malleable hangers of acceptable design placed on maximum 8'-0" centers. Individual small conduits may be held in place by one hole malleable clips.

C. MC cable shall be supported by hangers of acceptable design placed on maximum 4'-0" centers. MC cable shall be supported within 12" of each fitting.

2.6 WIRES AND CABLES

A. Secondary conductors shall be new copper with 600 V code gauge insulation, conforming to NEC requirements, and shall be Type THHN/THWN, rated 75° wet location/90° dry location except as follows:

1. Type XHHW rated 75° wet location/90° dry location shall be used for conductors #3 AWG and larger.
2. Ground wires shall be as specified under Section, ELECTRICAL GROUNDING in this Division, and in accordance with NEC.
3. Type MI cable shall be used where 2 hour ratings are required or where specifically shown in the documents.
4. Type XHHW-2 with cross-linked polyethylene insulation and mineral filler shall be used for low leakage circuits (isolated power).

B. Feeders and branch circuit conductors located below slabs shall be Type THWN-2/XHHW-2, rated 90° for use in dry or wet locations unless noted otherwise.

C. Feeders and branch circuits located below grade shall be Type THWN-2/XHHW-2, rated 90° for use in dry or wet locations unless noted otherwise.

D. Feeders and branch circuit conductors located above grade and within buildings shall be Type THHN/XHHW for use in dry or damp locations unless noted otherwise.

E. When wire sizes are not shown on Contract Drawings, sizes shall be in accordance with NEC but no smaller than following:

1. Power wiring: #12 AWG.
2. Control wiring: #14 AWG.
3. Wiring and cable for alarm and signal systems: as recommended by equipment manufacturer.

F. Miscellaneous cables and wires shall be new copper with 600 V code gauge insulation, conforming to NEC requirements as follows:

1. Type XF or SFF 150°C shall be used for fixture wiring.
2. Type TFE shall be used for high temperature applications.

G. All multi-purpose feeders and circuits shall include a full size neutral and individual insulated grounding conductor.

1. Each 277 VAC or 120 VAC single phase circuit shall include separate full sized neutral and individual insulated grounding conductors. Shared neutrals or ground conductors are not permitted.

H. Provide cable supports per NEC ARTICLE 300.19, acceptable equivalent to O.Z./Gedney "Type R" for large cables and Kellems "Grips" for bundles of smaller wires.

2.7 CABLE ASSEMBLIES

A. Type MC cable shall be UL listed, 600 V, 90°C rated, flexible metal encased multi-conductor assembly; with cable sheath of interlocked galvanized steel strip, copper conductors with Code gauge THHN insulation, and internal green insulated ground: Acceptable equivalent to AFC "Type MC Tuff". Connectors and fittings shall be galvanized steel, threaded box connectors, listed for MC cable use. Cable sheath of interlocked aluminum is NOT acceptable. Use of “MCAP” (all-purpose) cable with built-in armor ground and internal un-insulated grounding conductor is NOT acceptable. Type MC cable shall NOT be used for homeruns.

2.8 SPLICES

A. Splices for #10 or smaller wires shall be made with UL approved solderless connectors: spring type acceptable equivalent to Minnesota Mining and Manufacturing Company "Scotchlock"; or crimp-type acceptable equivalent to Thomas & Betts "Sta-Kon".

B. Splices, cable taps and terminals for #8 and larger shall be made with UL approved compression connectors: compression taps acceptable equivalent to Thomas & Betts "Colored Keyed" "C" taps applied with special tools according to manufacturer's recommendations; or bolted pressure connectors, bronze or copper construction, by Thomas & Betts, Burndy or acceptable equivalent.

2.9 APPLICATIONS – CONDUIT, CABLES, RACEWAYS

A. RMC: buried in floor slabs, in concrete walls, concealed in exterior masonry walls, wiring in fire pump rooms, hazardous locations, applications above 600 V.

B. IMC: where noted on drawings.

C. EMT: unless otherwise noted:

1. Feeders
2. Power wiring in mechanical rooms
3. Low voltage wiring in mechanical rooms
4. Wiring for fire alarm systems
5. Wiring for emergency and exit lighting
6. Wiring for emergency communication, security and alarm systems
7. Branch circuits
8. Control wiring, including work done under Division 23
9. Wiring above non-accessible ceilings
10. Light fixture branch wiring

D. LFMC: final connections to motors and equipment-mounted controls from minimum of 18" to maximum of 6 feet lengths.

E. NMC: sleeves through interior walls, below slab-on-grade, electrical ductbanks, and below grade unless otherwise noted.

F. MC Cable: Galvanized steel jacket cable only, aluminum jacket will not be accepted.

1. Light fixture whips above accessible ceilings, except not in damp or wet locations and limited to maximum lengths of 6 feet. Leave sufficient slack for future removal or servicing of fixtures in finished ceiling.
2. MC Cable shall not be used in wiring of Life Safety or Critical circuits.

G. EMT is NOT permitted as a substitute for rigid conduit; MC is NOT permitted as a substitute for flexible metal conduit.

H. AC (BX) cable shall NOT be used.

2.10 SAFETY SWITCHES AND FUSES

A. Work of this Division shall include:

1. Furnishing and installing an appropriate fusible safety switch for each motor, unless otherwise noted.
2. Installation of safety switches furnished under DIVISION 23, MECHANICAL WORK.
3. Fuses for safety switches.
4. Power wiring to and from safety switches.

B. Safety switches shall have rejection clips for RK fuses and NEMA 1 enclosure, unless otherwise noted. Safety switches shall be NEMA Type HD (heavy-duty), manufacturer's specification grade switches by Square D, General Electric, or Westinghouse, acceptable equivalent to following:

1. Switches for use on 120/208 V system: rated for 240 V.
2. Switches for use on 480 V system: rated for 600 V.
3. Fused disconnect 2-pole and 3-pole: Square D "Type H".

4. Switches that are used in conjunction with variable frequency drives (VFDs) and elevators shall have auxiliary contacts that open before switch blades to interrupt control circuits. Auxiliary contacts shall be 120 VAC; 5 Ampere rated.
5. Switches for use with 6 lead motors: 600 VAC, NEMA 4X enclosure.

    a. Fused: Square "D" Type H

C. Fuses for safety switches shall be non-renewable dual element cartridge type, Class RK5, UL listed. Fuses shall be Bussmann #FRN for 208 V usage, and Bussmann #FRS for 460 V usage; or acceptable equivalent by Shawmut or Littelfuse. Install fuse so that size is readily visible. Special types and classes are indicated on Contract Drawings.

D. Provide one spare set of fuses for each type and size used with switches and other equipment.

2.11 EMERGENCY OFF STATION

A. Station shall be flush wall mounted, RED illuminated momentary contact switch to de-energize load, with clear, flip-up cover to prevent accidental activation.

B. Assembly shall include flip-up shield, and be labeled "EMERGENCY POWER OFF" STI #SS2024PO-EN or equal.

2.12 TERMINAL STRIPS

A. Terminal strips shall be Buchanan or acceptable equivalent, with a numbering strip for identification of individual punchings.

PART 3 - EXECUTION

3.1 SUPERVISION

A. Furnish services of experienced electrical Superintendent who shall be constantly in charge of electrical work, together with skilled laborers required to unload, transfer, erect, connect, adjust, start, operate and test each system.

B. Particular emphasis is placed on timely installation of major apparatus and furnishing of other trades and Contractor with relevant information.

3.2 IDENTIFICATION

A. Provide nameplates and general identification as required under SECTION 260500, COMMON WORK RESULTS FOR ELECTRICAL, and under DIVISION 1, and as follows:

1. Manufacturer's nameplate, name, trademark and address shall be attached permanently to equipment and material furnished under this division. Nameplate showing distributor or contractor will not be permitted.
2. Equipment designation nameplates shall be engraved lamicoid, sized as follows:

   a. Nameplates on panelboards, distribution panels and service switches: minimum of 1-1/2" by 2-1/2" size with letters not less than 3/8" high.
   b. Nameplates on starters and other switches and devices: minimum of 3/4" by 2-1/2" size with letters not less than 1/4" high.

3. Each element of emergency, legally required, standby and normal power systems shall be identified using the following background and letter colors:

Emergency/Legally Required/Standby Systems:	Red background White lettering
Normal Systems:	Black background White lettering

B. Provide printed, colored, adhesive labels for all electrical equipment, such as but not limited to switchboards, panelboards, motor control centers, disconnect switches, meter socket enclosures, etc. to warn qualified personnel of potential electric arc flash hazards. Label shall be a minimum of 4" x 5", conforming to requirements of the current Edition of NFPA 70E and requirements of OSHA.

C. Wall plates provided for flush-mounted control switches in finished areas shall be engraved, stainless steel with black-filled letters.

D. Conductors size #6 and smaller shall have solid color insulation for identification.

E. Conductors size #4 and larger shall have color identification, six inches minimum length near termination and in splice boxes, junction boxes, panels and manholes. Identification shall be by solid color insulation, tape or paint.

F. Label 5 kv and 15 kv systems similar to the above.

G. Phase rotation shall be indicated by following color code:

Phase	**5 KV and 208Y/120V**	**15 KV and 480Y/277V**
A	Black	Brown
B	Red	Orange
C	Blue	Yellow
Neutral	White	White with purple stripe or natural gray
Ground	Green	Green

H. 480V raceways including pull boxes and junction boxes shall have orange adhesive tape strips with pre-printed legend "480 Volts" affixed near terminations and at 25’ intervals. Preprinted tape shall be by Seton Nameplate, W.H.Brady or acceptable equivalent.

I. Conduits containing emergency feeders* shall be identified by attaching red adhesive tape with black letters stating "EMERGENCY POWER" at 25’ intervals.

J. Provide red with white lettering lamicoid label on cover of motor starter enclosure, adjacent to H-O-A switch, to read:

WARNING- In hand position, all control interlocks are bypassed USE FOR CAUTIOUS TESTING ONLY

K. Where wall plates are provided for control switches flush mounted in finished areas, plates shall be engraved, stainless steel with black-filled letters.

3.3 INSTALLATION OF CONDUIT, BOXES AND FITTINGS

A. Ends of conduits shall be reamed before assembly, and bushings and locknuts shall be provided where conduits connect to boxes.

B. Boxes shall be set plumb and square with building lines. Exposed conduit shall run parallel to building lines, unless noted otherwise, and shall NOT block ceiling inserts.

C. Wiring device boxes shall NOT be installed back-to-back in walls.

D. Conduit shall run to avoid low pockets which might collect water, and, during installation, open ends shall be capped.

E. Piping, ductwork, and conduit shall NOT be suspended and/or supported from one another and shall NOT physically contact one another under any circumstances. Provide independent support for electrical systems. Vibrating systems shall be kept free from non-vibrating systems.

F. RMC or IMC buried in grade or in ductbanks shall have couplings made up tight. Thread to coupling joint shall be coated heavily with bitumastic paint, ensuring watertightness.

G. Parallel groups of conduit shall be supported from below, either by horizontal angle irons or channel systems such as "Unistrut", with vertical hanger rods at appropriate intervals.

H. Supports for conduit on concrete walls shall be attached to wall with all metal expansion shields.

I. Conduits in slabs or in grade shall be swabbed internally prior to pulling wire or cable.

J. Final connections to motors, control devices mounted on equipment, vibrating equipment and vibration isolated equipment shall be made through liquid-tight flexible metal conduit.

K. Use standard radius bends on concealed conduit; on exposed work, use either standard bends or "L" type fittings acceptable equivalent to Crouse-Hinds.

L. Wherever MC cable is used, leave sufficient slack for future removal or withdrawal of boxes or fixtures from finished ceiling or partitions. All cables shall be rigidly supported from the building structure using products listed and identified for securement and support at least 4' O.C. and within 12" from every fitting and shall run in lines parallel or perpendicular to building structural members. Cable shall not rest on the ceiling structure.

M. Exposed wiring shall be kept as close as possible to underside of roof and floor slabs or bottom of beams, unless noted otherwise. Space above hung ceilings is extremely critical and coordination with mechanical trades is essential.

N. Conduit and wiring shall NOT be run in roof fill and shall NOT pierce roof deck, unless specifically noted to on Contract Drawings.

O. Galvanized electrical conduit of 1/2" nominal diameter may be embedded within 4-1/2" overall thickness suspended concrete slabs over permanent metal floor forms; galvanized electrical conduit of 1" nominal diameter may be embedded within slabs of 6" thickness overall.

P. Conduits concealed in or beneath slab on grade: Conduits larger than 3/4" nominal diameter shall be completely buried below vapor barrier within the porous fill layer, such that surface of vapor barrier is smooth and level within ±1/4" tolerance. Conduits 3/4" and smaller may be:

1. Completely buried below the vapor barrier within the porous fill, or
2. Placed above the vapor barrier, within the slab, at mid-height of slab, or
3. If within the slab, spaced minimum of 3 diameters away from parallel conduits.

Q. Field cut IMC and RMC conduits shall be field threaded. Field threads to be cold galvanized by brush or spray. Cold galvanize to be minimum 95% zinc and shall cure before attaching to threaded fitting. Set screw and compression fittings shall not be acceptable.

R. Conduit shall not be run directly above generator set exhaust system including piping, silencer, emission control equipment, heat recovery exchangers or any other equipment that contains hot exhaust gases.

S. Where PVC conduit, whether direct buried or in ductbank, terminates within a building or utility structure, the PVC conduit shall transition to rigid metal conduit at least 10 feet prior to entering building or utility structure. Additionally, sweeps up through slabs on grade shall be RMC.

T. Seal all conduits at the last structure prior to conduits entering a building and where conduits enter a building with Carlon "MAT" or "MAQ" series duct plug for conduits with wires and Carlon "MAE" series for spare conduits or equal. All spare conduits shall have nylon pull string and footage tape. Provide brass tag at each end of conduit indicating other end locations and overall footage of conduit.

3.4 INSTALLATION OF CABLES

A. Parallel groups of cables shall be supported from below, either by horizontal angle irons or channel systems such as “Unistrut”, with vertical hanger rods at maximum of three-foot intervals.

B. Supports for cables on concrete walls shall be attached to wall with all metal expansion shields.

C. All insulated conductors run in plenum spaces shall be plenum rated and carry UL listing for flame spread and smoke propagation.

3.5 INSTALLATION OF BACKBOARDS AND EQUIPMENT CABINETS

A. Backboards shall be installed over sheetrock, screwed into wall studs or with screw anchors in masonry walls. Bottom of backboard shall be set at 6” AFF, extending to a maximum of 8’6” AFF.

B. Equipment shall be mounted to backboards at minimum of 4 points, with screws and washers.

C. Freestanding Unistrut framing for mounting of backboards or equipment cabinets shall be secured to floor and structure above.

3.6 INSTALLATION OF RECEPTACLES

A. Receptacles shall be installed vertical with the U-ground up. Coordinate with Architectural, Electrical and Mechanical Contract Drawings for elevations and mounting heights of receptacles and surface raceway. Verify all final locations of devices with Architect prior to installation.

B. Use of modular wiring connectors to devices is NOT permitted.

C. Where GFI circuit breakers are used, all receptacles on the circuit shall be labeled GFCI/GFI with the circuit number.

D. Where receptacle is required to have GFCI protection and is not in a readily accessible location GFCI circuit breaker is to be used.

3.7 BRANCH CIRCUIT WIRING

A. Multiple branch circuits within a single enclosure (junction box, pull box, panel board) must have individual neutrals and grounding conductors identified or tie-wrap to line conductors of same circuit.

B. Parallel conductors shall be installed in groups consisting of not more than one conductor per phase, neutral and grounding conductor to prevent current imbalance.

END OF SECTION 260515

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SECTION 260526 - ELECTRICAL GROUNDING

PART 1 - GENERAL

1.1 REFERENCES

A. This Section covers the specification of grounding for electrical equipment and systems. Refer to Section – COMMON WORK RESULTS FOR ELECTRICAL WORK, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, applicable Sections of DIVISION 1, and all other project instructions for other requirements.

1.2 SCOPE

A. Provide labor, materials, services, equipment and transportation necessary for complete and operational grounding systems as indicated on Contract Drawings and specified herein, including but not limited to following:

1. Service ground
2. Equipment grounds
3. Ground fault protection

1.3 SHOP DRAWING SUBMITTALS

A. Submit for review shop drawings for the following:

1. Ground rods
2. Bus
3. Bushings and pressure lugs
4. Pipe clamps
5. Circuit breakers
6. Grounding conductors

PART 2 - PRODUCTS

2.1 SERVICE GROUND

A. Provide one green insulated copper grounding electrode conductor in 3/4" conduit from the service entrance switchboard ground bus to the EXISTING grounding electrode system IN THE EXISTING MAIN SWITCHBOARD. Grounding electrode conductor shall be installed in one continuous length, without splice or joint, per NEC Article 250. Grounding electrode conductor shall be #4/0 AWG unless otherwise noted on contract drawings or established by code.

B. CONFIRM THAT THE EXISTING grounding electrode system in accordance with NEC Article 250. System shall consist of water service piping, concrete-encased electrode and three ground rods in delta configuration. Concrete-encased electrode shall be at least 20 feet of bare #4 AWG copper encased in concrete, unless otherwise noted on contract drawings. Grounding electrode conductor shall be connected to water service piping using acceptable pipe clamp by OZ/Gedney or acceptable equivalent.

C. Pad mounted transformers: Existing grounding to remain.

2.2 EQUIPMENT GROUNDS

A. Provide green insulated copper equipment grounding conductor between the ground bus of the source distribution panel or switchboard and each load being served. Conductor shall be sized according to NEC Article 250, Table for "Minimum size of Equipment Grounding Conductors".

B. Provide separate grounding conductor for each branch circuit.

2.3 GROUND FAULT PROTECTION

A. If excessive ground current flows in feeders to 480 V main switchboard, main breakers and/or circuit breakers with ground fault sensing shall trip to protect switchboard against arcing ground faults.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Refer to SECTION 260515, BASIC MATERIALS & METHODS - ELECTRICAL.

B. Grounding shall be installed and tested in accordance with NEC (NFPA 70) and to satisfaction of local electrical inspector.

3.2 EQUIPMENT GROUNDS

A. Equipment grounds shall be continuous from ground bus to electrical equipment and devices.

B. Provide equipment grounds for electrical equipment furnished or installed as part of this Contract.

C. Grounded service conductor (neutral) of 480Y/277 V distribution system shall be grounded at only one point: neutral connection to the ground bus. Under no circumstances shall system neutral be grounded at any other point. As part of final inspection procedures, demonstrate purity of system neutral.

D. Regardless of rating or length, circuits run in FMC shall carry grounding conductor for that portion of circuit in FMC; bond conductor at each end.

E. Current return conductors (neutrals), which are grounded at the source, shall NOT be used for equipment grounding. Provide separate conductors for equipment grounding; refer to SECTION 260515, paragraph on IDENTIFICATION, for color requirements.

F. Grounding conductor shall be secured to equipment enclosure at power source (usually to a ground bus) and at apparatus being served by AC supply. Grounding conductors shall be insulated and shall be large enough to carry ground fault current safely.

G. Maintain electrical continuity of raceways by the following means:

1. Threaded fittings with joints made up wrench-tight where threaded rigid conduit is used.
2. Threadless fittings made up tight.
3. Metal bushing inside and locknut outside of metal boxes and cabinets when threaded conduit is used. If outside locknut is inaccessible for tightening after installation, provide additional locknut inside. If bushing is composed entirely of insulating material, use locknuts inside and outside.
4. Bonding jumper across joints of wireways, cable trays, expansion or deflection fittings, etc.
5. Devices listed for the purpose by UL.

H. NOTE: Addition of equipment grounding conductor to AC circuits run in metallic enclosures does NOT lessen the requirement for conductor enclosure continuity, since part of total ground fault current will flow through the raceway and enclosure system. Therefore, the continuity of this system shall be maintained.

3.3 TESTS

A. Acceptance testing for electrical grounding systems, specified herein, shall be performed by independent testing firm with minimum ten years experience in testing the specified items. Firm shall be member of International Electrical Testing Association (INETA).

B. Testing procedures shall be as described in INETA "Acceptance Testing Specifications" (ATS).

C. Testing firm shall immediately notify Contractor and Engineer, of any deficiencies requiring correction before electrical system is placed in service and shall confirm information in writing within five days.

D. Discrepancies found shall be corrected by firm which installed switchboard. However, testing firm shall make minor field adjustments that may be found necessary.

E. Test report shall include typewritten test results on firm's standard test forms.

F. Test and inspect the main grounding electrode system in accordance with Section 7.13 of the NETA Acceptance Testing Specification. Perform a resistance to ground test and ensure that resistance is no greater than 5 ohms. Investigate and supplement grounding system where resistance exceeds recommended values and re-test as required.

G. All ground fault systems including but not limited to the main service overcurrent protective device ground fault protection equipment shall be performance tested when first installed on site per manufacturer’s instructions and Section 7.14 of the NETA Acceptance Testing Specifications Inspection and Test Procedures for Ground-Fault Protection Systems. Tests shall include, but not be limited to, resistance measurements through all bolted connections, insulation resistance test on all control wiring and pick up tests using primary injection.

END OF SECTION 260526

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SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Metal conduits and fittings, including RMC
2. Rigid nonmetallic duct.
3. Plastic PVC conduit.
4. Flexible nonmetallic duct.
5. Duct accessories.
6. Precast concrete handholes.
7. Utility structure accessories.

1.3 DEFINITIONS

A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.

B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.

C. Duct Bank:

1. Two or more ducts installed in parallel, with or without additional casing materials.
2. Multiple duct banks.

D. RMC: Galvanized rigid (steel) conduit.

E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include duct-bank materials, including spacers and miscellaneous components.

2. Include duct, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
3. Include accessories for manholes, handholes, boxes, and other utility structures.
4. Include underground-line warning tape.

B. Shop Drawings:

1. Precast or Factory-Fabricated Underground Utility Structures:

a. Include plans, elevations, sections, details, attachments to other work, and accessories.
b. Include duct entry provisions, including locations and duct sizes.
c. Include reinforcement details.
d. Include frame and cover design and manhole chimneys.
e. Include grounding details.
f. Include dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
g. Include joint details.

2. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:

a. Include dimensioned plans, sections, and elevations, and fabrication and installation details.
b. Include duct entry provisions, including locations and duct sizes.
c. Include cover design.
d. Include grounding details.
e. Include dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

1.5 MAINTENANCE MATERIALS SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.6 FIELD CONDITIONS

A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions, and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Engineer and Owner no fewer than fourteen days in advance of proposed interruption of electrical service.
2. Do not proceed with interruption of electrical service without Engineer’s written permission.

B. Ground Water: Assume ground-water level is at grade level unless a lower water table is noted on Drawings.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND FITTINGS

A. RMC: Comply with ANSI C80.1 and UL 6.

B. Subject to compliance with requirements, available Manufacturers offering products that may be incorporated into the work include, but are not limited to the following:

1. Allied Tube & Conduit
2. OMNI
3. Perma-Cote
4. Republic Conduit
5. Thomas & Betts Corporation
6. Wheatland Tube Company

C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

2.2 RIGID NONMETALLIC DUCT

A. Underground Plastic Utilities Duct: Type EPC-40-PVC RNC, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.

B. Subject to compliance with requirements, available Manufacturers offering products that may be incorporated into the work include, but are not limited to the following:

1. Carlon
2. National Pipe & Plastics
3. OMNI

C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

D. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 DUCT ACCESSORIES

A. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling. Include hold down bars that secure duct bank in place to prevent duct flotation.

1. Subject to compliance with requirements, available Manufacturers offering products that may be incorporated into the work include, but are not limited to the following:

a. Allied Tube & Conduit
b. Pantexinc
c. Carlon
d. PENCEL Plastics
e. Underground Devices Inc.

B. Detectable Underground-Line Warning Tape: Acid- and alkali-resistant, polyester encased B-721 aluminum foil warning tape manufactured for marking and identifying underground utilities, 2 inches (50.8 mm) wide and 5 mils (0.127 mm) thick, continuously inscribed with sub-surface black lettering on color field noted below, with a description of the utility; colored as follows:

1. Red: CAUTION BURIED ELECTRIC LINE BELOW.
2. Orange: CAUTION BURIED FIBER OPTIC or TELEPHONE LINE BELOW.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate layout and installation of duct, duct bank, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.

B. Coordinate elevations of duct and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstruction, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain to manholes and handholes, and as approved by Architect.

C. Clear and grub vegetation to be removed, and protect vegetation to remain according to Specification Section "Earthwork." Remove and stockpile topsoil for reapplication according to Specification Section "Earthwork."

3.2 UNDERGROUND DUCT APPLICATION

A. Duct for Electrical Branch Circuits: Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.

3.3 DUCT AND DUCT-BANK INSTALLATION

A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.

B. Install duct according to NEMA TCB 2.

C. Slope: Pitch duct a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope duct from a high point between two manholes, to drain in both directions.

D. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 26 inches, both horizontally and vertically, at other locations unless otherwise indicated.

1. Duct shall have maximum of four 90 degree bends or the total of all bends shall be no more 360 degrees between pull points.

E. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.

F. Installation Adjacent to High-Temperature Steam Lines: Where duct is installed parallel to underground steam lines, maintain minimum of 10 feet separation between ductbank and steamlines. Where the duct crosses above an underground steam line, install insulation blankets listed for direct burial to isolate the duct bank from the steam line.

G. End Bell Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches o.c. for 5-inch duct, and vary proportionately for other duct sizes.

1. Begin change from regular spacing to end-bell spacing 10 feet from the end bell, without reducing duct slope and without forming a trap in the line.
2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line direct-buried duct with calculated expansion of more than 3/4 inch.
3. Grout end bells into structure walls from both sides to provide watertight entrances.

H. Terminator Entrances to Manholes and Concrete and Polymer Concrete Handholes: Use manufactured, cast-in-place duct terminators, with entrances into structure spaced approximately 6 inches o.c. for 4-inch duct, and vary proportionately for other duct sizes.

1. Begin change from regular spacing to terminator spacing 10 feet from the terminator, without reducing duct line slope and without forming a trap in the line.
2. Expansion and Deflection Fittings: Install an expansion and deflection fitting in each duct in the area of disturbed earth adjacent to manhole or handhole. Install an expansion fitting near the center of all straight line duct with calculated expansion of more than 3/4 inch.

I. Building Wall Penetrations: Make a transition from underground duct to RMC at least 10 feet outside the building wall, without reducing duct line slope away from the building and without forming a trap in the line. Use fittings manufactured for RNC-to-RMC transition. Install RMC penetrations of building walls as specified in Section "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

J. Sealing: Provide temporary closure at terminations of duct with pulled cables. Seal spare duct at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.

K. Pulling Cord: Install 200-lbf-test nylon cord in empty ducts.

L. Direct-Buried Duct and Duct Bank:

1. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Specification Section "Earthwork" for preparation of trench bottoms for pipes less than 6 inches in nominal diameter.
2. Depth: Install top of duct at least 36 inches below finished grade unless otherwise indicated.
3. Set elevation of bottom of duct bank below frost line.
4. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
5. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet of duct. Place spacers within 24 inches of duct ends. Stagger spacers approximately 6 inches between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
6. Install manufactured RMC elbows for stub-ups and at building entrances unless otherwise indicated.

    a. Couple RNC duct to RMC with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
    b. Stub-ups to Outdoor Equipment: Extend concrete-encased RMC horizontally a minimum of 60 inches from edge of base. Install insulated grounding bushings on terminations at equipment.

        1) Stub-ups shall be minimum 4 inches above finished floor and minimum 6 inches from conduit side to edge of slab.

    c. Stub-ups to Indoor Equipment: Extend RMC horizontally a minimum of 60 inches from edge of wall. Install insulated grounding bushings on terminations at equipment.

        1) Stub-ups shall be minimum 4 inches above finished floor and no less than 6 inches from conduit side to edge of slab.

7. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inches over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction. Comply with requirements in Specification Section "Earthwork" for installation of backfill materials.

a. For direct buried duct, place minimum 3 inches of sand as a bed for duct. Place sand to a minimum of 6 inches above top level of duct.

M. Detectable Underground-Line Warning Tape: Bury underground line no less than 12 inches above and 4 inches to 6 inches below surface for maximum detectability, all concrete-encased and direct buried duct and duct banks. Align tape parallel to and within 3 inches of centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

N. Seal all conduits at the last structure prior to conduits entering a building and where conduits enter a building with Carlon “MAT” or “MAQ” series duct plug for conduits with wires and Carlon “MAE” series for spare conduits or equal. All spare conduits shall have nylon pull string and footage tape. Provide brass tag at each end of conduit indicating other end locations and overall footage of conduit. Provide brass tag at each end of conduit indicating other end location and overall footage of conduit.

3.4 GROUNDING

A. Ground underground ducts and utility structures according to Specification Section "Grounding and Bonding for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Demonstrate capability and compliance with requirements on completion of installation of underground duct, duct bank, and utility structures.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch-long mandrel equal to duct size minus 1/4 inch. If obstructions are indicated, remove obstructions and retest.
3. Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance as specified in Specification Section "Grounding and Bonding for Electrical Systems."

B. Correct deficiencies and retest as specified above to demonstrate compliance.

C. Prepare test and inspection reports.

3.6 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

B. Clean internal surfaces of manholes, including sump.

1. Sweep floor, removing dirt and debris.
2. Remove foreign material.

END OF SECTION 260543

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SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 REFERENCES

A. This Section covers the specification of sleeves and sleeve seals for electrical work. Refer to Section – COMMON WORK RESULTS FOR ELECTRICAL WORK, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, applicable sections of DIVISION 1, and all other project instructions for other requirements.

1.2 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of fire rated and non-fire-rated wall and floor construction.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Fire stopping

1.3 SUBMITTALS

A. Product Data: For each type of product.

B. Submit Product Data: Manufacturer’s specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions.

C. Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineering judgment must include both project name and contractor’s name who will install firestop system as described in drawing.

D. Submit fire stopping material safety data sheets provided with product delivered to job-site.

1.4 A. INSTALLER QUALIFICATIONS – FIRE STOPPING

Engage an experienced Installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.

1.5 DELIVERY, STORAGE, AND HANDLING – FIRE STOPPING

A. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.

B. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.

C. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature limitations.

D. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.

E. Do not use damaged or expired materials.

1.6 PROJECT CONDITIONS – FIRE STOPPING

A. Do not use materials that contain flammable solvents.

B. Scheduling:

1. Schedule installation of CAST IN PLACE firestop devices after completion of floor formwork, metal form deck, or composite deck but before placement of concrete.

2. Schedule installation of other firestopping materials after completion of penetrating item installation but prior to covering or concealing of openings.

C. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.

D. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet.

E. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Sleeves for conduits penetrating exterior concrete walls below grade:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, with plain ends and welded steel waterstop collar.

B. Sleeves for Conduits or cabling penetrating non-fire-rated gypsum board assemblies: Galvanized-steel sheet; 24 gauge minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw fastening the sleeve to each side of wall assembly.

2.2 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable, Thunderline “LS” Series Link-Seal or acceptable equivalent.

1. Hydrostatic Sealing Elements: Polyethylene thermoplastic (HDPE) interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.

2. Pressure Plates: Stainless steel

3. Connecting Bolts and Nuts: Carbon steel, with corrosion-resistant coating for use in exterior walls above grade or Stainless steel for use in exterior walls below grade, of length required to secure pressure plates to sealing elements.

2.3 GROUT

A. Description: Non-shrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.

B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

2.4 SILICONE SEALANTS

A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.

1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.

B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

2.5 FIRESTOPPING – GENERAL

A. Fire and or smoke stopping shall be provided where electrical systems penetrate rated assemblies. It is intended that ratings and sealing requirements will be specified under architectural divisions of work. In the event that sealing methods or products are not specified elsewhere, the following shall be used as the basis for executing this work.

B. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.

C. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

D. Provide an enclosed fire rated cable management device where shown on drawings or specified in other Sections of this Division or in other Divisions, whenever cable bundles penetrate fire rated walls. The cable management device shall contain integrated intumescent firestop wrap strip materials sufficient to maintain the hourly rating of the barrier being penetrated. The cable management device shall contain a smoke seal fabric membrane or intumescent firestop plugs sufficient to achieve the L-Rating requirements of the barrier type.

E. Provide non-curing, re-penetrable, intumescent firestop materials around communications cable trays or ladder racks penetrating through a fire rated wall. The firestop system assembly shall be able accessible and re-installed from one side of the wall. The firestop material shall allow up to 12" of unreinforced annular space.

F. Penetrations in Fire Resistance Rated Walls: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

1. F-Rating: Not less than the fire-resistance rating of the wall construction being penetrated.

G. Penetrations in Horizontal Assemblies: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

1. F-Rating: Minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.

2. T-Rating: when penetrant is located outside of a wall cavity, minimum of 1-hour rating, but not less than the fire-resistance rating of the floor construction being penetrated.

H. Penetrations in Smoke Barriers: Provide firestopping with ratings determined in accordance with UL 1479 or ASTM E 814.

I. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening at both ambient and elevated temperatures.

2.6 FIRE STOPPING SYSTEMS

A. Fire and or smoke stopping shall be provided where electrical systems penetrate rated assemblies. It is intended that ratings and sealing requirements will be specified under architectural separate divisions of work. In the event that sealing methods or products are not specified elsewhere, the following shall be used as the basis for executing this work.

B. Use only firestop products that have been UL 1479 or ASTM E 814 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.

C. Subject to compliance with through penetration firestop systems listed in the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:

1. Hilti, Inc., Tulsa, Oklahoma
   800-879-8000
   www.us.hilti.com

2. Provide products from the above or other acceptable and equivalent manufacturer.

D. Foams, intumescent sealants, or caulking materials for use with non-combustible items, and/or flexible cable or cable bundles, the following products are acceptable:

1. Hilti Intumescent Firestop Sealant
2. Hilti Fire Foam
3. Hilti Flexible Firestop Sealant
4. Hilti Elastomeric Firestop Sealant

E. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including PVC jacketed, flexible cable or cable bundles, and plastic pipe, the following products are acceptable:

1. Hilti Intumescent Firestop Sealant

F. Non curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles, the following products are acceptable:

1. Hilti Firestop Putty Stick
2. Hilti Firestop Plug

2.7 RE-ENTERABLE FIRE STOPPING SYSTEMS

A. Re-enterable, cable management products for use with new cable bundles penetrating gypsum or masonry walls, the following products are acceptable:

1. Hilti Speed Sleeve CP Series for openings equal to or less than 4" diameter.
2. Hilti Firestop Block CFS Series for openings larger than 4" diameter.
3. Hilti Gangplate CFS Series for use with multiple cable management devices.

B. Re-enterable, cable management products for use with pre-existing (retrofit) cable bundles penetrating gypsum or masonry walls, the following products are acceptable:

1. Hilti Firestop Retrofit Sleeve Kit CFS Series for sleeved openings equal to or less than 4" diameter.
2. Hilti Firestop Cable Collar CFS Series for un-sleeved openings equal to or less than 4" diameter.
3. Hilti Firestop Block CFS Series for openings larger than 4" diameter.

C. Where multiple cables/conduits must penetrate fire-rated construction: seal with through-wall sealing fittings acceptable equivalent to Crouse-Hinds “TW Series Thru-Wall Barrier” or acceptable equivalent by STI “EZ Path” or Wiremold/Legrand “FLAMESTOPPER” with the following provisions:

1. Assemblies shall be complete with mounting frames, sealing block assemblies, plugs, reducers, anchors, and lubricant.
2. Provide sizes and quantities required for application with ample spare capacity or as directed by Architect where provisions are being made for future use by Owner.

D. Non curing, re-penetrable materials used for large openings and complex penetrations made to accommodate cable trays and bundles, multiple steel and copper pipes, electrical busways in raceways, the following products are acceptable:

1. Hilti Firestop Block CFS Series or Hilti Firestop Board CP Series.

E. Where single or multiple cable/conduit assemblies and cable trays must penetrate fire-rated construction and are required to be re-enterable; provide through-wall sealing fittings acceptable equivalent to STI “EZ Path” or Wiremold/Legrand “FLAMESTOPPER”, with the following provisions:

1. Assemblies shall be complete with mounting frames, sealing block assemblies, plugs, reducers, anchors, and lubricant.
2. Provide sizes and quantities required for application with ample spare capacity or as directed by Architect where provisions are being made for future use by Owner.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR PENETRATION OF NON-FIRE-RATED ASSEMBLIES

A. Comply with NECA 1.

B. Comply with NEMA VE 2 for cable tray and cable penetrations.

C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:

1. Interior Penetrations of Non-Fire-Rated Walls and Floors:

a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 "Joint Sealants."
b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches above finished floor level. Install sleeves during erection of floors. Where area is subjected to water, include water seal or cast-in-slab waterstop flange.

D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work. Final details must meet roofing manufacturer’s warrantee and installation requirements.

F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.

G. Underground, Exterior-Wall and Floor Penetrations: Install steel pipe sleeves. Size sleeves to allow for minimum 1-inch annular clear space between raceway and sleeve for installing sleeve-seal system.

H. Refer to the following paragraphs for additional requirements for penetration of fire rated assemblies.

3.2 SLEEVE-SEAL-SYSTEM INSTALLATION

A. Install sleeve-seal systems in sleeves in exterior concrete walls below grade and slabs-on-grade at raceway entries into building.

B. Install type and number of sealing elements recommended by manufacturer for raceway and size. Position raceway in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.3 SLEEVE-SEAL-FITTING INSTALLATION

A. Install sleeve-seal fittings in new walls and slabs as they are constructed.

B. Assemble fitting components of length to be flush with both surfaces of concrete walls and extend 2” above fin. Floor of concrete slabs. Position waterstop flange to be centered in concrete slab or wall.

C. Secure nailing flanges to concrete forms.

D. Using grout, seal the space around outside of sleeve-seal fittings.

3.4 FIRESTOPPING PREPARATION

A. Verification of Conditions: Examine areas and conditions under which firestopping work is to be performed and identify conditions detrimental to proper or timely completion.

1. Verify penetrations are properly sized and in suitable condition for application of materials.
2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.
3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
4. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.
5. Do not proceed until unsatisfactory conditions have been corrected.

3.5 FIRESTOPPING COORDINATION

A. Coordinate location and proper selection of cast-in-place Firestop Devices with trade responsible for the work. Ensure device is installed before placement of concrete.

3.6 FIRESTOPPING INSTALLATION

A. Regulatory Requirements: Install firestop materials in accordance with UL Fire Resistance Directory.

B. Manufacturer's Instructions: Comply with manufacturer's instructions for installation of through-penetration materials.

1. Seal all holes or voids made by penetrations to ensure an air and water resistant seal.
2. Protect materials from damage on surfaces subjected to traffic.

3.7 FIRESTOPPING FIELD QUALITY CONTROL

A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.

B. Keep areas of work accessible until inspection by applicable code authorities.

C. Inspection of through-penetration firestopping shall be performed in accordance with ASTM E 2174, "Standard Practice for On-Site Inspection of Installed Fire Stops" or other recognized standard.

D. Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.

3.8 FIRESTOPPING ADJUSTING AND CLEANING

A. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

B. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

END OF SECTION 260544

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SECTION 260560 - ELECTRICAL TESTING

PART 1 - GENERAL

1.1 REFERENCES

A. This section covers the specification of testing for electrical systems. Refer to Section - COMMON WORK RESULTS FOR ELECTRICAL WORK, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, applicable Sections of Division 1, and all other project instructions for other requirements.

1.2 SUMMARY

A. This Section includes general requirements for electrical field testing and inspecting. Additional detailed requirements are specified in each Section containing components that require testing.

B. General requirements include the following:

1. Qualifications of testing agencies and their personnel.
2. Suitability of test equipment.
3. Calibration of test instruments.
4. Coordination requirements for testing and inspecting.
5. Reporting requirements for testing and inspecting.

C. A qualified Testing Agency is to be engaged to perform the required testing.

D. All corrections, replacements, repairs so that final testing report describes all equipment “as-left” as acceptable is to be provided.

1.3 QUALITY ASSURANCE

A. Testing Agency Basic Qualifications: Each Section containing electrical testing may include additional requirements from that specified below.

1. Testing Organization:

a. The testing organization shall be an independent, third party entity which can function as an unbiased testing authority, professionally independent of the manufacturers, suppliers, and installers of equipment or systems being evaluated.
b. The testing organization shall be regularly engaged in the testing of electrical equipment devices, installations, and systems.
c. The testing organization shall use technicians who are regularly employed for testing services.

d. An organization having a designation of NETA Accredited Company issued by the InterNational Electrical Testing Association meets the above criteria.
e. The testing organization shall submit appropriate documentation to demonstrate that it satisfactorily complies with these requirements.

2. Testing Personnel:

a. Technicians performing these electrical tests and inspections shall be trained and experienced concerning the apparatus and systems being evaluated. These individuals shall be capable of conducting the tests in a safe manner and with complete knowledge of the hazards involved. They must evaluate the test data and make a judgment on the serviceability of the specific equipment.
b. Technicians shall be certified in accordance with ANSI/NETA ETT-2010, Standard for Certification of Electrical Testing Technicians. Each on-site crew leader shall hold a current certification, Level III or higher, in electrical testing.

B. Test Equipment Suitability: Comply with ANSI/NETA Standards for Acceptance Testing as outlined in Section 5.

C. Test Equipment Calibration: Comply with ANSI/NETA Standards for Acceptance Testing as outlined in Section 5.

D. Acceptance Testing of Electrical Systems: Minimum Standard – Compliance with current Edition of ANSI/NETA Standards for Acceptance Testing as outlined in Section 7.

PART 2 - NOT USED

PART 3 - EXECUTION

3.1 GENERAL TESTS AND INSPECTIONS

A. If a group of tests are specified to be performed by an independent testing agency, prepare systems, equipment, and components for tests and inspections, and perform preliminary tests to ensure that systems, equipment, and components are ready for independent agency testing. Include the following minimum preparations as appropriate:

1. Perform insulation-resistance tests.
2. Perform continuity tests.
3. Perform rotation test (verification of A, B and C phases to match existing).
4. Provide a stable source of single-phase, 208/120-V electrical power for test instrumentation at each test location.

B. General Wiring Tests

1. Prior to final inspection and tests: wiring and connections shall be completed, devices and equipment shall be properly operating, power and lighting circuit and control wiring

shall be clearly identified with acceptable tags, and lighting fixtures shall be installed, ready for acceptance.

2. Before devices or equipment is energized, test each wiring system for the following:

   a. System is free from short circuits.
   b. System is free from ground faults.
   c. System is at or below 600 V shall have a minimum installation resistance of 100 megohms when tested with 1000 VDC potential between conductors and between conductors and ground, for a minimum of one minute at 70°F ambient air temperature and dry atmosphere (below 55% RH).
   d. Grounding paths have been visually confirmed and acceptable maximum resistance to earth tested.

C. Overcurrent Protective Device Setting

1. Manufacturer's Field Service: Engage a factory-authorized service representative, of electrical distribution equipment to perform or supervise the adjustment of settings on overcurrent protective devices within equipment.
2. Testing: Perform the following device setting and prepare reports:

   a. After installing overcurrent protective devices and during energizing process of electrical distribution system, perform the following:

      1) Verify that overcurrent protective devices meet parameters used in studies.
      2) Adjust devices to values listed in study results.

3. Adjust devices according to recommendations in ANSI/NETA Standards for Acceptance Testing as outlined in Chapter 7, and Tables 10.7 and 10.8 in Standard.

D. Operational Tests

1. Each piece of electrical equipment, including generator and controls shall be operated continuously for minimum test period of one hour.
2. Demonstrate by operating equipment that circuits and devices are in good operating condition. Each item of control equipment shall be operated minimum of five times. Demonstration shall be performed after wiring tests.

E. Test and Inspection Reports: In addition to requirements specified elsewhere, report the following:

1. Manufacturer's written testing and inspecting instructions.
2. Calibration and adjustment settings of adjustable and interchangeable devices involved in tests.
3. Tabulation of expected measurement results made before measurements.
4. Tabulation of "as-found" and "as-left" measurement and observation results.

END OF SECTION 260560

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SECTION 263213 – ENGINE GENERATORS

PART 1 - GENERAL

1.1 REFERENCES

A. This Section covers the specification of Packaged Engine Generators. Section – COMMON WORK RESULTS FOR ELECTRICAL WORK, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, applicable Sections of DIVISION 1, and all other project instructions for other requirements.

1.2 SCOPE

A. Provide labor, materials, services, equipment and transportation necessary for complete and operational electrical generation systems as indicated on Contract Drawings and specified herein, including, but not limited to the following:

1. Engine generator set
2. Unit mounted cooling system
3. Unit-mounted and remote-mounted control and monitoring
4. Performance requirements for sensitive loads
5. Fuel system, including sub-base fuel tank.
6. Load Management System
7. Starting battery
8. Battery charger
9. Silencer/exhaust system
10. Remote annunciators
11. Remote stop switch
12. Outdoor Enclosure

B. The engine generator will be pre-purchased by the Owner and assigned to the contractor.

C. The prepurchase shall include:

1. Processing of submittals.
2. Coordination of all required work for start-up.
3. Assist in field start-up and testing.

D. The contractor shall provide all work required for the complete installation of the pre-purchased generator, including, but not limited to the following.

1. Processing of submittals.
2. Acceptance of delivery and rigging into final location.

3. Preparation of site to accept new equipment.
4. Concrete base for generator.
5. Power, control and monitoring field wiring.
6. Piping and wiring connections.
7. Identification.
8. Schedule and coordinate all required work.
9. Assist in field start-up and testing.

E. Related Sections include the following:

1. Division 26 Section "Transfer Switches" for transfer switches including sensors and relays to initiate automatic-starting and -stopping signals for engine-generator sets.

1.3 DEFINITIONS

A. Operational Bandwidth: The total variation from the lowest to highest value of a parameter over the range of conditions indicated, expressed as a percentage of the nominal value of the parameter.

B. Steady-State Voltage Modulation: The uniform cyclical variation of voltage within the operational bandwidth, expressed in Hertz or cycles per second.

1.4 SUBMITTALS

A. Product Data: Include the following:

B. Specifications Compliance: A complete copy of this generator specification with each subparagraph noted with the comment, “compliance”, “deviation”, or “alternate”. In the case of non-primary, vendor-supplied items, the name of the sub-vendor supplying said item, including model number, shall be indicated.

1. By noting the term “compliance”, it shall be understood that the manufacturer is in full compliance with the item specified and will provide exactly the same with no deviations.
2. By noting the term “deviation”, it shall be understood that the manufacturer prefers to provide a different component in lieu of that specified. Manufacturer shall indicate all deviations.
3. By noting the term “alternate”, it shall be understood that the manufacturer proposes to provide the same operating function but prefers to do it in a different manner. An alternate shall be fully described as to what the manufacturer proposes to provide.
4. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
5. Include thermal damage curve for generator.
6. Include time-current characteristic curves for generator protective device.
7. Include fuel consumption in gallons per hour at 0.8 power factor at 0.5, 0.75 and 1.0 times generator capacity.

8. Include generator efficiency at 0.8 power factor at 0.5, 0.75 and 1.0 times generator capacity.
9. Include air flow requirements for cooling and combustion air in cfm at 0.8 power factor, with air supply temperature of 95, 80, 70, and 50 deg F. Provide drawings showing requirements and limitations for location of air intake and exhausts.
10. Include generator characteristics, including, but not limited to kw rating, efficiency, reactance, and short-circuit current capability.

C. Shop Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components and location and size of each field connection.

1. Dimensioned outline plan and elevation drawings of engine-generator set and other components specified.
2. Detailed, dimensioned plan, elevations and sections for outdoor enclosure. Include sound attenuation data.
3. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.
4. Vibration Isolation Base Details: Signed and sealed by a qualified professional engineer. Detail fabrication, including anchorages and attachments to structure and to supported equipment. Include base weights.
5. Wiring Diagrams: Power, signal, and control wiring.

D. Welding certificates.

E. Manufacturer Seismic Qualification Certification: Submit certification that sub-base tank engine-generator set, batteries, battery racks, accessories, and components will withstand seismic forces defined as Seismic Design Category D. Include the following:

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

    a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

F. Submit Qualification Data for testing agency; including a sample of a representative Field Quality Control Test Report.

G. Certified summary of prototype-unit test report.

H. Certified Test Reports: For components and accessories that are equivalent, but not identical, to those tested on prototype unit.

I. Certified Summary of Performance Tests: Demonstrate compliance with specified requirement to meet performance criteria for sensitive loads.

J. Test Reports:

1. Report of factory test on units to be shipped for this Project, showing evidence of compliance with specified requirements.
2. Report of sound generation.
3. Report of exhaust emissions showing compliance with applicable regulations.
4. Field quality-control test reports.

K. Certification of Torsional Vibration Compatibility: Comply with NFPA 110.

L. Operation and Maintenance Data: For packaged engine generators to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 and Division 26 , include the following:

1. List of tools and replacement items recommended to be stored at the Project for ready access. Include part and drawing numbers, current unit prices, and source of supply.

M. Warranty: Special warranty specified in this Section.

1.5 QUALITY ASSURANCE

A. Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

1. Maintenance Proximity: Not more than four hours' normal travel time from Installer's place of business to Project site.
2. Engineering Responsibility: Preparation of data for vibration isolators and seismic restraints of engine skid mounts, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Manufacturer Qualifications: A qualified manufacturer. Maintain, within 50 miles of Project site, a service center capable of providing training, parts, and emergency maintenance repairs.

C. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a member company of the International Electrical Testing Association or is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.

1. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

D. Source Limitations: Obtain packaged generator sets and auxiliary components through one source from a single manufacturer.

E. Product Options: Drawings indicate size, profiles, and dimensional requirements of packaged generator sets and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

F. Welding: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX for welding exhaust system piping.

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

H. Comply with NFPA 37.

I. Comply with NFPA 70.

J. Comply with NFPA 110 requirements for Level 1 emergency power supply system.

K. Engine Exhaust Emissions: Comply with applicable state and local government requirements.

L. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at adjacent property boundaries due to sound emitted by generator set including engine, engine exhaust, engine cooling-air intake and discharge, and other components of installation.

1.6 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 3.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver engine generator set and system components to the off-site rigger’s/storage facility in protective wrappings, containers and other protection that will exclude dirt and moisture and prevent damage from construction operations. Remove protection only after equipment is safe from such hazards.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of packaged engine generators and associated auxiliary components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

2. All warranty work shall include all parts and labor for the duration of warranty period and shall include provision of temporary generator for the duration of the repair at no additional cost to the Owner.

1.9 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include quarterly exercising to check for proper starting, load transfer, and running under load. Include routine preventive maintenance as recommended by manufacturer and adjusting as required for proper operation. Maintenance agreements shall include parts and supplies as used in manufacture and installation of original equipment.

1.10 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fuses: One for every 10 of each type and rating, but not less than one of each.
2. Indicator Lamps: Two for every six of each type used, but not less than two of each.
3. Filters: One set each of lubricating oil, fuel, and combustion-air filters.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Generators:
   a. Caterpillar; Engine Div.
   b. Relkco/Kohler Co; Generator Division.

c. Cummins Power Generation; Industrial Business Group.
d. Generac Power Systems, Inc.
e. MTU.

2. The Basis of Design is Caterpillar C32-D1250-GC.

2.2 ASSEMBLY DESCRIPTION

A. Factory-assembled and -tested, water-cooled engine, with brushless generator and accessories.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.

C. EPSS Class: Engine-generator set shall be classified as a Class 48 in accordance with NFPA 110.

D. Induction Method: Turbocharged.

E. Governor: Adjustable isochronous, with speed sensing.

F. Emissions: Comply with EPA Tier requirements.

G. Mounting Frame: Structural steel framework to maintain alignment of mounted components without depending on concrete foundation. Provide lifting attachments sized and spaced to prevent deflection of base during lifting and moving.

H. Capacities and Characteristics:

1. Power Output Ratings: Nominal ratings as indicated at 0.8 power factor excluding power required for the continued and repeated operation of the unit and auxiliaries, with capacity as required to operate as a unit as evidenced by records of prototype testing.
2. Output Connections: Three-phase, four wire.
3. Nameplates: For each major system component to identify manufacturer's name and address, and model and serial number of component.

2.3 ENGINE-GENERATOR SET

A. Packaged engine-generator set shall be a coordinated assembly of compatible components.

B. Power Output Ratings: Nominal ratings of 1,250 kW with capacity as required to operate as a unit as evidenced by records of prototype testing.

C. Output Connections: Three-phase, four wire.

D. Safety Standard: Comply with ASME B15.1.

E. NFPA Compliance:

1. Comply with NFPA 37.
2. Comply with NFPA 70.
3. Comply with NFPA 110 requirements for Level 1 emergency power supply system.

F. UL Compliance: Comply with ***UL 2200-3rd Edition plus revisions (09-23-2022)***.

G. Nameplates: Each major system component shall be equipped with a nameplate to identify manufacturer's name and address, and model and serial number of component.

H. Fabricate engine-generator-set mounting frame and attachment of components to resist generator-set movement during a seismic event when generator-set mounting frame is anchored to building structure.

I. Mounting Frame: Adequate strength and rigidity to maintain alignment of mounted components without depending on concrete foundation. Mounting frame shall be free from sharp edges and corners and shall have lifting attachments arranged for lifting with slings without damaging components.

1. Rigging Diagram: Inscribed on metal plate permanently attached to mounting frame to indicate location and lifting capacity of each lifting attachment and generator-set center of gravity.

2.4 GENERATOR-SET PERFORMANCE

A. Oversizing generator compared with the rated power output of the engine is permissible to meet specified performance.

1. Nameplate Data for Oversized Generator: Show ratings required by the Contract Documents rather than ratings that would normally be applied to generator size installed.

B. Steady-State Voltage Operational Bandwidth: 2 percent of rated output voltage from no load to full load.

C. Steady-State Voltage Modulation Frequency: Less than 1 Hz.

D. Transient Voltage Performance: Not more than 10 percent variation for 50 percent step-load increase or decrease. Voltage shall recover and remain within the steady-state operating band within 0.5 second.

E. Steady-State Frequency Operational Bandwidth: Plus or minus 0.25 percent of rated frequency from no load to full load.

F. Steady-State Frequency Stability: When system is operating at any constant load within the rated load, there shall be no random speed variations outside the steady-state operational band and no hunting or surging of speed.

G. Transient Frequency Performance: Less than 2-Hz variation for a 50 percent step-load increase or decrease. Frequency shall recover and remain within the steady-state operating band within three seconds.

H. Output Waveform: At no load, harmonic content measured line to neutral shall not exceed 2 percent total with no slot ripple. The telephone influence factor, determined according to NEMA MG 1, shall not exceed 50 percent.

I. Sustained Short-Circuit Current: For a 3-phase, bolted short circuit at system output terminals, the system shall supply a minimum of 300 percent of rated full-load current for not less than 10 seconds and then clear the fault automatically, without damage to winding insulation or other generator system components.

J. Excitation System: Performance shall be unaffected by voltage distortion caused by nonlinear load.

K. Start Time: Comply with NFPA 110, Type 10, system requirements.

2.5 SERVICE CONDITIONS

A. Environmental Conditions: Engine-generator system shall withstand the following environmental conditions without mechanical or electrical damage or degradation of performance capability:

1. Ambient Temperature: Minus 15 to plus 40 deg C.
2. Relative Humidity: 0 to 95 percent.
3. Altitude: Sea level to 1000 feet.

2.6 ENGINE

A. Fuel: Fuel oil, Grade DF-2.

B. Rated Engine Speed: 1800 rpm.

C. Maximum Piston Speed for Four-Cycle Engines: 2250 fpm.

D. Lubrication System: The following items are mounted on engine or skid:

1. Filter and Strainer: Rated to remove 90 percent of particles 5 micrometers and smaller while passing full flow.
2. Thermostatic Control Valve: Control flow in system to maintain optimum oil temperature. Unit shall be capable of full flow and is designed to be fail-safe.
3. Crankcase Drain: Arranged for complete gravity drainage to an easily removable container with no disassembly and without use of pumps, siphons, special tools, or appliances.

E. Engine Fuel System:

1. Main Fuel Pump: Mounted on engine. Pump ensures adequate primary fuel flow under starting and load conditions.
2. Relief-Bypass Valve: Automatically regulates pressure in fuel line and returns excess fuel to source.
3. Provide fuel cooler to maintain fuel temperature and viscosity during a long period (up to one week) of continuous operation at high load.
4. Provide fuel consumption meter to provide data on fuel consumed during any testing or actual power outage generator operation. The fuel data will be transmitted to the Facility Wide BMS system to aid in generator running data required by the State of Connecticut DEEP.

F. Coolant Jacket Heater: Electric-immersion type, factory installed in coolant jacket system. Comply with NFPA 110 requirements for Level 1 equipment for heater capacity: minimum 1500 Watt.

G. Pipe crankcase ventilation fumes directly into engine intake to burn them and reduce unwanted emissions.

H. Emissions: Engine must be certified to meet the EPA Emissions Limits Alternate Standard for Stationary Emergency Generator Sets.

2.7 ENGINE COOLING SYSTEM

A. Description: Closed loop, liquid cooled, with radiator factory mounted on engine-generator-set mounting frame and integral engine-driven coolant pump.

B. Radiator: Rated for specified coolant.

C. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anticorrosion additives as recommended by engine manufacturer.

D. Expansion Tank: Constructed of welded steel plate and rated to withstand maximum closed-loop coolant system pressure for engine used. Equip with gage glass and petcock.

E. Temperature Control: Self-contained, thermostatic-control valve modulates coolant flow automatically to maintain optimum constant coolant temperature as recommended by engine manufacturer.

F. Coolant Hose: Flexible assembly with inside surface of nonporous rubber and outer covering of aging-, ultraviolet-, and abrasion-resistant fabric.

1. Rating: 50-psig maximum working pressure with coolant at 180 deg F, and non-collapsible under vacuum.

2. End Fittings: Flanges or steel pipe nipples with clamps to suit piping and equipment connections.

2.8 FUEL SUPPLY SYSTEM

A. Comply with NFPA 30.

B. Subbase-Mounted, Double-Wall, Fuel-Oil Tank: Factory installed and piped, complying with UL 142 fuel-oil tank. Features include the following:

1. Tank level indicator.
2. Fuel-Tank Capacity: Fuel for 48 hours continuous operation at 100% rated power output of generator without refueling. Minimum 133 percent of total fuel required.
3. Leak detection in interstitial space, indicated on generator control panel and remote annunciator.
4. Vandal-resistant fill cap.
5. Containment Provisions: Minimum 110% of tank capacity, double wall EPA rupture basin.
6. Fuel Piping between tank and generator engine shall be double-containment pipe with provisions for field installation of cable leak detection system in annular space between fuel piping and containment piping**.**
7. Fuel tank can be up to 48” high and up to 376” long to provide required fuel amount.

2.9 ENGINE EXHAUST SYSTEM

A. Muffler/Silencer: Critical type, sized as recommended by engine manufacturer and selected with exhaust piping system to not exceed engine manufacturer's engine backpressure requirements.

1. Minimum sound attenuation of 25 dB at 500 Hz.
2. Sound level measured at a distance of 7 meters from exhaust discharge after installation is complete shall be 79 dBA or less.

B. Connection from Engine to Exhaust System: Flexible section of corrugated stainless-steel pipe, minimum 18” length from exhaust outlet to muffler with flanged pipe connections.

C. Connection from Exhaust Pipe to Muffler: Stainless-steel expansion joint with liner.

D. Exhaust Piping External to Engine: ASTM A 53/A 53M, Schedule 40, welded, black steel, with welded joints and fittings.

2.10 COMBUSTION-AIR INTAKE

A. Description: Heavy-duty, engine-mounted air cleaner with replaceable dry-filter element and "blocked filter" indicator.

2.11 STARTING SYSTEM

A. Description: 24-V electric, with negative ground and including the following items:

1. Components: Sized so they will not be damaged during a full engine-cranking cycle with ambient temperature at maximum specified in "Environmental Conditions" Paragraph in "Service Conditions" Article.
2. Cranking Motor: Heavy-duty unit that automatically engages and releases from engine flywheel without binding.
3. Cranking Cycle: 60 seconds.
4. Battery: Adequate capacity within ambient temperature range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article to provide specified cranking cycle at least three times without recharging.
5. Battery Cable: Size as recommended by engine manufacturer for cable length indicated. Include required interconnecting conductors and connection accessories.
6. Battery Compartment: Factory fabricated of metal with acid-resistant finish and thermal insulation. Thermostatically controlled heater shall be arranged to maintain battery above 10 deg C regardless of external ambient temperature within range specified in "Environmental Conditions" Paragraph in "Service Conditions" Article. Include accessories required to support and fasten batteries in place.
7. Battery-Charging Alternator: Factory mounted on engine with solid-state voltage regulation and 35-A minimum continuous rating.
8. Battery Charger: Current-limiting, automatic-equalizing and float-charging type. Unit shall comply with UL 1236 and include the following features:

    a. Operation: Equalizing-charging rate of 10 A shall be initiated automatically after battery has lost charge until an adjustable equalizing voltage is achieved at battery terminals. Unit shall then be automatically switched to a lower float-charging mode and shall continue to operate in that mode until battery is discharged again.
    b. Automatic Temperature Compensation: Adjust float and equalize voltages for variations in ambient temperature from minus 40 deg C to plus 60 deg C to prevent overcharging at high temperatures and undercharging at low temperatures.
    c. Automatic Voltage Regulation: Maintain constant output voltage regardless of input voltage variations up to plus or minus 10 percent.
    d. Ammeter and Voltmeter: Flush mounted in door. Meters shall indicate charging rates.
    e. Safety Functions: Sense abnormally low battery voltage and close contacts providing low battery voltage indication on control and monitoring panel. Sense high battery voltage and loss of ac input or dc output of battery charger. Either condition shall close contacts that provide a battery-charger malfunction indication at system control and monitoring panel.
    f. Enclosure and Mounting: NEMA 250, Type 1, wall-mounted cabinet.

2.12 CONTROL AND MONITORING

A. Provide a fully solid-state, microprocessor based, generator set mounted control. The control panel shall be designed and built by the engine manufacturer. The control shall provide all

operating, monitoring and control functions for the generator set. The control panel shall provide real time digital communications to all engine and regulator controls via SAE J1939.

B. The controller shall also include logic to automatically provide load management. If the load exceed a maximum preset level, the controller shall initiate load shed by closing a contact to signal the existing BMS to immediately shut down one of the existing chillers and its auxiliary equipment. The maximum preset level shall be 1250kW. Provide a total of two (2) load shed output contacts.

1. The controller shall provide Monitoring Software with the following functionality
    a. Provide access to all data and events on generator set communications network and transmit all, including sub-base fuel levels and fuel consumption to the High School BMS.
    b. Provide interface adapters to convert the generator's data protocol to be compatible with the High School BMS. The generator supplier shall also include software package(s) that will allow all available status points of the generator to be programmed, read, and recorded. The generator data interface shall be a read only interface.
    c. Ability to communicate via Modbus TCP, Modbus RTU or remote modem.
    d. The integrity of the generator remote start circuit(s) shall be continuously monitored for broken, disconnected, or shorted wires.
        1) Loss of integrity of the remote start circuit(s) shall initiate visual and audible annunciation of generator malfunction at the generator local and remote annunciator(s) and start the generator(s).

C. Functional Description: When mode-selector switch on the control and monitoring panel is in the automatic position, remote-control contacts in one or more separate automatic transfer switches initiate starting and stopping of the generator set. When mode-selector switch is switched to the on position, the generator set starts. The off position of the same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down the generator set and initiate alarms. Operation of a remote emergency-stop switch also shuts down the generator set.

D. Manual Starting System Sequence of Operation: Switching on-off switch on the generator control panel to the on position starts generator set. The off position of same switch initiates generator-set shutdown. When generator set is running, specified system or equipment failures or derangements automatically shut down generator set and initiate alarms.

E. Provide minimum run time control set for 15 minutes with override only by operation of a remote emergency-stop switch.

F. Comply with UL 508A.

G. Configuration: Operating and safety indications, protective devices, basic system controls, and engine gauges shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.

H. Indicating and protective devices and controls shall include those required by NFPA 110 for a Level 1 system, and the following:

I. Indicating and Protective Devices and Controls:

1. AC voltmeter: dual scale, 0-600V, 2% accuracy, 2-1/2" diameter.
2. AC ammeter: dual scale, 2% accuracy, 2-1/2" diameter.
3. AC frequency meter: dial type.
4. DC voltmeter (alternator battery charging).
5. Engine-coolant temperature gage.
6. Engine lubricating-oil pressure gage.
7. Engine lube oil temperature.
8. Running-time meter.
   a. Transmit running-time meter data to the system wide BMS system to aid in providing generator operating data required by the State DEEP.
9. Ammeter-voltmeter, phase-selector switch(es).
10. Generator-voltage adjusting rheostat.
11. Upper and lower meter scale indicator lights.
12. Auto/Off/Test switch. Test mode shall automatically start unit without interrupting normal electrical supply.
13. Overspeed shutdown device with LED status indicator which lights when overspeed condition has occurred as cause of shutdown.
14. Coolant high-temperature shutdown device with LED status indicator which lights when pre-alarm operating temperature has been reached and stays lit when shutdown occurs.
15. Coolant low-level shutdown device with LED status indicator which lights when low coolant level causes shutdown.
16. Oil low-pressure shutdown device with LED status indicator which lights when pre-alarm oil pressure condition has been reached and stays lit when shutdown occurs.
17. Overcrank shutdown device with LED status indicator which indicates engine has failed to start after 60 second cranking period.
18. Lamp test switch and audible alarm with silencer switch.
19. Low coolant temperature alarm with LED status indicator which indicates failure of block heater.
20. LED status indicator for "switch off", which indicates when control switch has been placed in "off" position.
21. LED status indicator for "system ready", indicating no malfunctions detected.
22. Fuel tank derangement alarm.
23. Fuel tank high-level shutdown of fuel supply alarm.
24. Generator overload.
25. Start-stop switch.
26. Overspeed shutdown device.
27. Coolant high-temperature shutdown device.
28. Coolant low-level shutdown device.
29. Oil low-pressure shutdown device.

J. Supporting Items: Include sensors, transducers, terminals, relays, and other devices and include wiring required to support specified items. Locate sensors and other supporting items on engine or generator, unless otherwise indicated.

K. Connection to Data Link: A separate terminal block, factory wired to Form C dry contacts, for each alarm and status indication is reserved for connections for data-link transmission of indications to remote data terminals. Data system connections to terminals are covered elsewhere in Division 26.

L. 12 Volt remote annunciator panel: Provide quantity of two (2). Panels shall include lights, audible alarm, alarm switch and lamp test switch, in accordance with NFPA 110, Level 1, to monitor the following conditions:

1. Line power.
2. Generator power.
3. System ready (in auto position).
4. Alarm switch off.
5. Generator switch off.
6. Emergency stop.
7. Engine high-temperature shutdown.
8. Lube-oil low-pressure shutdown.
9. Overspeed shutdown.
10. Remote emergency-stop shutdown.
11. Engine high-temperature prealarm.
12. Lube-oil low-pressure prealarm.
13. Fuel tank, low-fuel level.
14. Low coolant level.
15. Overcrank shutdown.
16. Coolant low-temperature alarm.
17. Control switch not in auto position.
18. Battery-charger malfunction alarm.
19. Battery low-voltage alarm.
20. Battery high voltage alarm.

M. Remote Alarm Annunciator: Labeled LED shall identify each alarm event. Common audible signal shall sound for alarm conditions. Silencing switch in face of panel shall silence signal without altering visual indication. Connect so that after an alarm is silenced, clearing of initiating condition will reactivate alarm until silencing switch is reset. Cabinet and faceplate are surface- or flush-mounting type to suit mounting conditions indicated.

1. Install one annunciator in the High School Main Entry Vestibule and one annunciator in the Middle School Main Entry Vestibule.

N. Enclosure Exterior Remote Emergency Stop Switch: Mounted on exterior of generator enclosure. Glass break type switch within weatherproof enclosure.

2.13 GENERATOR OVERCURRENT AND FAULT PROTECTION

A. General

1. Acceptance of generator overcurrent protective devices will be contingent upon achievement of selective coordination of system including but not limited to elevators per NEC Article 620; Emergency Systems per NEC Article 700 and legally required Standby Systems and components per NEC Article 701.
2. Provide an energy-reducing maintenance switch with local status indicator for all breakers rated 1200 Amp or higher or that can be adjusted to 1200 Amp or higher.

    a. The maintenance switch shall override the coordinated trip settings that may cause a delay in breaker opening during a fault condition while service is being performed on the breaker or distribution sections of the switchboard. The resulting faster breaker opening time will lower the potential arc flash energy available.
    b. Provide alternate means to reduce clearing time and provide arc energy reduction.

        1) Zone selective interlocking.
        2) Differential delaying.
        3) Energy reducing active arc flash mitigation system.

B. The 800 Ampere and 125 Ampere Generator Circuit Breakers: Molded-case, electronic-trip type; 100 percent rated; complying with UL 489; Sq. D. PowerPact family or equal by ABB or Eaton as a minimum. These breakers must be capable of providing WCR/closing rating of the existing ATS's of a minimum of 50,000 RMS symmetrical amperes; SQD Type MH or PJ.

1. Tripping Characteristics: Adjustable long-time pickup and delay, short-time pickup and delay, instantaneous and ground fault pickup INDICATION ONLY if 1,000 amperes or above at 480/277 volts. Instantaneous must have high setting (15 times LTPU) or the capability to be turned off.
2. Trip Settings: Matched to generator thermal damage curve.
3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
4. Mounting: Adjacent to or integrated with control and monitoring panel.

C. 2000 Ampere and 1200 Ampere Generator Circuit Breakers: Insulated-case, electronic-trip type; 100 percent rated; complying with UL 489.

1. Tripping Characteristics: Adjustable long-time pickup and delay, short-time pickup and delay, instantaneous and ground fault pickup INDICATION ONLY if 1,000 amperes or above at 480/277 volts. Instantaneous must have high setting (15 times LTPU) or the capability to be turned off. Breakers shall include energy reduction.
2. Trip Settings: Matched to generator thermal damage curve as closely as possible.
3. Shunt Trip: Connected to trip breaker when generator set is shut down by other protective devices.
4. Mounting: Adjacent to or integrated with control and monitoring panel.

D. The 125A and 1200A circuit breakers shall be provided in Nema 3R enclosures for exterior mounting in the field.

E. Generator Protector: Microprocessor-based unit that continuously monitors current level in each phase of generator output, integrates generator heating effect over time, and predicts when thermal damage of the alternator will occur. When signaled by the protector or other generator-set protective devices, a shunt-trip device in the generator disconnect switch shall open the switch to disconnect the generator from the load circuits. Protector shall perform the following functions:

1. Initiates a generator overload alarm when the generator has operated at an overload equivalent to 110 percent of full-rated load for 60 seconds. Indication for this alarm is integrated with other generator-set malfunction alarms.
2. Under single or three-phase fault conditions, regulates the generator to 300 percent of rated full-load current for up to 10 seconds.
3. As the overcurrent heating effect on the generator approaches the thermal damage point of the unit, the protector switches the excitation system off, opens the generator disconnect device, and shuts down the generator set.
4. Senses clearing of a fault by other overcurrent devices and controls recovery of rated voltage to avoid overshoot.

F. Ground-Fault Indication: Comply with NFPA 70, Article 700.7(D). Integrate ground-fault alarm indication with other generator-set alarm indications.

G. Provide generator OPD with one N.C. and one N.O. contact indicating breaker status. This status indication shall signal an alarm to the remote annunciator panel to indicate a “Generator Output Breaker Open” alarm. The remote annunciator panel shall be equipped with a single summary alarm wired to the building BMS system indicating a “Generator Trouble” alarm.

2.14 GENERATOR, EXCITER, AND VOLTAGE REGULATOR

A. Comply with NEMA MG 1 and specified performance requirements.

B. Drive: Generator shaft shall be directly connected to engine shaft. Exciter shall be rotated integrally with generator rotor.

C. Electrical Insulation: Class H or Class F.

D. Stator-Winding Leads: Brought out to terminal box to permit future reconnection for other voltages if required.

E. Construction shall prevent mechanical, electrical, and thermal damage due to vibration, overspeed up to 125 percent of rating, and heat during operation at 110 percent of rated capacity.

F. Excitation shall use no slip or collector rings, or brushes, and shall be arranged to sustain generator output under short-circuit conditions as specified.

G. Enclosure: Drip-proof.

H. Instrument Transformers: Mounted within generator enclosure.

I. Voltage Regulator: Solid-state type, separate from exciter, providing performance as specified.

1. Adjusting rheostat on control and monitoring panel shall provide plus or minus 5 percent adjustment of output-voltage operating band.
2. Provide with under-frequency protection and moisture-resistive protection.
3. Regulation shall be within +/-2% of rated voltage from no load to full load.
4. On application of rated load at rated power factor, instantaneous voltage dip shall NOT exceed 20%, with recovery within one second.

J. Strip Heater: Thermostatically controlled unit arranged to maintain stator windings above dew point.

K. Windings: Two-thirds pitch stator winding and fully linked amortisseur winding.

L. Subtransient Reactance: 12 percent, maximum.

M. Provide Permanent Magnet Generator (PMG) system.

N. Alternator shall be self-ventilated, one-piece cast aluminum alloy, uni-directional internal fan shall provide high volume, low noise air delivery with broad range, 12-lead reconnectable, four pole rotating field unit.

O. Temperature rise shall be within NEMA MG1-22.40, IEEE and ANSI Standards for standby duty at rated output.

P. Provide front-end mounted junction box for load connections. Junction box shall have space to mount regulator and voltage adjust rheostat inside box and to relocate same to opposite side without unit modification.

2.15 OUTDOOR GENERATOR-SET ENCLOSURE – SKIN TIGHT TYPE

A. Description: Vandal-resistant, weatherproof steel housing, wind resistant up to 100 mph (160 km/h). Multiple panels shall be lockable and provide adequate access to components requiring maintenance including rear-hinged control panel door. Panels shall be removable by one person without tools. Instruments and control shall be mounted within enclosure.

1. Provide locking hasps (keyed alike) on engine side panels and control door.
2. Hinged Doors: With padlocking provisions.
3. Thermal Insulation: Manufacturer's standard materials and thickness selected in coordination with space heater to maintain winter interior temperature within operating limits required by engine-generator-set components.
4. Muffler Location: Within enclosure.

5. Enclosure Panelboard: NEMA 3R panel external to enclosure, serving lights, receptacles, heaters, controls, battery charger and devices within enclosure. All electrical components and devices served by the enclosure panelboard shall be factory prewired and field wired to this panelboard. Enclosure panelboard may only serve equipment that serves the EPSS within the generator enclosure.
6. Sound level of 79 dBA at 25 feet (minimum 25 DB attenuation) or level to comply with local requirements at the property line, whichever is more restrictive.
7. Enclosure can be up to 376” long x 122” wide x 198” high, including generator, silencer and fuel tank.

B. Engine Cooling Airflow through Enclosure: Maintain temperature rise of system components within required limits when unit operates at 110 percent of rated load for 2 hours with ambient temperature at top of range specified in system service conditions.

1. Louvers: Fixed-engine cooling-air inlet and discharge. Storm-proof and drainable louvers prevent entry of rain and snow.
2. Automatic Dampers: At engine cooling-air inlet and discharge. Dampers shall be closed to reduce enclosure heat loss in cold weather when unit is not operating.

C. Interior Lights with Switch: Factory-wired, vapor-proof type fixtures within housing; arranged to illuminate controls and accessible interior.

D. Generator Access Platform: Prefabricated Code compliant heavy duty working platform along both sides of generator**.** Platform shall extend uninterrupted along each entire side of Generator assembly for service access**.** Platform to include:

1. 48” wide, steel frames (or larger to accommodate door swing) with 1” aluminum bar grate platform with OSHA compliant railings minimum of 42” high with posts top and mid railing of 1-1/2” schedule 40 pipe.
2. Leg height to set platform at base of enclosure, above fuel tank.
3. Final dimensions of platform to be based on dimensions of approved generator and sub-base fuel tank.
4. Stair systems shall be designed for installation outdoors, with 1” aluminum bar grate in accordance with U.S. OSHA Standard for Fixed Industrial Stairs, 29 CFR 1910.24. Stair assembly to be attached to end of each platform.
5. Guards and handrails shall be painted safety yellow.

2.16 FINISHES

A. Indoor and Outdoor Enclosures and Components: Manufacturer's standard enamel over corrosion-resistant pretreatment and compatible standard primer.

2.17 SOURCE QUALITY CONTROL

A. Prototype Testing: Factory test engine-generator set using same engine model, constructed of identical or equivalent components and equipped with identical or equivalent accessories.

1. Tests: Comply with NFPA 110, Level 1 energy converters.
2. Generator Tests: Comply with IEEE 115.
3. Test Components and Accessories: Items furnished with installed unit that are not identical to those on tested prototype shall have been factory tested to demonstrate compatibility and reliability.
4. Test generator, exciter and voltage regulator as a unit.

B. Project-Specific Equipment Tests: Before shipment, factory test engine-generator set and other system components and accessories manufactured specifically for this Project. Perform tests at rated load and power factor. Include the following tests:

1. Full load run.
2. Maximum power.
3. Voltage regulation.
4. Transient and steady-state governing.
5. Single-step load pickup.
6. Safety shutdown.
7. Observation of Factory Tests: Provide 14 days' advance notice of tests and opportunity for observation of tests by Owner's representative.

C. Report factory test results within 10 days of completion of test.

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect**,** test and adjust field-assembled components and equipment installation, including connections, and to complete in field testing. Report results in writing.

B. The factory-authorized service representative shall perform the following field tests and inspections and prepare test reports: Furnish required materials, equipment and services to perform on-site tests, in presence of Architect and Owner, to demonstrate system operation. Correct defects and re-test system until proper operation is guaranteed. Materials and equipment shall include: temporary power and wiring; temporary cooling; 480 Volt, 1500 KW, infinitely variable, outdoor load bank and operator; monitoring devices; etc.

1. Perform each electrical test and visual and mechanical inspection according to current Edition of ANSI/NETA Standards for Acceptance Testing as outlined in Section 7 (except for vibration baseline test). Certify compliance with test parameters. Tests shall be conducted by applying load (via load bank) to load side of automatic transfer switch or to other load point acceptable to Engineer. Test shall include a minimum of four hours operating at 100% rated load.
2. Perform tests recommended by manufacturer.
3. NFPA 110 Acceptance Tests: Perform tests required by NFPA 110 that are additional to those specified here including, but not limited to, the following:

a. Single-step full-load pickup test.

4. Battery Tests: Equalize charging of battery cells according to manufacturer's written instructions. Record individual cell voltages.

   a. Measure charging voltage and voltages between available battery terminals for full-charging and float-charging conditions. Check electrolyte level and specific gravity under both conditions.
   b. Test for contact integrity of all connectors. Perform an integrity load test and a capacity load test for the battery.
   c. Verify acceptance of charge for each element of the battery after discharge.
   d. Verify that measurements are within manufacturer's specifications.

5. Battery-Charger Tests: Verify specified rates of charge for both equalizing and float-charging conditions.
6. System Integrity Tests: Methodically verify proper installation, connection, and integrity of each element of engine-generator system before and during system operation. Check for air, exhaust, and fluid leaks.
7. Exhaust-System Back-Pressure Test: Use a manometer with a scale exceeding 40-inch wg (120 kPa). Connect to exhaust line close to engine exhaust manifold. Verify that back pressure at full-rated load is within manufacturer's written allowable limits for the engine.
8. Exhaust Emissions Test: Comply with applicable government test criteria.
9. Voltage and Frequency Transient Stability Tests: Use recording oscilloscope to measure voltage and frequency transients for 50 and 100 percent step-load increases and decreases, and verify that performance is as specified.
10. Harmonic-Content Tests: Measure harmonic content of output voltage under 25 percent and at 100 percent of rated linear load. Verify that harmonic content is within specified limits.
11. Noise Level Tests: Measure A-weighted level of noise emanating from generator-set installation, including engine exhaust and cooling-air intake and discharge, at four locations on the property line, and compare measured levels with required values.

C. Coordinate tests with tests for transfer switches and run them concurrently. There are multiple transfer switches in the two buildings that must be individually tested to confirm any one of these transfer switches will start the generator and provide generator power to the load.

1. Test each transfer switch operation by opening its normal power feeder breaker.

D. Load Management Operation: Demonstrate proper operation of the Load Management system.

1. Engage the 2000 Ampere Automatic Transfer switch to start the generator and transfer to generator power.
2. Increase the load via Loadbank to 1250kW and confirm the BMS signals one of the chillers to shutdown.
3. Lower the load via Loadbanks to less than 1250kW and confirm the BMS signals the chiller to restart.

E. Test instruments shall have been calibrated within the last 12 months, traceable to standards of the National Institute for Standards and Technology, and adequate for making positive observation of test results. Make calibration records available for examination on request.

F. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.

G. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.

H. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

I. Remove and replace malfunctioning units and retest as specified above.

J. Retest: Correct deficiencies identified by tests and observations and retest until specified requirements are met.

K. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation resistances, time delays, and other values and observations. Attach a label or tag to each tested component indicating satisfactory completion of tests.

L. Infrared Scanning: After Substantial Completion, but not more than 60 days after final acceptance, perform an infrared scan of each power wiring termination and each bus connection while running with maximum load. Remove all access panels, so terminations and connections are accessible to portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies terminations and connections checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.2 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

B. Inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.

C. Complete installation and startup checks according to manufacturer's written instructions.

3.3 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain packaged engine generators. Refer to Division 1.

1. Coordinate this training with that for transfer switches.

END OF SECTION 263213

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SECTION 312300 – EXCAVATION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Provide all labor, tools, materials, equipment and incidentals required to perform the work called for in this Section of the Specifications, including, but not necessarily limited to, the following:

1. The Contractor shall make all earth excavations and rock excavations, including removal of existing pavements, road base, curbs, walks, and abandoned pipes and structures encountered, as required for the proper completion of the work included under this Contract, and shall dispose of all unsuitable excavated materials as specified herein.
2. The excavation shall include saw cutting of pavements and sidewalks, removal, handling, stockpiling and disposal of any and all materials encountered within the limits of the work, and shall include all pumping, bailing, draining, sheeting, shoring, coffer damming and protection therefore.
3. The excavation of test pits as directed by the Engineer or Owner, or as required during construction to determine the location and depth of existing utilities, tanks, structures, etc.

B. Comply with ConnDOT Form 818 Article 2.05.01.

PART 2 - SUBMITTALS

2.1 DESIGN DRAWINGS

A. Prepare and submit the following design drawings. All design drawings shall be signed and sealed by an engineer registered in the State of Connecticut:

Excavation Plan - The excavation plan shall outline the methods and procedures that the Contractor will employ to successfully stabilize excavations, as required to construct the work. At a minimum, the excavation plan shall make provisions to support the existing on-site buildings and structures, and all adjacent building foundations.

1. Excavation Dewatering Plan - The excavation dewatering plan shall outline the methods and procedures that the Contractor will employ to successfully dewater excavation and dispose of the dewatering wastewater, including measures for erosion control and sediment removal.

2.2 MATERIALS:

A. "Earth Excavation" shall consist of all materials, with the exception of rock, removed as indicated or directed from within the excavation limit lines.

B. "Rock Excavation" – Rock Excavation shall be:

1. Rock in definite ledge formation.
2. Boulders, portions of boulders, cement-masonry structures or concrete structures, each discrete object a minimum of one cubic yard or more in volume.
3. Note: Pieces of concrete sidewalk shall not be included in Rock Excavation,but included in Earth Excavation.

PART 3 - EXECUTION

3.1 PAVEMENT AND CONCRETE SIDEWALK SAW CUTTING

A. Saw cut existing pavement and existing concrete sidewalks as required for new construction.

3.2 EXCAVATION

A. Structure excavation shall conform to Section 2.03 of ConnDOT Form 818.

B. Pavement, driveways, curbs and sidewalks shall be cut as required with a pneumatic tool or saw, removed, and disposed of by the Contractor.

C. If the bottom of any excavation is taken out beyond the limits indicated or prescribed, the resulting void shall be backfilled at the Contractor's expense with thoroughly compacted, suitable backfill material as described in Section 02-240, Compacted Granular Fill.

D. All suitable material removed in making the excavation shall be used for backfill where required. All surplus or unsuitable material shall be removed and disposed of by the Contractor. Suitable material is specified under Section 02-240, Compacted Granular Fill.

E. The Contractor shall note that there may be other existing utilities in close proximity to the work. These utilities have been indicated on the drawings, but the completeness or accuracy of the information given is not guaranteed. It is the Contractor's responsibility to make himself aware of these locations and to contact Call-Before-You-Dig prior to any excavation.

F. As the excavation approaches pipes, conduits or other underground structures, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools. Such manual excavation, when incidental to normal excavation, shall be included in the work to be done under items involving normal excavation.

G. Where determination of the exact location of pipe or other underground structure is necessary for doing the work properly, the Contractor may be required to excavate test pits to determine such locations, at no extra cost to the Owner.

H. Until final acceptance of the work, the Contractor shall pump out, or otherwise remove and dispose of as fast as it may collect, any water or other liquids which may be found or may accumulate in the excavations. Perform this in full conformance with their approved Excavation Dewatering Plan.

I. There shall be upon the work at all times during the construction, proper and approved machinery of sufficient capacity (including spare units kept ready for immediate use in case of breakdowns) to meet the maximum requirements for the removal of the water or other liquids and their disposal in such a manner as not to withdraw sand or cement from the concrete and so as not to interfere with the proper laying of pipe and/or masonry, or the prosecution of work under this or other contract, nor endanger existing structures.

J. All existing walks, pipes, conduits, poles, wires, fences, stairways, curbing, property line markers, walls, buildings and other structures which do not, in the opinion of the Engineer, require to be changed in location, shall be carefully supported and protected from injury by the Contractor without additional compensation, and in case of injury, they shall be restored by him without compensation therefor, to as good condition as that in which they were found.

K. Tree roots shall not be mutilated, nor shall they be cut, except by permission of the Engineer. When permitted to cut tree roots, the ends shall be cut off smooth, without splitting or shattering. The trunks of the trees shall be carefully protected from damage, and if unavoidable damage occurs, the injured portions shall be neatly trimmed and covered with an application of grafting wax or other approved preparation. Power driven excavation machinery shall be handled with care to prevent damage to shade trees, particularly to overhanging branches, and branches shall not be cut off except by special permission of the Engineer.

L. The Contractor shall, at his own expense, dig up, handle, protect and properly reset hedges, small trees, shrubbery, signs, posts, guard rails, curbing other than bituminous and the like along the line of or adjacent to the work, and shall take all reasonable care in this work not to disturb any object that can be saved in its existing condition.

3.3 TEST PITS

A. The Contractor shall conduct test pits in locations directed by the Engineer or Owner, to provide more exact locations on existing utility or drainage infrastructure, or other items of interest to the Engineer. Included in these test pits will be saw-cutting of pavement (if in paved areas), traffic control where required, bracing of excavations as required, pumping of water as required, backfilling the test pit with materials removed during excavation, and placement of compacted gravel fill on the top 12” of the test pit.

END OF SECTION 312300

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SECTION 320516 – COMPACTED GRANULAR FILL

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Provide all labor, tools, materials, equipment and incidentals required to perform the work called for in this Section of the Specifications, including, but not necessarily limited to, the following:

B. The placement and compaction of granular fill for use as:

1. As replacement for unsuitable soil removed during excavation
2. Structure backfill as designated on the construction drawings.
3. Trench backfill, once all suitable material that was excavated has been previously utilized.
4. In other areas as designated on the Contract drawings, in these Contract specifications or as directed by the Engineer.

PART 2 - MATERIALS

2.1 COMPACTED GRANULAR FILL

A. Compacted Granular Fill shall conform to the requirements of Article M.02.02, ConnDOT Form 818. Admixtured and surface protective materials used to prevent the Gravel from freezing, must meet the approval of the Engineer.

B. Compacted Granular Fill used as trench backfill shall conform to M.02.01 of ConnDOT Form 818.

C. Compacted Granular Fill used under concrete pads shall conform to M.02.01 of ConnDOT Form 818, Grading A.

PART 3 - EXECUTION

3.1 SAMPLING

A. Submit one-gallon sample of Granular fill material, certified sieve sample of Granular fill material, proctor test results from a certified testing lab, along with location of proposed source to Engineer for approval.

B. Construction involving compacted Granular fill shall be in accordance with Section 2.14.03, ConnDOT Form 818.

C. Granular fill shall be compacted in no greater than 12" lifts.

D. The Contractor shall compact Granular fill until the dry density for each layer is not less than 95 percent of the dry density achieved by AASHTO T180, Method D. A minimum of one compaction test is required for each structure. Where compaction tests fail, the Contractor shall be required to recompact the soil or remove the soil and replace with more suitable material. Notify the Engineer a minimum of three days prior to requiring compaction testing. All compaction testing shall be conducted by and paid for by the Contractor.

END OF SECTION 320516

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SECTION 321200 – PERMANENT PAVEMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Provide all plant, materials, supplies, power, machinery, equipment, tools, superintendence, labor, overhead, profit, insurance, bonds, permits, shop drawings, design services (where required), and other services and accessories required to complete the work of this Section. The work of this Section includes:

B. Construction staking of all roadways. Comply with ConnDOT Form 818, Article 9.80.01.

C. Removal of select bituminous pavement and pavement base materials where shown on the plans.

D. The production, delivery, placement, and compaction of a uniform textured, non-segregated, smooth bituminous concrete pavement (including tack coats) to the grade and cross section shown on the plans. Comply with ConnDOT Form 818, Article 4.06.01.

E. Placing of Pavement Markings, symbols and legends to replace existing pavement markings.

1.2 RELATED DOCUMENTS

A. ConnDOT Form 818.

1.3 SUBMITTALS

A. Submit weight slips during delivery of pavement.

B. Epoxy Resin Pavement Marking Paint

C. Product Test Data

1. Submit product test data to the Engineer for the following items. All tests shall be conducted by a qualified material testing laboratory and sealed by a licensed professional engineer in the State of Connecticut.
2. Submit batch plant certifications for all pavement types.
3. Density test results taken at mixing plant on the day of manufacture.

1.4 PROJECT / SITE CONDITIONS

A. Immediately repair damaged or settled trench patch on roadways, as directed by the Inspector or Owner.

1.5 SEQUENCING

A. The contractor shall complete all subsurface work prior to completing the work described in this section.

B. Clean roadway, apply tack coat between layers, and place Surface Course.

PART 2 - PRODUCTS

2.1 PROCESSED AGGREGATE BASE

A. Comply with ConnDOT Form 818, Section 3.04.02 and M.05.01.

2.2 BITUMINOUS CONCRETE

A. Base Course: Use (Hot Mix Asphalt) HMA S1 bituminous concrete. Comply with ConnDOT Form 818, Article 4.06.02.

B. Surface Course: Use (Hot Mix Asphalt) HMA S0.5 bituminous concrete. Comply with ConnDOT Form 818, Article 4.06.02.

2.3 TACK COAT

A. Comply with ConnDOT Form 818, M.04.01, Part 5.

2.4 PAVEMENT MARKINGS, SYMBOLS AND LEGENDS

A. Comply with ConnDOT Form 818, Article 12.10. Paint shall comply with ConnDOT Form 818, Article M.07.22 for Epoxy Resin Pavement Markings, Symbols and Legends. Complete roadway markings, and stop bars as shown on the plans, or directed by the Engineer or Town.

PART 3 - EXECUTION

3.1 PREPARATION

A. Saw cut and remove all pavement designed for replacement.

B. Prepare final pavement-subgrade. Prepare final subgrade and dispose of all existing pavement.

3.2 BITUMINOUS CONCRETE

A. Place tack coat on all existing bituminous-concrete faces. Comply with ConnDOT Form 818, Article 4.06.03.

B. Place permanent bituminous concrete within the limits shown on the drawings. Match pavement grades shown on the Plans. Pavement Base Course to be 2" thick after compaction. Pavement Surface Course to be 1 ½" thick after compaction. Comply with ConnDOT Form 818, Article 4.06.03.

3.3 PAVEMENT MARKINGS, SYMBOLS AND LEGENDS

A. Comply with ConnDOT Form 818, Article 12.10.03

B. Replace existing pavement markings with new markings

END OF SECTION 321200

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SECTION 329219 – GRASS SURFACE RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

1. ConnDOT Form 818- State of Connecticut, Department of Transportation, Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, 2022.

1.2 SCOPE OF WORK

1. The scope of work in this Section includes the following items:

2. Furnish and place topsoil in areas designated on the Contract Drawings. Comply with ConnDOT Form 818, Article 9.44.01.

3. Establish turf in areas designated in the Contract Drawings. Comply with ConnDOT Form 818, Article 9.50.01. Erosion control matting is not required.

1.3 RELATED DOCUMENTS

1. ConnDOT Form 818.

1.4 SUBMITTALS

1. Material certification for topsoil.

2. Material certifications for grass seed, lime, fertilizer, and mulch.

1.5 PROJECT / SITE CONDITIONS

1. No special conditions apply.

1.6 SEQUENCING

1. Regrade areas disturbed by construction activities and establish turf immediately upon completion of subsurface construction.

PART 2 - PRODUCTS

2.1 GRASS SURFACE RESTORATION

1. Topsoil: Comply with ConnDOT Form 818, Article 9.44.02.
2. Turf Establishment: Comply with ConnDOT Form 818, Article 9.50.02.

PART 3 - EXECUTION

3.1 GRASS SURFACE RESTORATION:

1. Topsoil: Comply with ConnDOT Form 818, Article 9.44.03.
2. Turf Establishment: Comply with ConnDOT Form 818, Article 9.50.03.

END OF SECTION 329219

TOWN OF HEBRON

REGIONAL SCHOOL DISTRICT 8

85 WALL ST,
HEBRON, CT 06248

EMERGENCY ELECTRICAL GENERATOR SYSTEM
RHAM MIDDLE AND HIGH SCHOOL

CONCRETE PAD AND UNDERGROUND ELECTRICAL CONDUITS
AND CONDUCTORS INSTALLATION
LOAD, DELIVER, PLACE AND ACTIVATE EMERGENCY ELECTRIC GENERATOR

PHASE I

SEPTEMBER 26, 2025

TOWN OF HEBRON PROJECT BID #2026-04
VANZELM PROJECT # 2023159.01

VANZELM ENGINEERS
VAN ZELM HEYWOOD & SHADFORD, INC.

CT: 860.284.5064 MA: 617.218.9976 NC: 704.799.7275
10 TALCOTT NOTCH, FARMINGTON, CT 06032 - 1800
Connecticut | Massachusetts | North Carolina

DRAWING LIST

COVER SHEET

CIVIL

V1-01	CIVIL SITE PLAN - EXISTING CONDITIONS
C1-01	CIVIL SITE PLAN - PROPOSED GENERATOR PAD
C1-02	CONCRETE PAD SECTIONS

ELECTRICAL

E001	ELECTRICAL LEGENDS AND GENERAL NOTES
EOA100	HIGH SCHOOL AND MIDDLE SCHOOL ELECTRICAL LOCATOR AND LOGISTICS PLANS
EOA101	HIGH SCHOOL AND MIDDLE SCHOOL ELECTRICAL STAIRWELL DETAILS
ESUD100	ELECTRICAL EXISTING CONDITIONS AND SITE UTILITIES DEMOLITION PLAN
ESU100	ELECTRICAL SITE UTILITIES NEW WORK PLAN
ESU101	ELECTRICAL ENLARGED SITE UTILITIES NEW WORK PLAN
E301	HIGH SCHOOL ELECTRICAL ONE-LINE RISER DIAGRAM
E302	ELECTRICAL SCHEDULES AND DETAILS

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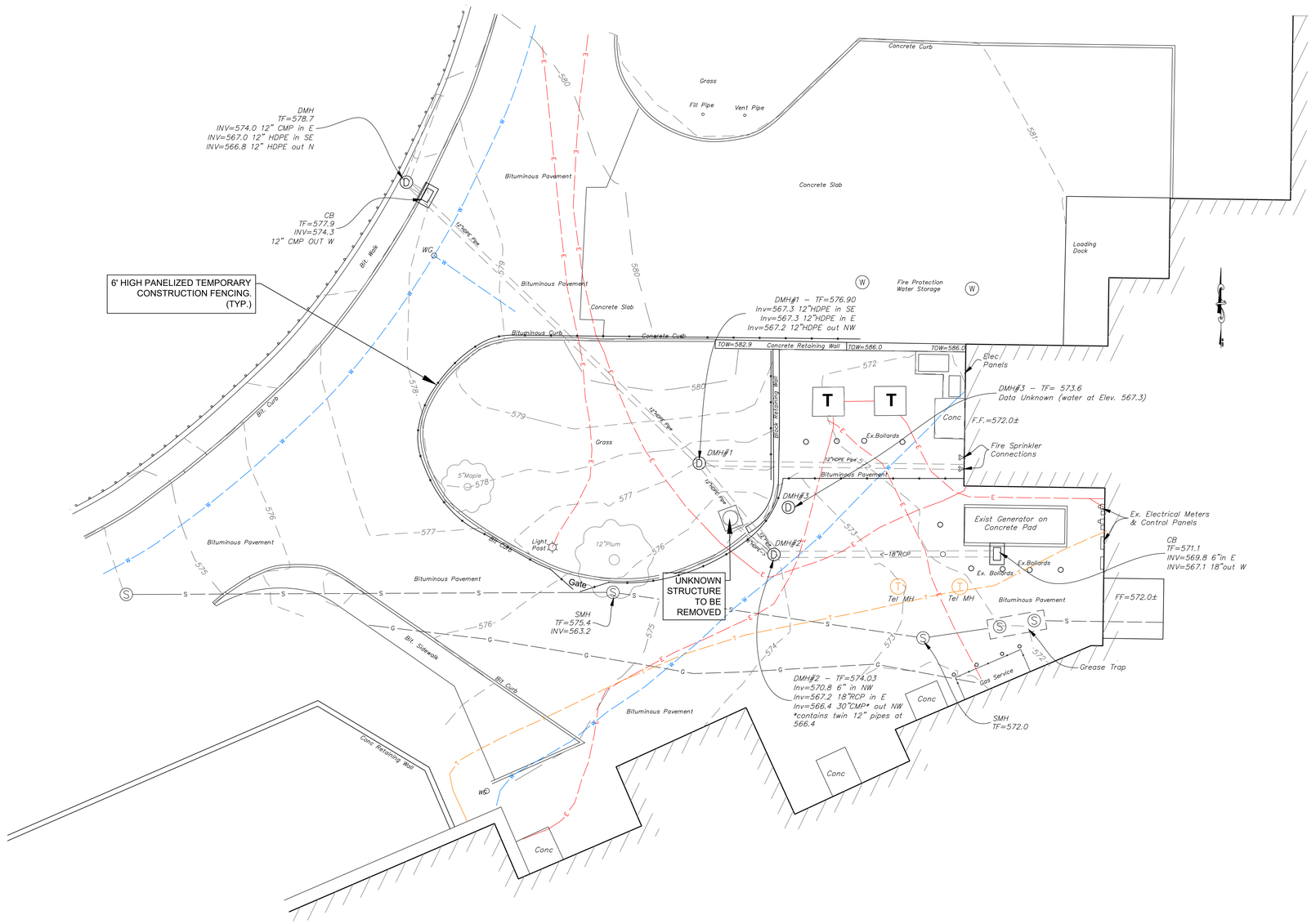
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INV=574.0 12" CMP in E
INV=567.0 12" HDPE in SE
INV=566.8 12" HDPE out N
CB
TF=577.9
INV=574.3
12" CMP OUT W
6' HIGH PANELIZED TEMPORARY CONSTRUCTION FENCING. (TYP.)
UNKNOWN STRUCTURE TO BE REMOVED
Bituminous Pavement
Concrete Slab
Concrete Curb
Grass
Fill Pipe
Vent Pipe
Loading Dock
Fire Protection Water Storage
Bituminous Curb
Concrete Curb
Concrete Retaining Wall
TOW=582.9
TOW=586.0
TOW=586.0
Block Retaining Wall
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Inv=567.3 12"HDPE in E
Inv=567.2 12"HDPE out NW
DMH#1
DMH#2
DMH#3
DMH#3 – TF= 573.6
Data Unknown (water at Elev. 567.3)
Elec/ Panels
Conc
F.F.=572.0±
Ex.Bollards
Fire Sprinkler Connections
12"HDPE Pipe
Exist Generator on Concrete Pad
Ex. Electrical Meters & Control Panels
CB
TF=571.1
INV=569.8 6"in E
INV=567.1 18"out W
<-18"RCP
Ex. Bollards
Tel MH
Tel MH
FF=572.0±
Gate
Light Post
5"Maple
12"Plum
SMH
TF=575.4
INV=563.2
Bit. Curb
Bit. Sidewalk
Bit. Curb
Conc Retaining Wall
DMH#2 – TF=574.03
Inv=570.8 6" in NW
Inv=567.2 18"RCP in E
Inv=566.4 30"CMP* out NW
*contains twin 12" pipes at 566.4
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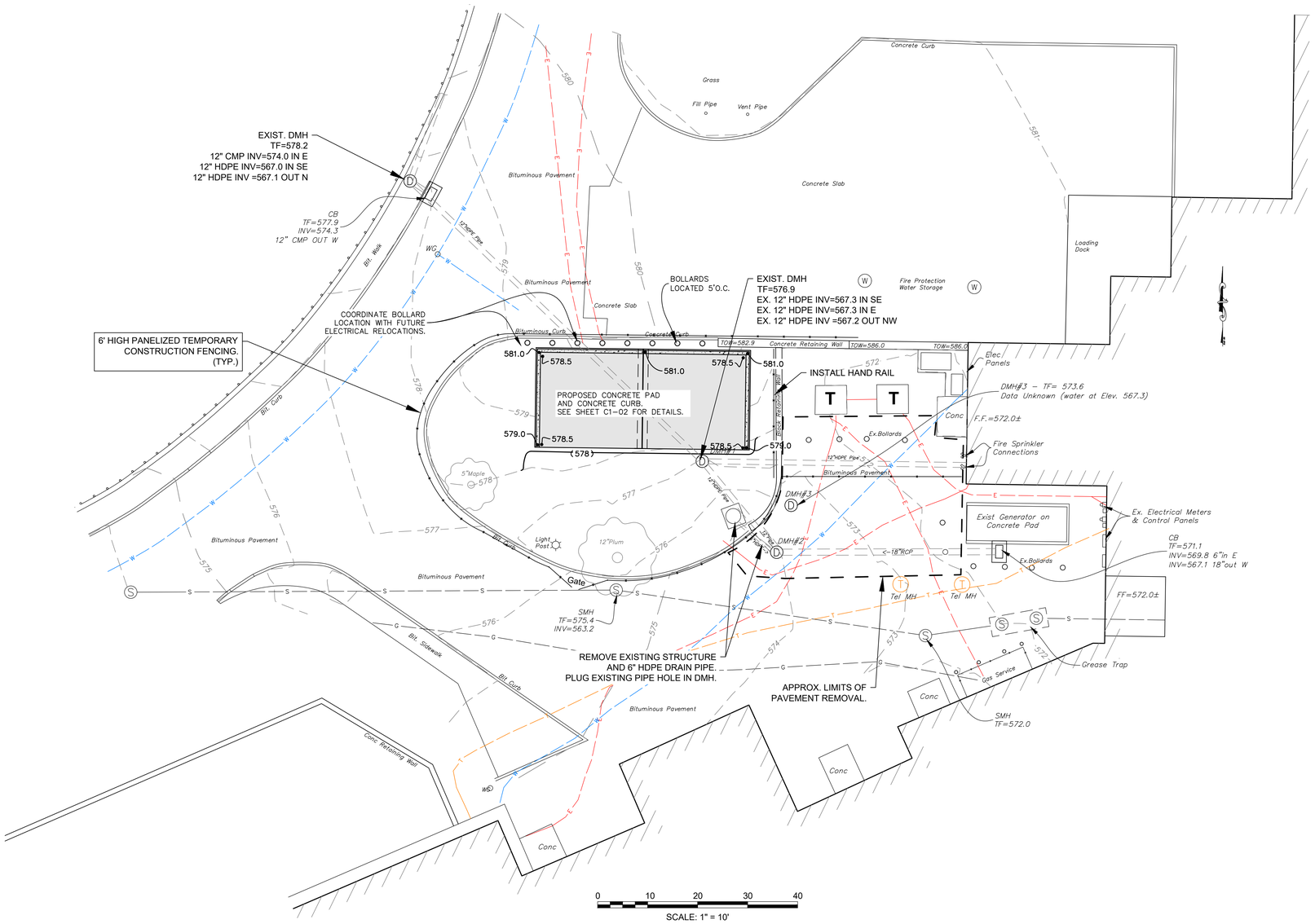
Grease Trap
SMH
TF=572.0
Conc
Conc
Conc
Bituminous Pavement
Bituminous Pavement
Bituminous Pavement



NOTES:

1. TOPOGRAPHIC SURVEY PERFORMED BY HALEY WARD ON 7/10/2024, UTILIZING SURVEY GRADE GEOGRAPHIC POSITIONING SYSTEM ROVER EQUIPMENT.
2. HORIZONTAL DATUM BASED ON NORTH AMERICAN DATUM 1983 (NAD83).
3. VERTICAL DATUM BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NGVD88)
4. UNDERGROUND UTILITIES LOCATION AND DEPTH MARKED ON 9/6/2024 UTILIZING GROUND PENETRATING RADAR EQUIPMENT.
5. UNDERGROUND UTILITY PAINT MARKS SURVEYED BY HALEY WARD on 9/9/2024 UTILIZING SURVEY GRADE GPS ROVER EQUIPMENT.
6. REFER TO ELECTRICAL DRAWINGS AND APPROVED SHOP DRAWINGS FOR COORDINATION OF THE LOCATION OF CONDUITS THAT WILL BE PENETRATING THE CONCRETE PADS FOR THE NEW GENERATOR, NEW HIGH SCHOOL (HS-MSB-ATS) AND MIDDLE SCHOOL (MS-MSB-ATS) SWITCHGEAR

LEGEND

- Exist. Ground Contour
- Prop. Ground Contour
- Prop. Concrete Pad
- Prop. Concrete Retaining Wall
- E — Exist. Underground Electric Line
- Prop. Underground Electric Line
- Exist. Light Post
- T — Exist. Underground Telecommunications Line
- Exist. Telephone Manhole
- W — Exist. Water Line
- G — Exist. Gas Main
- S — Exist. Sanitary Sewer Line
- Exist. Sanitary Sewer Manhole
- Exist. Drainage Line
- Exist. Drainage Manhole
- Temp. Construction Fence
- Pavement Removal Limits

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MAYNARD, MASS 01754
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PROJECT NAME:
RHAM HIGH AND MIDDLE SCHOOL EMERGENCY ELECTRICAL GENERATOR SYSTEM REPLACEMENT

REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN

REVISIONS

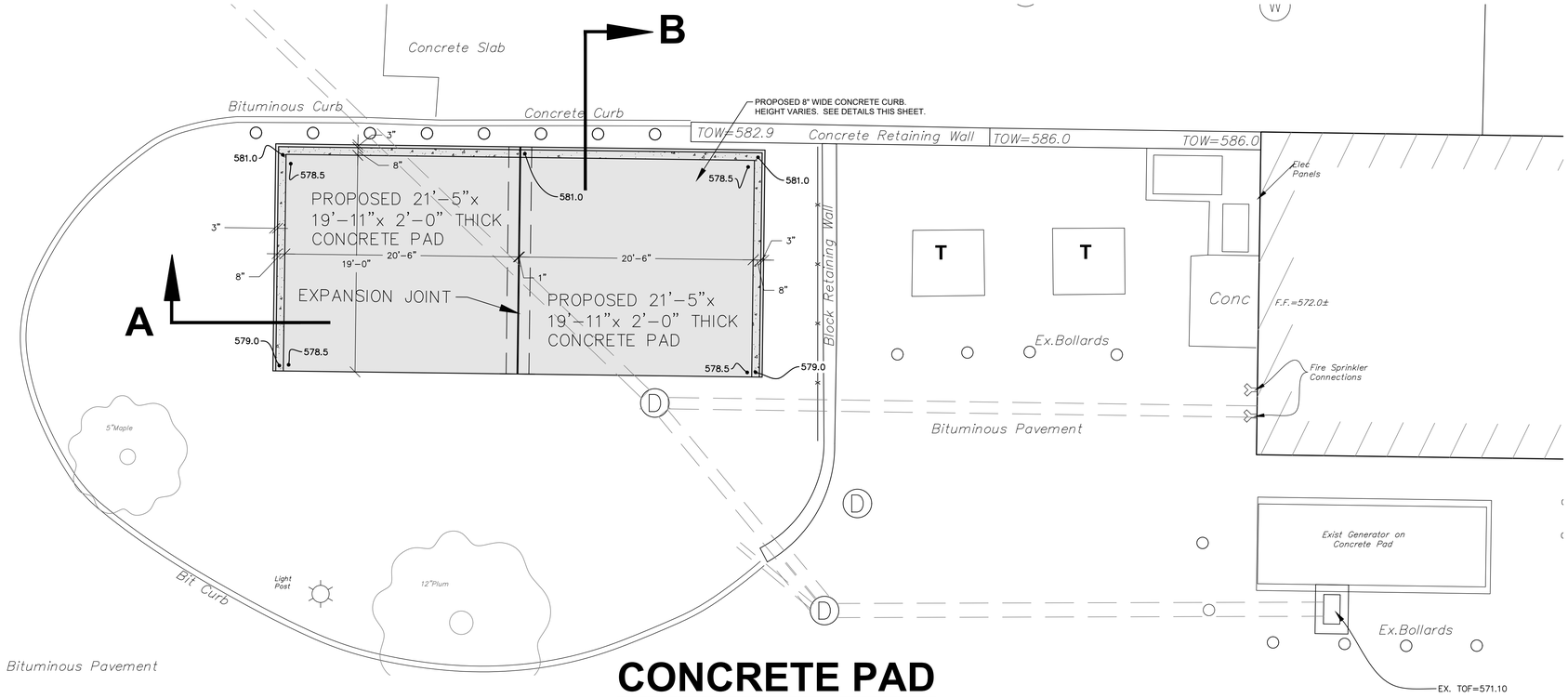
REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
CIVIL SITE PLAN
PROPOSED GENERATOR PAD

DATE: 09/26/2025
DRAWN BY: KLD
CHECKED BY: JEE
SCALE: 1"=10'
PROJ #: 2023159.01

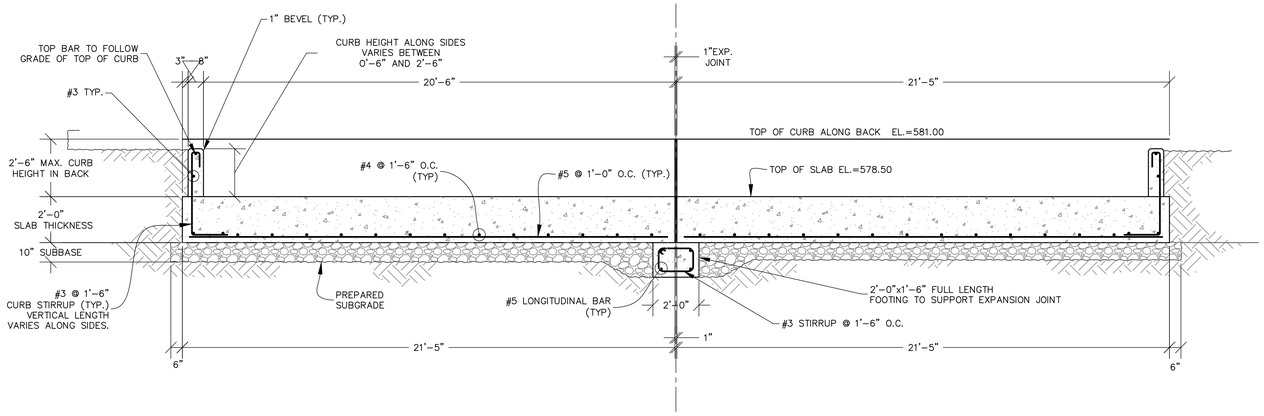
DRAWING NUMBER:
PHASE I
C1-01

File Name:Civil Site Ph 1.dwg 9/29/2025 11:04:53 AM User ID: Kevin DaRos
File Path: P:\CT\401\0198 - Van Zelm Engineers\198.24001 RHAM H.S. Civil Design - JEE\02-CAD_Files\Production Drawings



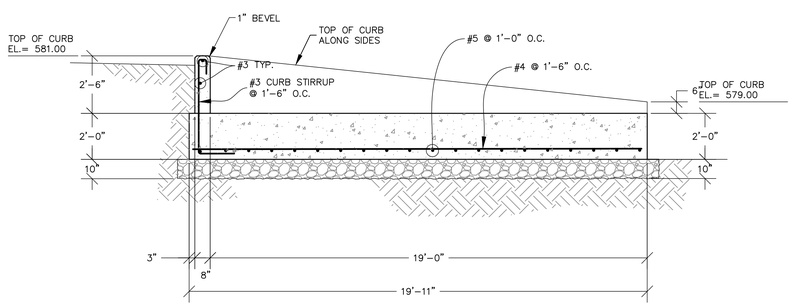
CONCRETE PAD

SCALE: 1" = 5'-0"



SECTION A

SCALE: 3/8" = 1'-0"



SECTION B

SCALE: 3/8" = 1'-0"

CONCRETE PAD TECHNICAL SPECIFICATIONS

1. *ALL REFERENCES ARE MADE TO THE STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION, FORM 818, 2020"*
2. CONCRETE TO BE PORTLAND CEMENT CONCRETE FOR PAVEMENT, 4,000 PSI 28 DAY STRENGTH, AS SPECIFIED IN SECTION M.03.01.
3. BAR REINFORCEMENT SHALL BE ASTM A 615, GRADE 60, BLACK REBAR, AS SPECIFIED IN SECTION M.06.01.1.
4. ALL CONCRETE COVER OVER REINFORCEMENT TO BE 2 ½ INCHES MIN.
5. SUBBASE SHALL BE AS SPECIFIED IN SECTION M.02.02.

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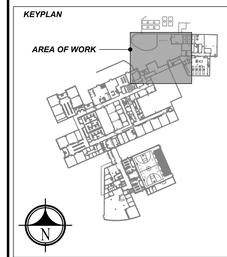

REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
CONCRETE PAD SECTIONS

DATE: 09/26/2025
DRAWN BY: KLD
CHECKED BY: JEE
SCALE: AS NOTED
PROJ #: 2023159.01

DRAWING NUMBER:
PHASE I
C1-02

File Name: Civil Site Ph 1.dwg
File Path: P:\CT\40\10198 - Van Zelm Engineers\198.24001 RHAM H.S. Civil Design - JEE\02-CAD_Files\Production Drawings
9/26/2025 11:06:02 AM User ID: Kevin DaRos

GENERAL SITE ELECTRICAL NOTES

A. PRIOR TO ANY EXCAVATION, CALL 811 "CALL BEFORE YOU DIG" TO NOTIFY AFFECTED UTILITIES.

B. ALL TRENCHING AND BACKFILLING SHALL BE PROVIDED BY DIVISION 2.

C. ALL CONCRETE PADS ARE PROVIDED BY DIVISION 3.

D. CONTRACTOR SHALL VERIFY ALL EXISTING SERVICE LOCATIONS.

E. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR UTILITY COMPANY CHARGES.

F. COORDINATE ALL SITE WORK WITH OWNER AND UTILITY COMPANIES. REFER TO SITE CIVIL ENGINEERING PLANS FOR ADDITIONAL INFORMATION, DETAILS, AND EXACT LOCATION OF EQUIPMENT.

G. THE LOCATION AND QUANTITY OF EXISTING UNDERGROUND UTILITIES ARE SHOWN APPROXIMATELY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ENGINEER. DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH OCCUR DUE TO FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. PROTECT ALL EXISTING TO REMAIN UTILITIES FROM DAMAGE DURING CONSTRUCTION.

H. ANY EXISTING CONDUIT, WIRING, ETC. ROUTED IN AREAS THAT ARE DISTURBED BY CONSTRUCTION WORK OR LOCATED WHERE THE NEW CONSTRUCTION IS BEING ADDED SHALL BE RE-ROUTED AS REQUIRED TO ENSURE CONTINUITY OF EXISTING CIRCUITS.

I. IN AREA BEING EXCAVATED, ABANDONED ELECTRICAL CONDUIT, WIRING, ETC. SHALL BE REMOVED. (REMOVE CONDUCTORS AND CONDUIT.) IF NO SITE WORK IS BEING DONE IN THESE AREAS, REMOVE CONDUCTORS AND ABANDON CONDUIT IN PLACE AND CAP.

J. EXISTING UTILITIES SHALL REMAIN TO SERVE EXISTING STRUCTURES UNTIL THEY ARE VACATED. PROVIDE TEMPORARY SERVICES, INCLUDING PORTABLE GENERATORS AS REQUIRED. COORDINATE WITH UTILITIES AND OWNER.

K. INSTALL ALL DUCTBANKS ON UNDISTURBED EARTH WHERE POSSIBLE. WHERE INSTALLED ON DISTURBED EARTH PROVIDE COMPACTED GRAVEL FILL PER SPECIFICATION SECTION, "COMPACTED GRAVEL FILL".

L. ALL ELECTRIC AND COMMUNICATION DUCTBANKS SHALL BE CONCRETE ENCASED SCHEDULE 40 PVC CONDUIT, UNLESS NOTED OTHERWISE.

M. PRIMARY ELECTRICAL DUCTBANKS SHALL REMAIN UNDISTURBED UNLESS SITE CONDITIONS DICTATE OTHERWISE.

N. LOW VOLTAGE DUCTBANKS SHALL REMAIN UNDISTURBED, UNLESS REQUIRED TO BE REROUTED OR AS OTHERWISE NOTED.

O. MAINTAIN MINIMUM 24" FROM FINISHED GRADE TO TOP OF ALL DUCTBANKS AND CONDUIT RUNS UNLESS OTHERWISE NOTED ON THE DRAWINGS.

P. MAINTAIN MINIMUM OF 12" HORIZONTAL SEPARATION BETWEEN PRIMARY ELECTRICAL DUCTBANKS AND SECONDARY FEEDERS.

Q. MAINTAIN MINIMUM OF 60" HORIZONTAL SEPARATION BETWEEN WATER LINES AND SECONDARY FEEDERS.

R. PROVIDE TWO (2) 45° ELBOWS IN LIEU OF 90° SWEEPS FOR HORIZONTAL DUCTBANK RUNS.

S. CONDUIT PENETRATIONS INTO VAULTS OR MANHOLES SHALL NOT ENTER AT AN ANGLE. ALL CONDUIT PENETRATIONS SHALL BE PERPENDICULAR TO THE INSIDE WALL SURFACE UNLESS OTHERWISE SPECIFIED.

T. SEAL ALL TELECOMMUNICATION CONDUITS WITH CABLES AT THE LAST STRUCTURE PRIOR TO CONDUITS ENTERING A BUILDING AND WHERE CONDUITS ENTER A BUILDING WITH TYCO ELECTRONICS "JACKMOON" OR EQUAL QUADPLEX DUCT SEALING PLUGS. SEAL ALL SPARE TELECOMMUNICATION CONDUITS WITH BLANK DUCT PLUGS EQUAL TO TYCO ELECTRONICS "JACKMOON" OR EQUAL.

U. WHERE PVC CONDUIT, WHETHER DIRECT BURIED OR IN DUCTBANK, TERMINATES WITHIN A BUILDING OR UTILITY STRUCTURE, THE PVC CONDUIT SHALL TRANSITION TO RIGID METAL CONDUIT AT LEAST 10 FEET PRIOR TO ENTERING BUILDING OR UTILITY STRUCTURE.

V. BOND ALL METALLIC EQUIPMENT IN MANHOLE TO THE MANHOLE GROUND RING. THIS INCLUDES, BUT IS NOT LIMITED TO; COVER FRAME ASSEMBLY, RIGID METAL CONDUITS, CABLE SHIELDS, AND GROUND CONDUCTORS. PULLING EYES SHALL BE USED IN MANHOLES/HANDHOLES

GENERAL ELECTRICAL DEMOLITION NOTES

A. ALL ELECTRICAL DEVICES SHOWN CROSS HATCHED SHALL BE REMOVED UNLESS NOTED OTHERWISE.

B. ALL LOW VOLTAGE UNDERGROUND CONDUIT AND WIRING (TELE, CABLE, DATA, FIRE ALARM, ETC.) TO REMAIN. PROVIDE ALL NECESSARY REPAIRS IF CONDUITS AND/OR WIRING IS DAMAGED.

C. DISCONNECT AND REMOVE EXISTING WIRING, CONDUIT, BOXES, ETC. AS NOTED ON DRAWINGS.

D. EXISTING ELECTRICAL ITEMS THAT ARE BEING DISCONNECTED AND REMOVED AND NOT BEING REUSED SHALL BE DISPOSED OF PROPERLY.

E. ALL ABANDONED ELECTRICAL WIRING AND DEVICES SHALL BE REMOVED.

F. IF CONTINUITY OF WIRING TO EXISTING ELECTRICAL ITEMS IS INTERRUPTED BY REMOVAL OF DEVICES, CONTRACTOR SHALL INSTALL ALL NECESSARY WIRING AND RACEWAY TO ENSURE THE CONTINUITY OF CIRCUITRY IN OTHER AREAS.

G. WIRING FOR ITEMS BEING REMOVED SHALL BE REMOVED BACK TO POWER SOURCE OR LAST DEVICE TO REMAIN ACTIVE UNLESS NOTED OTHERWISE.

H. NOTIFY CONSTRUCTION MANAGER OR GENERAL CONTRACTOR OF OPENINGS CAUSED BY REMOVAL OF EXISTING EQUIPMENT NOT BEING REPLACED. ENSURE THE PATCHING IS COMPLETE.

I. REFER TO CIVIL DRAWINGS FOR ADDITIONAL RELATED WORK.

J. THE BUILDING WILL BE OCCUPIED DURING DEMOLITION. COORDINATE PHASING OF DEMO WORK WITH CONSTRUCTION MANAGER OR GENERAL CONTRACTOR AND OWNER. EXISTING PANELS MAY NEED TEMPORARY RE- FEED, ENSURE CONTINUITY OF SERVICES.

K. REUSE OF EXISTING UNDERGROUND MAIN SECONDARY CONDUCTORS FROM UTILITY TRANSFORMERS MAYBE REUSED IF TESTED AND TESTS RESULTS ARE APPROVED BY THE ENGINEER.

L. REFER TO DRAWINGS FOR ADDITIONAL INFORMATION.

GENERAL ELECTRICAL NOTES

A. REFER TO DRAWINGS FOR CONDUIT SIZES, ROUTING, ETC. AND WIRING SIZES.

B. WIRE AND RACEWAY SIZES INDICATED SHALL BE CONTINUOUS FOR ENTIRE LENGTH, UNLESS NOTED OTHERWISE.

C. ALL WIRING (CONDUITS, ETC) TO BE AS NOTED ON DRAWINGS.

D. PROVIDE UNIVERSAL BLANK PLUGS ON ALL SPARE CONDUITS TERMINATING INSIDE BUILDING.

E. CONDUIT ROUTINGS INDICATED ON DRAWINGS ARE RECOMMENDATIONS. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL ROUTING.

F. A COMPLETE FEEDER WIRING SYSTEM IS TO BE INSTALLED.

G. TEMPORARY GENERATOR AND CONNECTIONS WILL BE REQUIRED.

GENERAL INSTALLATION NOTES

A. ELECTRICAL WIRING: INSTALL ELECTRICAL DEVICES FURNISHED BY EQUIPMENT MANUFACTURERS BUT NOT SPECIFIED TO BE FACTORY MOUNTED.

1. VERIFY THAT ELECTRICAL WIRING IS INSTALLED ACCORDING TO MANUFACTURER'S SUBMITTAL AND INSTALLATION REQUIREMENTS IN DIVISION 26 SECTIONS. PROCEED WITH EQUIPMENT START UP ONLY AFTER WIRING INSTALLATION IS SATISFACTORY.
2. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR AND AUTOMATIC TRANSFER SWITCH(ES).
3. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR AND REMOTE ANNUNCIATOR PANEL.
4. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR AND BMS TO SIGNAL THE BMS THAT NORMAL POWER IS LOST AND THE GENERATOR WILL BE POWERING LOADS.
5. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR FUEL CONSUMPTION METER AND GENERATOR RUNNING TIME METER TO THE BMS.
6. PROVIDE INTERCONNECTING WIRING FROM THE GENERATOR CONTROLLER TO THE BMS THAT THE GENERATOR IS OVERLOADED AND SHUT DOWN ONE OF THE EXISTING CHILLERS AND ITS AUXILIARY EQUIPMENT
7. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR NEMA 3R ENCLOSURE PANEL AND DEVICES IN THE ENCLOSURE.
8. UPGRADE AND REPROGRAM THE EXISTING HIGH SCHOOL BMS TO ACCEPT AND STORE DATA FROM GENERATOR AND RESPOND TO ACTIONS REQUIRED. THE BMS SYSTEM IS BY JOHNSON CONTROLS.

B. INPUT SIGNALS TO EXISTING BMS:

1. FROM GENERATOR FUEL CONSUMPTION METER AND FROM GENERATOR RUNNING TIME METER TO BMS. BMS SHALL STORE THIS DATA FOR UP TO 3 YEARS.
2. FROM GENERATOR LOAD MANAGEMENT SYSTEM TO BMS TO SHUT DOWN OF THE EXISTING CHILLER AND ITS AUXILIARY EQUIPMENT TO PREVENT OVERLOADING OF THE GENERATOR.
3. FROM GENERATOR TO BMS TO SIGNAL THE BMS THAT NORMAL POWER IS LOST AND THE GENERATOR WILL BE POWERING LOADS. BMS SHALL STORE THIS DATA FOR UP TO 3 YEARS.
4. DATA CONNECTION FROM GENERATOR TO THE HIGH SCHOOL BMS TO ENABLE ALL GENERATOR STATUS POINTS TO BE READ AND RECORDED.

ONE-LINE

SYMBOL	DESCRIPTION
	POTHEAD
	STRESSCONE
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	FUSE
	FUSE CUT OUT
	FUSE & SWITCH
	SWITCH
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER
	MEDIUM VOLTAGE DRAWOUT CIRCUIT BREAKER
	BUSPLUG CIRCUIT BREAKER
	BUSPLUG FUSE & SWITCH
	LOAD BREAK ELBOW
	DEAD BREAK ELBOW
	DEAD-FRONT TERMINAL JUNCTION (TWO, THREE OR FOUR WAY)
	GROUND
	THERMAL OVERLOAD
C	RELAY / COIL
	N/O CONTACT
	N.C. CONTACT
	PROTECTIVE RELAY
A	AMMETER
AS	AMMETER SWITCH
V	VOLTMETER
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTION DEVICE
M	UTILITY METER
M	OWNERS POWER METER
DEVICE TYPE	DISTRIBUTED GENERATION METER
PLC	PROGRAMMABLE LOGIC CONTROLLER
	TRANSFORMER (WITH GROUNDING ON SECONDARY SIDE)
	AUTO TRANSFORMER
	LIGHTNING ARRESTOR
	GENERATOR
	DELTA
	WYE
K #	KEY INTERLOCK (NUMBER INDICATES MATCHED PAIRS)
N O E	AUTOMATIC TRANSFER SWITCH (A.T.S.)
	MAIN LUG ONLY PANELBOARD
	MAIN CIRCUIT BREAKER PANELBOARD
	MAIN FUSED SWITCH PANELBOARD
XXXAF / XXXAT	CIRCUIT BREAKER WITH AMP FRAME OVER AMP TRIP
XXXAS / XXXAF	FUSE DISCONNECT SWITCH, WITH SWITCH SIZE OVER FUSE SIZE
XX / XX	SHORT CIRCUIT DATA POINT / FAULT CURRENT VALUE
	POINT OF CONNECTION BETWEEN EXISTING AND NEW WORK
	POINT OF CONNECTION / WIRE TAP
L / LSI / LSIG	TRIP UNIT ADJUSTMENT FEATURE: L = LONG TIME; LSI = LONG / SHORT / INSTANTANEOUS LSGI = LONG / SHORT / INSTANTANEOUS / GROUND FAULT

ABBREVIATIONS

SYMBOL	DESCRIPTION
A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI / AFCI	ARC FAULT INTERRUPTER
AHF	ACTIVE HARMONIC FILTER
AHU	AIR HANDLING UNIT
C	CONDUIT
CATV	CABLE TELEVISION
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CIR	CIRCUIT
CUH	CABINET UNIT HEATER
CT	CABLE TRAY
ER	EXISTING TO REMAIN
EF	EXHAUST FAN
ELTR	EXISTING LIGHTING TO REMAIN (WITHIN SPECIFIED AREA)
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EPTR	EXISTING POWER TO REMAIN (WITHIN SPECIFIED AREA)
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXP	EXPLOSION PROOF (INTRINSICALLY SAFE)
F	FUSED
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FMC	FLEXIBLE METALLIC CONDUIT
FUT	FUTURE
G / GND	GROUND
GFI / GFCI	GROUND FAULT INTERRUPTER
IG	ISOLATED GROUND
LFMC	LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT
MAU	MAKE-UP AIR UNIT
MCA	MINIMUM CIRCUIT AMPACITY
MD	MOTORIZED DAMPER
NC	NORMALLY CLOSED
NF	NON-FUSED
NE	NEW LOCATION OF EXISTING RELOCATED
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NR	NEW TO REPLACE EXISTING
P	POLE (SPACE IN PANELBOARD)
PE	PRIMARY ELECTRIC SERVICE
PVC	POLYVINYL CHLORIDE CONDUIT
RE	REMOVE EXISTING
REF	REFRIGERATOR
RL	RELOCATE EXISTING
RMC	RIGID METALLIC CONDUIT
RR	REMOVE AND REPLACE ON NEW SURFACE
RTU	ROOFTOP UNIT
SD	SMOKE DAMPER
SE	SECONDARY ELECTRIC SERVICE
ST	SHUNT STRIP
S&P	SPACE AND PROVISION
T	TELEPHONE (VOICE)
TCP	TEMPERATURE CONTROL PANEL
TV	TELEVISION
TX	TRANSFORMER
TYP	TYPICAL
UNV	UNIVERSAL
VAC	VOLTS AC
W	WIRE OR WATTS
WA OR WAP	WIRELESS ACCESS POINT
WG	WIRE GUARD
WM	SURFACE MOUNTED RACEWAY
WP	WEATHERPROOF

LEGEND NOTE

THESE LEGENDS AND ABBREVIATIONS DEFINE ITEMS INDICATED ON DRAWINGS. NOT ALL SYMBOLS OR ABBREVIATIONS DEFINED ARE NECESSARILY USED ON THIS PROJECT.

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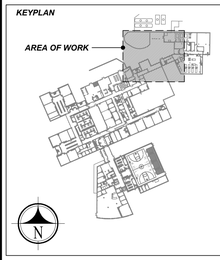
EMERGENCY ELECTRICAL GENERATOR SYSTEM REPLACEMENT -

REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN



REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:

ELECTRICAL LEGENDS AND GENERAL NOTES

DATE: 09/26/2025
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CHECKED BY: SEP
SCALE: NONE
PROJ #: 2023159.01

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E001

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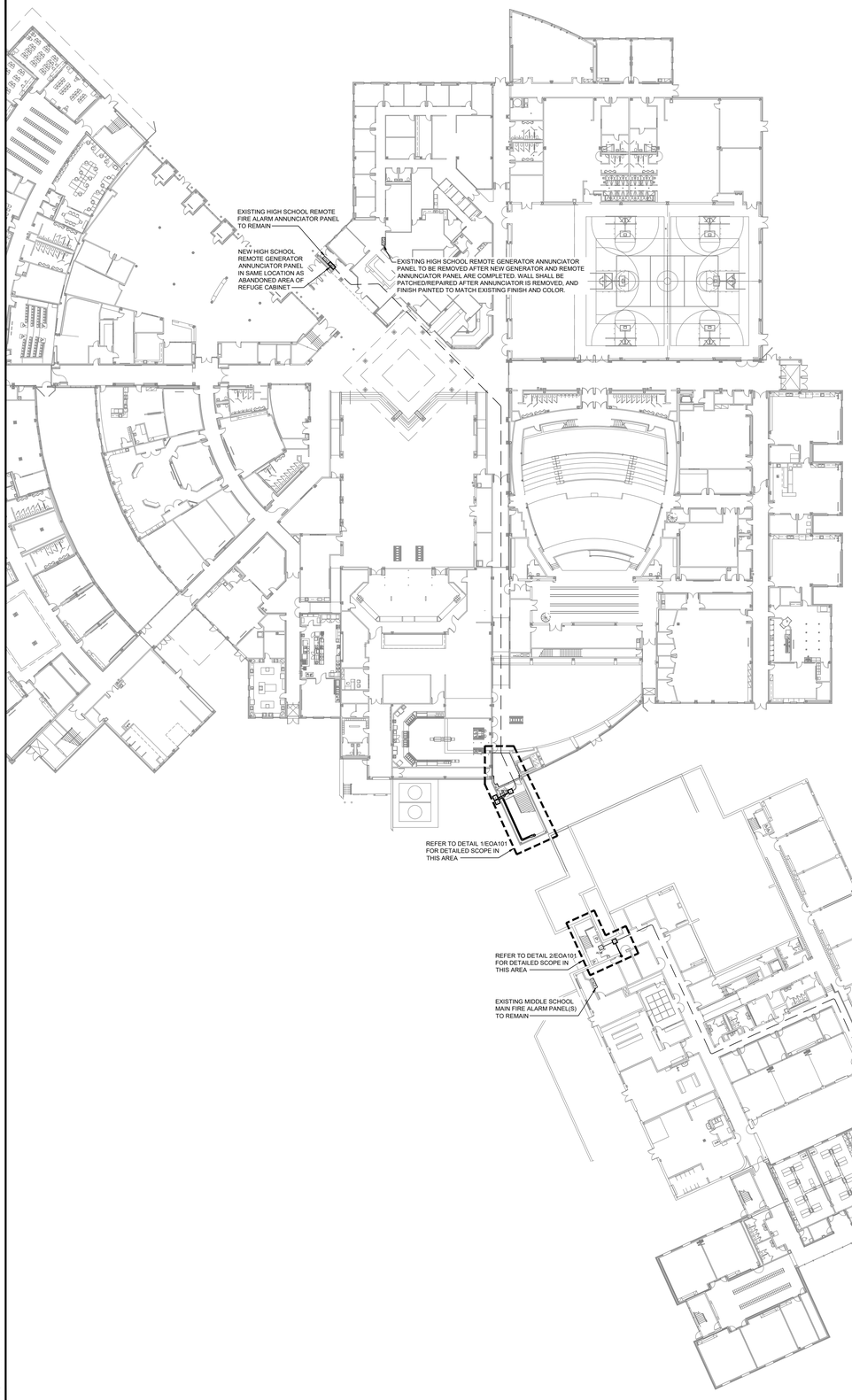
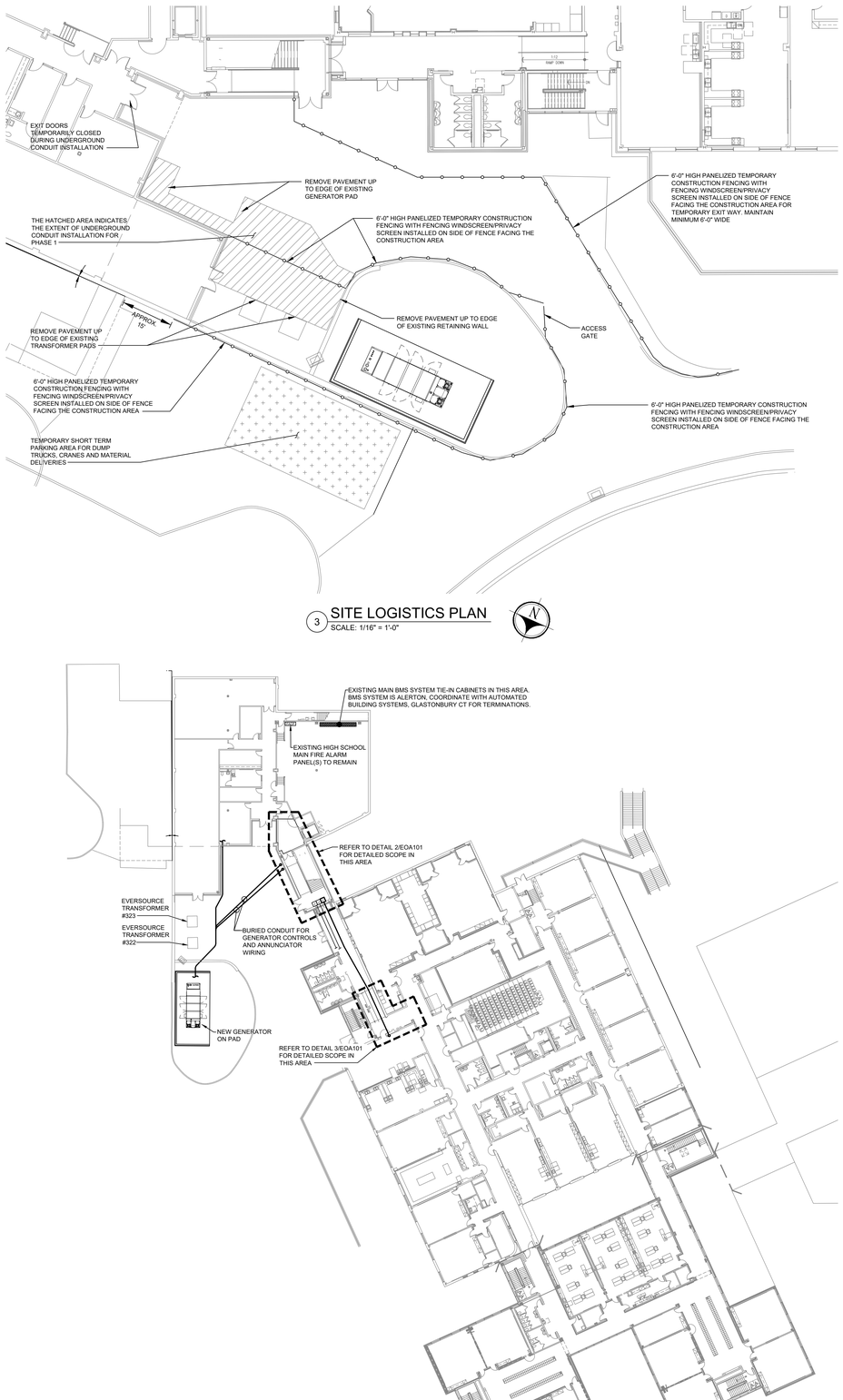


1 OVERALL HIGH SCHOOL MAIN LEVEL / MIDDLE SCHOOL LOWER LEVEL ELECTRICAL LOCATOR PLAN
SCALE: 1/32" = 1'-0"



2 OVERALL HIGH SCHOOL LOWER LEVEL / MIDDLE SCHOOL MAIN LEVEL ELECTRICAL LOCATOR PLAN
SCALE: 1/32" = 1'-0"

3 SITE LOGISTICS PLAN
SCALE: 1/16" = 1'-0"

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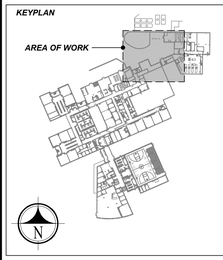

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DRAWING TITLE:
HIGH SCHOOL AND MIDDLE SCHOOL ELECTRICAL LOCATOR AND LOGISTICS PLANS

DATE: 09/26/2025
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SCALE: AS NOTED
PROJ #: 2023159.01

DRAWING NUMBER:
PHASE I
EOA100

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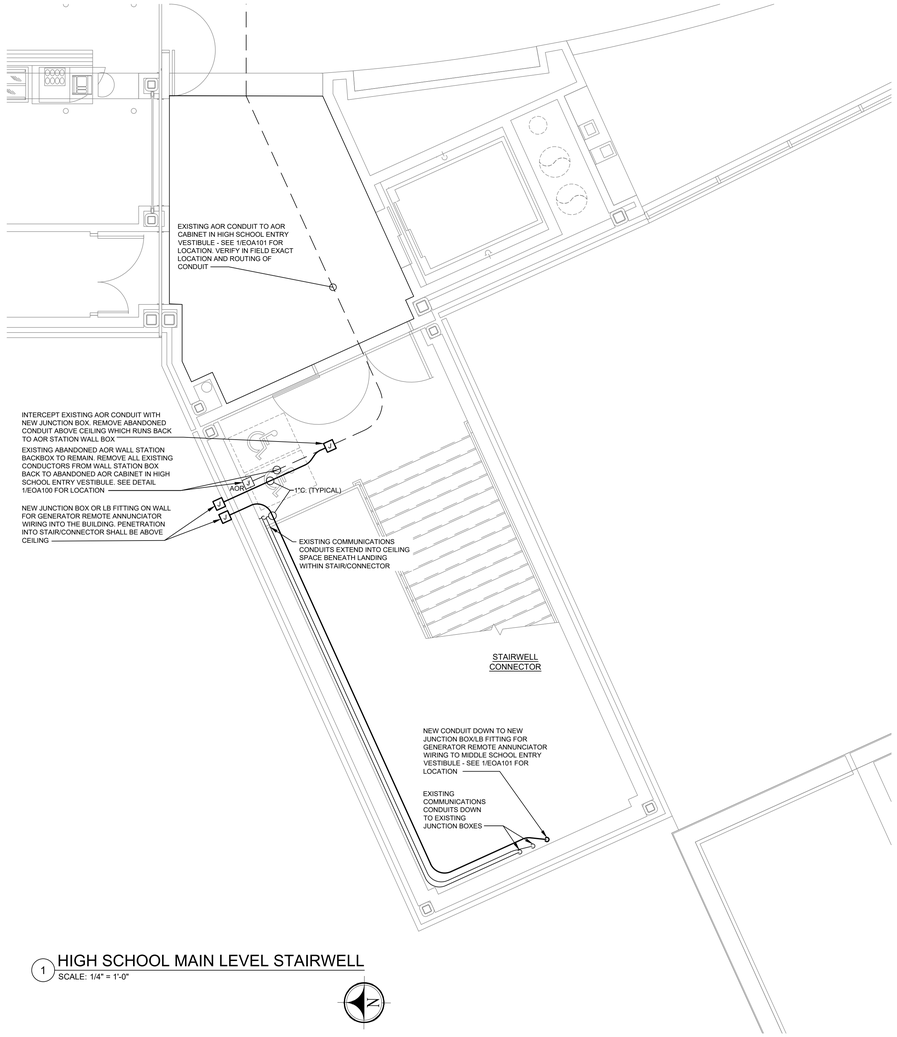
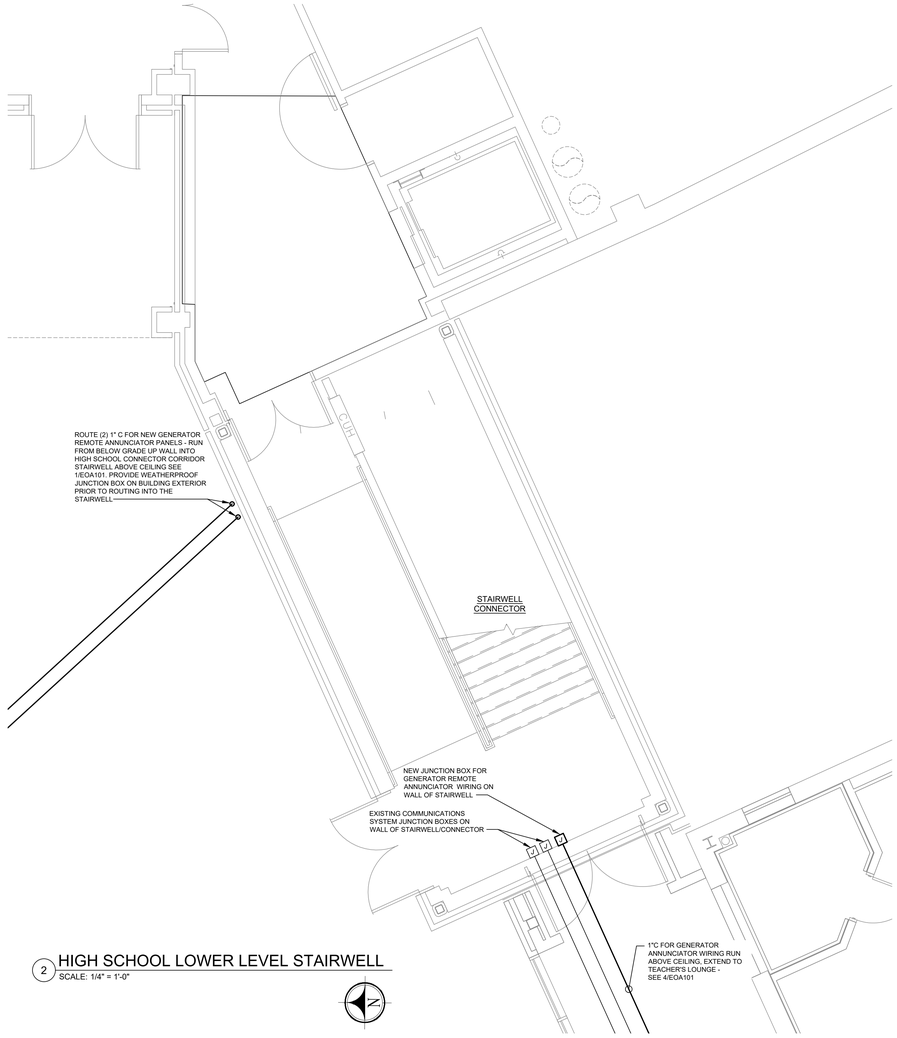


1 HIGH SCHOOL MAIN LEVEL STAIRWELL
SCALE: 1/4" = 1'-0"



2 HIGH SCHOOL LOWER LEVEL STAIRWELL
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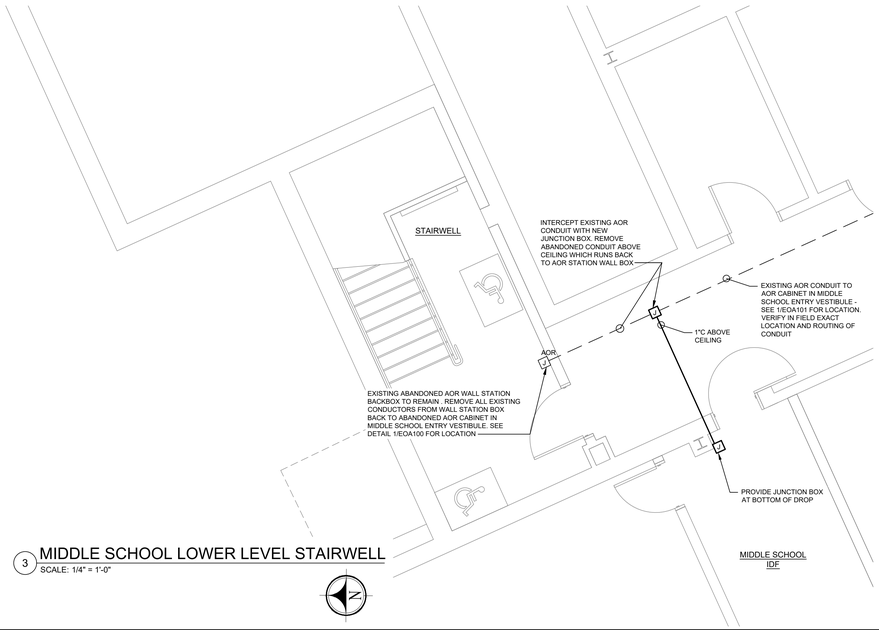
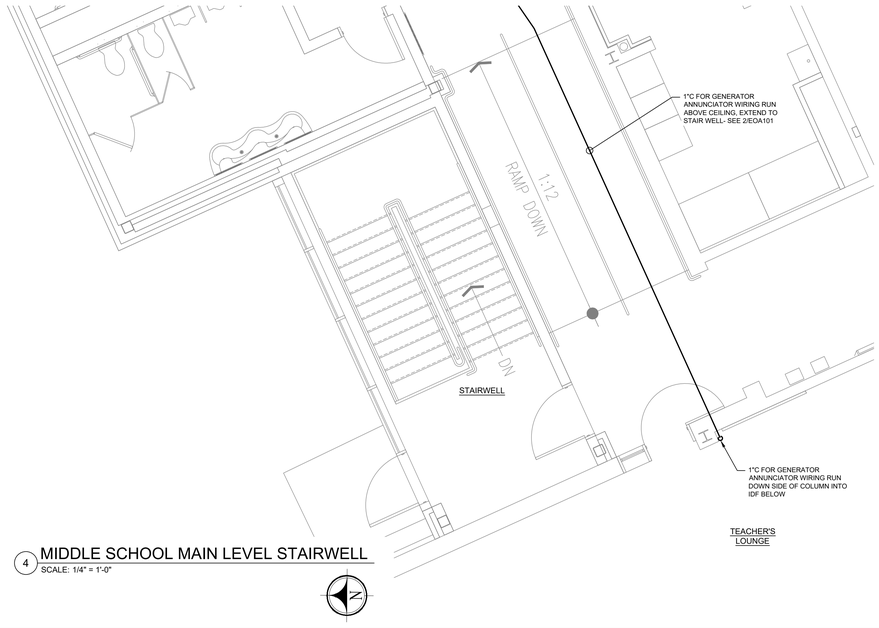


3 MIDDLE SCHOOL LOWER LEVEL STAIRWELL
SCALE: 1/4" = 1'-0"



4 MIDDLE SCHOOL MAIN LEVEL STAIRWELL
SCALE: 1/4" = 1'-0"

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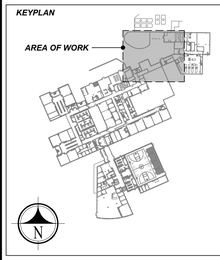
PROJECT NAME:
RHAM HIGH AND MIDDLE SCHOOL EMERGENCY ELECTRICAL GENERATOR SYSTEM REPLACEMENT -

REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN



REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
HIGH SCHOOL AND MIDDLE SCHOOL ELECTRICAL STAIRWELL DETAILS

DATE:	09/26/2025
DRAWN BY:	EMG
CHECKED BY:	SEP
SCALE:	AS NOTED
PROJ #:	2023159.01

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PHASE I
EOA101

File Name:EOA101-SITE.dwg 10/1/2025
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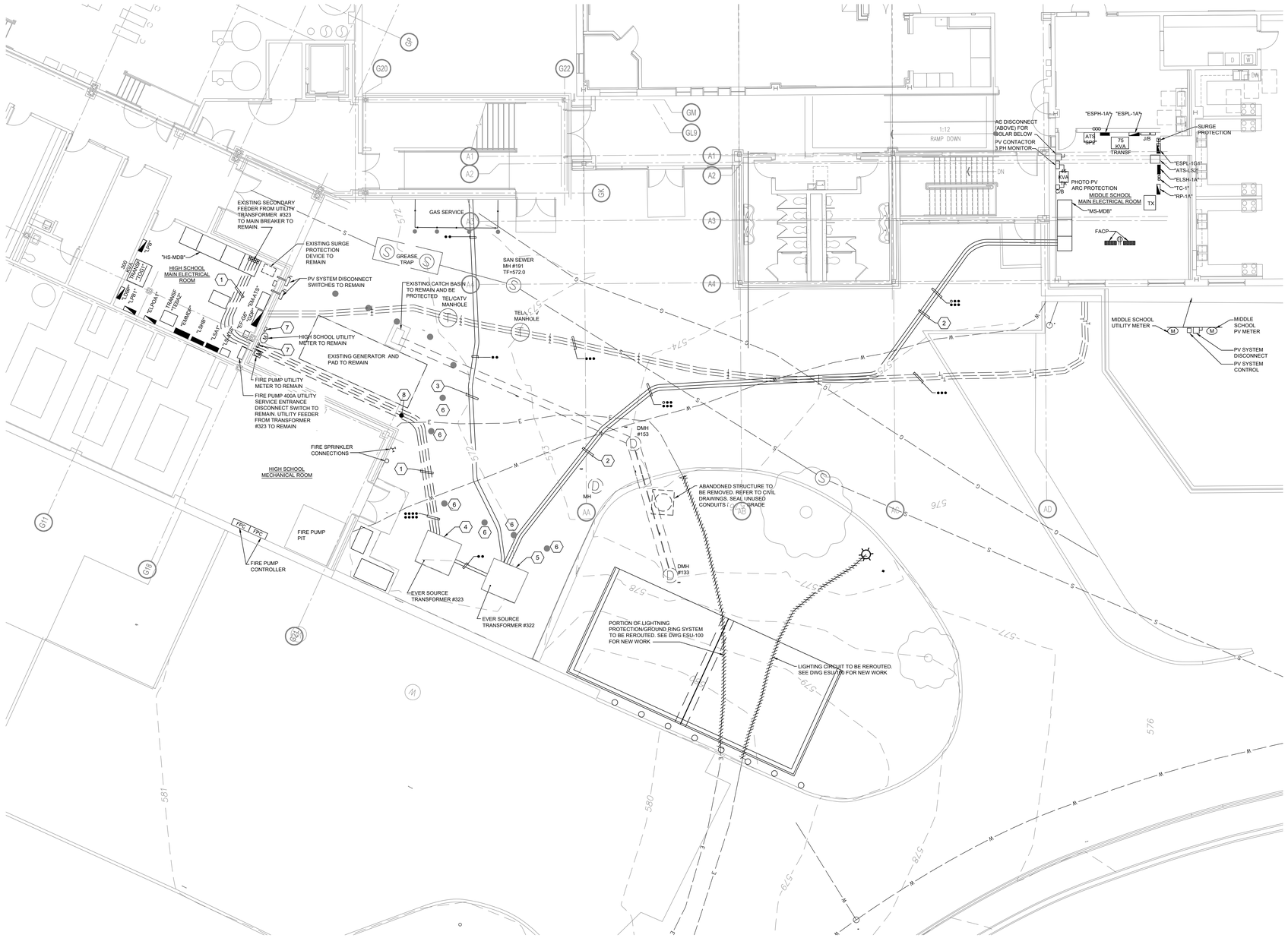

KEY NOTES-PHASE I:

1. EXISTING HIGH SCHOOL SECONDARY CONDUCTORS AND CONDUITS BETWEEN TRANSFORMER #323 AND "HS-MDB" TO REMAIN
2. EXISTING MIDDLE SCHOOL CONDUCTORS AND CONDUIT BETWEEN TRANSFORMER #322 AND "MS-MDB" TO REMAIN
3. EXISTING UTILITY PRIMARY TO REMAIN
4. PREPARE TRANSFORMER #323 PIT WALLS TO ACCEPT NEW CONDUITS.
5. PREPARE TRANSFORMER #322 PIT WALLS TO ACCEPT NEW CONDUITS.
6. BOLLARDS TO BE REMOVED AND RETAINED FOR REUSE.
7. RELOCATE ACCESSORY ENCLOSURES (PV AND UTILITY METERING) ADJACENT TO THE FIRE PUMP AND MAIN UTILITY METERS IN ORDER TO FACILITATE ROUTING CONDUITS UP WALL, INTO HIGH SCHOOL MAIN ELECTRIC ROOM..
8. LIGHTNING PROTECTION/GROUNDING LOOP INTERSECTION WITH GROUND ROD IN THIS LOCATION . RECONFIGURE/RELOCATE/RECONNECTGROUND ROD AND ASSOCIATED GROUND CONDUCTORS TO FACILITATE INSTALLATION OF NEW FEEDER CONDUITS FROM THE NEW GENERATOR.

1 OVERALL PROJECT AREA - ELECTRICAL EXISTING CONDITIONS AND DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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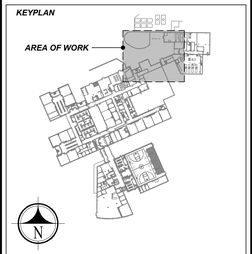
PROJECT NAME:
RHAM HIGH AND MIDDLE SCHOOL EMERGENCY ELECTRICAL GENERATOR SYSTEM REPLACEMENT -

REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN



REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
ELECTRICAL EXISTING CONDITIONS AND SITE UTILITIES DEMOLITION PLAN

DATE: 09/26/2025
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CHECKED BY: SEP
SCALE: 1/8"=1'-0"
PROJ #: 2023159.01

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PHASE I
ESUD100

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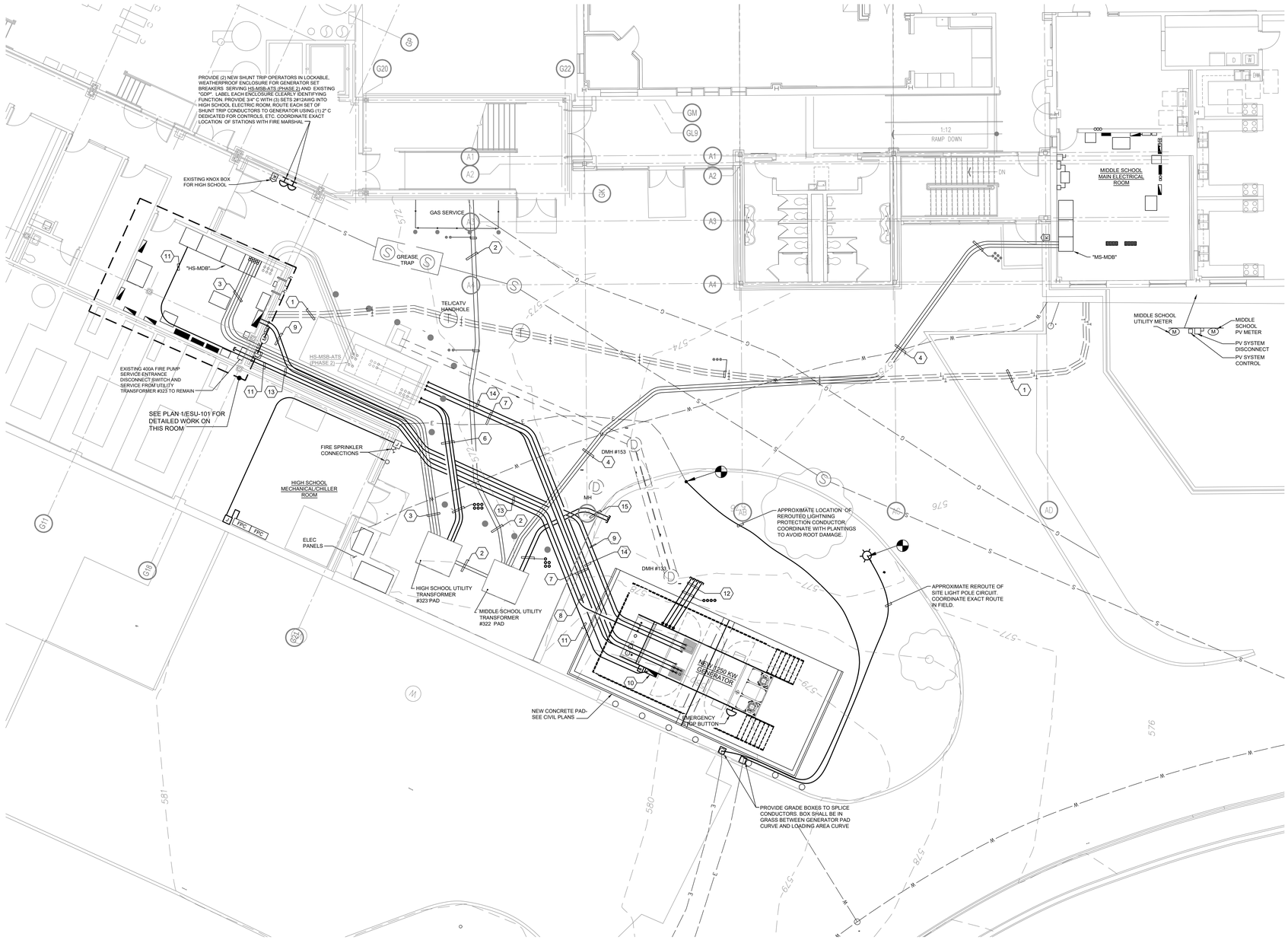

1 OVERALL PROJECT AREA - NEW WORK PLAN
SCALE: 1/8" = 1'-0"

KEY NOTES:

1. EXISTING (3) 4" CONDUITS FROM HIGH SCHOOL TO MIDDLE SCHOOL FOR TELEPHONE/ CATV/ ETC TO REMAIN.
2. EXISTING EVERSOURCE PRIMARY TO REMAIN.
3. EXISTING HIGH SCHOOL SECONDARY FEEDER FROM TRANSFORMER #323 TO REMAIN
4. EXISTING MIDDLE SCHOOL SECONDARY FEEDER FROM TRANSFORMER #322 TO REMAIN
5. NOT USED
6. PROVIDE (5) 4"C EACH PLUS (1) SPARE 4"C FROM TRANSFORMER #323 TO AREA OF FUTURE HS-MSB-ATS (PROVIDED AS PART OF PHASE 2). CAP AND SEAL CONDUIT ENDS
7. PROVIDE (5) 4"C EACH PLUS (1) SPARE 4"C FROM GENERATOR 2000A-3P C/B INSIDE GENERATOR ENCLOSURE TO AREA OF FUTURE HS-MSB-ATS (PROVIDED AS PART OF PHASE 2). CAP AND SEAL CONDUIT ENDS
8. EXTEND 3#2, 1#6G, 2"C FROM 125A-3P C/B ON EXTERIOR OF GENERATOR TO HIGH SCHOOL FIRE PUMP CONTROLLER VIA JUNCTION BOX ON BUILDING EXTERIOR. FROM JUNCTION BOX, EXTEND 3#1/0, 1#4G. MI FEEDER TO EMERGENCY TERMINALS OF FIRE PUMP CONTROLLER TRANSFER SWITCH
9. PROVIDE 2 SETS 4-500KCMIL, 1#1/0G, 4"C EACH FROM 800A C/B INSIDE GENERATOR ENCLOSURE TO PANEL "GDP" IN HIGH SCHOOL
10. INSTALL 100A, 120/208V-3Ø PANEL (FURNISHED WITH GENERATOR) ON OUTSIDE OF GENERATOR ENCLOSURE.
11. EXTEND 4#1, 1#8G, 2"C FROM 100A-3P C/B IN MAIN SWITCHBOARD "HS-MDP" IN HIGH SCHOOL TO PANEL ON OUTSIDE OF GENERATOR ENCLOSURE.
12. EXTEND (4) 5"C. 12" UP THROUGH GENERATOR PAD AND 4' OUT FROM EDGE OF GENERATOR PAD . ALIGN STUB-UP WITH EDGE OF GENERATOR ASSEMBLY FOR FUTURE EXTERNALLY MOUNTED BREAKER WHICH WILL FEED FUTURE MIDDLE SCHOOL OUTDOOR SWITCHGEAR UNDER SEPARATE CONTRACT. CAP AND SEAL CONDUIT ENDS
13. EXTEND (4) 2"C W/ DRAGLINE FROM GENERATOR TO HIGH SCHOOL MAIN ELECTRICAL ROOM, FOLLOWING ROUTE OF GENERATOR PANEL AND PANEL "GDP" FEEDERS
14. EXTEND (3) 2"C W/DRAGLINE FROM GENERATOR TO AREA OF FUTURE HS-MSB-ATS (PROVIDED AS PART OF PHASE 2). CAP AND SEAL CONDUIT ENDS
15. PROVIDE (5) 4"C. FROM TRANSFORMER #322 TO 24" BEYOND RETAINING WALL. CAP AND SEAL CONDUIT ENDS

GENERAL NOTE:

A. ALL NEW CONDUITS RUN IN PAVED AREA BETWEEN NEW GENERATOR AND EXISTING HIGH SCHOOL WALLS, INCLUDING ALLEYWAY BETWEEN EXISTING GENERATOR AND THE HIGH SCHOOL SHALL BE ENCASED IN MINIMUM 2" CONCRETE WITH REBAR REINFORCEMENT.

NOTE:
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PROJECT NAME:
RHAM HIGH AND MIDDLE SCHOOL EMERGENCY ELECTRICAL GENERATOR SYSTEM REPLACEMENT -
REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN

REVISIONS

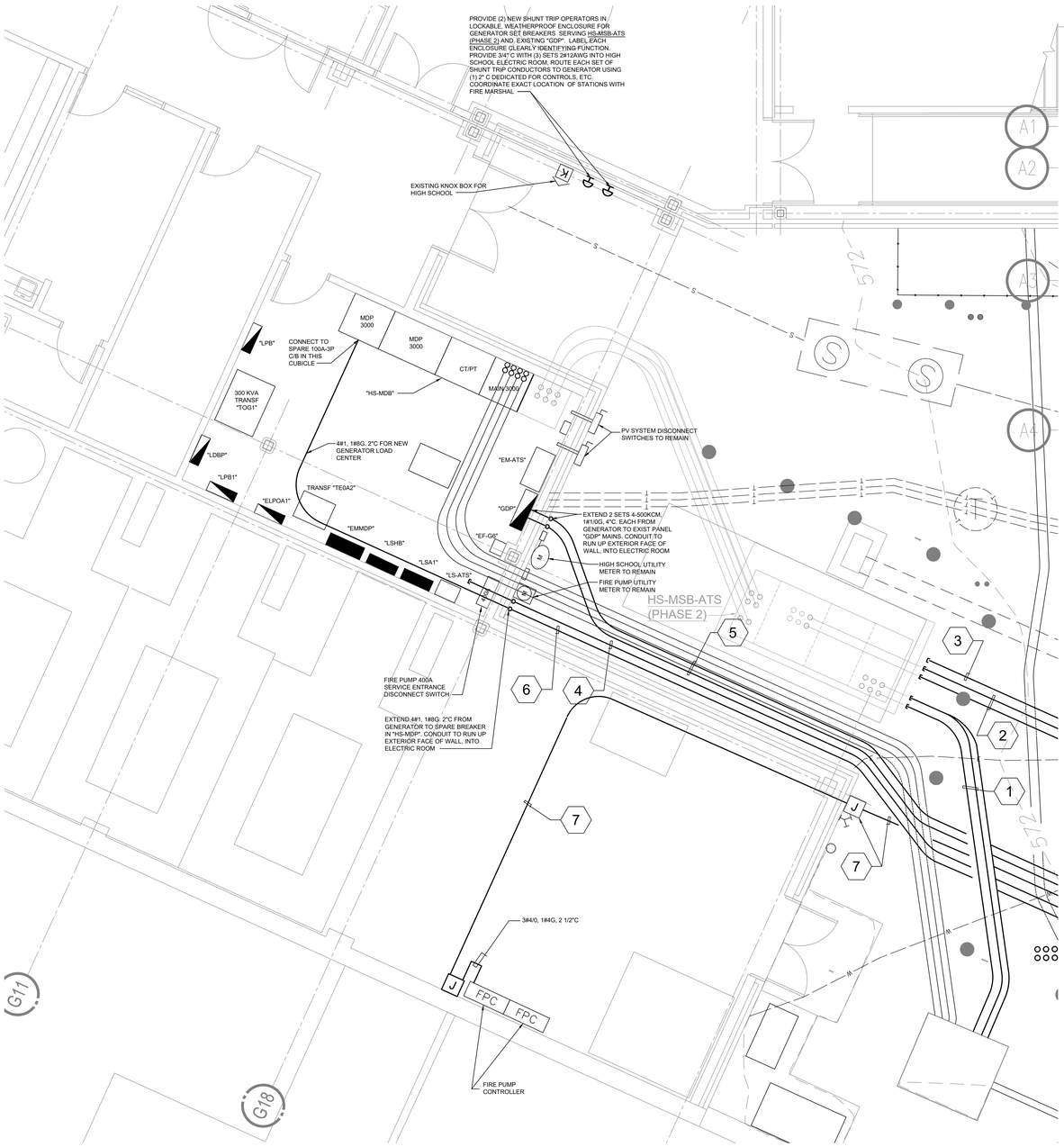
REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
ELECTRICAL
SITE UTILITIES
NEW WORK PLAN

DATE: 09/26/2025
DRAWN BY: EMG
CHECKED BY: SEP
SCALE: 1/8"=1'-0"
PROJ #: 2023159.01

DRAWING NUMBER:
PHASE I
ESU100

File Name:ESU101-SITE.dwg 9/30/2025 4:13:15 PM User ID: Grdlk, Ed
File Path: U:\2023\2023159.00\BIM\CAD\.01 Phase I-REBID 2



HIGH SHOOL ENLARGED SITE UTILITIES AND MAIN ELECTRICAL ROOM AND NEW SWITCHGEAR PLAN

1 SCALE: 1/4" = 1'-0"

KEY NOTES:

1. PROVIDE (5) 4"C EACH PLUS (1) SPARE 4"C FROM TRANSFORMER #323 TO AREA OF FUTURE HS-MSB-ATS (PROVIDED AS PART OF PHASE 2). CAP AND SEAL CONDUIT ENDS
2. PROVIDE (5) 4"C EACH PLUS (1) SPARE 4"C FROM GENERATOR 2000A-3P C/B INSIDE GENERATOR ENCLOSURE TO AREA OF FUTURE HS-MSB-ATS (PROVIDED AS PART OF PHASE 2). CAP AND SEAL CONDUIT ENDS
3. EXTEND (3) 2"C W/DRAGLINE FROM GENERATOR TO AREA OF FUTURE HS-MSB-ATS (PROVIDED AS PART OF PHASE 2). CAP AND SEAL CONDUIT ENDS
4. EXTEND (4) 2"C W/ DRAGLINE FROM GENERATOR TO HIGH SCHOOL MAIN ELECTRICAL ROOM, FOLLOWING ROUTE OF GENERATOR PANEL AND PANEL "GDP" FEEDERS
5. PROVIDE 2 SETS 4-500KCMIL, 1#1/0G, 4"C EACH FROM 800A C/B INSIDE GENERATOR ENCLOSURE TO PANEL "GDP" IN HIGH SCHOOL
6. EXTEND 4#1, 1#8G, 2"C FROM 100A-3P C/B IN MAIN SWITCHBOARD "HS-MDP" IN HIGH SCHOOL TO PANEL ON OUTSIDE OF GENERATOR ENCLOSURE.
7. EXTEND 3#2, 1#6G, 2"C FROM 125A-3P C/B ON EXTERIOR OF GENERATOR TO HIGH SCHOOL FIRE PUMP CONTROLLER VIA JUNCTION BOX ON BUILDING EXTERIOR. FROM JUNCTION BOX, EXTEND 3#1/0, 1#4G. MI FEEDER TO EMERGENCY TERMINALS OF FIRE PUMP CONTROLLER TRANSFER SWITCH

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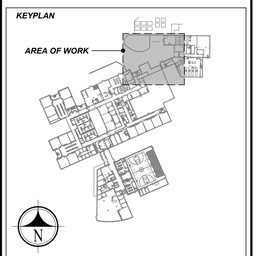
REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN



REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
ELECTRICAL ENLARGED SITE UTILITIES NEW WORK PLAN

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CHECKED BY: SEP
SCALE: 1/4"=1'-0"
PROJ #: 2023159.01

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PHASE I
ESU101

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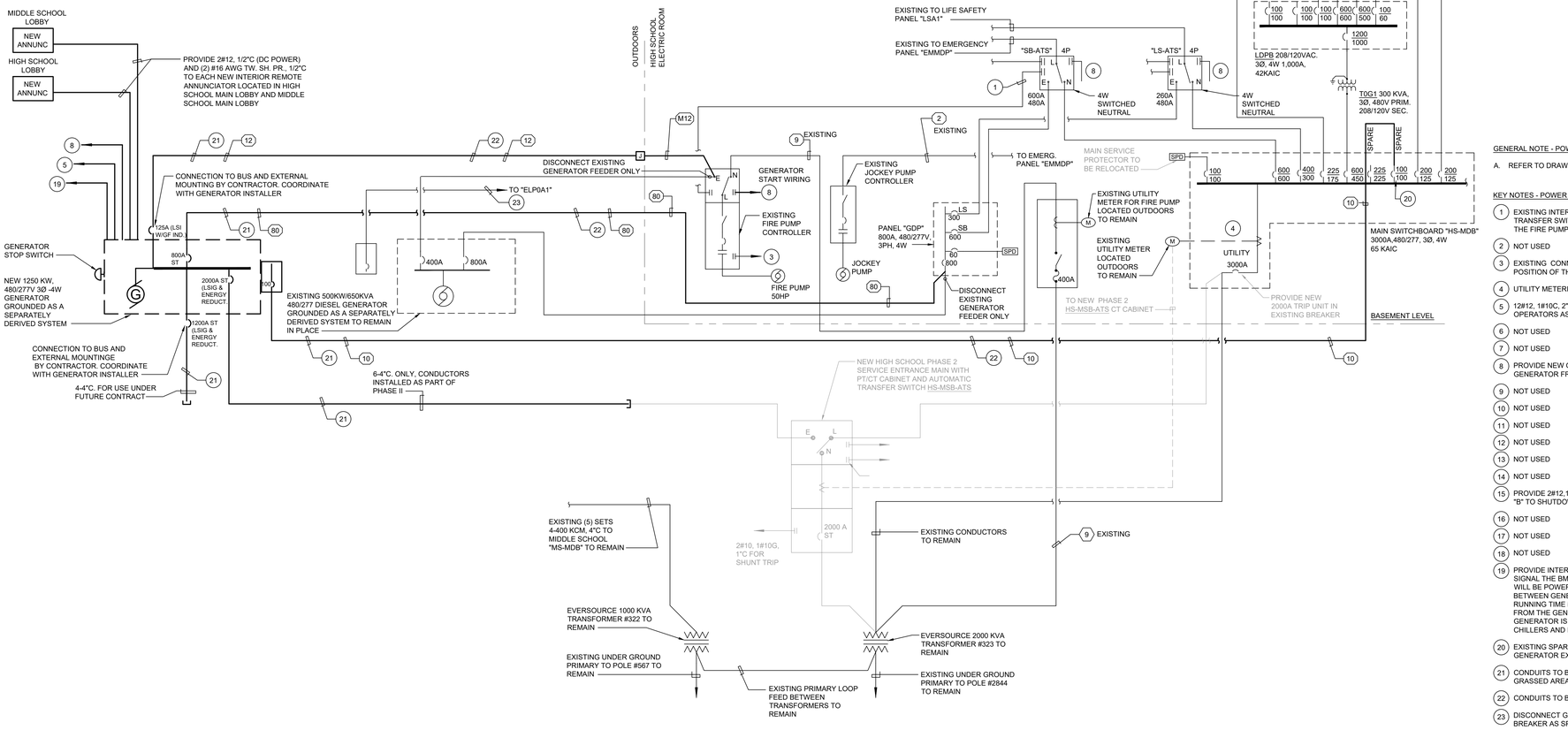

1 HIGH SCHOOL- PARTIAL ONE-LINE DIAGRAM - DEMO AND NEW WORK
SCALE: N.T.S

GENERAL NOTE - POWER RISER:

A. REFER TO DRAWING E302 FOR FEEDER SCHEDULE

KEY NOTES - POWER RISER:

1. EXISTING INTERLOCK WIRING TO TRANSFER THE STANDBY AUTOMATIC TRANSFER SWITCH "SB-ATS" TO THE NORMAL POWER POSITION PRIOR TO THE FIRE PUMP TRANSFER SWITCH GOING TO EMERGENCY TO REMAIN.
2. NOT USED
3. EXISTING CONNECTION TO FIRE ALARM SYSTEM TO MONITOR THE POSITION OF THE FIRE PUMP SWITCHES TO REMAIN.
4. UTILITY METERING CONDUIT AND CONDUCTORS TO REMAIN.
5. 12#12, 1#10C, 2"C, SHUNT TRIP CONNECTIONS, LOCATE SHUNT TRIP OPERATORS AS SHOWN ON PLANS.
6. NOT USED
7. NOT USED
8. PROVIDE NEW GENERATOR START SIGNAL/CONTROLS TO NEW GENERATOR FROM EXISTING TRANSFER SWITCHES IN BUILDING
9. NOT USED
10. NOT USED
11. NOT USED
12. NOT USED
13. NOT USED
14. NOT USED
15. PROVIDE 2#12,1/2"CTO SIGNAL PV SYSTEM INVERTER "A' AND INVERTER "B" TO SHUTDOWN PV SYSTEM WHEN GENERATOR IS RUNNING
16. NOT USED
17. NOT USED
18. NOT USED
19. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR AND BMS TO SIGNAL THE BMS THAT NORMAL POWER IS LOST AND THE GENERATOR WILL BE POWERING LOADS. PROVIDE INTERCONNECTING WIRING BETWEEN GENERATOR FUEL CONSUMPTION METER AND GENERATOR RUNNING TIME METER TO THE BMS. PROVIDE INTERCONNECTING WIRING FROM THE GENERATOR CONTROLLER TO THE BMS THAT THE GENERATOR IS OVERLOADED AND SHUT DOWN ONE OF THE EXISTING CHILLERS AND ITS AUXILIARY EQUIPMENT.
20. EXISTING SPARE 100/100SPARE BREAKER SHALL BE USED TO FEED NEW GENERATOR EXTERNALLY MOUNTED LOAD CENTER.
21. CONDUITS TO BE INSTALLED AT SAME TIME AS GENERATOR PAD, WITH IN GRASSED AREA.
22. CONDUITS TO BE INSTALLED THROUGH PAVED AREA.
23. DISCONNECT GENERATOR ENCLOSURE PANEL AT PANEL "ELPOA1". LABEL BREAKER AS SPARE.

NOTE:
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REGIONAL SCHOOL DISTRICT #8
85 WALL STREET
HEBRON, CT 06248

KEYPLAN
AREA OF WORK

REVISIONS		
REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
HIGH SCHOOL ELECTRICAL ONE LINE RISER DIAGRAM

DATE: 09/26/2025
DRAWN BY: EMG
CHECKED BY: SEP
SCALE: NONE
PROJ #: 2023159.01

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E301

File Name:E301-DIAG-RISE.dwg 9/30/2025 4:13:43 PM User ID: Grafe, Ed
File Path: U:\2023\2023159.00\BIM\CAD\.01 Phase I-REBID 2

3 PHASE FEEDER SIZE SCHEDULE FOR MI CABLE APPLICATIONS

2-HOUR FIRE RESISTIVE RATED ASSEMBLY BASED ON PYROTENAX SYSTEM 1850 @ 75°C CONDUCTOR TEMPERATURE

CIRCUIT SYMBOL	CONDUCTORS, 3 PHASE, 3 WIRE PLUS GROUND	CONDUCTORS, 3 PHASE, 4 WIRE PLUS GROUND	CIRCUIT OR OVERCURRENT RATING 3POLE
M1	3#12, 1#12 G	4#12, 1#12 G	15A.
M2	3#12, 1#12 G	4#12, 1#12 G	20A.
M3	3#12, 1#12 G	4#12, 1#12 G	25A.
M4	3#12, 1#12 G	4#12, 1#12 G	30A.
M5	3#10, 1#10 G	4#10, 1#10 G	35A.
M6	3#8, 1#10 G	4#8, 1#10 G	40A.
M7	3#8, 1#10 G	4#8, 1#10 G	45A.
M8	3#8, 1#10 G	4#8, 1#10 G	50A.
M9	3#8, 1#10 G	4#8, 1#10 G	60A.
M10	3#6, 1#8 G	4#6, 1#8 G	70A.
M11	3#6, 1#8 G	4#6, 1#8 G	80A.
M12	3#4, 1#8 G	4#4, 1#8 G	90A.
M13	3#4, 1#8 G	4#4, 1#8 G	100A.
M14	3#4, 1#6 G	4#4, 1#6 G	110A.
M15	3#3, 1#6 G	4#3, 1#6 G	125A.
M16	3#2, 1#6 G	4#2, 1#6 G	150A.
M17	3#1, 1#6 G	4#1, 1#6 G	175A.
M18	3#1, 1#6 G	4#1, 1#6 G	200A.
M19	3#1/0, 1#4 G	4#1/0, 1#4 G	225A.
M20	3#1/0, 1#4 G	4#1/0, 1#4 G	250A.
M21	3#3/0, 1#4 G	4#3/0, 1#4 G	300A.
M22	3#4/0, 1#3 G	4#4/0, 1#3 G	350A.
M23	3#4/0, 1#3 G	4#4/0, 1#3 G	400A.
M24	3-250KCM, 1#2 G	4-250KCM, 1#2 G	450A.
M25	3-350KCM, 1#2 G	4-350KCM, 1#2 G	500A.
M26	3-500KCM, 1#1 G	4-500KCM, 1#1 G	600A.
M27	2 SETS OF 3#4/0, 1#1 G EA.	2 SETS OF 4#4/0, 1#1 G EA.	700A.
M28	2 SETS OF 3#4/0, 1#1/0 G EA.	2 SETS OF 4#4/0, 1#1/0 G EA.	800A.
M29	2 SETS OF 3-250KCM, 1#2/0 G EA.	2 SETS OF 4-250KCM, 1#2/0 G EA.	900A.
M30	2 SETS OF 3-350KCM, 1#2/0 G EA.	2 SETS OF 4-350KCM, 1#2/0 G EA.	1000A.
M31	2 SETS OF 3-500KCM, 1#2/0 G EA.	2 SETS OF 4-500KCM, 1#2/0 G EA.	1200A.
M32	4 SETS OF 3-#4/0, 1#4/0 G EA.	4 SETS OF 4#4/0, 1#4/0 G EA.	1600A.
M33	4 SETS OF 3-350KCM, 1-250KCM G EA.	4 SETS OF 4-350KCM, 1-250KCM G EA.	2000A.
M34	5 SETS OF 3-350KCM, 1-250KCM G EA.	5 SETS OF 4-350KCM, 1-250KCM G EA.	2500A.
M35	6 SETS OF 3-350KCM, 1-400KCM G EA.	6 SETS OF 4-350KCM, 1-400KCM G EA.	3000A.
M36	8 SETS OF 3#4/0, 1-500KCM G EA.	8 SETS OF 4#4/0, 1-500KCM G EA.	3200A.
M37	8 SETS OF 3-250KCM, 1-500KCM G EA.	8 SETS OF 4-250KCM, 1-500KCM G EA.	3500A.
M38	8 SETS OF 3-350KCM, 1-500KCM G EA.	8 SETS OF 4-350KCM, 1-500KCM G EA.	4000A

MI CABLE CIRCUIT SIZE SCHEDULE NOTES:

MICS1 UNLESS OTHERWISE INDICATED, FEEDER SIZING SHALL MATCH THE SIZE INDICATED ABOVE FOR THE APPLICABLE OVERCURRENT DEVICE. PROVIDE LARGER FEEDER WHERE INDICATED.

MICS2 PROVIDE 4 WIRE CIRCUIT UNLESS DEVICE/LOAD SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL CONNECTION.

MICS3 GROUNDING CONDUCTOR SHALL BE BARE COPPER AWG IN SIZE INDICATED, RUN IN CENTER OF EACH MI CABLE BUNDLE. USE OF INSULATED GROUNDING CONDUCTORS IS NOT ACCEPTABLE.

MICS4 REFER TO TRANSFORMER SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS FOR PRIMARY AND SECONDARY FEEDERS.

MICS5 REFER TO MOTOR CIRCUIT SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS FOR MOTOR LOADS.

*BEWARE OF SPECIAL VOLTAGE DROP CONSIDERATIONS, MI CABLE VOLTAGE DROP IS SIGNIFICANTLY MORE THAN THE EQUIVELANT CONDUIT AND WIRE ASSEMBLY. REFER TO MANUFACTURER'S VOLTAGE DROP CALCULATIONS AND TABLES. DO NOT EXCEED 2% VOLTAGE DROP.

FEEDER SIZE SCHEDULE

(COPPER CONDUCTORS)

CIRCUIT SYMBOL	CONDUCTORS (1 PHASE, 2W + GND)	CONDUCTORS (3 PHASE, 3W + GND)	CONDUIT SIZE	CONDUCTORS (3 PHASE, 4W + GND)	CONDUIT SIZE	CIRCUIT OR OVERCURRENT RATING
1	2#12, 1#12G	3#12, 1#12G	3/4"	4#12, 1#12G	3/4"	15A
2	2#12, 1#12G	3#12, 1#12G	3/4"	4#12, 1#12G	3/4"	20A
2/5	2#10, 1#10G	3#10, 1#10G	3/4"	4#10, 1#10G	3/4"	25A
3	2#10, 1#10G	3#10, 1#10G	3/4"	4#10, 1#10G	3/4"	30A
3/6	2#8, 1#10G	3#8, 1#10G	3/4"	4#8, 1#10G	1"	35A
4	2#8, 1#10G	3#8, 1#10G	3/4"	4#8, 1#10G	1"	40A
4/5	2#6, 1#10G	3#6, 1#10G	1"	4#6, 1#10G	1"	45A
5	2#6, 1#10G	3#6, 1#10G	1"	4#6, 1#10G	1"	50A
6	2#4, 1#10G	3#4, 1#10G	1 1/4"	4#4, 1#10G	1 1/4"	60A
7	2#4, 1#8G	3#4, 1#8G	1 1/4"	4#4, 1#8G	1 1/4"	70A
8	2#3, 1#8G	3#3, 1#8G	1 1/4"	4#3, 1#8G	1 1/4"	80A
9	2#2, 1#8G	3#2, 1#8G	1 1/4"	4#2, 1#8G	1 1/2"	90A
10	2#1, 1#8G	3#1, 1#8G	1 1/2"	4#1, 1#8G	2"	100A
11	2#1, 1#6G	3#1, 1#6G	1 1/2"	4#1, 1#6G	2"	110A
12	2#1/0, 1#6G	3#1/0, 1#6G	2"	4#1/0, 1#6G	2"	125A
15	2#1/0, 1#6G	3#1/0, 1#6G	2"	4#1/0, 1#6G	2"	150A
17	2#2/0, 1#6G	3#2/0, 1#6G	2"	4#2/0, 1#6G	2"	175A
20	2#3/0, 1#6G	3#3/0, 1#6G	2"	4#3/0, 1#6G	2 1/2"	200A
22		3#4/0, 1#4G	2 1/2"	4#4/0, 1#4G	2 1/2"	225A
28		3-250KCM, 1#4G	2 1/2"	4-250KCM, 1#4G	3"	250A
30		3-350KCM, 1#4G	3"	4-350KCM, 1#4G	3"	300A
35		3-500KCM, 1#3G	3 1/2"	4-500KCM, 1#3G	4"	350A
40		3-500KCM, 1#3G	3 1/2"	4-500KCM, 1#3G	4"	400A
45		2 SETS OF 3#4/0, 1#2G	(2) 2 1/2"	2 SETS OF 4#4/0, 1#2G	(2) 2 1/2"	450A
50		2 SETS OF 3-250KCM, 1#2G	(2) 2 1/2"	2 SETS OF 4-250KCM, 1#2G	(2) 3"	500A
60		2 SETS OF 3-350KCM, 1#1G	(2) 3"	2 SETS OF 4-350KCM, 1#1G	(2) 3"	600A
70		2 SETS OF 3-500KCM, 1#1/0G	(2) 3 1/2"	2 SETS OF 4-500KCM, 1#1/0G	(2) 4"	700A
80		2 SETS OF 3-500KCM, 1#1/0G	(2) 3 1/2"	2 SETS OF 4-500KCM, 1#1/0G	(2) 4"	800A
90		3 SETS OF 3-350KCM, 1#2/0G	(3) 3"	3 SETS OF 4-350KCM, 1#2/0G	(3) 3"	900A
100		3 SETS OF 3-500KCM, 1#2/0G	(3) 3 1/2"	3 SETS OF 4-500KCM, 1#2/0G	(3) 4"	1000A
120		4 SETS OF 3-350KCM, 1#3/0G	(4) 4"	4 SETS OF 4-350KCM, 1#3/0G	(4) 4"	1200A
160		4 SETS OF 3-600KCM, 1#4/0G	(4) 4"	4 SETS OF 4-600KCM, 1#4/0G	(4) 4"	1600A
200		5 SETS OF 3-600KCM, 1-250KCM G	(5) 4"	5 SETS OF 4-600KCM, 1-250KCM G	(5) 4"	2000A
250		6 SETS OF 3-600KCM, 1-350KCM G	(6) 4"	6 SETS OF 4-600KCM, 1-350KCM G	(6) 4"	2500A
300		8 SETS OF 3-500KCM, 1-400KCM G	(8) 3 1/2"	8 SETS OF 4-500KCM, 1-400KCM G	(8) 4"	3000A
320		8 SETS OF 8-600KCM, 1-500KCM G	(8) 4"	8 SETS OF 4-600KCM, 1-500KCM G	(8) 4"	3200A
350		10 SETS OF 3-500KCM, 1-500KCM G	(10) 3 1/2"	10 SETS OF 4-500KCM, 1-500KCM G	(10) 4"	3500A
400		10 SETS OF 3-600KCM, 1-500KCM G	(10) 4"	10 SETS OF 4-600KCM, 1-500KCM G	(10) 4"	4000A

CIRCUIT SYMBOL		CONDUCTORS (3 PHASE, 5W + GND)	CONDUIT SIZE	CIRCUIT OR OVERCURRENT RATING
10		3#1, 2#1N, 1#8G, 1#8IG	2"	100A
12		3#1/0, 2#1/0N, 1#6G, 1#6IG	2"	125A
15		3#1/0, 2#1/0N, 1#6G, 1#6IG	2"	150A
17		3#2/0, 2#2/0N, 1#6G, 1#6IG	2"	175A
20		3#3/0, 2#3/0N, 1#6G, 1#6IG	2 1/2"	200A
22		3#4/0, 2#4/0N, 1#4G, 1#4IG	2 1/2"	225A
25		3-250KCM, 2-250KCM N, 1#4G, 1#4IG	3"	250A
30		3-350KCM, 2-350KCM N, 1#4G, 1#4IG	3"	300A
40		3-500KCM, 2-500KCM N, 1#3G, 1#3IG	4"	400A

CONDUCTORS (3 PHASE, 5 WIRE) WITH GROUNDS CONSIST OF THREE PHASE CONDUCTORS, TWO NEUTRAL CONDUCTOR, (FOR 200% RATED NEUTRALS), AN EQUIPMENT GROUND CONDUCTOR AND AN ISOLATED GROUND CONDUCTOR.

THREE PHASE, 5 WIRE FEEDERS WITH GROUNDS SHALL BE USED FOR FEEDERS SUPPLYING OR BEING FED FROM ELECTRONIC GRADE PANELBOARDS.

121124

CIRCUIT SIZE SCHEDULE NOTES:

CS1 UNLESS OTHERWISE INDICATED, FEEDER SIZING SHALL MATCH THE SIZE INDICATED ABOVE FOR THE APPLICABLE OVERCURRENT DEVICE PROVIDED OR LARGER FEEDER WHERE INDICATED.

CS2 SCHEDULE AS BASED ON THE TYPE THHN/THWN FOR CONDUCTOR SIZES SMALLER THAN #3 AWG AND TYPE XHHW FOR CONDUCTOR SIZES #3 AWG AND LARGER.

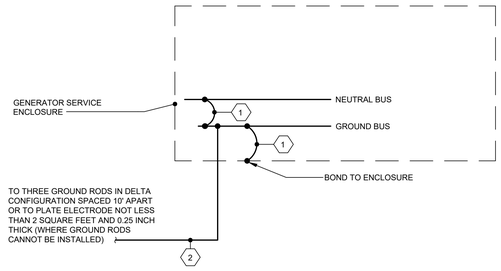
CS3 PROVIDE 4 WIRE CIRCUIT UNLESS EQUIPMENT SERVED DOES NOT HAVE PROVISIONS FOR A NEUTRAL CONNECTION.

CS4 MINIMUM SIZE CONDUIT UNDERGROUND IS 4 INCH EXCEPT 1 INCH FOR SITE BRANCH CIRCUIT FOR SYSTEMS, LIGHTING AND MISCELLANEOUS POWER, UNLESS SPECIFICALLY INDICATED OTHERWISE.

CS5 REFER TO TRANSFORMER SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS FOR PRIMARY AND SECONDARY FEEDERS OF TRANSFORMERS.

CS6 REFER TO MOTOR CIRCUIT SCHEDULE FOR CONDUCTOR AND CONDUIT SIZE REQUIREMENTS FOR EQUIPMENT LOADS.

* CONDUCTOR SIZES ARE BASED ON 60°C TEMPERATURE RATING FOR BREAKER SIZES 100A AND SMALLER AND BASED ON 75°C TEMPERATURE RATING FOR BREAKER SIZES LARGER THAN 100A. NOT MORE THAN THREE CURRENT CARRYING CONDUCTORS SHALL BE PROVIDED IN RACEWAY, CABLE OR EARTH (DIRECT BURY), BASED ON AMBIENT TEMPERATURE OF 30°C, UNLESS OTHERWISE NOTED



1 MAIN BONDING JUMPER: #2/0 AWG

2 SUPPLEMENTAL GROUNDING ELECTRODE BONDING JUMPER CONDUCTOR: #6 AWG

NOTE: CONDUCTOR SIZES LISTED ABOVE ARE FOR COPPER WIRE.

1 GENERATOR GROUNDING DETAIL

SCALE: N.T.S

SEQUENCE OF INSTALLATION

SEQUENCE OF INSTALLATION TO SUPPORT THE REVISED EMERGENCY FEED TO THE HIGH SCHOOL

PHASE-1 AND PHASE-2

1. INSTALL NEW GENERATOR. TEST AND ACCEPT NEW GENERATOR
2. INSTALL NEW EMERGENCY, STANDBY, AND FIRE PUMP FEEDERS FROM NEW GENERATOR TO EXISTING PANEL "GDP" AND FIRE PUMP EMERGENCY DISCONNECT SWITCH IN ELECTRICAL ROOM. ANTICIPATE SHORT OUTAGE ONLY FOR LIFE SAFETY AND STANDBY LOADS (4 HOUR) AND THEN ANOTHER SHORT OUTAGE FOR FIRE PUMP ONLY (4 HOUR).
3. REMOVE EXISTING GENERATOR, INSTALL NEW HIGH SCHOOL SERVICE ENTRANCE SWITCHBOARD HS-MSB-ATS. INSTALL NEW GENERATOR FEEDER TO NEW HS-MSB-ATS, NO OUTAGE. FIELD TEST AND ACCEPT NEW SWITCHBOARD AND COMPONENETS.
4. RELOCATE EXISTING SURGE PROTECTION DEVICE FROM WALL TO FACE OF EXISTING SWITCHBOARD ABOVE MAIN BREAKER. CUT SLAB IN PREP FOR NEW LOAD FEEDER FROM HS-MSB-ATS. INSTALL NEW PULLBOX ON END OF EXISTING SWITCHBOARD. 1-DAY OUTAGE, STILL HAVE GENERATOR POWER.
5. INSTALL (6) NEW FEEDER CONDUITS AND (5) NEW SETS OF CONDUCTORS FROM HS-MSB-ATS TO NEW PULLBOX ON END OF EXISTING SWITCHBOARD. PROVIDE SUFFICIENT LENGTH OF CONDUCTOR FOR CONNECTION TO BUSS OF EXISTING SWITCHBOARD . NO OUTAGE REQUIRED.
6. INSTALL (6) NEW FEEDER CONDUITS AND (5) NEW SETS OF CONDUCTORS FROM UTILITY TRANSFORMER "323" TO HS-MSB-ATS. DO NOT CONNECT TO TRANSFORMER SECONDARIES. UTILITY OUTAGE - 1 DAY - STILL HAVE GENERATOR POWER.
7. DISCONNECT AND REMOVE EXISTING (8) SETS OF NORMAL POWER FEEDER CONDUCTORS BETWEEN UTILITY TRANSFORMER "323" AND HIGH SCHOOL SWITCHBOARD MAIN BREAKER. SEAL CONDUITS AND ABANDON IN PLACE.CONNECT (5) NEW SETS OF CONDUCTORS FROM HS-MSB-ATS TO TRANSFORMER "323" SECONDARIES. UTILITY OUTAGE 1-2 DAYS WILL STILL HAVE GENERATOR POWER.

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PROJECT NAME:
RHAM HIGH AND MIDDLE SCHOOL
EMERGENCY ELECTRICAL
GENERATOR SYSTEM REPLACEMENT -
REGIONAL SCHOOL DISTRICT #8
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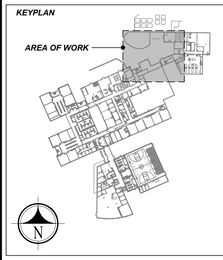
KEYPLAN



REVISIONS

REV. NO.	DATE	DESCRIPTION

DRAWING TITLE:
ELECTRICAL SCHEDULES AND DETAILS

DATE: 09/26/2025
DRAWN BY: EMG
CHECKED BY: SEP
SCALE: NONE
PROJ #: 2023159.01

DRAWING NUMBER:
PHASE I
E302

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File Path: U:\2023\2023159.00\BIM\CAD\.01 Phase I-REBID 2