CITY OF EVANSTON

SPECIFICATIONS AND BID DOCUMENTS
Construction Bid with Sub-Contractors

BID NUMBER: 26-37

For

Service Center Computer Room Air Conditioning Unit Replacement
July 30, 2026

BID DUE DATE:	**2:00 P.M., Tuesday, September 1, 2026**
VIRTUAL BID OPENING:	**2:15 P.M., Tuesday, September 1, 2026** **Google Meet ID:** meet.google.com/erk-vjyw-pza **Phone Numbers:** 617-675-4444 **PIN:** 491 020 418 0044#
MANDATORY PRE-BID MEETING	**10:00 AM, August 11, 2026** **2020 Asbury Avenue, Evanston, IL 60201**
BID BOND:	**5% of Contract Amount**
PERFORMANCE/MATERIAL & LABOR PAYMENT BOND:	**100% of Contract Amount**
CONTRACT PERIOD:	**Substantial Completion: Friday, March 5, 2027** **Final Completion: Friday, May 7, 2027**

ELECTRONIC BID SUBMITTAL:
Bid responses will only be accepted electronically
via E-bidding through DemandStar (WWW.DEMANDSTAR.COM)
It is highly recommended that new DemandStar users complete the account setup process prior to the project due date/time.

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***NOTE: THE SELECTED BIDDER WILL BE SUBJECT TO THE REGULATIONS CONTAINED IN CITY OF EVANSTON ORDINANCE 60-O-14 AMENDMENTS TO THE LOCAL EMPLOYMENT PROGRAM (LEP) AND ORDINANCE 1-O-26 THE RESPONSIBLE BIDDER ORDINANCE**

CITY OF EVANSTON
NOTICE TO BIDDERS

The City's Purchasing Office will receive bids until 2:00 P.M. local time, Tuesday, September 1, 2026, and will be publicly read virtually via Google Meets at 2:15 P.M. Interested parties can use the following link: meet.google.com/erk-vjyw-pza or join by phone 617-675-4444 PIN: 491 020 418 0044# to access the virtual bid opening. Responses will only be accepted electronically via E-bidding through DemandStar (www.demandstar.com). Although registration is required, vendors can download solicitations and upload responses for free. Bids shall cover the following:

Service Center Computer Room Air Conditioning Unit Replacement

Bid Number: 26-37

This is a turn-key project to replace two Liebert Computer Room Air Conditioning (CRAC) units and two roof mounted condensers at the City of Evanston Service Center's Computer Room located at 2020 Asbury in Evanston.

A non-mandatory pre-bid meeting will be held at the Evanston Municipal Service Center, 2020 Asbury Avenue, Evanston, IL 60201 at 10:00 AM on Tuesday, August 11, 2026. The above item shall conform to the Invitation for Bids on file in the Purchasing Office. Parties interested in submitting a bid should contact the Purchasing Office to receive a copy of the bid or see the City's website at: www.cityofevanston.org/business/bids_proposals.php or DemandStar at: www.demandstar.com.

The City of Evanston (the City) in accordance with the laws of the State of Illinois, hereby notifies all Bidders that it will affirmatively ensure that the contract(s) entered into pursuant to this Notice will be awarded to the successful Bidders without discrimination on the ground of race, color, religion, sex, age, sexual orientation, marital status, disability, familial status or national origin. The State of Illinois requires, under Public Works contracts, that the general prevailing rate of wages in this locality be paid for each craft or type of worker hereunder. This requirement is in accordance with the Prevailing Wage Act (820 ILCS 130) as amended. The City of Evanston reserves the right to reject any or all submittals or to accept the submittal(s) deemed most advantageous to the City.

The Evanston City Council also reserves the right to award the contract to an Evanston firm if that firm's bid is within 5% of the low bid.

Each Bidder shall be required to submit with their bid a disclosure of ownership interest statement form in accordance with the provisions of City Code Section 1-18-1 *et seq*. Failure to submit such information will result in the disqualification of such bid.

Cheryl Stuart
Purchasing Specialist

INSTRUCTIONS TO BIDDERS/REQUIREMENTS FOR BIDDING
(CONTRACTS OVER $25,000)

1. ONLINE NOTIFICATION OF SOLICITATIONS

The City is utilizing Demandstar.com (www.demandstar.com) for online notification purposes only for sealed bids when it is anticipated that the amount of the resulting contract will be in excess of its formal bid limit of $25,000, such as this requirement. Interested Bidders are required to submit a sealed bid to the City by the date/time indicated for this requirement on the forms provided by the City.

2. SUBMISSION OF BIDS

A. The City of Evanston will no longer accept hard copy paper submittals for any solicitation. Responses will only be accepted electronically via E-bidding through DemandStar (WWW.DEMANDSTAR.COM). Although registration is required, vendors can download solicitations and upload bid responses for free. **Please refer to the attached DemandStar E-bidding documents.**

B. ANY BIDS RECEIVED AFTER THE TIME AND DATE SPECIFIED FOR THE RECEIPT OF BIDS WILL NOT BE ACCEPTED. It is the sole responsibility of the Bidder to ensure that his or her bid is delivered by the stated bid opening time. THE CITY IS NOT RESPONSIBLE FOR INCOMPLETE UPLOADED SUBMITTALS.

C. Bids will be opened on the date and time stated.

D. Any Bidder may withdraw his or her bid by letter or with proper identification by personally securing his or her bid at any time prior to the stated bid opening time. No telephone request for withdrawal of bids will be honored.

3. PREPARATION OF BIDS

The Bidder must prepare the bid on the attached bid forms. Unless otherwise stated, all blank spaces on the bid form or pages must be filled in. Either a unit price, lump sum price, or a "no-bid", as the case may be, must be stated for each and every item and must be either typed in or written in ink.

4. SIGNING OF BIDS

A. Bids which are signed for a partnership should be signed in the firm's name by all partners or in the firm's name by Attorney-in-Fact. If signed by Attorney-in-Fact, there should be attached to the bid a Power of Attorney evidencing authority to sign the bid, dated the same date as the bid and executed by all partners of the firm.

B. Bids which are signed for a corporation should have the correct corporate name

thereon and signature of an authorized officer of the corporation manually written below the corporate name following words "By: "_____" title of office held by the person signing for corporation, which shall appear below signature of an officer.

C. Bids which are signed by an individual doing business under a fictitious name should be signed in the name of the individual "doing business as. _____."

D. The name of each person signing the bid shall be typed or printed below his or her signature.

5. CONSIDERATION OF BIDS

The Purchasing Specialist shall represent and act for the City in all matters pertaining to this bid and the contract in conjunction therewith.

6. WITHDRAWAL OF BIDS

Bidders may withdraw or cancel their bids at any time prior to the advertised bid opening time. After the bid opening time, no bid shall be withdrawn or canceled for a period of sixty (60) calendar days. When contract approval is required by another agency, such as the Federal Government or the State of Illinois, no bid shall be withdrawn or canceled for a period of ninety (90) calendar days.

7. ERRORS IN BIDS

Bidders are cautioned to verify their bids before submission. Negligence on the part of the respondent in preparing the bid confers no right for withdrawal or modification of the bid after it has been opened. In case of error in the extension of prices in the bid, unit prices will govern.

8. ADDENDA

A. Any and all changes to the specifications/plans are valid only if they are included by written addendum to all Bidders. Each Bidder must acknowledge receipt of any addenda by indicating on the Bid form. Each Bidder, by acknowledging receipt of any addenda, is responsible for the contents of the addenda and any changes to the bid therein. Failure to acknowledge any addenda may cause the bid to be rejected.

B. Addenda information is available over the internet at: City of Evanston Notices to Bidders or www.demandstar.com, or by contacting the Purchasing Office.

9. RESERVED RIGHTS

The City of Evanston reserves the right at any time and for any reason to cancel his or her solicitation, to accept or reject any or all bids or any portion thereof, or to accept an alternate response. The City reserves the right to waive any immaterial defect in any response. The City may seek clarification from any respondent at any time, and failure to respond within a reasonable time period, or as otherwise directed, will be cause for rejection.

10. AWARD

It is the intent of the City to award a contract to the lowest responsible Bidder meeting specifications. The City reserves the right to determine the lowest responsible Bidder on the basis of an individual item, groups of items, or in any way determined to be in the best interest of the City. Award will be based on the following factors (where applicable): (a) adherence to all conditions and requirements of the bid specifications; (b) price; (c) qualifications of the Bidder, including past performance, financial responsibility, general reputation, experience, service capabilities, and facilities; (d) delivery or completion date; (e) product appearance, workmanship, finish, taste, feel, overall quality, and results of product testing; (f) maintenance costs and warranty provisions; and (g) repurchase or residual value.

11. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

Bidder's shall promptly notify the City of any ambiguity, inconsistency, or error that they discover upon examination of the bidding documents. Interpretations, corrections, and changes will be made by addendum. Each Bidder shall ascertain prior to submitting a bid that all addenda have been received and are acknowledged in the bid.

12. INCONSISTENCIES AND OMISSIONS

These specifications and the accompanying plans, if any, are intended to include all information necessary for the work contemplated. If, by inadvertence or otherwise, the plans or specifications omit some information necessary for that purpose, the contractor shall, nevertheless, be required to perform such work at no additional cost to the City so that the project may be completed according to the true intent and purpose of the plans and specifications.

13. CONDITIONS

Bidders are advised to become familiar with all conditions, instructions, and specifications governing his or her bid. Once the award has been made, failure to have read all the conditions, instructions and specifications of this contract shall not permit the Bidder to amend contract or to request additional compensation.

14. VERIFICATIONS OF DATA

A. It is understood and agreed that the unit quantities given in these specifications are approximate only, and the contractor shall verify these quantities before bidding as no claim shall be made against the City on, or account of, any excess or deficiency in the same.

B. The contractor shall have visited the premises and determined for itself, by actual observation, boring, test holes, or other means, the nature of all soil and water conditions (both above and below ground in the line of work) that may be encountered in all construction work under this contract. The cost of all such inspection, borings, etc. shall be borne by the contractor, and no allowance will be made for the failure of the contractor to estimate correctly the difficulties

attending the execution of the work.

15. SPECIFICATIONS

Reference to brand names and numbers is meant to be descriptive, not restrictive, unless otherwise specified. Bids on equivalent items will be considered, provided the Bidder clearly states exactly what is proposed to be furnished, including complete specifications. Unless the Bidder specifies otherwise, it is understood the Bidder is offering a referenced brand item as specified or is bidding as specified when no brand is referenced, and does not propose to furnish an "equal." The City reserves the right to determine whether a substitute offer is equivalent to, and meets the standard of quality indicated by the brand name and number.

16. SAMPLES

When samples of items are called for by the specifications, samples must be furnished free of expense, and if not destroyed in the evaluation process will be returned at the Bidder's expense upon request. Request for the return of samples must accompany the sample and must include a UPS/Fed-Ex Pickup Slip, postage, or other acceptable mode of return. Individual samples must be labeled with Bidder's name, invitation number, item reference, manufacturer's brand name and number.

17. REGULATORY COMPLIANCE

Each Bidder represents and warrants that the goods or services furnished hereunder (including all labels, packages and containers for said goods) comply with all applicable standards, rules and regulations in effect under the requirements of all Federal, State, and local laws, rules and regulations as applicable, including the Occupational Safety and Health Act as amended, with respect to design, construction, manufacture, or use for their intended purpose of said goods or services. Each Bidder must furnish a "Material Safety Data Sheet" in compliance with the Illinois Toxic Substances Disclosure to Employees Act when required.

18. PRICING

The price quoted for each item is the full purchase price, including delivery to destination, and includes all transportation and handling charges, materials or service costs, patent royalties, and all other overhead charges of every kind and nature. Unless otherwise specified, prices shall remain firm for the contract period.

19. DISCOUNTS

Prices quoted must be net after deducting all trade and quantity discounts. Where cash discounts for prompt payment are offered, the discount period shall begin with the date of receipt of a correct invoice or receipt or final acceptance of goods, whichever is later.

20. INSPECTION

Materials or equipment purchased are subject to inspection and approval at the City's destination. The City reserves the right to reject and refuse acceptance of items which are not in accordance with the instructions, specifications, drawings or data of Seller's warranty (express or implied). Rejected materials or equipment shall be removed by, or at the expense of, the Seller promptly after rejection.

21. BIDS AND PLAN DEPOSITS

A. When required on the cover sheet, all bids shall be accompanied by a bid deposit in the amount specified. Bid deposits shall be in the form of cash, a certified check, or cashier's check drawn on a responsible bank doing business in the United States and shall be made payable to the City of Evanston. Bid Bonds are also acceptable. All bids not accompanied by a bid deposit, when required, will be rejected.

B. The City will return the bid deposits of all but the 3 lowest qualified Bidders, whose deposit will be held until contract award or at the expiration of the sixty-day or ninety-day period for bid award.

C. The bid deposit of the successful Bidder will be retained until contract documents have been executed and the Contractor has submitted all the required information. Failure to comply with the terms of this specification may be cause for forfeiture of said deposit.

D. When required, plan deposits will be refunded should the plans be returned in good condition within 10 days of the bid opening.

22. DISPUTES

Any dispute concerning a question of fact arising under this bid shall be decided by the Purchasing Specialist, who shall issue a written decision to the Bidder. The decision of the Purchasing Specialist shall be final and binding.

23. CATALOGS

Each Bidder shall submit, when requested by the Purchasing Specialist, catalogs, descriptive literature, and detailed drawings, fully detailing features, designs, construction, appointments, finishes and the like not covered in the specifications, necessary to fully describe the material or work proposed to be furnished.

24. TAXES

A. Federal Excise Tax does not apply to materials purchased by the City of Evanston by virtue of Exemption Certificate No. A-208762, Illinois Retailers' Occupation Tax, Use Tax, and Municipal Retailers' Occupation Tax do not apply to materials or services purchased by the City of Evanston by virtue of Statute.

B. The City of Evanston is exempt from Illinois Sales Tax by virtue of Exemption Identification number E9998-1750.

C. The City's federal tax ID number is 36-6005870.

25. PERMITS & FEES

All Bidders awarded a contract must secure and pay for any licenses required by the City of Evanston. Necessary building permits will be required, but all permit fees will be waived and moneys for same must not be included in any bid.

26. ROYALTIES & PATENTS

Seller must pay all royalties and license fees. Seller must defend all suits or claims for infringement of any patent, copyright or trademark rights, and must hold the City harmless from loss on account thereof.

27. LOCAL PREFERENCE POLICY

The Evanston City Council reserves the right to award the contract to an Evanston firm if the firm's bid is within five (5%) percent of the low bid of a non-Evanston firm.

28. RESPONSIBLE BIDDER POLICY

All contractors must follow the requirements of Ordinance 1-O-26, the City's Responsible Bidder Ordinance. Ordinance 1-O-26 is attached hereto for reference. The following items are required of all contractors:

- **Local Employment Program (LEP):** Contractors must ensure that at least 15% of total on-site work hours are performed by Evanston residents and that at least one Evanston resident is hired. These obligations apply across all tiers of subcontractors and must be documented.
- **Apprenticeship Training Program:** Bidders shall submit evidence of enrollment in a U.S. Department of Labor registered Apprenticeship Training Program for each construction craft performed. These programs must have graduated at least five apprentices in each of the last five years.
- **Minimum Performance Threshold:** Named bidder must directly perform at least 25% of project services. Affiliates or subsidiaries do not count toward this percentage.
- **Commercially Useful Function:** All contractors and subcontractors must actively manage and perform contract work. Excessive subcontracting or pass-through participation may result in disqualification.
- **Subcontractor Disclosure:** Submit the name, address, and documentation for all subcontractors with bid. Each subcontractor must comply with all requirements set forth in this template.

29. POWER OF ATTORNEY

An Attorney-In-Fact, who signs any and all of the bond or contract bonds submitted with this bid, must file with each bond a certified and effectively dated copy of their Power of Attorney. These dates should be the same or after the date of the contract.

30. WARRANTY

A. The contractor warrants that all goods and services furnished to the City shall be in accordance with specifications and free from any defects of workmanship and materials: that goods furnished to the City shall be merchantable and fit for the City's described purposes, and that no governmental law, regulation, order, or rule has been violated in the manufacture or sale of such goods.

B. The contractor warrants all equipment furnished to be in acceptable condition, and to operate satisfactorily for a period of one (1) year from delivery of, or the completion of installation, whichever is latest, unless stated otherwise in the specifications, and that if a defect in workmanship and/or quality of materials are evidenced in this period, the Seller shall remit full credit, replace, or repair at City's discretion immediately, such equipment and/or parts that are defective at no additional cost to the City.

C. The contractor warrants to the City that each item furnished hereunder, and any component part thereof, will be new and in conformity with the specifications in all respects, unless otherwise specified, and is of the best quality of its respective kind, free from faulty workmanship, materials, or design, and installed sufficiently to fulfill any operating conditions specified by the City.

D. The contractor shall repair or replace any item or component part thereof found not to be in conformity with this paragraph provided the City notified the Seller of such nonconformity within one (1) year after initial use or within eighteen (18) months after delivery, whichever occurs first. In the event Seller fails to proceed diligently to so replace or repair within a reasonable time after receipt of such notice, the City may undertake or complete such replacement or repair for Seller's account, and the seller will be responsible for any additional costs. Acceptance shall not relieve the seller of its responsibility.

31. INCURRED COSTS

The City will not be liable for any costs incurred by Bidders in replying to this invitation for bids.

32. VARIANCES

Each Bidder must state or list by reference any variations to specifications, terms and/or conditions set forth herein with its bid.

33. INDEMNIFICATION

A. The awarded Bidder/Contractor shall defend, indemnify and hold harmless the City and its officers, elected and appointed officials, agents, and employees from any and all liability, losses, or damages as a result of claims, demands, suits, actions, or proceedings of any kind or nature, including but not limited to costs, and fees, including attorney's fees, judgments or settlements, resulting from or arising out of any negligent or willful act or omission on the part of the Contractor

or Contractor's sub-contractors, employees, agents or sub-contractors during the performance of this Agreement. Such indemnification shall not be limited by reason of the enumeration of any insurance coverage herein provided. This provision shall survive completion, expiration, or termination of this Agreement.

B. Nothing contained herein shall be construed as prohibiting the City, or its officers, agents, or employees, from defending through the selection and use of their own agents, attorneys, and experts, any claims, actions or suits brought against them. The Contractor shall be liable for the reasonable costs, fees, and expenses incurred in the defense of any such claims, actions, or suits. Nothing herein shall be construed as a limitation or waiver of defenses available to the City and employees and agents, including but not limited to the Illinois Local Governmental and Governmental Employees Tort Immunity Act, 745 ILCS 10/1-101 *et seq.*

C. At the City Corporation Counsel's option, Contractor must defend all suits brought upon all such Losses and must pay all costs and expenses incidental to them, but the City has the right, at its option, to participate, at its own cost, in the defense of any suit, without relieving Contractor of any of its obligations under this Agreement. Any settlement of any claim or suit related to this Project by Contractor must be made only with the prior written consent of the City Corporation Counsel, if the settlement requires any action on the part of the City.

D. To the extent permissible by law, Contractor waives any limits to the amount of its obligations to indemnify, defend, or contribute to any sums due under any Losses, including any claim by any employee of Contractor that may be subject to the Illinois Compensation Act, 820 ILCS 305/1 *et seq.* or any other related law or judicial decision, including but not limited to, *Kotecki v. Cyclops Welding Corporation,* 146 Ill. 2d 155 (1991). The City, however, does not waive any limitations it may have on its liability under the Illinois Workers Compensation Act, the Illinois Pension Code or any other statute.

E. The Contractor shall be responsible for any losses and costs to repair or remedy work performed under this Agreement resulting from or arising out of any act or omission, neglect, or misconduct in the performance of its Work or its sub-contractors' work. Acceptance of the work by the City will not relieve the Contractor of the responsibility for subsequent correction of any such error, omissions and/or negligent acts or of its liability for loss or damage resulting therefrom.

F. All provisions of this Section 32 shall survive completion, expiration, or termination of this Agreement.

34. DEFAULT

Time is of the essence as to the awarded contract and, of delivery or acceptable items or rending of services is not completed by the time promised, the City

reserves the right, without liability, in addition to its other rights and remedies, to terminate the contract by notice effective when received by Seller, as to stated items not yet shipped or services not yet rendered and to purchase substitute items or services elsewhere and charge the Seller with all losses incurred. The City shall be entitled to recover its attorney's fees and expenses in any successful action by the City to enforce this contract.

35. GOVERNING LAW

This contract shall be governed by and construed according to the laws of the State of Illinois. In the event of litigation, the venue will be Cook County, Illinois.

36. EQUAL EMPLOYMENT OPPORTUNITY

A. In the event of the contractor's noncompliance with any provision of the Illinois Human Rights Act or Section 1-12-5 of the Evanston City Code, the contractor may be declared non-responsible and therefore ineligible for future contracts or sub-contracts with the City of Evanston, and the contract may be canceled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by Statute or regulation.

B. During the performance of this contract, the contractor agrees as follows:

1. That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin or ancestry, or age or physical or mental handicap that does not impair ability to work, and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization. Contractor shall comply with all requirements of City of Evanston Code Section 1-12-5.

2. That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, national origin or ancestry.

3. That, if it hires additional employees in order to perform this contract, or any portion hereof, it will determine that availability (in accordance with the Fair Employment Commission's Rules and Regulations for Public Contracts) of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

4. That it will send to each labor organization or representative of workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the contractor's obligations under the Illinois Fair Employment Practices Act and the Fair Employment Practices Commission's Rules and

Regulations for Public Contracts. If any such labor organization or representative fails or refuses to cooperate with the contractor in its efforts to comply with such Act and Rules and Regulations, the contractor will promptly so notify the Illinois Fair Employment Practices Commission and the contracting agency and will recruit employees from other sources when necessary to fulfill its obligations hereunder.

5. That it will submit reports as required by the Illinois Fair Employment Practices Commission's Rules and Regulations for Public Contracts, furnish all relevant information as may from time to time be requested by the Fair Employment Practices Commission or the contracting agency, and in all respects comply with the Illinois Fair Employment Practices Commission's Rules and regulations for Public Contracts.

6. That it will permit access to all relevant books, records, accounts and work sites by personnel of the contracting agency, the City Manager, the Commission and the Illinois Fair Employment Practices Commission for purposes of investigation to ascertain compliance with the Illinois Fair Employment Practices Act and the Fair Employment Practices Act and the Fair Employment Practices Commission's Rules and Regulations for Public Contract.

7. That it will include verbatim or by reference the provisions of subsections (A) through (G) of this clause in every performance sub-contract as defined in Section 2.10(b) of the Fair Employment Practices Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such sub-contractor; and that it will also include the provisions of subsections (A), (E), (F), and (G) in every supply sub-contract as defined in Section 2.10(a) of the Fair Employment Practices Commission's Rules and Regulations for Public Contracts so that such provisions will be binding upon every such sub-contractor. In the same manner as with other provisions of this contract, the contractor will be liable for compliance with applicable provisions of this clause by all its sub-contractors; and further it will promptly notify the contracting agency and the Illinois Fair Employment Practices Commission in the event any sub-contractor fails or refuses to comply therewith. In addition, no contractor will utilize any sub-contractor declared by the Fair Employment Practices Commission to be non-responsible and therefore ineligible for contracts or sub-contracts with the State of Illinois or any of its political subdivisions or municipal corporations.

37. M/W/D/EBE GOAL

The City of Evanston has a goal of awarding 25% of its contracts to Minority-Owned, Women-Owned, Disadvantaged Enterprise, and Evanston-based businesses (M/W/D/EBEs). All Bidders must state the proposed involvement of M/W/D/EBEs in completing a portion of the services required by the City by completing the attached M/W/D/EBE forms. Any questions regarding

M/W/D/EBE compliance should be submitted in writing to Tammi Nunez, Purchasing Manager at tnunez@cityofevanston.org.

38. LOCAL EMPLOYMENT PROGRAM REQUIREMENTS

In an effort to increase hiring of economically disadvantaged Evanston residents on certain City construction projects, the contractor shall comply with the provisions of the City of Evanston's Local Employment Program Ordinance (LEP) set forth in Section 1-17-1 (C) of the Evanston City Code. The intent of the LEP is to have Evanston residents employed at the construction site as laborers, apprentices, and journeymen in such trades as electrical, HVAC, carpenters, masonry, concrete finishers, truck drivers, and other construction occupations necessary for the project. Any questions regarding LEP compliance should be submitted in writing to Jessica Cooper, the Workforce Development Coordinator at jcooper@cityofevanston.org or Tammi Nunez, Purchasing Manager at tnunez@cityofevanston.org.

NOTE: CITY OF EVANSTON ORDINANCE 60-O-14 AMENDMENT LOCAL EMPLOYMENT PROGRAM (LEP) available on the city website at: Ordinance 60-O-14 Amendment LEP

39. BIDDER SUBMITAL REQUIREMENTS FOR RESPONSIBLE BIDDER ORDINANCE

Documentation or Certification	Description
OSHA Certification	10-hour or greater OSHA safety card copies for all employees on-site
Prevailing Wage Compliance	Statement confirming 5-year compliance with the Illinois Prevailing Wage Act
Substance Abuse Program	Copy of written program per 820 ILCS 265/1
Workers' Compensation Policy	Active policy and classification documentation
UI Act Registration	IDES current registration
Corporate Status	Illinois Secretary of State Business Services record
Tax and Legal Disclosures	List of liens, judgments, or violations from the last 5 years
Business Licenses	Copies of all relevant licenses with current status
Statement of Similar Projects	Last 5 years' public works projects with references
Performance History	Public body contracts completed in the last 3 years
Subcontractor Information	Full documentation for each subcontractor
Sam.gov ID Number	ID Number to be used on projects with State or Federal Funding

If applicable, compliance documentation under:

- Davis-Bacon and Related Acts
- Employee Certification Act
- 720 ILCS 5/33-11 Anti-Bid Rigging Certification

Additional contractor responsibilities include:

- Submission of certified payrolls within five (5) working days of each pay period end
- Identification of all employees by name, address, craft, status, and hire date
- Documentation that all employees are properly classified and licensed
- Notification within two (2) business days of any resident employee resignations or terminations
- Replacement of Evanston resident employees within five (5) business days to avoid penalties
- Provision of required documentation prior to any subcontractor commencing work

Failure to meet these requirements may result in penalties of up to 1% of the approved project price and may jeopardize future eligibility for City contracts.

40. **PROJECT LABOR AGREEMENT NOTICE** (if required)

A Project Labor Agreement (PLA) may be required. If so, all successful bidders must become signatories to the PLA for the duration of the project. There is no requirement to affiliate with a union, and non-union bidders are fully eligible.

41. **QUESTIONS**

All questions related to this bid document should be submitted in writing to Cheryl Stuart, Purchasing Specialist at cstuart@cityofevanston.org with a copy to Shane Cary, at scary@cityofevanston.org. Only inquiries received a minimum of seven (7) working days prior to the date set for the opening of bids, will be given any consideration.

42. **COORDINATION OF EXISTING SITE WITH DRAWINGS**

A. Before submitting a bid, bidders shall carefully examine the drawings and specifications, visit the site, and fully inform themselves as to all conditions and limitations.

B. Should a bidder find discrepancies in, or omissions from the drawings or specifications, or should be in doubt as to their meaning, the bidder should at once notify the Purchasing Specialist, who will issue necessary instructions to all bidders in the form of an addendum.

43. AFFIRMATIVE ACTION IN SUB-CONTRACTING (EXCERPT FROM RESOLUTION 59-R-73)

"Contractor agrees that he shall actively solicit bids for the sub-contracting of goods or services from qualified minority businesses. At the request of the City, Contractor shall furnish evidence of his compliance with this requirement of minority solicitation. Contractor further agrees to consider the grant of sub-contracts to said minority bidders on the basis of substantially equal bids in the light most favorable to said minority businesses. Contractor further affirms that in obtaining his performance and bid bonds, he will seek out and use companies who have records of, and/or who will make commitments to, the bonding of minority contractors on a rate basis comparable to their bonding of similar non-minority contractors. The contractor may be required to submit this evidence as part of the bid or subsequent to it."

44. COMPLIANCE WITH LAWS

A. The bidder shall at all times observe and comply with all laws, ordinances, and regulations of the Federal, State, Local, and City Governments, which may in any manner affect the preparation of bids or the performance of the contract.

45. QUALIFICATION OF BIDDERS

A. All bidders must be qualified in accordance with the instructions, procedures, and methods set forth in this specification.

B. In awarding contract, City may take into consideration, skill, facilities, capacity, experience, ability, responsibility, previous work, financial standing of bidder, amount of work being carried on by bidder, quality and efficiency of construction equipment proposed to be furnished, period of time within which proposed equipment is furnished and delivered, necessity of prompt and efficient completion of work herein described. Inability of any bidder to meet the requirements mentioned above may be cause for rejection of the bid. In addition, if the project covered by this contract is a minority set-aside project, the contractor's qualifications as a minority firm will determine the eligibility of the contractor to bid.

46. COMPETENCY OF BIDDER

A. No bid will be accepted from or contract awarded to any person, firm or corporation that is in arrears or is in default to the City of Evanston upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to said City, or had failed to perform faithfully any previous contract with the City.

B. The bidder, if requested, must present within forty-eight (48) hours evidence satisfactory to the Purchasing Manager of performance ability and possession of necessary facilities, pecuniary resources and adequate insurance to comply with the terms of these specifications and contract documents.

47. PREFERENCE TO CITIZENS

The Contractor shall abide by the Illinois Preference Act, 30 ILCS 570 et seq., which stipulates that whenever there is a period of excessive unemployment in Illinois, defined as any month immediately following two (2) consecutive months during which the level of unemployment in Illinois exceeds five percent (5%) as measured by the U.S. Bureau of Labor Statistics in its monthly publication of employment and unemployment figures, the Contractor shall employ only Illinois laborers unless otherwise exempted as so stated in the Act. ("Illinois laborer" means any person who has resided in Illinois for at least 30 days and intends to become or remain an Illinois resident.) Other laborers may be used IF Illinois laborers are not available or are incapable of performing the particular type of work involved, if so certified by the Contractor and approved by the project engineer.

GENERAL CONDITIONS

1. BASIS OF AWARD

The City of Evanston reserves the right to award a contract to a responsive and responsible Bidder(s) who submits the lowest total bid, or to reject any or all bids and bidding, when in its opinion the best interest of the City will be served by such action. The City reserves the right to consider the specified alternates in its evaluation of the bids.

2. BIDS

A. LUMP SUM BID

1. The bidder is to submit a lump sum bid for each bid line on the Bid Form which includes all costs incidental to performing the specified work. It is understood and agreed that the unit quantities given in the supporting pages are approximate only and the bidder shall verify these quantities before bidding as no claim shall be made against the City on account of any excess or deficiency in the same.

3. QUANTITIES

Any quantities shown on the Bid Form are estimated only for bid canvassing purposes, the City has made a good faith effort to estimate the quantity requirements for the Contract term. The City reserves the right to increase or decrease quantities ordered under this contract.

4. CONTRACT TERM

Bidder must fully complete the work within the period specified herein after award of the contract by the City.

5. NOTICE TO PROCEED/ PURCHASE ORDER/ CONTRACT

A. The City issued Purchase Order serves as the City official Notice to Proceed. No work will be allowed prior to Contractor receipt of the City issued Purchase Order.

B. Upon approval of the required bonds and insurance documents, the City will issue a Purchase Order to the Contractor for the contract amount. All Applications for Payment must reference the Purchase Order number.

C. When it is necessary to issue a Change Order that increases/decreases the contract amount, a Change Order form will be issued and a modified Purchase Order will be issued reflecting the revised contract amount.

D. When it is necessary to issue a Change Order that only increases/decreases the contract period, only a Change Order form will be issued, establishing the revised contract period.

E. Upon Award, the contractor shall execute the Contractor Services Agreement.

6. PAYMENT

A. Progress payments will be made in accordance with "Applications for Payment" and "Project Closeout" sections of the specifications, **before 50% completion,** less a 10% retainage for each payment; **at or after 50% completion,** less a 5% retainage for each payment, which will be held until final acceptance of the work by the City. Certification of each Application for Payment will be made by the City's representative.

B. All payments will be made in accordance with the *Illinois Local Government Prompt Payment Act.*

7. DECISIONS TO WITHHOLD CERTIFICATION FOR PAYMENT

A. The City may not certify payment and may withhold payment in whole or in part, to the extent reasonably necessary to protect the City, if the quality of the work is not in accordance with the contract documents. If the City is unable to certify payment in the amount of the invoice, the City will promptly issue payment for the amount of the Work completed in accordance with the contract documents. The City may not certify payment due to any contractor negligence or contract non-compliance.
   a. Defective work not remedied
   b. Third-party claims filed or reasonable evidence indicating probable filing of such claims
   c. Failure of Contractor to make payments properly to Sub-contractors for labor, materials or equipment
   d. Reasonable evidence that the work cannot be completed for the unpaid balance of the Contract Sum
   e. Damage to the City or another contractor
   f. Reasonable evidence that the work will not be completed within the Contract period and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay
   g. Persistent failure to carry out work in accordance with the Contract Documents.

8. CHANGES IN WORK

A. The City reserves the right to make changes in the plans and specifications by altering, adding to, or deducting from the work, without invalidating the contract. All such changes shall be executed under the conditions of the original contract, except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

B. No change shall be made unless a written Change Order and/or modified Purchase Order is issued by the City stating that the City has authorized the change, and no claim for an addition to the contract shall be valid unless so ordered.

C. If such changes diminish the quantity of work to be done they shall not constitute a claim for damage or anticipated profits on the work, such increase shall be paid in one or more of the following ways:

1. by estimate and acceptance in lump sum

2. by unit prices named in the contract's bid form or subsequently agreed upon

D. Whenever the quantity of any pay item as given in the proposal shall be increased or decreased, payment shall be made on the basis of the actual quantity completed at the unit price for such pay item named in the proposal.

9. DEDUCTION FOR UNCORRECTED WORK

If the City deems it expedient to correct work damaged or not done in accordance with the contract, the difference in value, together with a fair allowance for damage shall be deducted from the contract amount due. The value of such deduction shall be determined by the City.

10. CITY'S RIGHT TO TERMINATE CONTRACT

The City reserves the right, in addition to other rights to termination, to terminate the contracts in accordance with all provisions of the executed contract.

11. LIENS

A. Neither the final payment nor any part of any retained percentages, shall become due until the contractor, if required, delivers to the City, a complete release of all liens arising out of this contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as it has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed. If any lien remains unsatisfied after all payments are made the contractor shall refund to the City all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and attorney's fees.

12. SEPARATE CONTRACTS

A. The City reserves the right to let other contracts in connection with this work. The contractor shall afford other contractors' reasonable opportunity for the introduction and storage of their materials and the execution of their work and shall properly connect and coordinate his or her work with theirs. If any part of the contractor's work depends on proper execution or results upon the work of any other contractor, the contractor shall inspect and promptly report to the City any defects in such work that render it unsuitable for such proper execution and results. His or her failure to so inspect and report shall constitute an acceptance of other contractor's work as fit and proper.

B. To insure the proper execution of his or her subsequent work, the contractor shall measure work already in place and shall at once report to the City any

discrepancy between the executed work and the drawings which will affect his or her work.

13. PROTECTION & SAFEGUARDS

A. Unless otherwise specified, the contractor, as a part of this contract, shall provide, erect, and maintain temporary roads, fences, bracing, lights, warning signs, barricades, etc. necessary for the protection of the construction materials, adjacent property and the public.

B. The contractor shall contact all utilities which will be affected by its operations and notify the owners of the utilities of its operations and their limits within forty-eight (48) hours prior to beginning construction. The contractor shall be responsible for damage to utilities and shall, at his or her own expense, restore such property to a condition equal to that which existed before its work, as may be directed by the owners.

C. The contractor shall protect all work and unused materials of this contract from any and all damage and shall be solely responsible for the condition of such work and materials.

14. MATERIAL STORAGE

A. On-site areas may be designated for material/equipment storage. The contractor will assume all risk and liability associated with the storage of material/equipment at on-site locations.

15. CLEANING UP

A. The contractor shall at all time keep the premises free from accumulation of waste material or rubbish caused by its employees or work and at the completion of the work it shall remove all its rubbish, tools, and surplus materials from the premises, leaving the area in a neat and workmanlike condition. In case of dispute, the City may remove the rubbish and charge the cost to the contractor.

B. Contractor recognizes that proper cleanup and removal of construction debris is an important safety consideration. The Contractor shall be solely responsible for daily construction site/area cleanup and removal of all construction debris in accordance with City-approved disposal practices. Contractor shall be solely responsible for identifying and removing at its expense all hazardous material and waste which it uses and generates.

16. RESTORATION OF SITE

A. Prior to final payment, contractor shall fully restore all property disturbed or damaged during the course of this work. This includes, but is not limited to public property, (walks, curbs, roadways, trees, etc.) private property, and utilities. This shall also include removal of temporary facilities erected during the course of this contract and restoration of these areas.

B. All restoration work shall be subject to the approval of the City and shall restore

the property to a condition at least equal to that existing prior to the start of this contract.

C. All restoration work of property damaged by contractor shall be accomplished at the sole expense of the contractor.

17. PREVAILING WAGE

A. Prospective Bidders shall thoroughly familiarize themselves with the provisions of the above-mentioned Act and shall prepare any and all bids/bids in strict compliance therewith.

B. All work performed on new and existing projects must be submitted to Illinois Department of Labor through the certified transcript of payroll portal. You may access the portal here: Certified Transcript of Payroll Portal

All contractors and sub-contractors on public works projects ***must submit and upload certified payrolls*** on a monthly basis to the **IDOL** online portal, provide a pdf copy to the City's project manager and business work force development coordinator, along with a statement affirming that such records are true and accurate, that the wages paid to each worker are not less than the required prevailing rate and that the contractor is aware that filing records her or she knows to be false is a Class B misdemeanor.

C. The certified payroll record must include for every worker employed on the public works project the name, address, telephone number, social security number, job classification, hourly wages paid in each pay period, number of hours worked each day, and starting and ending time of work each day. These certified payroll records are considered public records and public bodies must make these records available to the public under the Freedom of Information Act, with the exception of the employee's address, telephone number and social security number. Any contractor who fails to submit a certified payroll or knowingly files a false certified payroll is guilty of a Class B misdemeanor.

D. All certified payrolls shall be submitted in electronic format, preferably a PDF file.

E. As a condition of receiving payment, Contractor must (i) be in compliance with the Agreement, (ii) pay its employees prevailing wages when required by law (Examples of prevailing wage categories include public works, printing, janitorial, window washing, building and grounds services, site technician services, natural resource services, security guard and food services). Contractor is responsible for contacting the Illinois Dept. of Labor 217-782-1710; https://www2.illinois.gov/idol/Laws-Rules/CONMED/Pages/prevailing-wage-act.aspx compliance with prevailing wage requirements), (iii) pay its suppliers and sub-contractors according to the terms of their respective contracts, and (iv) provide lien waivers to the City upon request.

18. CONTRACTOR REQUIREMENTS

A. The Contractor shall abide by and comply with all local, State and federal laws and regulations relating to contracts involving public funds and the development/construction of public works, buildings, or facilities. The scale of wages to be paid shall be obtained from Illinois Department of Labor and posted by the Contractor in a prominent and accessible place at the project work site.

B. The Contractor certifies it has not been barred from being awarded a contract with a unit of State or local government as a result of bid rigging or bid rotating or any similar offense (720 ILCS 5/33 E-3, E-4).

C. The Contractor certifies, pursuant to the Illinois Human Rights Act (775 ILCS 5/2-105), that it has a written sexual harassment policy that includes, at a minimum, the following information: (1) the illegality of sexual harassment, (2) the definition of sexual harassment under State law, (3) a description of sexual harassment utilizing examples, (4) the Contractor's internal complaint process including penalties, (5) legal recourse, investigation and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission and directions on how to contact both; and (6) protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act.

D. The Contractor shall abide by the "Illinois Preference Act" which stipulates that whenever there is a period of excessive unemployment in Illinois, defined as any month immediately following two (2) consecutive months during which the level of unemployment in Illinois exceeds five percent (5%) as measured by the U.S. Bureau of Labor Statistics in its monthly publication of employment and unemployment figures, the Contractor shall employ only Illinois laborers unless otherwise exempted as so stated in the Act. ("Illinois laborer" means any person who has resided in Illinois for at least 30 days and intends to become or remain an Illinois resident) Other laborers may be used IF Illinois laborers are not available or are incapable of performing the particular type of work involved if so certified by the Contractor and approved by the project engineer.

19. SUB-CONTRACTORS

A. The term "sub-contract" means any agreement, arrangement or understanding, written or otherwise between a Contractor and any person (in which the parties do not stand in the relationship of an employer or an employee) for the furnishing of supplies or services or for the use of real or personal property, including lease arrangements, which, in whole or in part, is utilized in the performance of any one or more Contracts under which any portion of the Contractor's obligation under any one or more Contracts is performed, undertaken or assumed.

B. The Bidder is specifically advised that any person, firm or party, to whom it is proposed to award a sub-contract under this contract must be acceptable to the City. Approval for the proposed sub-contract Award cannot be given by the City until the proposed Sub-contractor has submitted evidence showing that it has

fully complied with any reporting requirements to which it is, or was, subject.

C. The contractor, shall, within ten (10) days after award of the Contract, submit to the City in writing, names and addresses and respective amounts of money for proposed contracts with Sub-contractors/major suppliers. The City will review and may direct the Contractor that they shall not employ any that are not acceptable as provided above.

D. The sub-contractor shall abide by and comply with all local, State and federal laws and regulations relating to contracts involving public funds and the development/construction of public works, buildings, or facilities.

20. PAYMENTS TO SUB-CONTRACTORS

A. Within seven days after the receipt of amounts paid by the City for work performed by a sub-contractor under this contract, the Contractor shall either:

1. Pay the sub-contractor for the proportionate share of the total payment received from the City attributable to the work performed by the sub-contractor under this contract; or,

2. Notify the City and sub-contractor, in writing, of his intention to withhold all or a part of the sub-contractor's payment and the reason for non-payment.

B. The Contractor shall pay interest to the sub-contractor on all amounts owed that remain unpaid beyond the seven-day period except for amounts withheld as allowed in item 2 above.

C. Unless otherwise provided under the terms of this contract, interest shall accrue at the rate of one percent per month.

D. The Contractor shall include in each of its sub-contracts a provision requiring each Sub-contractor to include or otherwise be subject to the same payment and interest requirements as set forth above with respect to each lower-tier sub-contractor.

E. The Contractor's obligation to pay an interest charge to a sub-contractor pursuant to this provision may not be construed to be an obligation of the City.

21. BOND – PERFORMANCE, MATERIAL, & LABOR

A. When required by the specifications herein, the successful Bidder or Bidders shall, within ten (10) calendar days after acceptance of the Bidder's bid by the City, furnish a performance bond for 100% of the full amount of the contract from insurance companies having not less than A+ Policyholders Rating from the most recent Alfred M. Best and Co., Inc. listing available. Certification of the insurance company's rating shall be provided prior to contract implementation and quarterly thereafter until contract completion. Should such rating fall below the required

A+ level during performance of the contract, it will be the contractor's responsibility to notify the City and provide a new bond from an insurance company whose rating meets the City's requirements.

B. When required by the specifications herein, all Bidders shall submit with the bid a bid bond. A letter of credit may be furnished in lieu of a bid bond only if the following conditions are met: 1) An irrevocable letter of credit must be obtained from an accredited bank which shall include an agreement that the bank will honor a demand by the City for payment due to Plaintiff failure to complete the project. 2) An irrevocable letter of credit must be in writing and signed by an authorized representative of the bank. 3) The irrevocable letter of credit must expressly state that it is irrevocable until the bid has been awarded. 4) The letter of credit must be for the percentage specified in the bid documents.

C. The City may reject the use of an irrevocable letter of credit if the financial soundness of the issuing bank is found to be unacceptable.

D. In the event that the Bidder fails to furnish a performance bond in said period of ten (10) calendar days after acceptance of the Bidder's bid by the City, the City may withdraw its acceptance of the bid and retain the Bidder's deposit as liquidated damages and not as a penalty.

E. If the contractor has more than one project for which there is a contract with the City of Evanston the contractor shall provide a separate Performance Bond for each project.

22. INDEMNITY

A. The Contractor shall defend, indemnify and hold harmless the City and its officers, elected and appointed officials, agents, and employees from any and all liability, losses, or damages as a result of claims, demands, suits, actions, or proceedings of any kind or nature, including but not limited to costs, and fees, including attorney's fees, judgments or settlements, resulting from or arising out of any negligent or willful act or omission on the part of the Contractor or Contractor's sub-contractors, employees, agents or sub-contractors during the performance of this Agreement. Such indemnification shall not be limited by reason of the enumeration of any insurance coverage herein provided. This provision shall survive completion, expiration, or termination of this Agreement.

B. Nothing contained herein shall be construed as prohibiting the City, or its officers, agents, or employees, from defending through the selection and use of their own agents, attorneys, and experts, any claims, actions or suits brought against them. The Contractor shall be liable for the reasonable costs, fees, and expenses incurred in the defense of any such claims, actions, or suits. Nothing herein shall be construed as a limitation or waiver of defenses available to the City and employees and agents, including but not limited to the Illinois Local Governmental and Governmental Employees Tort Immunity Act, 745 ILCS 10/1-

101 *et seq.*

C. At the City Corporation Counsel's option, Contractor must defend all suits brought upon all such Losses and must pay all costs and expenses incidental to them, but the City has the right, at its option, to participate, at its own cost, in the defense of any suit, without relieving Contractor of any of its obligations under this Agreement. Any settlement of any claim or suit related to this Project by Contractor must be made only with the prior written consent of the City Corporation Counsel, if the settlement requires any action on the part of the City.

D. To the extent permissible by law, Contractor waives any limits to the amount of its obligations to indemnify, defend, or contribute to any sums due under any Losses, including any claim by any employee of Contractor that may be subject to the Illinois Workers Compensation Act, 820 ILCS 305/1 et seq. or any other related law or judicial decision, including but not limited to, Kotecki v. Cyclops Welding Corporation, 146 Ill. 2d 155 (1991). The City, however, does not waive any limitations it may have on its liability under the Illinois Worker Compensation Act, the Illinois Pension Code or any other statute.

E. The Contractor shall be responsible for any losses and costs to repair or remedy work performed under this Agreement resulting from or arising out of any act or omission, neglect, or misconduct in the performance of its Work or its sub-contractors' work. Acceptance of the work by the City will not relieve the Contractor of the responsibility for subsequent correction of any such error, omissions and/or negligent acts or of its liability for loss or damage resulting therefrom.

23. CONTRACTOR'S LIABILITY INSURANCE

A. THE CONTRACTOR SHALL NOT COMMENCE WORK UNDER THIS CONTRACT UNTIL THEY HAVE OBTAINED ALL INSURANCE REQUIRED HEREIN AND SUCH INSURANCE HAS BEEN APPROVED BY THE CITY. Nor shall the contractor allow any sub-contractor to commence work until all similar insurance required of the sub-contractor has been so obtained.

B. The City of Evanston shall be named as an additional insured on the policy of the contractor for whatever the policy limits are for the contractor, but in no event shall the Comprehensive General Liability limits be less than $3,000,000.00.

C. If the contractor has more than one project for which he has a contract with the City of Evanston there shall be separate Certificates of Insurance naming the City as an additional insured on each separate policy.

D. In the event of accidents, injuries, or unusual events, whether or not any injury occurred, the contractor shall promptly furnish the City with copies of all reports of such incidents.

E. The contractor shall furnish one (1) copy of a certificate, with the City named as an additional insured, showing the following minimum coverage with insurance company acceptable to the City.

24. PRE-CONSTRUCTION MEETING

A. A pre-construction meeting will be scheduled for the successful Contractor at a date immediately following the awarding of the Contracts.

25. LIQUIDATED DAMAGES

A. The Contractor shall, and agrees to pay, per calendar day, the amount listed in the Schedule of Deductions presented in Article 108.09 of the Illinois Department of Transportation's Standard Specifications (based upon the total Contract Price) as liquidated damages for failure to meet the completion deadlines identified below:

Substantial Completion Deadline:	Friday, March 5, 2027
Final Completion Deadline:	Friday, May 7, 2027

B. Substantial Completion shall be defined as 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 City can occupy or utilize the work for its intended use. Substantial Completion will be certified by the issuance of a Certificate of Substantial Completion, to be issued by the City's representative, when the Contractor has satisfied the above statement.

C. Final Completion shall be defined as the stage in the progress of the work when all work on site is fully complete, including punch list work, with the exception of restoration grass establishment.

26. EXTENSION OF TIME

A. Delays due to causes beyond the control of the contractor other than such as reasonable would be expected to occur in connection with or during the performance of the work, may entitle the contractor to an extension of time for completing the work sufficient to compensate for such delay. No extension of time shall be granted, however, unless the contractor shall notify the City in writing thereof, within ten (10) days from the initiation of the delay and unless he shall, within ten (10) days after the expiration of the delay, notify the City in writing of the extension of time claimed on account thereof and then only to the extent, if any, allowed by the City.

27. DEFAULT

A. The City may, subject to the provisions of this section, by written notice of default to Contractor, terminate the whole or any part of this contract in any one of the following circumstances:

1. if the Contractor fails to perform the services within the time specified

herein, or any extension thereof; or

2. if the contractor fails to perform any of the other provisions of this contract, or so fails to make progress as to endanger performance of this contract in accordance with its terms, and in either of these two circumstances does not cure failure within a period of 10 days (or such other extended period as the City may authorize in writing) after receipt of notice from the City specifying such failure

B. In the event the City terminates this contract in whole or in part as provided in this section, the City may procure, upon such terms and in such manner as the City may deem appropriate, services similar to those so terminated, and the Contractor will be liable to the City for any excess costs for such similar services.

C. The Contractor will not be liable for any excess of costs if acceptable evidence has been submitted to the City that the failure to perform the contract was due to causes beyond the control and without fault or negligence of the Contractor.

D. Contractors who default may not be considered for awards of future City contracts.

28. USE OF PREMISES

A. The contractor shall confine his apparatus, the storage of materials and the operations of his workers, to limits indicated by law, ordinances, permits or directions of the City.

29. DISCLOSURES AND POTENTIAL CONFLICTS OF INTEREST (30 ILCS 500/50-35)

A. The City of Evanston's Code of Ethics prohibits public officials or employees from performing or participating in an official act or action with regard to a transaction in which he has or knows he will thereafter acquire an interest for profit, without full public disclosure of such interest. This disclosure requirement extends to the spouse, children and grandchildren, and their spouses, parents and the parents of a spouse, and brothers and sisters and their spouses.

To ensure full and fair consideration of all bids, the City of Evanston requires all Bidders including owners or employees to investigate whether a potential or actual conflict of interest exists between the Bidder and the City of Evanston, its officials, and/or employees. If the Bidder discovers a potential or actual conflict of interest, the Bidder must disclose the conflict of interest in its bid, identifying the name of the City of Evanston official or employee with whom the conflict may exist, the nature of the conflict of interest, and any other relevant information. The existence of a potential or actual conflict of interest does NOT, on its own, disqualify the disclosing Bidder from consideration. Information provided by Bidders in this regard will allow the City of Evanston to take appropriate measures to ensure the fairness of the bidding process.

The City of Evanston requires all bidders to submit a certification, enclosed with this bid packet, that the bidder has conducted the appropriate investigation and disclosed all potential or actual conflicts of interest.

By submitting a bid, all Bidders acknowledge and accept that if the City of Evanston discovers an undisclosed potential or actual conflict of interest, the City of Evanston may disqualify the Bidder and/or refer the matter to the appropriate authorities for investigation and prosecution.

INSURANCE REQUIREMENTS

TYPE OF INSURANCE	MINIMUM INSURANCE COVERAGE	
	Consequent Death Each Occurrence	Bodily Injury and Property Damage Aggregate
Commercial General Liability including:	$3,000,000	$3,000,000
1. Comprehensive form		
2. Premises - Operations		
3. Explosion & Collapse Hazard		
4. Underground Hazard		
5. Products/Completed Operations Hazard		
6. Contractual Insurance – With an endorsement on the face of the certificate that it includes the "Indemnity" paragraph of the specifications.	**Insurance Certificate Must State: The City Of Evanston is Named as Additional Insured**	
7. Broad Form Property Damage - construction projects only		
8. Independent contractors		
9. Personal Injury		
Automobile Liability Owned, Non-owned or Rented	$ 1,000,000	$1,000,000
Workmen's Compensation and Occupational Diseases As required by applicable laws.		
Employer's Liability		$ 500,000

Thirty-day notice of cancellation required on all certificates.

EXHIBIT A – BID FORM
For
Service Center Computer Room Air Conditioning Unit Replacement

(BID #26-37)

1.01 BID TO:

THE CITY OF EVANSTON
909 Davis Street
Evanston, Illinois 60201

Hereinafter called “OWNER”.

1.02 BID FROM:

_____
(Hereinafter call "BIDDER")

_____
Address

_____
Telephone Number

_____
Fax Number

1.03 BID FOR: **Bid 26-37, Service Center Computer Room Air Conditioning Unit Replacement**

1.04 ACKNOWLEDGMENT:

A. The Bidder, in compliance with the Invitation for Bids, having carefully examined the Drawings and Project Manual with related documents and having visited the site of the proposed Work, and being familiar with all of the existing conditions and limitations surrounding the construction of the proposed project, including the structure of the ground, subsurface conditions, the obstacles which may be encountered, local restrictions, and all other relevant matters concerning the Work to be performed, hereby PROPOSES to perform everything required to be performed, and to provide all labor, materials, necessary tools and equipment, expendable equipment, all applicable permits and taxes and fees, and provide all utility and transportation services necessary to perform and complete in a workmanlike manner the Project in accordance with all the plans,

specifications and related Contract Documents as prepared by the City of Evanston.

B. The undersigned hereby acknowledges receipt of the Invitation of Bids, Instruction to Bidder, the Project Manual, Drawings, and other Contract Documents, and acknowledges receipt of the following Addenda:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

1.05 GENERAL STATEMENTS

A. The undersigned has checked all of the figures contained in this proposal and further understands that the Owner will not be responsible for any errors or omissions made therein by the undersigned.

B. It is understood that the right is reserved by the Owner to reject any or all proposals, to waive all informality in connection therewith and to award a Contract for any part of the work or the Project as a whole.

C. The undersigned declares that the person(s) signing this proposal is/are fully authorized to sign on behalf of the named firm and to fully bind the named firm to all the conditions and provisions thereof.

D. It is agreed that no person(s) or company other than the firm listed below or as otherwise indicated hereinafter has any interest whatsoever in this proposal or the Contract that may be entered into as a result thereof, and that in all respects the proposal is legal and fair, submitted in good faith, without collusion or fraud.

E. It is agreed that the undersigned has complied and/or will comply with all requirements concerning licensing and with all other local, state and national laws, and that no legal requirement has been or will be violated in making or accepting this proposal, in awarding the Contract to him, and/or in the prosecution of the Work required hereunder.

F. To be considered a bona fide offer, this proposal must be completed in full and accompanied by a bid deposit or a bid bond when required by Contract Documents or Addenda.

1.06 ALTERNATES

A. When alternate proposals are required by Contract Documents or Addenda thereto, the undersigned proposes to perform alternates for herein stated additions to or deductions from hereinbefore stated Base Bid. Additions and deductions include all modifications of Work or additional Work that the undersigned may be required to perform by reason of the acceptance of alternates.

1.07 ALLOWANCE

A. The allowance is intended to address items not able to be precisely determined prior to bidding including unforeseen conditions that are discovered during the course of construction. At the end of the project, unspent allowance shall be credited to owner via change order. See Section 01 21 00 – Allowances for additional information.

1.08 AGREEMENT

A. In submitting this Bid, the undersigned agrees:
   1. To hold this Bid open for sixty (60) days from the submittal date.
   2. To enter into and execute a Contract with the Owner within ten (10) days after receiving Notice of Award from the Owner.
   3. To accomplish the work in accordance with the Contract Documents.
   4. To complete the work by the time stipulated in the General Conditions

B. The Owner reserves the right to reject any and all Bids and to waive any informalities in Bidding.

1.09 SCHEDULE

A. See General Conditions for the required schedule of completion dates.

1.10 PROPOSED PRICES

A. The Bidder hereby proposes to furnish all labor, materials, equipment, transportation, construction plant, and facilities necessary to complete, in a workmanlike manner and in accordance with the contract documents, the contract of work bid upon herein for compensation in accordance with the following prices:

BASE BID AMOUNT: **$**_____

ALLOWANCE (ADDITIONAL WORK – GENERAL): **$** +50,000.00

TOTAL BASE BID AMOUNT (Including Allowance): **$**_____

ALTERNATE 1 –

Provide an alternate to include the manufacturer's standard infrared humidifier for each of the two units. This is to include all plumbing and electrical requirements for complete installation.

The ADD/DEDUCT LUMP SUM PRICE, if awarded to the undersigned, shall be:

ALTERNATE 1 AMOUNT: **$**_____

1.12 BID SECURITY

If required by the bid documents, a scanned copy of the bid bond must be included with the bid electronic submission. The City is currently not able to accept a certified check, bank cashier's check or electronic bid bond at this time.

A. The City of Evanston Civic Center is unable to receive in person drop-off and it is closed to the public. The original bid bond must be mailed within ten (10) days after the due date, to the City of Evanston Purchasing Department, 909 Davis Street, Evanston, Illinois 60201 Attention Purchasing Manager using the USPS (certified or priority), UPS or FedEx mail options in order to have a tracking number.

B. Accompanying this electronic submittal is a scanned copy of a bank draft, bid bond, Cashier's check or Certified check as surety in the amount of not less than five percent (5%) of the Total Bid payable to the City of Evanston.

The amount of the check or draft is: $_____

If this bid is accepted and the undersigned shall fail to execute a contract and contract bond as required it is hereby agreed that the amount of the check or draft or bidder's bond substituted in lieu thereof, shall become the property of the City and shall be considered as payment of damages due to delay and other causes suffered by the City because of the failure to execute said contract and contract bond; otherwise said check or draft shall be returned to the undersigned.

In the event that one check or draft is intended to cover two or more bids, the amount must be equal to the sum of the project proposal guarantees of the individual sections covered.

If the check or draft is placed on another project proposal, state below where it may be found, as follows: The check or draft will be found in the project proposal for: _____.

1.13 PERFORMANCE/PAYMENT BOND

The undersigned bidder agrees to provide Performance Bond and Payment Bond executed in accordance with Contract Performance Bond form furnished by and acceptable to the Owner written with _____

_____

in the amount of 100% of the Contract Sum (Total Base Bid and all accepted alternatives and adjustments) the cost of which is included in the Bid.

Cost of bond for change order is _____ percent of change order cost.

1.14 LIQUIDATED DAMAGES

The undersigned Bidder understands and agrees to the provisions stated under "LIQUIDATED DAMAGES" in the General Conditions and shall be assessed at the specified daily rate for each calendar day or partial calendar day until completion as defined herein.

1.15 MATERIAL SUBSTITUTION SHEET

The following is a schedule of substitute materials I propose to furnish on this job, with the difference in price being added to or deducted from the Base Bid. The Base Bid is understood to include only those items which are definitely specified by trade names or otherwise.

I understand that if no price difference is indicated, then the selection of materials is optional with the Owner, and approval or rejection of the substitution below will be indicated prior to signing of Contracts.

PRODUCT NAME AND/OR MANUFACTURER	ADD	DEDUCT
_____	_____	_____
_____	_____	_____
_____	_____	_____

1.16 PROPOSAL SIGNATURE (REQUIRED)

A. SOLE PROPRIETOR
Signature of Bidder: _____

SUBSCRIBED AND SWORN to before me this _____ day of_____, 20__

_____
Notary Public

Commission Expires: _____

B. PARTNERSHIP
Signature of All Partners: _____

_____
Name (typed or printed)

_____

_____
Name (typed or printed)

SUBSCRIBED AND SWORN to before me this ____ day of _____, 20___

_____ Commission Expires: _____
Notary Public

C. CORPORATION
Signature of Authorized Official: _____

Title: _____

Name above (typed or printed): _____

(If other than the president, attach a certified copy of that section of corporate by-laws or other authorization by the Corporation which permits the person to execute the offer for the Corporation.)

(Corporate Seal)
Attest: _____
Secretary

SUBSCRIBED AND SWORN to before me this ____ day of _____, 20___

_____ Commission Expires: _____
Notary Public

1.17 DISCLOSURE

A. The undersigned duly sworn deposes and says on oath that the bidder has withheld no disclosures of ownership interest and the information provided herein to the best of its knowledge is current and said undersigned has not entered into any agreement with any other bidder or prospective bidder or with any other person, firm or corporation relating to the price named in said proposal or any other proposal, nor any agreement or arrangement under which any person, firm or corporation is to refrain from bidding, nor any agreement or arrangement for any act or omission in restraint of free competition among bidders and has not disclosed to any person, firm or corporation the terms of this bid or the price named herein.

Bidder: _____

Business Address: _____

_____

Telephone Number: _____

1.18 CONTACTS

A. In the event the Evanston City Council approves this bid response, list the name, address, telephone, and fax number of the person to be contacted:

Bidder: _____

Address: _____

_____

Telephone Number: _____

Fax Number: _____

1.19 REFERENCES

A. Provide three (3) references for which your firm has completed work of a similar scope in the past.

1. Name: _____

   Address: _____

   Contact Person: _____

   Phone: _____

   Contract Value: _____

   Contract Dates: _____

2. Name: _____

   Address: _____

   Contact Person: _____

   Phone: _____

   Contract Value: _____

   Contract Dates: _____

3. Name: _____

   Address: _____

   Contact Person: _____

   Phone: _____

   Contract Value: _____

   Contract Dates: _____

EXHIBIT B

RBO COMPLIANCE CERTIFICATION

[Company Letterhead]

City of Evanston – Bid Compliance Certification

We hereby certify that [Company Name] is in full compliance with the requirements set forth under Ordinance 1-O-26, attached hereto, including but not limited to all applicable provisions under Section 1-17-1 of the Evanston City Code.

Our company has reviewed and will adhere to:

- The Local Employment Program (LEP), including the hiring of Evanston residents and achieving 15% of project hours performed by said residents.
- The Apprenticeship Training Program requirement, with attached documentation of program participation and graduation rates.
- The prohibition on excessive pass-through subcontracting; we will perform a minimum of 25% of the contracted work directly.
- All certification and documentation obligations outlined in the ordinance.

Signed: _____

Name: _____

Title: _____

Company Name: _____

Project Title: _____

Project Number: _____

Date: _____

EXHIBIT B

RBO COMPLIANCE CERTIFICATION

[Company Letterhead]

City of Evanston – Legal & Regulatory Compliance Certification

I, [Authorized Representative Name], hereby certify that [Company Name] complies with and has provided documentation for each of the following:

- Illinois Prevailing Wage Act (past 5 years; no violations)
- Substance Abuse Prevention on Public Works Project Act (written policy included)
- Workers' Compensation Act (policy attached, correct classification)
- Unemployment Insurance Act (IDES registration included)
- Employee Classification Act
- Davis-Bacon Act (if applicable)
- Registered in Sam.Gov (if applicable)
- Unique Entity Identifier (UEI) (if applicable)
- Corporate good standing with the Illinois Secretary of State
- Illinois Department of Revenue registration
- No federal, state, or local tax liens or delinquencies within the past 5 years
- Disclosure of any violations or determinations by federal or state authorities related to contracting, safety, tax, licensing, or labor laws.

Signed: _____

Name: _____

Title: _____

Project Title: _____

Project Number: _____

Date: _____

EXHIBIT B

RBO COMPLIANCE CERTIFICATION

[Subcontractor Letterhead]

City of Evanston – Subcontractor Compliance Certification

Subcontractor Name: _____

Prime Contractor: _____

Project Title: _____

Project Number: _____

I hereby certify that [Subcontractor Name] will comply with all City of Evanston ordinance requirements applicable to public works contracts, including Local Employment Program provisions, Apprenticeship Program participation, and regulatory compliance obligations listed under Ordinance 1-O-26.

All documentation and certifications have been submitted to the prime contractor and will be furnished to the City upon request.

Signed: _____

Name: _____

Title: _____

Date: _____

EXHIBIT C

CITY OF EVANSTON
LOCAL EMPLOYMENT PROGRAM (LEP) COMPLIANCE

Effective Date January 1, 2015

City of Evanston Ordinance 60-O-14, Local Employment Program (LEP) Penalties:

Ordinance 60-O-14, Amendment to the MWDEBE/LEP revising the penalty section from a $100/per day to a 1.0% of total project value penalty can be found at: Ordinance 60-O-14 Amendment MWEDBE LEP of the Evanston City Code Section 1-17-1 (C) can be found at Municode Library. The following are excerpts from Ordinance 60-O-14, Amending City Code Section 1-17-1(C) (11): Penalty.

If the contractor or sub-contractor fails to comply: The City may impose a fine up to one percent (1.0%) of the approved project price in total. Contractors or sub-contractors that are out of compliance due to a resident termination or resignation shall immediately notify the Business Workforce Compliance Coordinator of this occurrence within two (2) business days. Subsequently, the contractor or sub-contractor shall have five (5) additional business days to replace a terminated or resigned worker with another resident.

If the contractor or sub-contractor fails to comply: If the contractor or sub-contractor fails to make the replacement or to notify the Business Workforce Compliance Coordinator of this occurrence, the offending party will also be subject to a penalty up to one percent (1.0%) of the approved project price. If the noncompliant contractor makes a good faith effort to replace the resident, the fine may be waived.

If the contractor or sub-contractor fails to comply: At the sole discretion of the City, a contractor or sub-contractor that has violated the terms of the Local Employment Program within a three-year period may be determined a non-responsible bidder and excluded from bidding on future projects for a period of not less than one year.

If the employee (LEP Evanston resident) fails to comply: At the sole discretion of the City, an employee that has been hired through the LEP may be removed from the program for a period of not less than one year for failing to adhere to program guidelines or due to termination by the contractor for cause. Such termination process will be reviewed by the Workforce Development Coordinator.

****Detailed Local Employment Program Instructions "How to Comply" can be found at: Local Employment Program Detailed Instructions**

Local Employment Program or Exhibit F Questions: City staff is available for assistance to help with compliance. Submit questions in writing to Jessica Cooper, the Workforce Development Coordinator at jcooper@cityofevanston.org or Tammi Nunez, Purchasing Manager at tnunez@cityofevanston.org.

EXHIBIT C

LOCAL EMPLOYMENT PROGRAM COMPLIANCE

CITY CODE SECTION 1-17-1(C): LOCAL EMPLOYMENT PROGRAM

I have read and understood the requirements of the City of Evanston Local Employment Program ("LEP") as set forth in City of Evanston Code Section 1-17-1(C): Local Employment Program. I intend to comply with the program as follows:

Estimated total labor cost = $ _____ 15% of total labor cost = $ _____

_____ My total bid, including all alternates, is under $250,000, and the LEP does not apply.

_____ My total bid, including all alternates, is equal to or greater than $250,000, and I already employ, and will continue to employ for the duration of the contract for which I am submitting this bid, Evanston residents (residing in zip codes 60201 or 60202) for at least 15% of all hours worked at the construction site by construction trade workers.

_____ My total bid, including all alternates, is equal to or greater than $250,000, and I will employ, for the duration of the contract for which I am submitting this bid, through use of the City of Evanston database or otherwise, Evanston residents (residing in zip codes 60201 or 60202) for at least 15% of all hours worked at the construction site by construction trade workers.

_____ My total bid, including all alternates, is equal to or greater than $250,000, and I have been unable to comply with the LEP requirements but am willing to work with the City to achieve compliance.

_____ My total bid, including all alternates, is equal to or greater than $250,000, and after having made sincere attempt to comply as noted below, I seek a waiver on a portion or all of the LEP requirements on this contract. Complete next section "Reasons for Waiver Request" below.

I UNDERSTAND THAT FAILURE TO COMPLY WITH THE LEP, REGARDLESS OF INTENT, MAY RESULT IN MAXIMUM PENALTY AS SET FORTH IN CITY CODE SECTION 1-17-1(C)(11), AS AMENDED.

WAIVER WILL BE GRANTED ONLY AFTER SINCERE ATTEMPT TO COMPLY*

REASONS FOR WAIVER REQUEST: PLEASE CHECK ALL THAT APPLY AND COMPLETE INFORMATION REQUESTED:

1. I have made sincere attempt as otherwise indicated below but have nonetheless been unable to comply.

a. I do or will employ Evanston residents for the project, but such employment amounts to **____%** of total labor cost.

2. The nature of the job is so technical that after having made sincere attempt as otherwise indicated below, I have been unable to locate any Evanston residents qualified to perform any aspects of the work. Please describe applicable job requirements/qualifications. Attach separate sheet if necessary:

_____

_____

***THE FOLLOWING DEMONSTRATE **SINCERE ATTEMPT TO COMPLY**: PLEASE CHECK EACH BOX COMPLETED, AS APPLICABLE:

3. I have utilized the local resident database and otherwise worked with the City in attempt to hire Evanston residents in compliance with LEP on this project, and have nonetheless been unable to comply;

4. I have placed one or more ads in a local newspaper seeking to hire Evanston residents in compliance with LEP on this project, and have nonetheless been unable to comply; and

5. If I am utilizing union labor, I have contacted Chicagoland labor unions to request Evanston residents for employment in compliance with LEP on this project and have nonetheless been unable to comply.

I have read The City of Evanston, Local Employment Program (LEP) requirements as set forth in City Code Section 1-17-1(C): Local Employment Program. I understand and will comply with the LEP requirements for this project with respect to the job and/or any waiver, as applicable. **I UNDERSTAND THAT IF MY APPLICATION IS NOT COMPLETE, MY BID MUST BE REJECTED.**

SIGNED:

_____ _____ _____

Signature Printed Name and Title Date

On behalf of Company: _____

EXHIBIT D

City of Evanston M/W/D/EBE Policy

A City of Evanston goal is to provide contracting and sub-contracting opportunities to Minority Business Enterprises, Women Business Enterprises, Disadvantaged Business Enterprises, and Evanston Business Enterprises. The goal of the Minority, Women, Disadvantaged, and Evanston Business Enterprise Program (M/W/D/EBE) is to assist such businesses with opportunities to grow. To assist such growth, the City's goal is to have general contractors utilize M/W/D/EBEs to perform no less than 25% of the awarded contract.

Firms bidding on projects with the City must work to meet the 25% goal or request a waiver from participation. It is advised that bidders place advertisements requesting sub-contractors and that they email or contact individual firms that would be appropriate to partner in response to the project. For samples of possible advertisements, see the City of Evanston's Business Diversity Section http://www.cityofevanston.org/business/business-diversity/ (Sample Advertisement).

If a bidder is unable to meet the required M/W/D/EBE goal, the Bidder must seek a waiver or modification of the goal on the attached forms. Bidder must include:

1. A narrative describing the Bidder's efforts to secure M/W/D/EBE participation prior to the bid opening.
2. Documentation of each of the assist agencies that were contacted, the date and individual who was contacted, and the result of the conversation (see form)
3. A letter attesting to instances where the bidder has not received inquiries/proposals from qualified M/W/D/EBEs
4. Names of owners, addresses, telephone numbers, date and time and method of contact of qualified M/W/D/EBE who submitted a proposal but was not found acceptable.
5. Names of owners, addresses, telephone numbers, date and time of contact of at least 15 qualified M/W/D/EBEs the bidder solicited for proposals for work directly related to the Bid prior to the bid opening (copies must be attached).

If a bidder is selected with a Sub-contractor listed to meet the M/W/D/EBE goal, a "monthly utilization report" will be due to the City prior to each payment being issued to the Contractor. This report will include documentation of the name of the firm hired, the type of work that firm performed, etc. Should the M/W/D/EBE not be paid according to the schedule proposed in this document, the City reserves the right to cancel the contract. Examples of this monthly form can be found on the City's website: http://www.cityofevanston.org/business/business-diversity/ (MWDEBE Monthly Utilization Report).

EXHIBIT E

M/W/D/EBE PARTICIPATION COMPLIANCE FORM

I do hereby certify that,

_____ (Name of firm) intends to participate as a Subcontractor or General Contractor on the project referenced above.

This firm is a (check only one):

_____ Minority Business Enterprise (MBE), a firm that is at least 51% managed and controlled by a minority, certified by a certifying agency within Illinois.

_____ Women's Business Enterprise (WBE), a firm that is at least 51% managed and controlled by a woman, certified by a certifying agency within Illinois.

_____ Disadvantaged Business Enterprise (DBE), a firm that is at least 51% managed and controlled by a disadvantaged, certified by a certifying agency within Illinois.

_____ Evanston Based Enterprise (EBE), a firm located in Evanston for a minimum of one year and which performs a "commercially useful function".

Total proposed price of response $_____

Amount to be performed by a M/W/D/EBE $_____

Percentage of work to be performed by a M/W/D/EBE _____%

Information on the M/W/D/EBE Utilized:

Name _____

Address _____

Phone Number

Signature of firm attesting to participation _____

Title and Date _____

Type of work to be performed _____

Please attach:

1. Proper certification documentation if applying as an M/W/D/EBE and check the appropriate box below. This M/W/D/EBE will be applying with documentation from:

   ❑ Cook County ❒ State Certification
   ❒ Federal Certification ❒ Women's Business Enterprise National Council
   ❒ City of Chicago ❒ Chicago Minority Supplier Development Council

2. Attach a business license if applying as an EBE

EXHIBIT E

M/W/D/EBE UTILIZATION SUMMARY REPORT

The following Schedule accurately reflects the value of each MBE/WBE/DBE/EBE sub-agreement, the amounts of money paid to each to date, and this Pay Request. The total proposed price of response submitted is _____.

MBE/WBE/DBE/EBE FIRM NAME	FIRM TYPE (MBE/WBE /DBE/EBE)	SERVICES PERFORMED	AMOUNT OF SUB-CONTRACT	PERCENT OF TOTAL CONTRACT AMOUNT
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
			$	
TOTAL			$	

EXHIBIT F

M/W/D/EBE PARTICIPATION WAIVER REQUEST

I am _____ of _____, and I have the authority to
(Title) (Name of Firm)

execute this certification on behalf of the firm. I _____ do
(Name)

hereby certify that this firm seeks to waive all or part of this M/W/D/EBE participation goal for the following reason(s):

(CHECK ALL THAT APPLY. SPECIFIC SUPPORTING DOCUMENTATION MUST BE ATTACHED.)

_____ 1. No M/W/D/EBEs responded to our invitation to bid.

_____ 2. An insufficient number of firms responded to our invitation to bid.

For #1 & 2, please provide a narrative describing the outreach efforts from your firm and proof of contacting at least 15 qualified M/W/D/EBEs prior to the bid opening. Also, please attach the accompanying form with notes regarding contacting the Assist Agencies.

_____ 3. No sub-contracting opportunities exist.

Please attach a written explanation of why sub-contracting is not feasible. Please provide details supporting your request.

_____ 4. M/W/D/EBE participation is impracticable.

Please attach a written explanation of why M/W/D/EBE participation is impracticable. Please provide details supporting your request.

Therefore, we request to waive _____of the 25% utilization goal for a revised goal of _____%.

Signature:_____ Date: _____
(Signature)

EXHIBIT G

Construction Contractors' Assistance Organizations ("Assist Agencies") Form

AGENCY	DATE CONTACTED	CONTACT PERSON	RESULT OF CONVERSATION
Association of Asian Construction Enterprises (AACE) 5500 Touhy Ave., Unit K Skokie, IL. 60077 Phone: 847-5259693 Perry Nakachii, President			
Black Contractors United (BCU) 400 W. 76th Street Chicago, IL 60620 Phone: 773-483-4000; Fax: 773-483-4150 Email: bcunewera@ameritech.net			
Chicago Minority Business Development Council 105 West Adams Street Chicago, Illinois 60603 Phone: 312-755-8880; Fax: 312-755-8890 Email: info@chicagomsdc.org Shelia Hill, President			
Evanston Minority Business Consortium, Inc. P.O. Box 5683 Evanston, Illinois 60204 Phone: 847-492-0177 Email: embcinc@aol.com			
Federation of Women Contractors 5650 S. Archer Avenue Chicago, Illinois 60638 Phone: 312-360-1122; Fax: 312-360-0239 Email: FWCChicago@aol.com Contact Person: Beth Doria Maureen Jung, President			
Hispanic American Construction Industry (HACIA) 901 W. Jackson, Suite 205 Chicago, IL 60607 Phone: 312-666-5910; Fax: 312-666-5692 Email: info@haciaworks.org			
Women's Business Development Ctr. 8 S. Michigan Ave, Suite 400 Chicago, Illinois 60603 Phone: 312-853-3477 X220; Fax: 312-853-0145 Email: wbdc@wbdc.org Carol Dougal, Director			

PLEASE NOTE: Use of the Construction Contractor's Assistance Organization (Assist Agencies) Form and agencies is for use as a resource only. The agencies and or vendors listed are not referrals or recommendations by the City of Evanston.

EXHIBIT H

CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY (Only if Contract Exceeds $10,000)

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed sub-contractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or sub-contract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION OF BIDDER

Name and Address of Bidder (Include ZIP Code)

IRS EMPLOYER I.D. NUMBER 36-_____

1. Bidder has participated in a previous contract or sub-contract subject to the Equal Opportunity Clause. ____Yes ___No

2. Bidder has filed all compliance reports due under applicable instructions. ___Yes ___No

3. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended? ___Yes ___No

Name:_____

Title: _____

Signature: _____

Date: _____

EXHIBIT I

DISCLOSURE OF OWNERSHIP INTERESTS

City of Evanston Ordinance 15-0-78 requires all persons (APPLICANT) seeking to do business with the City to provide the following information with their bid. Every question must be answered. If the question is not applicable, answer with "NA".

APPLICANT NAME: _____

APPLICANT ADDRESS: _____

TELEPHONE NUMBER: _____

FAX NUMBER: _____

APPLICANT is (**Check One**)

1. Corporation ( ) 2. Partnership ( ) 3. Sole Owner ( ) 4. Association ( )

5. Other ( ) _____

Please answer the following questions on a separate attached sheet if necessary.

SECTION I - CORPORATION

1a. Names and addresses of all Officers and Directors of the Corporation.

_____

_____

_____

1b. (Answer only if corporation has 33 or more shareholders.) Names and addresses of all those shareholders owning shares equal to or in excess of 3% of the proportionate ownership interest and the percentage of shareholder interest. (Note: Corporations which submit S.E.C. form 10K may substitute that statement for the material required herein.)

_____

_____

_____

1c. (Answer only if corporation has fewer than 33 shareholders.) Names and addresses of all shareholders and percentage of interest of each herein. (Note: Corporations which submit S.E.C. form 10K may substitute that statement for the material requested herein.)

_____

_____

_____

SECTION 2 - PARTNERSHIP/ASSOCIATION/JOINT VENTURE

2a. The name, address, and percentage of interest of each partner whose interests therein, whether limited or general is equal to or in excess of 3%.

_____

_____

_____

2b. Associations: The name and address of all officers, directors, and other members with 3% or greater interest.

_____

_____

_____

SECTION 3 - TRUSTS

3a. Trust number and institution.

_____

3b. Name and address of trustee or estate administrator.

_____

_____

_____

3c. Trust or estate beneficiaries: Name, address, and percentage of interest in total entity.

_____

_____

_____

SECTION 4 - ALL APPLICANTS - ADDITIONAL DISCLOSURE

4a. Specify which, if any, interests disclosed in Section 1, 2, or 3 are being held by an agent or nominee and give the name and address of principal.

_____

_____

_____

4b. If any interest named in Section 1, 2, or 3 is being held by a "holding" corporation or other "holding" entity not an individual, state the names and addresses of all parties holding more than a 3% interest in that "holding" corporation or entity as required in 1(a), 1(b), 1(c), 2(a), and 2(b).

_____

_____

_____

4c. If "constructive control" of any interest named in Sections 1, 2, 3, or 4 is held by another party, give name and address of party with constructive control. ("Constructive control" refers to control established through voting trusts, proxies, or special terms of venture of partnership agreements.)

_____

_____

_____

I have not withheld disclosure of any interest known to me. Information provided is accurate and current.

_____ _____

Date Signature of Person Preparing Statement

_____

Title

ATTEST: _____ (Notary Seal)

Notary Public

Commission Expires: _____

EXHIBIT J

ADDITIONAL INFORMATION SHEET

Bid/Proposal Name: _____

Bid/Proposal Number #: _____

Company Name: _____

Contact Name: _____

Address: _____

City, State, Zip: _____

Telephone/FAX: #_____

E-mail: _____

Comments: _____

_____

_____

_____

_____

_____

_____

EXHIBIT K

CERTIFICATE OF COMPLIANCE WITH PREVAILING WAGE RATE ACT

The undersigned, upon being first duly sworn, hereby certifies to the City of Evanston, Cook, County, Illinois, that all work under this contract shall comply with the Prevailing Wage Rate Act of the State of Illinois, 820 ILCS 130 *et seq*, and as amended by Public Acts 86-799 and 86-693 and our current city ordinance, with rates to be paid in effect at time work is performed. Contractors shall submit monthly certified payroll records to the city.

Name of Contractor: _____

By: _____

By: State of _____, County of _____

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

Notary Public

EXHIBIT L

MAJOR SUB-CONTRACTORS LISTING

The following Tabulation of Major Sub-contractors shall be attached and made a condition of the Bid. The Bidder expressly understands and agrees to the following provisions:

A. If awarded a Contract as a result of this Bid, the major sub-contractors used in the prosecution of the work will be those listed below.

B. The following list includes all sub-contractors who will perform work representing 5% (five percent) or more of the total Base Bid.

C. The sub-contractors listed below are financially responsible and are qualified to perform the work required.

D. The sub-contractors listed below comply with the requirements of the Contract Documents.

D. Any substitutions in the sub-contractors listed below shall be requested in writing by the Contractor and must be approved in writing by the Owner. All pertinent financial, performance, insurance, and other applicable information shall be submitted with the request for substitutions(s). Owner shall respond to such requests within 14 calendar days following the submission of all necessary information to the full satisfaction of the Owner.

Category	**Name of Sub-contractor**	**Address and Telephone**

(Attach additional sheets as required)

END OF SECTION

EXHIBIT M

CONFLICT OF INTEREST

_____, hereby certifies that it has conducted an investigation into whether an actual or potential conflict of interest exists between the Bidder, its owners and employees and any official or employee of the City of Evanston.

Bidder further certifies that it has disclosed any such actual or potential conflict of interest and acknowledges if Bidder/proposer has not disclosed any actual or potential conflict of interest, the City of Evanston may disqualify the bid/proposal.

_____
(Name of Bidder/proposer if the Bidder/proposer is an Individual)
(Name of Partner if the Bidder/proposer is a Partnership)
(Name of Officer if the Bidder/proposer is a Corporation)

The above statements must be subscribed and sworn to before a notary public.
Subscribed and Sworn to this _____ day of _____, 20____

_____ (Notary Seal)
Notary Public

Commission Expires: _____

EXHIBIT N

SIGNATURE FORM
THE SECTION BELOW MUST BE COMPLETED IN FULL AND SIGNED

The undersigned hereby certifies that they have read and understand the contents of this solicitation and attached service agreements and agree to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to alter any resulting contract or to accept any request for additional compensation. By signing this document, the proposer hereby certifies that they are not barred from bidding on this contract as a result bid rigging or bid rotating or any similar offense (720 ILCS 5/33 E-3, E-4).

Authorized Signature: _____

Company Name: _____

Typed/Printed Name: _____

Date: _____

Title: _____

Telephone Number: _____

E-mail _____

Fax Number: _____

EXHIBIT O

Contractor Services Agreement Acknowledgment Page

The City has attached its standard contractor services agreement as an exhibit to this bid document. Identify all exceptions to the agreement that would prevent your firm from executing it**. The City shall not consider or negotiate regarding exceptions submitted at any time after the submission of the Bidder's response.** *Please check one of the following statements:*

____I have read the contractor services agreement and plan on executing the agreement without any exceptions.

_____My firm cannot execute the City's standard contractor service agreement unless the exceptions noted below or in the attached sample contractor services agreement are made.

*****Please be aware that submitting exceptions to the contract may impact the likelihood of your firm being selected to perform this work.**

List exceptions in the area below:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Authorized Signature:

Company Name:

Typed/Printed Name and Title:

Date:

EXHIBIT O

CONTRACTOR SERVICES AGREEMENT

The parties referenced herein desire to enter into an agreement for professional services for

Service Center Computer Room Air Conditioning Unit Replacement
(BID #26-37)

THIS AGREEMENT (hereinafter referred to as the "Agreement") is entered into between the City of Evanston, an Illinois municipal corporation with offices located at 909 Davis Street, Evanston Illinois 60201 (hereinafter referred to as the "City"), and *[Insert Contractor name here]*, with offices located at *[Insert Contractor address here]*, (hereinafter referred to as the "Contractor"). Compensation (the "Compensation") for all basic services provided by the Contractor pursuant to the terms of this Agreement shall not exceed $*[Insert fee here]*.

Revision March 2020

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RECITALS

WHEREAS, the City intends to retain the services of a qualified and experienced contractor for a turn-key project to replace two Liebert Computer Room Air Conditioning (CRAC) units and two roof mounted condensers at the City of Evanston Service Center's Computer Room located at 2020 Asbury in Evanston.

WHEREAS, this Agreement shall include the following documents which are attached hereto:

a) City of Evanston Bid 26-37, attached as Exhibit A.

b) Contractor's response to Bid 26-37, attached as Exhibit B.

c) Any sub-contractor sub-contracts related to this Agreement, attached as Exhibit C.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter set forth, the parties agree as follows:

1 Services and Duties of the Contractor

1.1 The Contractor shall perform professional services and provide equipment (the "Work") in accordance with Exhibits A, B, C and D. The Contractor retains the right to control the manner of performance of the services provided for in this Agreement and is an independent contractor and not agent or an employee of the City. All employees and sub-contractors of the Contractor shall likewise not be considered to be employees of the City. Contractor is solely responsible for the means and methods of all work performed under the terms of this Agreement for this Project ("the Project"). Contractor is an independent Contractor and is solely responsible for all taxes, withholdings, and other statutory or contractual obligations of any sort, including but not limited to, Worker's Compensation Insurance. Nothing in this Agreement accords any third-party beneficiary rights whatsoever to any non-party to this Agreement that any non-party may seek to enforce. Contractor acknowledges and agrees that should Contractor or its sub-contractors provide false information, or fail to be or remain in compliance with this Agreement; the City may void this Agreement.

1.2 The Contractor warrants and states that it has read the Contract Documents, and agrees to be bound thereby, including all performance guarantees as respects Contractor's work and all indemnity and insurance requirements. Contractor further affirms that it has visited the Project site and has become familiar with all special conditions, if any, at the Project site. Contractor shall perform the Work and its obligations under this Agreement in accordance with and subject to the Contract Documents to the full extent that each such provision is applicable to the Work. Contractor shall take necessary precautions to properly protect the Work of others, if any, from damage caused by operations under this Agreement. In addition, Contractor shall protect the work during normal and adverse weather conditions until the Project is complete and accepted by the City, or until the Contractor has fully completed its work under this Agreement. Contractor's obligations include, but are not limited to, placing and adequately maintaining at or about all locations of Project work, sufficient guards, barricades, lights, and enclosures to protect the Work.

1.3 The Contractor shall not have any public or private interest and shall not acquire directly or indirectly any such interest which conflicts in any manner with the performance of its services under this Agreement.

1.4 The Contractor shall designate, in writing, a person to act as its Project Manager for the work to be performed under this Agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define the Contractor's policies and decisions with respect to the work covered by this Agreement.

1.5 The Contractor shall employ only persons duly licensed by the State of Illinois to perform the professional services required under this Agreement for which applicable Illinois law requires a license, subject to prior approval of the City. The Contractor shall employ only well qualified persons to perform any of the remaining services required under this Agreement, also subject to prior approval of the City. The City reserves the right to require replacement of Contractor, sub-contractor, or supplier personnel for any reason. Contractor will replace the unacceptable personnel at no charge to the City. For all solicitations or advertisements placed by or on behalf of Contractor for employees for this Project it will state that the Contractor is an Equal Opportunity Employer.

1.6 Pursuant to the Illinois Freedom of Information Act, 5 ILCS 140/7(2), records in the possession of others whom the City has contracted with to perform a governmental function are covered by the Act and subject to disclosure within limited statutory timeframes (five (5) working days with a possible five (5) working day extension). Upon notification from the City that it has received a Freedom of Information Act request that calls for records within the Contractor's control, the Contractor shall promptly provide all requested records to the City so that the City may comply with the request within the required timeframe. The City and the Contractor shall cooperate to determine what records are subject to such a request and whether or not any exemption to the disclosure of such records, or part thereof, is applicable. Contractor shall indemnify and defend the City from and against all claims arising from the City's exceptions to disclosing certain records which Contractor may designate as proprietary or confidential. Compliance by the City with an opinion or a directive from the Illinois Public Access Counselor or the Attorney General under FOIA, or with a decision or order of Court with jurisdiction over the City, shall not be a violation of this Section.

1.7 The Contractor shall obtain prior approval from the City prior to sub-contracting with any entity or person to perform any of the work required under this Agreement. The Contractor may, upon request of the City, submit to the City a draft sub-contractor agreement for City review and approval prior to the execution of such an agreement. Any previously entered into sub-contractor agreement(s) are attached as Exhibit C. If the Contractor sub-contracts any of the services to be performed under this Agreement, the sub-contractor agreement shall provide that the services to be performed under any such agreement shall not be sublet, sold, transferred, assigned or otherwise disposed of to another entity or person without the City's prior written consent. The Contractor shall be responsible for the accuracy and quality of any sub-contractor's work.

1.8 The Contractor shall cooperate fully with the City, other City contractors, other municipalities and local government officials, public utility companies, and others, as may be directed by the City. This shall include attendance at meetings, discussions and hearings as requested by the City. This cooperation shall extend to any investigation, hearings or meetings convened or instituted by OSHA relative to this Project, as necessary. Contractor shall cooperate with the City in scheduling and performing its Work to avoid conflict, delay in or interference with the work of others, if any, at the Project.

1.9 The Contractor acknowledges that it shall enforce and comply with all applicable Occupational Safety and Health Administration standards (OSHA) for this Project in effect as of the date of the execution of this Agreement, or as otherwise promulgated by OSHA in the future taking effect during the pendency of this Project. Contractor shall enforce all such standards and ensure compliance thereto as to its own agents and employees, and as to the agents and employees of any sub-contractor throughout the course of this Project. Contractor is solely responsible for enforcing and complying with all applicable safety standards and requirements on this Project, and is solely responsible for correcting any practices or procedures which do not comply with the applicable safety standards and requirements for this Project. Any Project specific safety requirements applicable to this Project must be followed by Contractor and any sub-contractor(s) on the Project. Additionally, all such safety requirements shall be made a part of any sub-contractor agreement.

1.10 The Contractor shall submit to the City a progress report each month this Agreement is in effect. The report shall include the following items:

a) A summary of the Contractor's project activities, and any sub-contractor project activities that have taken place during the invoice period;
b) A summary of the Contractor's project activities and any sub-contractor project activities, that shall take place during the next invoice period;
c) A list of outstanding items due to or from the City; and
d) A status of the Project schedule.

1.11 The Contractor shall perform the work required under this Agreement pursuant to high quality industry standards expected by the City. The Contractor shall apply for and receive all appropriate permits before performing any work in the City. The Contractor shall also provide the appropriate permit drawings for Building Permits to be issued for the Project, if said permits are obligated by the Project. The City will assist the Contractor with obtaining the appropriate building and right-of-way permits.

1.12 The Contractor shall provide drawings of record, in the following 3 electronic formats for all locations where equipment has been installed and/or work has been performed. The electronic formats required by this Section 1.12 are Auto Cad Version 2007, Arc View and PDF.

1.13 Contractor recognizes that proper cleanup and removal of construction debris is an important safety consideration. The Contractor shall be solely responsible for daily construction site/area cleanup and removal of all construction debris in accordance with City-approved disposal practices. Contractor shall be solely responsible for identifying and removing at its expense all

hazardous material and waste which it uses and generates.

1.14 To the extent that there is any conflict between a provision specified in this Agreement, with a provision specified in any of the other Contract Documents, as defined in Section 1.15, this Agreement shall control. The City and the Contractor may amend this Section 1.14 as provided by Section 15 herein.

The Contractor acknowledges and agrees that the City has no retained control over any of the Work done pursuant to this Agreement, and that the City is expressly exempt from the retained control exception as defined in the Restatement of Torts, Second, Section 414. This provision shall survive completion, expiration, or termination of this Agreement.

1.15 The Contract Documents for this Project consist of:

a) This Agreement;
b) The City's RFP/RFQ, and the plans, specifications, general conditions, drawings addenda, and modifications thereto;
c) The Contractor's response to the RFP/RFQ/Bid;
d) Other exhibits and schedules, if any, listed in this Agreement;
e) Amendments or Other Contract Documents, if any; and
f) Amendments/Modifications to this Agreement issued after execution thereof.

1.16 As a condition of receiving payment, Contractor must (i) be in compliance with the Agreement, (ii) pay its employees prevailing wages when required by law (Examples of prevailing wage categories include public works, printing, janitorial, window washing, building and grounds services, site technician services, natural resource services, security guard and food services). Contractor is responsible for contacting the Illinois Dept. of Labor 217-782-6206; http://www.illinois.gov/idol/Laws-Rules/CONMED/Pages/Rates.aspx to ensure compliance with prevailing wage requirements), (iii) pay its suppliers and sub-contractors according to the terms of their respective contracts, and (iv) provide lien waivers to the City upon request.

1.17 Digital Accessibility for Vendors, The City requires that all applicable web content, mobile applications, and electronic documents provided by our vendor partners meet WCAG 2.1 AA compliance and continue to maintain compliance with federal ADA requirements for local government platforms.

2 Standard Certifications

Contractor acknowledges and agrees that compliance with this section and each subsection for the term of the Agreement is a material requirement and condition of this Agreement. By executing this Agreement, Contractor certifies compliance with this section and each subsection and is under a continuing obligation to remain in compliance and report any non-compliance.

This section, and each subsection, applies to sub-contractors used on this Agreement. Contractor shall include these Standard Certifications in any sub-contract used in the performance of the Agreement.

If this Agreement extends over multiple fiscal years, Contractor and its sub-contractors shall confirm compliance with this section in the manner and format determined by the City by the date specified by the City and in no event later than January 1 of each year that this Agreement remains in effect.

If the City determines that any certification in this section is not applicable to this Agreement, it may be stricken, subject to sole approval by the City, without affecting the remaining subsections.

2.1 As part of each certification, Contractor acknowledges and agrees that should Contractor or its sub-contractors provide false information, or fail to be or remain in compliance with the Standard Certification requirements, one or more of the following sanctions will apply:

- the Agreement may be void by operation of law,
- the City may void the Agreement, and
- Contractor and its sub-contractors may be subject to one or more of the following: suspension, debarment, denial of payment, civil fine, or criminal penalty.

2.2 By signing this Agreement, the Contractor certifies that it has not been barred from being awarded a contract with a unit of State or local Government as a result of bid rigging or bid rotating or similar offense, nor has it made any admission of guilt of such conduct that is a matter of public record. (720 ILCS 5/33 E-3, E-4).

2.3 In the event of the Contractor's noncompliance with any provision of Section 1-12-5 of the Evanston City Code, the Illinois Human Rights Act or any other applicable law, the Consultant may be declared non-responsible and therefore ineligible for future contracts or sub-contracts with the City, and the contract may be cancelled or voided in whole or in part, and such other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation.

2.4 During the term of this Agreement, the Contractor agrees as follows:

a) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, national origin or ancestry, or age or physical or mental disabilities that do not impair ability to work, and further that it will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such underutilization. Consultant shall comply with all requirements of City of Evanston Code Section 1-12-5.

b) That, in all solicitations or advertisements for employees placed by it on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, national origin, ancestry, or disability.

2.5 The Contractor certifies pursuant to the Illinois Human Rights Act (775 ILCS 5/2*105 et. seq.),* that it has a written sexual harassment policy that includes, at a minimum, the following information:

a) The illegality of sexual harassment;
b) The definition of sexual harassment under State law;
c) A description of sexual harassment utilizing examples;
d) The Contractor's internal complaint process including penalties;
e) Legal recourse, investigation and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission, and directions on how to contact both; and
f) Protection against retaliation as provided to the Department of Human Rights.

2.6 In accordance with the Steel Products Procurement Act (30 ILCS 565), Contractor certifies steel products used or supplied in the performance of a contract for public works shall be manufactured or produced in the U.S. unless the City grants an exemption.

2.7 Contractor certifies that it is properly formed and existing legal entity and as applicable has obtained an assumed name certificate from the appropriate authority, or has registered to conduct business in Illinois and is in good standing with the Illinois Secretary of State.

2.8 If Contractor, or any officer, director, partner, or other managerial agent of Contractor, has been convicted of a felony under the Sarbanes-Oxley Act of 2002, or a Class 3 or Class 2 felony under the Illinois Securities Law of 1953, Contractor certifies at least five years have passed since the date of the conviction.

2.9 Contractor certifies that if more favorable terms are granted by Contractor to any similar governmental entity in any state in a contemporaneous agreement let under the same or similar financial terms and circumstances for comparable supplies or services, the more favorable terms will be applicable under this Agreement.

2.10 Contractor certifies that it is not delinquent in the payment of any fees, fines, damages, or debts to the City of Evanston.

2.11 The Contractor certifies that all Design Professionals performing the Work under this Agreement will ensure that the Project shall be designed in conformance with the Americans with Disabilities Act of 1990, 42 U.S.C. Section 12101, *et seq.*, and all regulations promulgated thereunder. Design Professional means any individual, sole proprietorship, firm, partnership, joint venture, corporation, professional corporation, or other entity that offers services under the Illinois Architecture Practice Act of 1989 (225 ILCS 305/), the Professional Engineering Practice Act of 1989 (225 ILCS 325/), the Structural Engineering Licensing Act of 1989 (225 ILCS 340/), or the Illinois Professional Land Surveyor Act of 1989 (225 ILCS 330/).

2.12 The Contractor shall comply with all federal, state and local laws, statutes, ordinances, rules, regulations, orders or other legal requirements now in force or which may be in force during the term of this Agreement. The Contractor shall comply with the Illinois Human

Rights Act, 775 ILCS 5/1-101 *et. seq,* Title VII of the Civil Rights Act of 1964, and the Illinois Prevailing Wage Act, 820 ILCS 130/0.01 *et. seq*.

3 Additional Services/Change Orders

3.1 If the representative of the City responsible for the Project verbally requests the Contractor to perform additional services, the Contractor shall confirm in writing that the services have been requested and that such services are additional services. Failure of the City to respond to the Contractor's confirmation of said services within thirty (30) calendar days of receipt of the notice shall be deemed a rejection of, and refusal to pay for the additional services. Contractor shall not perform any additional services until City has confirmed approval of said additional services in writing. If authorized in writing by the City, the Contractor shall furnish, or obtain from others, additional services of the following types, which shall be paid for by the City as set forth in Section 9 of this Agreement:

a) Additional Services due to significant changes in scope of the Project or its design, including, but not limited to, changes in size, complexity or character of construction, or time delays for completion of work when such delays are beyond the control of the Contractor;
b) Revisions of previously approved studies, reports, design documents, drawings or specifications;
c) Preparation of detailed renderings, exhibits or scale models for the Project;
d) Investigations involving detailed consideration of operations, maintenance and overhead expenses for the preparation of rate schedules, earnings and expense statements, feasibility studies, appraisals and valuations, detailed quantity surveys of material and labor, and material audits or inventories required for certification of force account construction performed by the City;
e) Services not otherwise provided for in this Agreement.

3.2 The City may, upon written notice, and without invalidating this Agreement, require changes resulting in the revision or abandonment of work already performed by the Contractor, or require other elements of the work not originally contemplated and for which full compensation is not provided in any portion of this Agreement. Any additional services, abandonment of services which were authorized by the City, or changes in services directed by the City which result in the revision of the scope of services provided for in Exhibits A, B, C, and D that cause the total Compensation due Contractor under this Agreement to exceed $25,000 or more, or increase or decrease the contract duration by more than 30 days are subject to approval by the Evanston City Council. These actions must be addressed either in a written Change Order or in a written amendment to this Agreement approved by both parties.

3.3 Contractor acknowledges and agrees that the Public Works Construction Change Order Act, 50 ILCS 525/1 et seq. shall apply to all Change Orders for the Project. It is expressly understood and agreed to by Contractor that it shall not be entitled to any damages or Compensation from the City on account of delay or suspension of all or any part of the Work. Contractor acknowledges that delays are inherent in construction projects and Contractor assessed that risk and fully included that risk assessment within its contract sum specified in its Response

to the City Bid for this Project. The City shall not compensate Contractor for work that is more difficult than the contract sum specified in its Response would reflect. Delays to minor portions of the Work will not be eligible for extensions of time.

Delays to the Project caused by labor disputes or strikes involving trades not directly related to the Project, or involving trades not affecting the Project as a whole will not be eligible for an extension of time.

The City will not grant an extension of time for a delay by the Contractor's inability to obtain materials unless the Contractor first furnishes to the City documentary proof. The proof must be provided in a timely manner in accordance with the sequence of the Contractor's operations and accepted construction schedule.

In addition to any other changes requested by City (as described in Sections 3.1 and 3.2), the Company shall be entitled to request (and the City may grant) Change Orders with respect to:

(a) The City-caused delays;
(b) Change in Law;
(c) Force Majeure Events.

The foregoing events shall entitle the Contractor to a change in the Compensation for this Project, if the Contractor demonstrates that it will unavoidably incur reasonable costs as a result thereof and the Contractor provides reasonable and detailed documentary support with respect to any such price impact.

The parties agree to reasonably confer regarding any such disputes with respect to the issuance of a Change Order.

Any payment for compensable delay will only be based upon actual costs excluding, without limitation, what damages, if any, the Contractor may have reasonably avoided. The Contractor understands that this is the sole basis for recovering delay damages and explicitly waives any right to calculate daily damages for office overhead, profit, or other purported loss.

All Contractor Change Orders authorized under this Section 3 shall be made in writing. In remitting a Change Order, the Contractor must first show in writing that:

(a) The work was outside the scope of this Agreement,
(b) The extra work was not made necessary due to any fault of Contractor;
(c) The circumstances said to necessitate the change in performance were not reasonably foreseeable at the time the Agreement was signed;
(d) The change is germane to the original Agreement; and
(e) The Change Order is in the best interest of the City and authorized by law.

Any person who fails to first obtain the City's written authorization for a Change Order commits a Class 4 felony. The written determination and the written Change Order resulting from

that determination shall be preserved in the contract's file which shall be open to the public for inspection.

The City reserves all rights and causes of action, at law or equity, to seek redress against entities or persons who violate the requirements of this Section 3. By initialing below, Contractor hereby acknowledges that it is bound by this Section 3.

Contractor's Initials: _____

3.4 The Contractor is required to include the City of Evanston as a reference whenever and wherever the Contractor provides references for similar projects for a period of one (1) year from the date of Final Acceptance by the City of the Work for this Project.

4 Bonds

4.1 Before the Scheduled Construction Commencement Date, the Contractor is required to furnish unconditional performance and payment bonds in the amount of 100% of the Compensation as security for the faithful performance and completion of all the Contractor's obligations under the Contract Documents and covering the payment of all materials used in the performance of this Agreement and for all labor and services performed under this Agreement. All Bonds shall be issued on a form acceptable to the City. The bonds must be for the entire term of the Agreement. Failure to provide these bonds shall constitute a breach of Contractor's obligations under this Agreement. Each surety providing the Bonds must have a Best's rating not less than A/X and be licensed in Illinois and shall be named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 as published in the Federal Register and available on the website of the U.S. Department of the Treasury, Financial Management Service, at www.fms.treas.gov/c570/c570.html. All Bonds signed by an agent must be accompanied by a certified copy of his or her authority to act. It shall be the duty of the Contractor to advise the surety or sureties of any Change Orders that result in an increase to the Compensation and to ensure that the amounts of the Bonds are updated to reflect and cover any such increases throughout the course of the Project. The cost of such Bonds shall be included within the Compensation.

4.2 If the surety behind any Bond furnished by the Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in the State or it ceases to meet any of the requirements of this Contract, the Contractor shall, within [5] five days thereafter, substitute another Bond of equivalent value and surety, both of which must be acceptable to the City. In addition, no further progress payments under the Agreement will be made by the City until the Contractor complies with the provisions of this Agreement. The Contractor shall furnish to the City proof of any required bonds and proof of required insurance as one of the conditions precedent to payment under the Agreement. Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment or performance of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or authorize a copy to be furnished. All surety Bonds provided for in this Section shall incorporate by reference this Agreement, and any language that may be in any such surety Bond which conflicts with the provisions of this Agreement that define the scope of the surety('s) duty(ies) shall be of no force

and effect.

5 Liquidated Damages in the Event Contractor Fails to Complete the Work

5.1 The parties agree that failure of Contractor to timely complete the Work required by this Agreement constitutes a default. The parties agree that this default will result in damage and injury to City. The parties further agree, however, that actual damages incurred by City as result of such default is difficult if not impossible to ascertain with any degree of certainty or accuracy. Accordingly, the parties have negotiated and have agreed that for each calendar day after written notice is delivered to Contractor and Contractor fails to cure such default, that Contractor will pay City, as and for liquidated damages, and not as a penalty, a sum in the amount as specified in Section 108.09 of the IDOT Standard Specifications per calendar day. Contractor shall reimburse the City for all costs, expenses and fees (including, without limitation, attorneys' fees), if any, paid by the City in connection with such written demand by City. Contractor stipulates and agrees that the sums payable by Contractor under this Section are reasonable under the circumstances existing as of the execution of this Agreement. This Section 5.1 is not intended to limit any direct damages that may be recoverable by City related to the Contractor's failure to complete the Work in accordance with this Agreement. There shall be no early completion bonus if the Work is completed before the contract's deadlines. The City, at its option, may withhold liquidated damages from progress payments payable to Contractor before project completion.

6 The City's Responsibilities

6.1 The City may evaluate the Contractor's and any sub-contractor's performance (interim and final). Timeliness in meeting the Project schedule and the overall relationship with the Contractor are factors that will be considered in the Contractor's performance rating. An unfavorable performance rating may be a factor when future assignments are being considered.

6.2 The City makes no representation or warranty of any nature whatsoever as to the accuracy of information or documentation provided by the City to the Contractor which were generated or provided by third parties.

7 Period of Service

7.1 The Contractor shall commence work on the Project after supplying the City with the Contractor's performance and payment bonds and all required insurance documents before starting its Work on this Project. The City shall determine when the Contractor has completed the Work required pursuant to this Agreement, and shall determine the date of Final Acceptance. Contractor recognizes time is of the essence regarding its performance on this Project. Contractor shall continue to perform its obligations while any dispute concerning the Agreement is being resolved, unless otherwise directed by the City.

8 Payment for Services and Reimbursements

8.1 Within the first five (5) business days of each month, the Contractor shall invoice the City for Work completed during the previous month. The Contractor shall provide a detailed invoice that relates invoiced items to the Contractor's response to Bid 26-37 in both quantity and

unit cost. Any discrepancies in the monthly invoice shall be promptly brought to the attention of the Contractor by the City Project Manager and efforts shall be made to promptly resolve said discrepancies between the City and Contractor. In the event the City and Contractor cannot resolve invoice discrepancies, items in dispute will be removed from the invoice and the City shall approve the remainder of the invoice. Payment will be made as soon as possible following the City Council meeting in which the item appeared on the bills list, and in accordance with all applicable laws and rules of the City of Evanston and the State of Illinois.

8.2 In the event of termination by the City of this Agreement pursuant to paragraph 9.1 after completion of any phase of the basic services, fees due the Contractor for services rendered through such phase shall constitute final payment for such services, and no further fees shall be due to the Contractor. In the event of such termination by the City during any phase of the basic services, the Contractor shall be paid for services rendered on the basis of the proportion of work completed on the phase to date of termination.

8.3 The City shall have the right to withhold payment to the Contractor due to the quality of a portion or all of the work performed hereunder which is not in accordance with the requirements of this Agreement, or which is unsatisfactory, or is due to the Contractor's failure or refusal to perform any of its obligations hereunder. Compensation in excess of the total contract amount specified in this Agreement will not be allowed unless justified in the City's sole judgment and authorized in advance as provided for in Section 3 of this Agreement. Compensation for improper performance by the Contractor is disallowed.

8.4 Upon completion of the Work performed by the Contractor, prior to the submission of a request for final payment, the City and Contractor shall perform a final acceptance test and review of the Work performed and/or equipment installed pursuant to the Agreement. A punch list of items outstanding will be jointly developed by the City and Contractor. In addition, the Contractor shall submit drawings of record for the Project for the City to approve. The Contractor shall promptly resolve all punch list items to the satisfaction of the City and shall transmit to the City in writing confirmation that all punch list items have been resolved. The City will review, and the Contractor shall modify, as necessary, any drawings of record to the satisfaction of the City. Punch list items and drawings of record must be approved by the City prior to the Contractor submitting its final invoice for payment.

8.5 The Contractor shall submit an Affidavit and a final waiver of its lien, and all final waivers of liens of any sub-contractors, suppliers, and sub-sub-contractors, if applicable, with its final invoice, stating that all obligations incurred in performance of the professional services have been paid in full. The Affidavit will also include a statement stating that the professional services were performed in compliance with the terms of the Agreement. The Affidavit and all final lien waivers shall be on a form acceptable to the City.

8.6 All Project invoices shall be sent to:

City of Evanston
C/O Shane Cary
909 Davis Street
Evanston, Illinois 60201

with a copy to:

City of Evanston
Public Works Agency, Engineering
909 Davis Street
Evanston, Illinois 60201

9 Notice and Cure/Termination

9.1 In furtherance of Contractor's Work on this Project, the City and the Contractor agree that the following Notice and Cure provision in this Section 9.1 shall apply during the duration of Contractor's work on this Project, in addition to the reserved rights of the City enumerated in this Agreement as follows:

5.1 Liquidated Damages;
8.3 City's right to withhold payment;
16.2 Contractor's duty to revise and correct errors; and
16.3 Contractor's duty to respond to City's notice of errors and omissions.

The City may notify Contractor of its intent to terminate this Agreement within (7) seven calendar days of issuance by the City of written notice to Contractor's Project Manager regarding defects in the Project or in Contractor's Work. The City shall specify any such nonconforming Work or defects in the Project in its notice to Contractor under this Section 9.1. Contractor will have the opportunity to cure the non-conforming Work within (7) seven calendar days after receipt of the written notice issued by the City. All such curative work done shall be performed and completed to the City's satisfaction. Nothing in this Section 9.1 shall otherwise affect the City's right to exercise its rights in Section 9.2.

9.2 The City shall have the right to terminate this Agreement upon fifteen (15) days written notice for any reason. Mailing of such notice shall be equivalent to personal notice and shall be deemed to have been given at the time of receipt.

Payments made by the City pursuant to this Agreement are subject to sufficient appropriations made by the City of Evanston City Council. In the event of termination resulting from non-appropriation or insufficient appropriation by the City Council, the City's obligations hereunder shall cease and there shall be no penalty or further payment required.

9.3 Within thirty (30) days of termination of this Agreement, the Contractor shall turn over to the City any documents, drafts, and materials, including but not limited to, outstanding work product, data, studies, test results, source documents, AutoCAD Version 2007, ArcView, PDF, Word, Excel spreadsheets, technical specifications and calculations, and any other such items specifically identified by the City related to the Work herein. Upon receipt of said items, the Contractor shall be paid for labor and expenses incurred to the date of termination as provided in Section 8.2. This Agreement is subject to termination by either party if either party is restrained by a state or federal court of competent jurisdiction from performing the provisions of this

Agreement. Upon such termination, the liabilities of the parties to this Agreement shall cease, but they shall not be relieved of the duty to perform their obligations through the date of termination. No lien shall be filed by the Contractor in the event of a termination of this Agreement by the City.

9.4 If, because of death or any other occurrence, including, but not limited to, Contractor becoming insolvent, it becomes impossible for any principal or principals of the Contractor to render the services set forth in this Agreement, neither the Contractor, nor its surviving principals shall be relieved of their obligations to complete the professional services. However, in the event of such an occurrence, the City at its own option may terminate this Agreement if it is not furnished evidence that competent professional services can still be furnished as scheduled.

9.5 In the event of an emergency or threat to the life, safety, or welfare of the citizens of the City, the City shall have the right to terminate this Agreement without prior written notice.

10 Insurance

10.1 The Contractor shall, at its own expense, secure and maintain in effect throughout the duration of this contract, insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the Work hereunder by the Contractor, its agents, representatives, employees or sub-contractors. Contractor acknowledges and agrees that if it fails to comply with all requirements of this Section 10, the City may void the Agreement.

The Contractor must give to the City Certificates of Insurance identifying the City to be an Additional Insured for all Work done pursuant to this Agreement before City staff recommends award of the contract to City Council. Any limitations or modifications on the Certificate(s) of Insurance issued to the City in compliance with this Section that conflict with the provisions of this Section 10 shall have no force and effect.

After award of the Contract to Contractor (contracts over $500,000 in value or if the project is deemed high risk) the Contractor **shall** give the City a certified copy (ies) of the insurance policy (ies) evidencing the amounts set forth in Section 10.2, and copies of the Additional Insured endorsement to such policy (ies) which name the City as an Additional Insured for all Work done pursuant to this Agreement before Contractor does any Work pursuant to this Agreement. Contractor's certificate of insurance shall contain a provision that the coverage afforded under the policy(s) will not be canceled or reduced without thirty (30) days prior written notice (hand delivered or registered mail) to the City. Contractor shall promptly forward new certificate(s) of insurance evidencing the coverage(s) required herein upon annual renewal of the subject policies.

The policies and the Additional Insured endorsement must be delivered to the City within two (2) weeks of the request. All insurance policies shall be written with insurance companies licensed or authorized to do business in the State of Illinois and having a rating of not less than A-VII according to the A.M. Best Company. Should any of the insurance policies be canceled before the expiration date, the issuing company will mail thirty (30) days written notice to the City. The Contractor shall require and verify that all sub-contractors maintain insurance meeting all of the

requirements stated herein.

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City, its officers, officials, employees and volunteers; or the Contractor shall provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration and defense expenses.

10.2 Contractor shall carry and maintain at its own cost with such companies as are reasonably acceptable to City all necessary liability insurance (which shall include as a minimum the requirements set forth below) during the term of this Agreement, for damages caused or contributed to by Contractor, and insuring Contractor against claims which may arise out of or result from Contractor's performance or failure to perform the Services hereunder:

a) Worker's compensation in statutory limits and employer's liability insurance in the amount of at least five hundred thousand dollars ($500,000);
b) Comprehensive general liability coverage which designates the City as an additional insured for not less than three million dollars ($3,000,000) combined single limit for bodily injury, death and property damage, per occurrence;
c) Comprehensive automobile liability insurance covering owned, non-owned, and leased vehicles for not less than one million dollars ($1,000,000) combined single limit for bodily injury, death, or property damage, per occurrence; and

Contractor understands that the acceptance of Certificates of Insurance, policies, and any other documents by the City in no way releases the Contractor and its sub-contractors from the requirements set forth herein.

Contractor expressly agrees to waive its rights, benefits and entitlements under the "Other Insurance" clause of its commercial general liability insurance policy as respects the City. Contractor expressly agrees that its insurance coverage is required to be primary by this Agreement, that its insurance coverage shall be on a primary and non-contributory basis, and that it and its insurance carrier are estopped from denying such coverage is primary. In the event Contractor fails to purchase or procure insurance as required above, the parties expressly agree that Contractor shall be in default under this Agreement, and that the City may recover all losses, attorney's fees and costs expended in pursuing a remedy, or reimbursement, at law or in equity, against Contractor.

11 Indemnification

11.1 The Contractor shall defend, indemnify and hold harmless the City and its officers, elected and appointed officials, agents, and employees from any and all liability, losses, or damages as a result of claims, demands, suits, actions, or proceedings of any kind or nature, including but not limited to costs, and fees, including attorney's fees, judgments or settlements, resulting from or arising out of any negligent or willful act or omission on the part of the Contractor or Contractor's sub-contractors, employees, agents or sub-contractors during the performance of this Agreement. Such indemnification shall not be limited by reason of the enumeration of any

insurance coverage herein provided. This provision shall survive completion, expiration, or termination of this Agreement.

11.2 Nothing contained herein shall be construed as prohibiting the City, or its officers, agents, or employees, from defending through the selection and use of their own agents, attorneys, and experts, any claims, actions or suits brought against them. The Contractor shall be liable for the costs, fees, and expenses incurred in the defense of any such claims, actions, or suits. Nothing herein shall be construed as a limitation or waiver of defenses available to the City and employees and agents, including but not limited to the Illinois Local Governmental and Governmental Employees Tort Immunity Act, 745 ILCS 10/1-101 *et seq*.

At the City Corporation Counsel's option, Contractor must defend all suits brought upon all such Losses and must pay all costs and expenses incidental to them, but the City has the right, at its option, to participate, at its own cost, in the defense of any suit, without relieving Contractor of any of its obligations under this Agreement. Any settlement of any claim or suit related to this Project by Contractor must be made only with the prior written consent of the City Corporation Counsel, if the settlement requires any action on the part of the City.

To the extent permissible by law, Contractor waives any limits to the amount of its obligations to indemnify, defend, or contribute to any sums due under any Losses, including any claim by any employee of Contractor that may be subject to the Illinois Workers Compensation Act, 820 ILCS 305/1 *et seq*. or any other related law or judicial decision, including but not limited to, *Kotecki v. Cyclops Welding Corporation,* 146 Ill. 2d 155 (1991). The City, however, does not waive any limitations it may have on its liability under the Illinois Workers Compensation Act, the Illinois Pension Code or any other statute.

11.3 The Contractor shall be responsible for any losses and costs to repair or remedy work performed under this Agreement resulting from or arising out of any act or omission, neglect, or misconduct in the performance of its Work or its sub-contractors' work. Acceptance of the work by the City will not relieve the Contractor of the responsibility for subsequent correction of any such error, omissions and/or negligent acts or of its liability for loss or damage resulting therefrom.

11.4 All provisions of this Section 11 shall survive completion, expiration, or termination of this Agreement.

12 Drawings and Documents

12.1 Any drawings, survey data, reports, studies, specifications, estimates, maps, plans, computations, and other documents required to be prepared by the Contractor for the Project shall be considered Works for Hire and the sole property of the City.

12.2 The Contractor and its sub-contractor shall maintain for a minimum of three (3) years after the completion of this Agreement, or for three (3) years after the termination of this Agreement, whichever comes later, adequate books, records and supporting documents to verify the amounts, recipients and uses of all disbursements of funds passing in conjunction with the Agreement. The Agreement and all books, records and supporting documents related to the

Agreement shall be available for review and audit by the City and the federal funding entity, if applicable, and the Contractor agrees to cooperate fully with any audit conducted by the City and to provide full access to all materials. Failure to maintain the books, records and supporting documents required by this Subsection shall establish a presumption in favor of the City for recovery of any funds paid by the City under the Agreement for which adequate books, records, and supporting documentation are not available to support their purported disbursement.

13 Successors and Assigns

13.1 The City and the Contractor each bind themselves and their partners, successors, executors, administrators, and assigns to the other party of the Agreement and to the partners, successors, executors, administrators, and assigns of such other party in respect to all covenants of this Agreement. Neither the City nor the Contractor shall assign, sublet, or transfer its interest in this Agreement without the written consent of the other. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public body, which may be a party hereto, nor shall it be construed as giving any right or benefits hereunder to anyone other than the City and the Contractor.

14 Force Majeure

14.1 Whenever a period of time is provided for in this Agreement for the Contractor or the City to do or perform any act or obligation, neither party shall be liable for any delays or inability to perform if such delay is due to a cause beyond its control and without its fault or negligence including, without limitation:

a) Acts of nature;
b) Acts or failure to act on the part of any governmental authority other than the City or Contractor, including, but not limited to, enactment of laws, rules, regulations, codes or ordinances subsequent to the date of this Agreement;
c) Acts or war;
d) Acts of civil or military authority;
e) Embargoes;
f) Work stoppages, strikes, lockouts, or labor disputes;
g) Public disorders, civil violence, or disobedience;
h) Riots, blockades, sabotage, insurrection, or rebellion;
i) Epidemics or pandemics;
j) Terrorist acts;
k) Fires or explosions;
l) Nuclear accidents;
m) Earthquakes, floods, hurricanes, tornadoes, or other similar calamities;
n) Major environmental disturbances; or
o) Vandalism.

If a delay is caused by any of the *force majeure* circumstances set forth above, the time period shall be extended for only the actual amount of time said party is so delayed. Further, either party claiming a delay due to an event of *force majeure* shall give the other party written notice of such event within three (3) business days of its occurrence or it shall be deemed to be waived.

15 Amendments and Modifications

15.1 Except as otherwise provided herein, the nature and scope of Work specified in this Agreement may only be modified by a written Change Order, or a written amendment to this Agreement, approved by both parties. This Agreement may be modified or amended from time to time provided, however, that no such amendment or modifications shall be effective unless reduced to writing and duly authorized and signed by the authorized representatives of the parties.

16 Standard of Care & Warranty

16.1 The Contractor shall perform all of the provisions of this Agreement to the satisfaction of the City. The City shall base its determination of the Contractor's fulfillment of the scope of the work in accordance with generally accepted professional standards applicable to the Work for this Project. The Contractor shall perform all of the provisions of this Agreement with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar conditions.

16.2 The Contractor shall be responsible for the accuracy of its professional services under this Agreement and shall promptly make revisions or corrections resulting from its errors, omissions, or negligent acts without additional compensation. The City's acceptance of any of the Contractor's professional services shall not relieve the Contractor of its responsibility to subsequently correct any such errors or omissions. If a Contractor has provided the City with specifications for this Project which are determined to be incorrect or which require revision during the solicitation process (including but not limited to Requests for Proposals, Requests for Qualifications, or bids), the Contractor shall make such corrections or revisions to the specifications at no cost to the City. Further, upon receipt of an invoice from the City, the Contractor shall promptly reimburse the City for the reasonable costs associated with the preparation and dissemination of said corrections or revisions to appropriate parties, including but not limited to preparation of the corrected or revised documents, and printing and distribution costs.

16.3 During the pendency of its Work on this Project, the Contractor shall respond to the City's notice of any errors or omissions within twenty-four (24) hours. The Contractor shall be required to promptly visit the Project site(s) if directed to by the City.

16.4 The Contractor shall comply with all federal, state, and local statutes, regulations, rules, ordinances, judicial decisions, and administrative rulings applicable to its performance under this Agreement.

16.5 Contractor guarantees and warrants to the City that:

a) All materials and equipment furnished under this Agreement shall be of good quality and new, unless otherwise required or permitted by the Contract Documents;
b) The Work of this Agreement shall be free from defects which are not inherent in

the quality required; and

c) The Work shall comply with the requirements set forth in the Contract Documents.

This warranty and guarantee shall be for a period of one (1) year from the date of completion and Final Acceptance of the Work by the City, or as otherwise provided in the Contract Documents.

If, within the one year warranty period, after the Contractor has received a final payment under this Agreement, any of the Work is found to be not be in accordance with the requirements of this Agreement, or where defects in materials or workmanship may appear, or be in need of repair, the Contractor shall correct non-conforming and/or defective work or materials promptly after receipt of written notice from the City. Contractor shall immediately at its own expense repair, replace, restore, or rebuild any such Work. This remedy is in addition to any other legal or equitable remedies the City may have under this Agreement or the law.

This guarantee and warranty shall not relieve Contractor of liability for latent defects, and shall be in addition to the City's rights under the law or other guarantees or warranties, express or implied.

16.6 The provisions of this Section 16 shall survive the completion, expiration or termination of this Agreement.

17 Savings Clause

17.1 If any provision of this Agreement, or the application of such provision, shall be rendered or declared invalid by a court of competent jurisdiction, or by reason of its requiring any steps, actions, or results, the remaining parts or portions of this Agreement shall remain in full force and effect.

18 Non-Waiver of Rights

18.1 No failure or delay by the City to exercise any power given to it hereunder or to insist upon strict compliance by Contractor with its obligations hereunder, nor any payment made by the City under this Agreement, shall constitute a waiver of the City's right to demand strict compliance with the terms hereof, unless such waiver is in writing and signed by the City.

19 Entire Agreement

19.1 This Agreement sets forth all the covenants, conditions and promises between the parties with regard to the subject matter set forth herein. There are no covenants, promises, agreements, conditions or understandings between the parties, either oral or written, other than those contained in this Agreement. This Agreement has been negotiated and entered into by each party with the opportunity to consult with its counsel regarding the terms therein. No portion of the Agreement shall be construed against a party due to the fact that one party drafted that particular portion as the rule of *contra proferentem* shall not apply.

20 Governing Law

20.1 This Agreement shall be construed in accordance with and subject to the laws and rules of the City of Evanston and the State of Illinois both as to interpretation and performance. Venue for any action arising out of or due to this Agreement shall be in Cook County, Illinois. The City shall not enter into binding arbitration to resolve any dispute related to this Agreement. The City does not waive tort immunity by entering into this Agreement.

21 Ownership of Contract Documents

21.1 Contractor is specifically prohibited from using in any form or medium, the name or logo of the City for public advertisement, unless expressly granted written permission by the City. Submission or distribution of documents to meet official regulatory requirements or for similar purposes in connection with this Project is not to be construed as publication in derogation of the City's reserved rights.

22 Notice

22.1 Any notice required to be given by this Agreement shall be deemed sufficient if made in writing and sent by certified mail, return receipt requested, or by personal service, to the persons and addresses indicated below or to such other addresses as either party hereto shall notify the other party of in writing pursuant to the provisions of this Subsection:

City of Evanston Project Manager, Bid 26-37
909 Davis Street
Evanston, Illinois 60201

if to the Contractor:

_____
_____
_____

22.2 Mailing of such notice as and when provided above shall be equivalent to personal notice and shall be deemed to have been given at the time of mailing.

23 Severability

23.1 Except as otherwise provided herein, the invalidity or unenforceability of any particular provision, or part thereof, of this Agreement shall not affect the other provisions, and this Agreement shall continue in all respects as if such invalid or unenforceable provision had not been contained herein.

24 Execution of Agreement

24.1 This Agreement shall be signed last by the City Manager.

25 Counterparts

25.1 For convenience, this Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original.

26 Authorizations

26.1 The Contractor's authorized representatives who have executed this Agreement warrant that they have been lawfully authorized by the Contractor's board of directors or its bylaws to execute this Agreement on its behalf. The City Manager affirms that he/she has been lawfully authorized to execute this Agreement. The Contractor and the City shall deliver upon request to each other copies of all articles of incorporation, bylaws, resolutions, ordinances, or other documents which evidence their legal authority to execute this Agreement on behalf of their respective parties.

27 Time of Essence

27.1 Time is of the essence with respect to each provision hereof in which time is a factor.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be signed by their duly authorized representatives. The effective date of this Agreement will be the date this Agreement is signed by the City Manager.

CONTRACTOR

By: _____

Name: _____

Its: _____

Date: _____

CITY OF EVANSTON

By: _____
Luke Stowe
Its: City Manager Date: _____

Approved as to form:

By: _____
Alexandra B. Ruggie
Its: Corporation Counsel

Revision: April 2026

EXHIBIT P

BID BOND SUBMITTAL LABEL

CUT AND ATTACH LABEL ON OUTSIDE OF SEALED BID BOND SUBMITTAL

BID SUBMITTAL NUMBER: _____

BID SUBMITTAL NAME: _____

_____

BID SUBMITTAL DUE DATE/TIME: _____

COMPANY NAME: _____

COMPANY ADDRESS: _____

COMPANY TELEPHONE #: _____

If required by the bid documents, a scanned copy of the bid bond must be included with the bid electronic submission. The city is currently not able to accept a certified check, bank cashier's check, or electronic bid bond at this time.

The original bid bond (in the amount of 5% of the original bid amount) must be mailed within ten (10) days after the bid due date, to the City of Evanston Purchasing Department, 909 Davis Street, Evanston, Illinois 60201 Attention Purchasing Manager using the USPS (certified or priority), UPS or FedEx mail options in order to have a tracking number; which sum shall be forfeited in case the successful bidder fails to enter into a binding contract and provide a properly executed contract and surety bond within 15 days after the date the contract is awarded by the City.

PROJECT MANUAL

City of Evanston Service Center Computer Room Air Conditioning Unit Replacement

City of Evanston
Evanston, IL

This Project Manual contains Bidding Requirements, Contract Form, Conditions of the Contract and the Specifications for the Project. The contents of this Project Manual, the accompanying Drawings and any Addenda constitute the Bidding Documents for this Project.

GBA #P26-0446-00

GRUMMAN|BUTKUS
ENERGY EFFICIENCY CONSULTANTS
AND SUSTAINABLE DESIGN ENGINEERS

PROJECT MANUAL CONTENTS

END OF SECTION

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SCOPE OF WORK

The scope of the project is to replace two Liebert Computer Room Air Conditioning (CRAC) units and two roof mounted condensers at the City of Evanston Service Center's Data Center located at 2020 Asbury in Evanston, IL. The CRAC units are in an N+1 configuration.

Contractor to provide all labor, equipment, material, engineering, permitting, start-up and commissioning for a complete fully functional installation.

The Data Center will remain fully operational throughout the project. Contractor to incorporate phased construction or temporary cooling equipment to ensure that the cooling in the Data Center is uninterrupted.

The existing indoor units are Liebert System 3 DH 199A, 8,400 cfm, downflow with a sensible cooling capacity of 55.3 KW (75°F and 50% RH space conditions), 2004 Vintage using R-22 refrigerant, 480 V. Associated roof mounted condensing units are Liebert CD 205. Voltage is 460v/3 PH.

Approximate indoor unit sizes are 97" wide by 33" deep by 72" high. Indoor units are each set on a 24" high stand. A sheet metal scoop at each stand underneath the indoor units directs supply air to the Data Center.

Return is ducted from the room into the top return opening of the indoor units. Return opening is 95"x32".

Outdoor units are approximately 84" long by 44" wide and are set on equipment rails on the roof.

The location of the outdoor units is directly above the indoor units on the roof.

Basis of Design for the New Units

1. Indoor Units: Vertiv DS053AZA000, downflow, air-cooled air conditioning unit, 49.8 KW sensible cooling capacity at 75°F-50% RH, two circuits with two digital scroll compressors, centrifugal fans with EC Motors, 8,000 cfm at 0.2" SP. Approximate dimensions are 98" wide by 33" deep, 480 V / 3 Phase, 40.8 FLA,44.9 WSA, 60 A OPD. Units to be provided without reheat and without a humidifier. Units to be provided with the Vertiv iCOM microprocessor based controller.

2. Condensers: Vertiv MCM080E8, two fan condensers, 94" long by 46" wide, 480 V, 3 Phase, 2.8 A FLA, 3.4 A WSA, 15 A OPD. Equivalent equipment by Stulz Air Technology Systems is acceptable. Contractor is responsible for providing any modifications needed to accommodate equipment that deviates from basis of design.

Alternate

1. As an alternate provide manufacturer's standard infrared humidifier for each of the two units.

Phasing

1. Phase demolition and new construction as needed to maintain cooling in the Data Center. Provide temporary cooling as required.

Demolition

1. Disconnect ductwork, refrigerant piping, drain piping, control and electrical wiring, dispose of refrigerant in accordance with local and federal regulations and remove and dispose of indoor and outdoor units. Disconnect humidifier water piping and cap back to the main to avoid any dead legs.

2. Remove and dispose of all refrigerant piping and any wiring and conduit that will not be re-used.

New Work

1. Furnish and install two new indoor units on existing stands or provide new 24" stands. Equipment installation to be in accordance with manufacturer's installation instructions.

2. Connect to existing return air ductwork with a flexible connector. Provide sheet metal modifications as needed for the connection to the new units including modifications to the supply air "scoops".

3. Provide new refrigerant lines from the indoor to the outdoor units. Provide two sets of 7/8" hot gas and two sets of 5/8" liquid for each unit. Contractor to confirm refrigerant sizes with the equipment manufacturer.

4. Provide drain connection from indoor units to existing floor drain in the Data Center.

5. Furnish and install two outdoor units. Modify existing equipment rails as required. Existing roof is under warranty.

6. New refrigerant piping and conduit to use existing pipe portal or provide new pipe portal by Pate, Thycurb or RPS.

Alternate:

1. Connect domestic cold water lines to humidifier for each of the two units. ½" copper to ¼" connection with isolation valve. Insulate with 1" fiberglass insulation.

Electrical

1. Provide new conduit and wire from existing 400A panel PP-1 to new indoor and outdoor units. Contractor may re-use existing conduit and /or wire after visual inspection, megger and continuity testing.

2. Replace existing 70 A 3 pole breakers for indoor units with 60 A breakers and 20 A breakers for the outdoor units with 15 A breakers.

3. Provide new control wiring to a new temperature sensor for each of the two indoor units. Sensors to be provided by CRAC unit manufacturer.

4. Provide interlock control wiring between condensing units and indoor units or re-use existing conduit and / or wiring after visual inspection.

5. Provide wiring to each remote unit from the Fire Alarm system. Units to be interlocked to shut down when a fire condition is detected.

Alternate:

1. If the humidifier option is selected, leave the 70 A breaker in place. Outdoor unit breaker to be replaced.

Controls:

1. Provide ethernet wiring with RJ45 jacks between the two CRAC indoor units.
2. Program to run the units in a lead lag arrangement with equal run time provisions.
3. Provide start-up by a factory authorized technician. See specifications for additional requirements.

Figure 1: Indoor CRAC #2

Figure 2: Indoor CRAC #1

Figure 3: Existing CRAC Control Panel

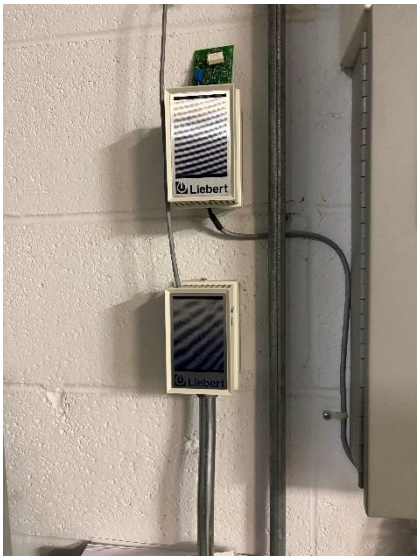

Figure 4: Existing Temperature Sensots

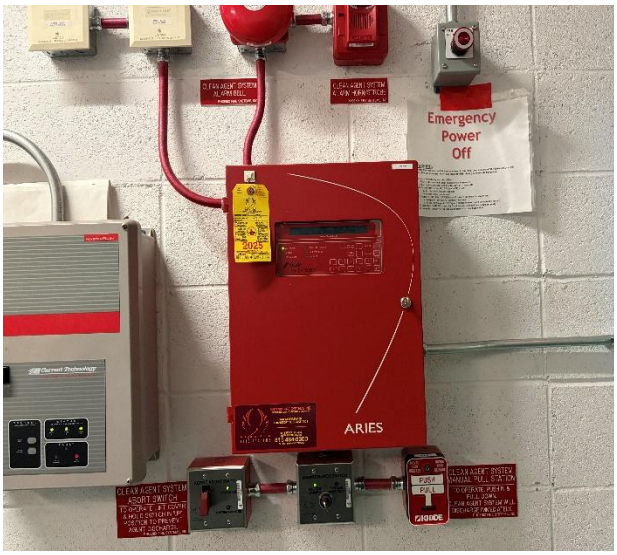

Figure 5: Dry Agent Fire Protection Control Panel

Figure 6: Existing 480V Distribution Panel

Figure 7: Overhead Return Duct Connection

Figure 8: Existing Condenser on Roof

Figure 9: Existing Pipe and Conduit Roof Portal

SECTION 01 0270
APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Contractor shall comply with procedures described in this Section when applying for progress payments and final payment under the Contract.

1.2 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other Divisions of the Project Manual, apply to this Section.

B. Payments upon Substantial Completion and Completion of the Work are described in Section 01 7700 – PROJECT CLOSEOUT.

1.3 QUALITY ASSURANCE

A. Prior to start of construction, secure the Owner's approval of the schedule of values required to be submitted as specified below.

B. During progress of the Work, modify the schedule of values as approved by the Owner to reflect changes in the Contract Sum due to Change Orders or other modifications of the Contract.

C. All requests for payment shall be based on the approved Schedule of Values for the project.

D. All modifications to the contract shall be based on the approved Schedule of Values for the project.

1.4 SCHEDULE OF VALUES

A. Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
    a. Contractor's construction schedule.
    b. Application for Payment forms.
    c. List of subcontractors.
    d. Schedule of alternates.
    e. List of products.
    f. List of principal suppliers and fabricators.
    g. Schedule of submittals.

2. Submit the Schedule of Values to the Owner at the earliest feasible date, but in no case later than seven days before the date scheduled for submittal of the initial Application for Payment.

B. If applicable, the format and content of the Schedule of Values shall match the project's unit pricing. The Contractor is strongly encouraged to utilize spreadsheet software for preparation of all pay applications.

1. Include the following Project identification on the Schedule of Values:
    a. Project name and location.
    b. Purchase order number.
    c. Contractor's name and address.
    d. Date of submittal.

2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
    a. Itemized description.
    b. Related Specification Section
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that have affected value.
    g. Dollar value.
    h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.

3. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

4. Show line items for indirect costs and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.

5. Update and resubmit the Schedule of Values when Change Orders result in a change in the Contract Sum.

1.5 PROCEDURES

A. Informal submittal

1. Make informal submittal of request for payment by filling in, with erasable pencil, pertinent portions of AIA Document G702, "Application and Certification for Payment," plus continuation sheet or sheets of AIA Document G703.

2. Make this preliminary submittal to the Architect and Owner in accordance with the Owner's payment schedule.

3. Revise the informal submittal of the request for payment as directed by the Owner, initialing all copies.

B. Formal submittal

1. Make formal submittal of request for payment by filling in the agreed data, by typewriter or neat lettering in ink, on AIA Document G702, “Application and Certification for Payment,” plus continuation sheet(s) of AIA Document G703.

2. Sign and notarize the Application and Certificate for Payment.

3. Reference Purchase Order number on Application for Payment

4. Secure and file with submittal progress waivers for all materials incorporated into and labor and equipment employed on the work before payment requests are processed.
   a. Initial payment will be processed without progress waivers. Subsequent requests will require progress waivers for previous payment.

5. Submit the original of the Application and Certificate for Payment and the continuation sheet or sheets to the Architect and Owner for approval.

6. The Architect and Owner will compare the formal submittal with the approved informal submittal and, when approved, will sign the Application and Certificate for Payment, will make and distribute required copies. The Owner will disburse directly to the Contractor the amount certified less retainage in accordance with 30 ILCS 550/1.

7. Approved formal submittals must be received by the Owner in accordance with the Owner’s payment schedule.

8. Certified payroll records must be submitted along with the formal submittal as described in the General Conditions.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01 0270

SECTION 01 1100
SUMMARY OF WORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Scope of work

B. Contracts

C. Contractor use of site and premises

D. Work sequence

E. Owner occupancy and utilization

1.2 SCOPE OF WORK

A. The scope of work is to replace two Computer Room Air Conditioning units and associated roof mounted condensing units at the City of Evanston, Service Center Data Center.

B. The project is to be delivered in a Design-Build delivery method.

1.3 CONTRACTOR USE OF SITE AND PREMISES

A. Limit use of site and premises to allow:

1. Owner occupancy.

2. Use of premises by Owner to conduct normal activities.

B. Tie-ins to existing systems must be done in a manner so as to minimize interference with Owner's operations (i.e., during premium time).

1.4 WORK SEQUENCE

A. Install work in phases to accommodate Owner’s occupancy requirements during the construction period. Coordinate mechanical or electrical schedule and operations with Owner.

1.5 OWNER OCCUPANCY AND UTILIZATION

A. Owner will occupy the site during entire period of construction.

B. Cooperate with Owner to minimize conflict and to facilitate Owner’s operations.

C. Schedule the work to accommodate this requirement.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 01 2000
PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

A. This section specifies administrative and procedural requirements for project meetings including but not limited to:

1. Pre-construction Conference
2. Pre-installation Conferences
3. Coordination Meetings
4. Progress Meetings

B. B. Construction schedules are specified in Section 01 3300 – SUBMITTALS.

1.2 RELATED WORK

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all other Divisions of the Project Manual, apply to this Section.

1.3 PRE-CONSTRUCTION CONFERENCE

A. The Owner shall schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conduct matters relating to the Work.

C. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Tentative construction schedule
2. Critical Work sequencing
3. Designation of responsible personnel
4. Procedures for processing field decisions and Change Orders
5. Procedures for processing Applications for Payment
6. Distribution of Contract Documents
7. Submittal of Shop Drawings, Product Data and Samples
8. Preparation of record documents

9. Use of the premises
10. Office, Work and storage areas
11. Equipment deliveries and priorities
12. Safety procedures
13. First aid
14. Security
15. Housekeeping
16. Construction activity policies and working hours
17. MBE/WBE/EBE and LEP requirements
18. Coordination with affected utilities and governing jurisdictions

1.4 PRE-INSTALLATION CONFERENCE

A. Conduct a pre-installation conference at the site before each construction activity that requires coordination with other construction. The 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 the Owner of scheduled meeting dates.

B. Review the progress of other construction activities and preparations for the particular activity under consideration at each pre-installation conference, including requirements for:

1. Contract Documents
2. Options
3. Related Change Orders
4. Purchases
5. Deliveries
6. Shop Drawings, Product Data and quality control samples
7. Possible conflicts
8. Compatibility problems
9. Time schedules
10. Weather limitations
11. Manufacturer's recommendations
12. Compatibility of materials
13. Acceptability of substrates

14. Temporary facilities
15. Space and access limitations
16. Governing regulations
17. Safety
18. Inspection and testing requirements
19. Required performance results
20. Recording requirements
21. Protection

C. Record significant discussions and agreements and disagreements of each conference, along with the approved schedule. Distribute the record of the meeting to everyone concerned, promptly, including the Owner.

D. Do not proceed if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.

1.5 PROGRESS MEETINGS

A. Conduct progress meetings at the Project site at regularly scheduled intervals. Notify the Owner of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment requests.

B. Attendees: in addition to the Owner, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.

D. Contractor's Construction Schedule: review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time, ahead or behind 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 Period.

E. Review the present and future needs of each entity present, including such items as:

1. Interface requirements
2. Time
3. Sequences
4. Deliveries

5. Off-site fabrication problems
6. Access
7. Site utilization
8. Temporary facilities and services
9. Hours of Work
10. Hazards and risks
11. Housekeeping
12. Quality and Work standards
13. Change Orders
14. Documentation of information for payment requests.

F. Reporting: no later than three (3) days after each progress meeting date, distribute copies of minutes of the meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

G. Schedule Updating: revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION (NOT APPLICABLE)

END OF SECTION 01 2000

SECTION 01 2100
ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. Other provisions concerning Allowances also may be stated in other Sections of these Specifications.

1.2 SUMMARY

A. The allowance is general and is to be used to provide adequate budget and bonding to cover items not able to be precisely determined by the Owner prior to bidding including any unforeseen conditions that are discovered. Allow within the proposed Total Base Bid Amount the amounts described in this Section.

B. Allowance work shall be pre-approved prior to the start of and during the Construction with Proposals documenting the work to be performed, with clearly stated not-to-exceed costs and step by step method of procedures for the proposed work stated. Proposals must be submitted and accepted by the Owner prior to starting any allowance work. After discovering an unforeseen condition, the contractor shall submit a Proposal that includes a report summarizing the found condition. The Consultant and Owner will view the unforeseen condition to determine if the work will be authorized. Allowance work shall only be authorized by written Allowance Authorization. Under no circumstances shall the Contractor move forward with the work in question nor shall the contractor expend allowance without an approved Allowance Authorization.

1.3 ALLOWANCE RESPONSIBILITIES

A. Consultant Responsibilities:

1. Consult with Contractor in consideration and selection of products, suppliers and installers.
2. Select products or services in consultation with Owner.
3. Review method of procedure and costs documented on Proposals submitted by the Contractor and transmit Owner's decision to Contractor. Owner approved Allowance Authorizations are required prior to proceeding with Allowance Work.
4. Review, recommend and transmit Allowance Authorization to Owner for approval.
5. Transmit Owner's decision to the Contractor.

B. Contractor's Responsibilities:

1. Assist Consultant in selection of products, suppliers and installers.
2. Obtain proposals from suppliers and installers and offer recommendations and review of proposals submitted. Transmit to Consultant on Proposal forms, attaching all supporting documentation. Include any bond cost adjustments with the proposal. Include scheduling information and assessment of impact of other work.
3. On notification of selection by Consultant, execute purchase agreement with designated supplier and installer.

4. Arrange for and process shop drawings, product data and samples. Arrange for delivery.
5. Promptly inspect products upon delivery for completeness, damage and defects. Submit claims for transportation damage.
6. Document thoroughly all costs related to the work.
7. Provide the Consultant with fully documented Proposals detailing all allowance work to be performed.

1.4 ALLOWANCE DOCUMENTATION

A. All work covered by Allowances must be thoroughly documented as follows:

1. Upon encountering any field conditions which is not as shown in Construction Documents, the Contractor shall immediately notify the Consultant and develop a written Proposal detailing any additional work required. Proposals shall include a report summarizing the found condition to the Consultant. Contractor work initiated without submitting a completed Proposal and obtaining the Owner's written approval by Allowance Authorization is performed entirely at Contractor's own risk and cost, regardless of any prior verbal approval.
2. The Consultant shall review the Proposal and provide the Owner with a written recommendation regarding the proposed work.
3. The Owner shall review the Contractor's Proposal and the Consultant's recommendation and, if appropriate, provide written approval via Allowance Authorization for use of the Allowance.

1.5 SCHEDULE OF ALLOWANCES

Allowance (General): $50,000.00

1.6 ALLOWANCE EXCLUSIONS

A. General

1. Additional costs related to improper scheduling, sequencing or coordination will not be covered within the Allowance, as determined solely by the Owner.

B. Existing Building Component Exclusions

1. All work required to protect existing building surfaces and components is included in the Base Bid and will not be covered within the Allowance.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 01 2100

SECTION 01 3101
MECHANICAL AND ELECTRICAL COORDINATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Mechanical and electrical coordination

B. Submittals

C. Coordination required

D. Coordination documents

E. Coordination of submittals

F. Coordination of substitutions and modifications

G. Observation of work

H. Documentation

I. Equipment start up

J. Inspection and acceptance of equipment

1.2 MECHANICAL AND ELECTRICAL WORK COORDINATION

A. Provide coordination for the type of mechanical and electrical work required for this Project for the duration of the Work.

1.3 COORDINATION REQUIRED

A. Coordinate mechanical and electrical work of Divisions 20, 23, 26, with work of each other and of other Divisions.

B. Coordinate progress schedules, including dates for submittals and for delivery of products.

C. Conduct conferences among Subcontractors and others concerned with the Work to establish and maintain coordination and schedules and to resolve coordination matters in dispute.

D. Confer with other Contractors regarding location and size of pipes, equipment, fixtures, conduit, ducts, openings, switches, outlets, fire sprinkler heads, fire hose cabinets, etc., in progress of the work of any Contractor project. Architectural drawings shall take precedence over mechanical and electrical drawings.

E. Where work connects to that of another trade or to piping or equipment in place, make measurements in field to make connection work come true and line up with item being connected.

F. Where work specified under other Divisions of Specifications connects to equipment which is part of Divisions 20, 21, 22, 23, 26, 27, or 28, provide proper connection(s) to such equipment.

G. Participate in progress meetings. Report on progress of Work to be adjusted under coordination requirements and any required changes in schedules. Transmit minutes of meetings and reports to concerned parties.

1.4 COORDINATION OF SUBMITTALS

A. Review shop drawings, product data and samples for compliance with Contract Documents and for coordination among work of all sections of the Project Manual. Transmit to Contractor for review, then transmit to Engineer.

B. Check field dimensions and clearances and relationship to available space and anchors.

C. Check compatibility with equipment and Work of other sections, electrical characteristics and operational control requirements.

D. Check equipment voltages and control characteristics.

E. Coordinate controls, interlocks, wiring of pneumatic switches and relays.

F. Coordinate wiring and control diagrams.

G. Review the effect of any changes on work of other sections.

H. Verify and coordinate maintenance of Record Documents.

1.5 OBSERVATION OF WORK

A. Observe work for compliance with Contract Documents.

1.6 DOCUMENTATION

A. Observe and maintain a record of tests. Record:

1. Specification section number, product and name of Subcontractor.
2. Name of testing agency and name of inspector.
3. Name of manufacturer's representative present.
4. Date, time and duration of tests.
5. Type of test and results.
6. Retesting required.

1.7 EQUIPMENT START UP

A. Verify utilities, connections and controls are complete and equipment is in operable condition as required by Division 01 Section 01 3103, “Starting of Systems.”

B. Observe start-up and adjustments; record time and date of startup and results.

C. Observe equipment demonstrations to Owner; record times and additional information required for Operation and Maintenance Manuals.

1.8 INSPECTION AND ACCEPTANCE OF EQUIPMENT

A. Prior to inspection, verify that equipment is tested and operational and clean.

B. Assist Engineer with inspection. Prepare list of items to be completed and corrected.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 01 3102
ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Demolition, alterations, cutting and protection

B. Products and installation for patching and extending Work

C. Transition and adjustments

D. Repair of damaged surfaces, finishes and cleaning

1.2 SEQUENCE AND SCHEDULES

A. Schedule work in sequences and within times specified in Division 01 Section 01 0000, “Summary of Work.”

B. Submit separate detailed sub-schedule for alterations work, coordinated with Master Construction Schedule. Show:

1. Each stage of work; occupancy dates of areas

2. Date of Substantial Completion for each area of alteration work

3. Crafts and subcontractors employed in each stage

C. Schedule noisy or hazardous work to avoid problems with Owner’s operations.

1.3 DOCUMENTATION OF EXISTING CONDITIONS

A. Before starting any work, the Contractor shall examine the site to be worked on and the grounds in the staging area and areas adjacent to the site that will be worked on for any existing damage. The Contractor should notify the City's representative of any damage found immediately. The City will photograph and note any existing damage that has been brought to his attention by the Contractor. After the Work has been completed, the City will inspect the area used by the Contractor. If any damage is found that was not reported previously, this damage would be considered to have been done by the Contractor. The cost to repair said damage shall be solely borne by the Contractor.

1.4 DEMOLITION, ALTERATIONS, CUTTING AND PROTECTION

A. Assign demolition, moving, removal, cutting and patching work to crafts qualified to perform work in manner to cause least damage to each type of work and provide means of restoring surfaces to appearance of new work.

B. Perform cutting and removal work to remove minimum necessary and in manner to avoid damage to adjacent work.

1. Cut finish surfaces such as masonry, tile, plaster or metals by methods to terminate surfaces in straight line at natural point of division.

C. Perform cutting and patching as specified in Division 01 Section 01 7329, “Cutting and Patching.”

D. Protect existing finishes, equipment and adjacent work which are scheduled to remain from damage.

1. Protect existing and new work from weather and temperature extremes.

a. Maintain existing interior work above 60°F.

b. Provide weather protection, waterproofing, heat and humidity control to prevent damage to remaining existing work and to new work.

E. Provide temporary enclosures to separate work areas from existing building and from areas occupied by Owner and to provide weather protection.

PART 2 - PRODUCTS

2.1 SALVAGED MATERIALS

A. Salvage sufficient quantities of cut or removed materials to replace damaged work of existing construction, when material is not readily obtainable on current market.

B. Store salvaged items in a dry, secure place on site.

C. Items not specified for use in repair work remain property of Owner.

D. Do not use salvaged or used material in new construction except with prior written authorization from Engineer.

2.2 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. Ensure that work is complete.

B. Provide same materials or types of construction as that in existing structure, to patch, extend or match existing work.

1. Contract Documents may not define products or standards of workmanship present in existing construction.

2. Determine products by inspection and testing.

3. Determine workmanship by use of existing as sample of comparison.

C. Presence of a product, finish or type of construction requires that patching, extending or matching be performed to make work complete and consistent to identical quality standards.

PART 3 - EXECUTION

3.1 EXAMINATION (PRE-DEMOLITION)

A. Verify if all hazardous waste materials (asbestos, PCB/transformers, etc.) have been removed from work areas. If this is not verified, notify Owner/Engineer in writing.

B. Demolition drawings are based on casual field observation and existing record documents. Review site conditions and report discrepancies to Engineer before disturbing existing installation.

C. Beginning of demolition work means acceptance of existing conditions.

3.2 PERFORMANCE

A. Patch and extend existing work using skilled craftsmen capable of matching existing quality of workmanship. For patched or extended work, provide quality equal to that specified for new work.

3.3 PREPARATION

A. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

B. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals and deteriorated masonry and concrete. Replace materials as specified for finished Work.

C. If, during course of project, hazardous materials are in any way suspected, including but not limited to asbestos, pollutants, or PCB, inform Owner immediately and suspend action on that portion of work.

D. Remove or repair dangerous or unsanitary conditions.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Remove abandoned piping, conduit and wiring.

G. Prepare surface and remove surface finishes to provide for proper installation of new work and finishes.

H. Close openings in exterior surfaces to protect existing work and salvage items from weather and extremes of temperature and humidity. Insulate ductwork and piping to prevent condensation in exposed areas.

3.4 EXAMINATION (PRE-INSTALLATION)

A. Verify that demolition is complete and areas are ready for installation of new Work.

B. Beginning of restoration Work means acceptance of existing conditions.

3.5 INSTALLATION

A. Coordinate work of alterations and renovations to expedite completion and to accommodate Owner occupancy]

B. Remove, cut and patch work in a manner to minimize damage and to provide a means of restoring Products and finishes to original condition.

C. Refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.

D. Install products as specified in individual Sections of Divisions 20, 21, 22, 23, 26, 27, and 28.

3.6 TRANSITIONS

A. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched Work to match existing adjacent work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Engineer.

3.7 REPAIR OF DAMAGED SURFACES

A. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

3.8 FINISHES

A. Finish patches to product uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.9 CLEANING

A. Perform construction cleaning as specified in Division 01 Section 01 7700, “Project Closeout.”

1. Clean Owner-occupied areas daily.

2. Clean all spillage, overspray and heavy dust collections in Owner-occupied areas immediately.

B. At completion of work of each craft, clean area and make surfaces ready for work of successive crafts.

C. At completion of alterations work in each area, provide final cleaning in accord with Section 01700 and return space to a condition suitable for use of Owner.

END OF SECTION

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SECTION 01 3103
STARTING OF SYSTEMS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Starting systems

B. Demonstration and instructions

C. Testing, adjusting, and balancing

1.2 STARTING SYSTEMS

A. Coordinate schedule for startup of various equipment and systems.

B. Notify Owner seven calendar days prior to start up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.

D. Verify that tests, meter readings and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Verify utilities, connections and controls are complete and equipment is in operable condition.

G. Observe start-up and adjustments: Record time and date of start-up and results.

H. Observe equipment demonstrations to Owner: Record times and additional information required for Operation and Maintenance Manuals.

I. Execute start up under supervision of responsible manufacturer's representative in accordance with manufacturers' instructions.

J. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start up and to supervise placing equipment or system in operation.

1.3 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final inspection.

B. Demonstration and instructions shall be provided by a qualified manufacturers' representative who is knowledgeable about the Project.

C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners’ personnel in detail to explain all aspects of operation and maintenance.

D. Demonstrate start up, operation, control, adjustment, trouble shooting, servicing, maintenance and shutdown of each item of equipment.

E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.4 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 01 3300
SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures

B. Proposed products list

C. Contractor-prepared shop drawings

D. Preventive maintenance (PM) tasks/schedule

E. Product data

F. Samples

G. Manufacturers' instructions

H. Manufacturers' certificates

1.2 SUBMITTAL PROCEDURES

A. Refer also to provisions of the General Conditions.

B. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet, equipment tag, system designation number(s) and specification Section number, as appropriate.

C. Where possible, submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal so long as this does not delay individual items whose review is time-critical.

D. If only part of required drawings in one group are submitted, action will be withheld on them until remaining drawings are submitted.

E. Catalog cuts showing more than one model of a product shall be clearly marked indicating which model is being proposed.

F. Capacity and performance data shall be given in same form, units and completeness presented in Contract Documents.

G. Identifying symbols and tags used on drawings shall be clearly cross-referenced on shop drawings.

H. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction Work and coordination of information is in accordance with the requirements of the Work and Contract Documents.

I. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work

J. Revise and resubmit submittals as required, identifying all changes made since previous submittal.

K. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.3 CONSTRUCTION PROGRESS SCHEDULES

A. Submit estimated progress schedule within10 business days after date established in Notice to Proceed.

B. Revise and resubmit as required.

C. Revise and resubmit work schedule affected by accepted alternates.

1.4 PRODUCT DATA

A. Submit shop drawings electronically in .pdf format.

B. Mark each copy to identify applicable products, models, systems, equipment tags and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Division 01 Section 01 7700, "Project Closeout."

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 01 6000
MATERIAL AND EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Products

B. Transportation and handling

C. Storage and protection

D. Product options

E. Substitutions

1.2 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Provide interchangeable components of the same manufacturer for similar components.

1.3 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.

1.4 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather tight, climate-controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports above ground.

C. Provide off site storage and protection when site does not permit on site storage or protection.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement or damage.

F. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

1.5 PRODUCT OPTIONS

A. Products specified by Reference Standards or by description only: Any product meeting those standards or description.

B. Products specified by naming one or more manufacturers: Products of manufacturers named and meeting specifications; no options or substitutions allowed.

C. Product specified by naming one manufacturer as a base and naming others as acceptable: Obligations listed in the following “Substitutions” paragraph apply when an “Acceptable Other” is used. Manufacturer named on the drawings and in equipment scheduling are to be considered as a Base; with respect to the particular product described, other manufacturers named in those documents are acceptable others.

D. When an “Acceptable Other” manufacturer is used in lieu of Specified, Contractor shall coordinate mechanical, plumbing and electrical requirements and will bear any additional costs required by other subcontractors as a result of the proposed product.

1.6 SUBSTITUTIONS

A. Instructions to Bidders specify time restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this Section.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request constitutes a representation that the Bidder:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the substitution as for the specified product.
3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Has investigated that the proposed product can be installed in the space available with access for servicing and maintenance.
5. Has coordinated mechanical, plumbing and electrical requirements and will bear any additional costs required by other subcontractors as a result of the proposed product.
6. Waives claims for additional costs or time extension which may subsequently become apparent.
7. Will reimburse Owner for review or redesign services associated with re approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, or when acceptance will require revision to the Contract Documents.

F. Substitution submittal procedure:

1. Submit two copies of request for substitution for consideration. Limit each request to one proposed substitution.
2. Submit shop drawings, product data and certified test results attesting to the proposed product equivalence.

3. The Engineer will notify Contractor, in writing, of decision to accept or reject request.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 01 7329
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Requirements and limitations for cutting and patching of work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Primary products: Those required for original installation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

B. After uncovering existing work, inspect conditions affecting performance of work.

C. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the work. Provide devices and methods to protect other portions of project from damage.

B. Provide protection from elements for areas which may be exposed by uncovering work.

C. Maintain excavations free of water.

3.3 CUTTING AND PATCHING

A. Execute cutting, fitting and patching to complete work.

B. Fit products together, to integrate with other work.

C. Uncover work to install ill-timed work.

D. Remove and replace defective or non-conforming work.

E. Provide openings in the work for penetration of mechanical and electrical work.

3.4 PERFORMANCE

A. Execute work by methods to avoid damage to other work and which will provide appropriate surfaces to receive patching and finishing.

B. Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements and sight exposed surfaces.

C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

D. Restore work with new products in accordance with requirements of Contract Documents.

E. Fit work air tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

F. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material to full thickness of the penetrated element.

G. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

END OF SECTION

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SECTION 01 7700
PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures

B. Final cleaning

C. Adjusting

D. Project record documents

E. Operation and maintenance data

F. Warranties

G. Spare parts and maintenance materials

1.2 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected and that Work is complete in accordance with Contract Documents and ready for inspection by Engineer.

B. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

1.3 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains, and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces.

C. Clean equipment and fixtures to a sanitary condition.

D. Replace filters of operating equipment [affected by new installation.]

E. Clean debris from roofs, gutters, downspouts, and drainage systems.

F. Clean site; sweep surfaces affected by installation.

G. Remove waste and surplus materials, rubbish and any construction facilities and equipment from the site.

1.4 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Maintain on site, one set of the following record documents; record actual revisions to the Work:

1. Contract drawings
2. Specifications
3. Addenda
4. Change Orders and other modifications to the Contract

5. Reviewed shop drawings, product data, and samples

C. Store Record Documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number

2. Product substitutions or alternates utilized

3. Changes made by Addenda and Modifications

1.5 OPERATION AND MAINTENANCE DATA

A. Prepare electronic "OPERATION AND MAINTENANCE INSTRUCTIONS" and title of project.

B. Subdivide the binder contents with permanent page dividers, logically organized as described below.

C. Contents: Prepare a Table of Contents for each volume, with each Product or System description identified.

D. Part 1: Directory listing names, addresses, and telephone numbers of Contractor, Subcontractors and major equipment suppliers.

E. Part 2: Operation and maintenance instructions, arranged by system and subdivided by component. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:

1. Significant design criteria.

2. List of equipment.

3. Parts list for each component.

4. Operating instructions.

5. Maintenance instructions for equipment and systems.

6. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

F. Part 3: Project documents and certificates, including the following:

1. Certificates.

2. Photocopies of warranties.

G. Submit one copy of completed volumes in final form 7 days prior to final inspection.

1.6 WARRANTIES

A. Provide duplicate notarized copies.

B. Execute and assemble documents from Subcontractors, suppliers and manufacturers.

C. Provide Table of Contents and assemble in 3-D side ring binder with durable cover.

D. Submit prior to final Application for Payment.

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.

B. Deliver to Project site and place in location as directed; obtain receipt from Owner prior to final payment.

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

Not Applicable

END OF SECTION

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SECTION 20 0500
BASIC REQUIREMENTS FOR MECHANICAL, PLUMBING, AND FIRE SUPPRESSION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Basic mechanical requirements specifically applicable to Divisions 20, 21, 22, and 23.

1.2 DEFINITIONS

A. The following words or phrases have special meaning when used in the article (of the division and in any other requirement) applicable to this discussion:

1. "Exposed to View" or "Exposed" — shall have reference to and mean that the pipes, ducts, etc., insulated or otherwise, in the completed structure are visible within any normally occupied space, room or area.
2. "In Concealed Spaces", "Concealed or "Not Exposed to View" — shall have reference to and mean that the pipes, duct, etc., insulated or otherwise are concealed and not exposed to view within furred spaces, above suspended ceilings, pipe chases, etc.
3. "Unfinished Spaces" or "Unfinished Rooms" — shall have reference to areas such as Machine Rooms, Equipment Rooms, or similar areas. Where the words "In Finished Areas" or "Finished Rooms" are used, it shall have reference to rooms or spaces, such as, Reading rooms, Offices, Public Corridors, etc.
4. "Finished Rooms or Spaces" shall refer to areas similar to offices, public corridors, and public toilet rooms.
5. "Provide" — shall be taken to mean "furnish and install" meaning to purchase and deliver to the job site and the installation thereof.
6. "Piping" — shall include, in addition to pipe all fittings, valves, hangers, and other supports, expansion compensators, anchors, and accessories related to such piping including associated insulation.
7. "Ductwork" — shall include, in addition to ducts, all fittings, transitions, dampers, hangers and other supports, fire dampers, access panels, associated insulation and accessories related to such ductwork.
8. "Contractor" in Specifications and Drawing refers to respective Contractor performing that portion of work.
9. "Invert Elevation" (I.E.) means elevation of inside bottom of pipe or duct.
10. "Mechanical Work" is work in Divisions 20, 21, 22, and 23.
    a. NOTE: The words "Contractor shall" are implied and shall be so understood wherever the directions "furnish," "install" or "provide" are used.

1.3 SPECIAL CONDITIONS

A. Minor items and accessories or devices reasonably inferable as necessary to the complete and proper operation of any system shall be provided by the Contractor for such system whether or not they are specifically called for by the specifications or drawings.

B. Where work specified in other sections of the specifications connects to equipment specified in Divisions 20, 21, 22, and 23 Sections, check the required connection to such equipment.

1.4 PROJECT/SITE CONDITIONS

A. Prepare drawings showing proposed rearrangement of work to meet project conditions, including changes to Work specified in other Sections. Obtain permission of Owner before proceeding.

1.5 CONTRACTORS' USE OF PREMISES

A. Refer to Division 01.

B. The Owner will be responsible for the identification and abatement of all hazardous materials and asbestos associated with the project. Although great care will be taken to eliminate any risks, the Contractor must be aware that hazardous materials may exist on site. Therefore, the Contractor shall immediately suspend work and notify the Owner if asbestos or other hazardous material is suspected in the work area of the project.

PART 2 - PRODUCTS

2.1 REFER TO DIVISION 1

PART 3 - EXECUTION

3.1 SCOPE

A. Work included under Divisions 20, 21, 22, and 23 shall include all labor, services, materials and equipment and performance of all work required for installation of mechanical, plumbing, and fire suppression systems as shown on drawings and as herein specified in following sections.

3.2 INTERPRETATION OF CONSTRUCTION DOCUMENTS

A. Should there be discrepancy or a question of intent, refer matter to Engineer for decision before ordering any equipment or materials or before starting any related work.

B. Minor items and accessories or devices reasonably inferable as necessary to complete and proper installation and operation of any system shall be provided by Contractor for such system whether or not specifically called for by specifications or drawings.

C. , provided such changes are made before installation.

D. Locations of items not definitely fixed by dimensions are approximate only and exact locations necessary to secure the best conditions and results shall be determined at the site and shall be subject to review and approval by Architect.

E. Furnish advance information on locations and sizes of frames, boxes, sleeves and openings needed for the work, and also furnish information and shop drawings necessary to permit installation of other work without delay.

F. Where there is evidence that parts of the Work specified in Divisions 20, 21, 22, and 23 will interfere with other work, assist in working out space conditions to make satisfactory adjustments, revise and submit coordinated shop drawings.

G. After review and without additional cost to the Owner, make minor modifications in the work as required by structural interferences, by interferences with work of other sections or for proper execution of the work.

H. Work installed before coordinating with other work so as to cause interference with other work shall be changed and corrected without additional cost to the Owner.

I. The layout of the piping, ductwork, equipment, etc shall be checked and exact locations shall be determined by the dimensions of the equipment approved and the Contractor shall obtain approval for the revised layout before the apparatus is installed. The Contractor shall field measure for all dimensions.

J. Omission in the specifications of any items necessary for the proper completion or operation of the work outlined in this specification shall not relieve the Contractor from furnishing same without additional cost to the Owner.

K. The equipment shop drawings will be furnished to the Contractor before roughing in. Contractor shall not install any piping or ductwork for said equipment until he has received approved shop drawings for same.

3.3 PROJECT/SITE CONDITIONS

A. Each Contractor shall visit the site prior to bid submission to determine all existing conditions that may affect his work and shall make appropriate allowances for such conditions in his bid. Failure to visit the site shall not be cause for a request for additional compensation later in the project during construction.

B. Install work in locations indicated, unless prevented by project conditions.

3.4 ALTERATIONS IN PRESENT BUILDING AND SYSTEMS

A. Contractor shall take particular note of the revisions and alterations to the existing systems, facilities and equipment due to the new construction as indicated in specification. Contractor shall remove, reroute or alter all services, ductwork, etc., as required or as indicated.

1. The Contractor shall maintain all services in the existing building. In case, where new service connections are to be made to existing services and service interruptions can in no way be avoided, the service interruptions shall be with the minimum of inconvenience to the Owner and the work shall be done at such time of any day, Saturday and Sunday included, and only as directed by the Owner or the Architect.

3.5 ERECTION & WORKMANSHIP

A. Contractor is to be responsible for all work fitting into place in satisfactory, neat and workmanlike manner in every particular.

B. Unless explicitly stated to contrary, each Contractor shall furnish and install each item of equipment or material hereinafter specified, complete with all necessary fittings, supports, trim, piping, insulation, etc., as required for complete and operating installation.

C. Equipment and materials shall be installed according to manufacturer's instruction unless otherwise specifically directed by Contract Documents.

D. Contractor shall provide all necessary OSHA approved rigging, scaffolding, tools, tackle, labor, etc., necessary for the complete installation of the equipment.

E. Contractor shall adapt his work to job conditions and make such changes as required and permitted by the Architect such as moving his work to clear beams, joints, light fixtures, etc., adjusting risers, etc. avoiding interferences with windows and openings, etc. raising or lowering his work to permit the

passing of ductwork or the work of other trades, etc., all as required or as job conditions dictate, without any additional costs to the Owner.

F. All appliances and equipment shall be installed and connected with best engineering practices and in accordance with the manufacturer's best instructions and recommendations.

G. Work done by Contractor at the site in the execution of this project shall be performed only by skilled mechanics, recognized as such in their respective trades in the direct employ either of the Contractor proper or of affiliate firms which have a longstanding and continuing formal agreement with the Contractor for providing the rendered services on similar work of this type.

3.6 PROTECTION FROM INJURY

A. All pipes, fixtures, traps, equipment, and other parts of the Work shall be protected against injury by freezing or exposure to the weather during construction while stored or installed in place.

3.7 MECHANICAL AND ELECTRICAL WORK COORDINATION

A. Refer to Division 01.

3.8 CUTTING AND PATCHING

A. Refer to Division 01.

3.9 PROTECTION OF ELECTRICAL EQUIPMENT

A. Contractor shall furnish and install sheet metal drain pans beneath piping that is routed above electrical equipment and/or above the 3' access space in front of such equipment. Electrical equipment, for the purpose of addressing drain pan requirements, shall be defined as free-standing or wall-mounted switchgear, transformers, distribution boards or motor control centers. Piping includes, but is not limited to, plumbing, fire suppression, mains (not branch piping with sprinkler heads), hydronic heating or cooling, steam and condensate, and fuel systems.

1. Drain pans shall be 20-gauge galvanized sheet metal with a minimum 4" high turned-up edge. Bottom of drain pan shall slope to a single drainage point at ⅛" per foot. A 1" diameter clear plastic tube shall allow collected fluid to drain to the nearest open site floor drain. Secure plastic tubing to building structure only.

2. Drain pan shall be hung from building structure with angle iron trapeze hangers (no hanger shall penetrate the drain pan). Consider drain pan to be full of water for hanger load calculations.

3. Drain pans shall include liquid detectors with alarms only if noted on the drawings.

B. Provide sprinkler heads beneath drain pan only as required by NFPA.

C. Contractor shall include provisions to adjust the local lighting layout, at no extra cost to Owner, in order to accommodate any detrimental effect the drain pan has on the illumination of the electrical equipment and access space.

3.10 STARTING OF SYSTEMS

A. Refer to [General Conditions] [and] [Division 01].

3.11 TESTING, ADJUSTING AND BALANCING

A. Contractor shall appoint, employ and pay for services of independent firm to perform testing, adjusting and balancing.

B. Independent firm will perform services specified in Division 23 Section 23 0593, “Testing, Adjusting, and Balancing for HVAC,” except for factory tests.

END OF SECTION

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SECTION 20 0501
MINOR MECHANICAL, PLUMBING, AND FIRE SUPPRESSION DEMOLITION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Minor demolition specifically applicable to Divisions 20, 21, 22, 23, 27, and 28.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify field measurements, equipment location, piping and ductwork sizes and arrangements as shown on drawings.

B. Verify that abandoned piping, ductwork and equipment serve only abandoned facilities.

3.2 PREPARATION

A. Disconnect mechanical systems in walls, floors and ceilings scheduled for removal.

B. Coordinate utility service shut-downs.

C. Provide temporary connections to maintain existing systems in service during construction.

D. Existing mechanical systems: Maintain existing system in service. Disable system only to make switchovers and new connections.

3.3 DEMOLITION AND EXTENSION OF EXISTING SYSTEMS

A. Remove existing equipment and materials pertaining to contract as specified or as required, to prepare for new work of all contracts.

B. Where necessary, reroute piping, ducts, etc. from within walls, floors, ceilings, etc. being removed. Contractor involved with interrupted service shall be responsible for accomplishing required work whether shown on drawings or not.

C. Cap all abandoned or terminated piping, etc. below floor, behind wall surface, above ceiling, etc., as required to be completely concealed after new work is complete.

D. Cap or plug all pipes, valves, fittings, etc. left open after demolition if they are not to be reused.

E. Maintain access to existing mechanical installations which remain active. Modify installation or provide access panel as appropriate.

F. Extend existing installations using materials and methods compatible with existing mechanical installations, or as specified.

3.4 DISPOSITION OF REMOVED EQUIPMENT

A. Where existing materials or equipment are specified to be removed from service, respective Contractor shall take possession of same, coordinate with Owner where items are to be stored or

remove unwanted items from site promptly, except as specified below or unless otherwise noted on drawings.

B. All salvageable material and equipment, including but not necessarily limited to plumbing fixtures, heating units, air conditioning units, piping, valves, etc., shall be removed and maintained in as good condition as possible and turned over to Owner. However, if Owner decides any such materials are of no value to him, then they shall become property of Contractor who shall remove such discarded work from premises and dispose of same.

C. Existing equipment or systems, etc., which are specified to be replaced by new equipment, or system etc. shall not be removed from service until the new equipment, materials, systems, etc. have actually arrived at project site.

3.5 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be reused.

END OF SECTION

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SECTION 20 0517
PENETRATIONS FOR MECHANICAL, PLUMBING, AND FIRE SUPPRESSION SYSTEMS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Sleeve and sleeve seal for penetration through walls, floors, and roofs, specifically applicable to Divisions 20, 21, 22, and 23 including:

1. Pipe sleeves and sleeve seals for pipe penetrations
2. Firestopping
3. Flashing

1.2 DEFINITIONS

A. Firestopping (through-penetration protection system): Sealing or stuffing material or assembly placed in spaces between, and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

1.3 CODES AND STANDARDS

A. American Society of Mechanical Engineers (ASME):

1. ASME B31.1: Power Piping
2. ASME B31.9: Building Service Piping Code
3. ASME B36.10: Welded and Seamless Wrought Steel Pipe

B. American Society for Testing and Materials (ASTM):

1. ASTM A53: Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless

C. National Fire Protection Association (NFPA):

1. NFPA 13: Installation of Sprinkler Systems
2. NFPA 14: Installation of Standpipe and Hose Systems

D. Underwriters Laboratories Inc. (UL):

1. UL 203: Pipe Hanger Equipment for Fire Protection Service
2. UL 1479: Fire Tests of Through-Penetration Firestops

1.4 DELIVERY, STORAGE AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.5 SPARE PARTS

Not Applicable

1.6 WARRANTY

A. One-year warranty on products and complete installation commencing at the time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PIPE SLEEVES AND SLEEVE SEALS FOR PIPE PENETRATIONS

A. Non-fire rated walls

1. Schedule 40 standard weight steel pipe or 18 gauge galvanized sheet steel sleeve
2. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. Non-fire rated floor

1. Schedule 40 standard weight steel pipe sleeve
2. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

C. Non-fire rated wet floor

1. Schedule 40 galvanized steel pipe sleeve
2. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

D. Fire-rated walls

1. Provide an approved penetration firestop system installed as tested in accordance with UL 1479 with an F rating of not less than the required rating of the wall penetrated.

E. Fire-rated floors

1. Provide an approved penetration firestop system installed as tested in accordance with UL 1479 with an F rating and T rating of not less than the required rating of the floor penetrated.

F. Smoke-rated walls and floors

1. Provide an approved firestop penetration system installed as tested in accordance with UL 1479 with an L rating of not more than 5 cfm/ft^2 at both ambient and elevated temperature.

G. Roof

1. All other penetrations: Provide and install a pipe penetration roof curb as specified in Division 20 Section 20 0529, “Hangers and Supports for Mechanical, Plumbing and Fire Suppression Systems.”

2.2 FIRE STOPPING

A. Approved manufacturers

1. Hilti
2. 3M

B. Provide firestopping products that are compatible with one another, with the substrates forming openings, and with the items penetrating through-penetration firestop systems, under conditions of

service and application, as demonstrated by firestopping products manufacturer based on testing and field experience.

C. Provide components for each firestopping system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

D. Use only firestopping products that have been tested for specific fire-resistance-rated construction conditions conforming to construction assembly type, penetrating item type or joint opening width and movement capabilities, annular space requirements, and fire-rating involved for each separate instance.

E. Performance requirements

1. Provide products that upon curing, do not re-emulsify, dissolve, leach, breakdown, or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water or other forms of moisture characteristic during and after construction.

2. Provide firestop sealants sufficiently flexible to accommodate motion such as pipe vibration, water hammer, thermal expansion and other normal building movement without damage to the seal.

3. Pipe and duct insulation shall not be removed, cut away or otherwise interrupted through wall or floor openings. Provide products appropriately tested for the thickness and type of insulation utilized.

4. Penetrants passing through fire-resistance rated floor-ceiling assemblies contained within chase wall assemblies shall be protected with products tested by being fully exposed to the fire outside of the chase wall. Systems within the UL Fire Resistance Directory that meet this criterion are identified with the words “Chase Wall Optional”.

5. Provide through-penetration firestop systems subjected to an air leakage test conducted in accordance with the Standards, ANSI/UL1479 for penetration and ANSI/UL2079 for joint systems, with published L-Ratings for ambient and elevated temperatures as evidence of the ability of the firestop system to restrict the movement of smoke.

6. Provide T-rating collar devices tested in accordance with ASTM E-814 or ANSI/UL1479 for metallic pipe penetrations requiring T-Ratings per the applicable building code.

F. Materials

1. Firestopping sealants: Provide only products having lower volatile organic compound (VOC) content than required by South Coast Air Quality Management District Rule No. 1168.

2. Primers, sleeves, forms, insulation, packing, stuffing, and accessories: Type required for tested assembly design.

2.3 FLASHING

A. Elastomeric membrane roof flashing

1. Flexible flashing material: Same material as membrane.
   a. Thickness: 60 mil
   b. Color: Match membrane

PART 3 - EXECUTION

3.1 ABOVE GROUND PENETRATION INSTALLATION

A. Set sleeves in position in formwork. Provide reinforcing around sleeves. All sleeves shall be set true to line, level, plumb and position.

B. Where insulated ducts or pipes which pass through sleeves, the sleeves shall be of sufficient size to permit the full specified thickness of insulation to pass through sleeves.

C. Where piping or ductwork penetrates floors, extend sleeves through the floor 1" above finished floor level. Pack the annular space with fiberglass insulation and caulk air tight. Provide a chrome-plated steel escutcheon cover at both sides of the penetration.

D. Where piping or ductwork penetrates wet floors extend sleeves through the floor 2" above finished floor level. Pack the annular space with fiberglass insulation and caulk water tight. Provide a chrome-plated steel escutcheon cover at both sides of the penetration.

E. Wet floor areas include:

1. Kitchens
2. Toilet rooms
3. Showers
4. Laboratories
5. Equipment rooms

F. Where piping or ductwork penetrates fire rated floors, ceilings, or walls, all pipe and duct penetrations shall installed per an applicable UL fire rated assembly. Contractor shall provide documentation of the UL assembly utilized for each type of penetration at close out.

G. The contractor shall not drill holes through, cut or otherwise damage any beam or column of the building's structural frame.

3.2 FIRE RATED PENETRATION INSTALLATION

A. Apply fire stopping material in strict accordance with manufacturer's specific UL system number.

B. Provide identification label for each penetration stating UL system number, date of installation, installing company name, and rating number.

C. Penetration shall be free of debris and dirt.

D. Dam the penetration (when required) with an acceptable material.

E. Apply material to the penetration. Use a caulking gun, putty knife or other normal trade tools per manufacturer's instructions.

F. Provide proper material thickness to assure that fire rating is equal to or greater than floor or wall pipe is penetrating.

3.3 FLASHING

A. Elastomeric membrane roof flashing

1. Use roofing manufacturers pre-molded flashings to the greatest extent possible. Where not possible, obtain manufacturers recommended flashing detail requirements in writing.

3.4 CLEANING

A. Clean sleeves with fire, smoke and fume stopping materials as follows.

1. Remove damming materials where necessary after material has cured.
2. Clean up adjacent surfaces with Xylene or other approved cleaning agent.

END OF SECTION

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SECTION 20 0529
HANGERS AND SUPPORTS FOR MECHANICAL, PLUMBING AND FIRE SUPPRESSION SYSTEMS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Hangers and supports specifically applicable to Divisions 20, 21, 22, and 23, including:

1. Pipe hangers and supports
2. Duct hangers
3. Equipment hangers and supports
4. Upper attachments
5. Multiple pipe supports
6. Hanger rods
7. Roof supports
8. Miscellaneous materials

1.2 CODES AND STANDARDS

A. American Society of Mechanical Engineers (ASME)

1. ASME B31.1: Power Piping
2. ASME B31.5: Refrigeration Piping
3. ASME B31.9: Building Services Piping

B. American Society for Testing and Materials (ASTM)

1. ASTM A1011: Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability *(Formerly ASTM A570)*
2. ASTM A123: Specification for Zinc (Hot-Galvanized) Coatings on Products Fabricated from Rolled, Pressed, and Forged Steel Shapes, Plates, Bars, and Strip
3. ASTM A36: Steel Plates, Shapes and Bars
4. ASTM A653: Specification for Steel Sheet, Zinc-Coated by the Hot-Dip Process
5. ASTM B633: Specification for Electrodeposited Coatings of Zinc on Iron and Steel
6. ASTM C150: Portland Cement
7. ASTM C404: Uniformly Graded Natural Sand
8. ASTM E-814: Fire Tests of Through-Penetration Fire Stops

C. American Welding Society (AWS)

1. Specifications for Qualification of Welding Procedures and Welders

D. American Water Works Association (AWWA)

E. Building Officials and Code Administrators International (BOCAI)

1. BOCA: National Building Code

2. BOCA: National Mechanical Code

F. International Conference of Building Officials (ICBO)

1. ICBO: Uniform Building Code

G. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS)

1. MSS SP 58: Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation

2. MSS SP 89: Pipe Hangers and Supports - Fabrication and Installation Practices

H. National Fire Protection Association (NFPA)

1. NFPA 13: Standard for the Installation of Sprinkler Systems

2. NFPA 14: Standard for the Installation of Standpipe and Hose Systems

3. NFPA 101: Code for Safety to Life from Fires in Buildings and Structures

I. Southern Building Code Congress International (SBCCI)

1. SBCCI: Standard Building Code

J. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)

1. SMACNA: HVAC Duct Construction Standards, Metal and Flexible

K. Underwriters Laboratories, Inc. (UL)

1. UL 1479: Fire Tests of Through Penetration Firestops and Building Joint Systems

L. Factory Mutual (FM)

1.3 QUALITY ASSURANCE

A. Supports for mechanical and plumbing piping: Provide products in compliance with MSS Standards:

1. Provide pipe hangers and supports of which materials, design and manufacture comply with MSS SP-58.

2. Select and apply pipe hangers and supports, complying with MSS SP-58.

3. Fabricate and install pipe hangers and supports, complying with MSS SP-89.

4. Terminology used in this section is defined in MSS SP-90.

B. Supports for sprinkler piping: Provide products which are UL listed and FM approved and in conformance with NFPA 13.

C. Supports for standpipes: Provide products which are UL listed and FM approved and in conformance with NFPA 14.

D. Structural steel welding qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

E. Pipe welding qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

1.4 SUBMITTALS

A. Preconstruction – Prior to construction provide the following in accordance with Division 01 and Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:

1. Product data: Submit product data on all hanger and support devices, including shields and attachment methods. Product data to include, but not limited to materials, finishes, approvals, load ratings, and dimensional information.

B. Contract Closeout – At contract closeout provide the following in accordance with Division 01 and Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:

1. Warranties

1.5 DELIVERY, STORAGE AND HANDLING

A. Accept materials on site in original factory packaging, labeled with manufacturer's identification.

B. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

PART 2 - PRODUCTS

MSS Types are shown in diagrams at end of document for reference.

2.1 PIPE HANGERS AND SUPPORTS

A. Acceptable manufacturers

1. B-Line Systems, Inc.
2. Fee and Mason Manufacturing Company
3. Anvil International
4. Hilti

B. Construction

1. General service
    a. Interior insulated pipe: Carbon steel with plain [primer] [electro-galvanized] finish
    b. Exterior insulated pipe: Carbon steel with hot-dip galvanized finish after fabrication
    c. Interior uninsulated copper pipe: Carbon steel with copper plated or epoxy coated finish
    d. Exterior uninsulated copper pipe: Carbon steel with copper plated or epoxy coated finish

C. Piping system classification

1. Type A-1 Hot Systems (120°F - 450°F)
    a. Refrigerant gas
2. Type C-1 Cold Systems (33°F - 59°F)
    a. Refrigerant suction

Pipe supports shall be provided as indicated in the table below.

PIPE HANGER AND SUPPORT MSS TYPES – PART 1									
Class		**A-1**				**B**			
Pipe Size		**≤2"**		**>2"**		**≤2"**		**>2"**	
Insulation[1]		**YES**	**NO**	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**
Horizontal Pipe Attachments	Steel Clips	24 w/ 39	24 & 26	24 w/ 39	24 & 26	24 & 26	24 & 26	24 & 26	24 & 26
	Malleable Iron Rings	N/A	6, 11, & 12	N/A	6, 11, & 12	N/A	6, 11, & 12	N/A	6, 11, & 12
	Steel Bands	1 w/ 40	1	1 w/ 39	1	1 w/ 40	1	1 w/ 40	1
	Steel Clamps	2 & 3	3 & 4	2 & 3	3 & 4	3 & 4	3 & 4	3 & 4	3 & 4
	Cast Iron Hanging Rolls	N/A	N/A	41 & 43 w/ 39	41 & 43	N/A	N/A	41 & 43 w/ 39	41 & 43
	Cast Iron Supporting Rolls	N/A	N/A	44, 45, & 46 w/ 39	44, 45, & 46	N/A	N/A	44, 45, & 46 w/ 39	44, 45, & 46
	Steel Trapezes	59 w/ 40	59	59 w/ 39	59	59 w/ 40	59	59 w / 39	N/A
	Steel Protection Saddles and Shields	39 & 40	N/A	39	N/A	40	N/A	39	N/A
	Steel or Cast-Iron Stanchions	36, 37, & 38 w/ 40	36, 37, & 38	36, 37, & 38 w/ 39	36, 37, & 38	36, 37, & 38 w/ 40	36, 37, & 38	36, 37, & 38 w/ 39	36, 37, & 38
	Steel Welded Attachments	35[2]		35[2]		35[2]		35[2]	

1. Hangers on insulated systems shall incorporate protection saddles or shields or shall be clamped or welded to the pipe and project through the insulation to provide external attachment.
2. The design shall be in accordance with MSS SP-58.

PIPE HANGER AND SUPPORT MSS TYPES – PART 2									
Class		**C-1**				**C-2**			
Pipe Size		**≤2"**		**>2"**		**≤2"**		**>2"**	
Insulation[1]		**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Horizontal Pipe Attachments	Steel Clips	26 w/40	24 & 26	26 w/40	24 & 26	N/A	N/A	N/A	N/A
	Malleable Iron Rings	N/A	6, 11, & 12	N/A	6, 11, & 12	N/A	N/A	N/A	N/A
	Steel Bands	1 w/ 40	1	1 w/ 40	1	1 w/ 40	1	1 w/ 40	1
	Steel Clamps	3 & 4	3 & 4 w/ 40	3 & 4	3 & 4 w/ 40	N/A	3 & 4	N/A	3 & 4
	Cast Iron Hanging Rolls	N/A	N/A	41 & 43 w/ 40	41 & 43	N/A	N/A	41 & 43 w/ 40	41 & 43
	Cast Iron Supporting Rolls	N/A	N/A	44, 45 & 46, w /39	44, 45, & 46	N/A	N/A	44, 45 & 46, w /39	44, 45, & 46
	Steel Trapezes	59 w/ 40	N/A	59 w/ 40	N/A	N/A	N/A	N/A	N/A
	Steel Protection Saddles and Shields	40	N/A	40	N/A	40	N/A	40	N/A
	Steel or Cast-Iron Stanchions	36, 37, & 38 w/40	36, 37, & 38	36, 37, & 38 w/40	36, 37, & 38	36, 37, & 38 w/40	36, 37, & 38	36, 37, & 38 w/40	36, 37, & 38
	Steel Welded Attachments	35[2]		35[2]		35[2]		35[2]	

1. Hangers on insulated systems shall incorporate protection saddles or shields or shall be clamped or welded to the pipe and project through the insulation to provide external attachment.
2. The design shall be in accordance with MSS SP-58.

PIPE HANGER AND SUPPORT MSS TYPES – PART 3						
Class			A-1	B	C-1	C-2
Vertical Pipe Attachments		Steel Riser Clamps (2-Bolt)	8	8	8	8
		Steel Riser Clamps (4-Bolt) [1]	42	42	42	42
Hanger Rod Fixtures	Steel or Malleable Iron	Turn Buckles	13 & 15	13 & 15	13 & 15	13 & 15
		Swing Eyes	16 & 17	16 & 17	16 & 17	16 & 17
		Clevises	14	14	14	14
Building Structure Attachments	Steel and/or Malleable Iron	Inserts[2]	18	18	18	18
		C-Clamps[3]	19 & 23	19 & 23	19 & 23	19 & 23
		Beam Clamps[4]	20, 21, 25, 27, 28, 29, & 30	20, 21, 25, 27, 28, 29, & 30	20, 21, 25, 27, 28, 29, & 30	20, 21, 25, 27, 28, 29, & 30
		Welded Attachments[1]	22, 57, & 58	22, 57, & 58	22, 57, & 58	22, 57, & 58
		Brackets	31, 32, 33, & 34	31, 32, 33, & 34	31, 32, 33, & 34	31, 32, 33, & 34

1. The design shall be in accordance with MSS SP-58.
2. Refer to 2.7 – Upper Attachments for approved inserts.
3. All C-Clamps shall be provided with a retaining strap held securely to the clamp with a hex nut of locking slot. C-Clamps shall not be used with bar joist structure.
4. Clamps for direct attachment to bar joist structure shall be MSS Type 21 center beam clamp located at the plates along the bottom or top chord of the joist.

2.2 DUCT HANGERS

A. Threaded rod type

1. Duct hangers shall be strips of galvanized steel or round steel rod and shall comply with SMACNA - HVAC Duct Construction Standards, Metal and Flexible.

2. Trapeze and riser supports:
   a. Supports for galvanized-steel ducts: Galvanized-steel shapes and plates
   b. Supports for stainless-steel ducts: Stainless-steel shapes and plates
   c. Supports for aluminum ducts: Aluminum or galvanized steel coated with zinc chromate

3. Attachments: Equipment support shall be directly attached to the building structure utilizing an upper attachment or by utilizing a building structure attachment as indicated in the Pipe Hanger and Support MSS Types – Part 3 table as specified in Division 20 Section "Hangers and Supports for Mechanical, Plumbing, Medical Gas, and Fire Suppression."

B. Cable type

1. Approved manufacturers
    a. Gripple
    b. Duro Dyne
2. Cable type duct hangers shall be an engineered manufactured product supplied as a complete duct hanging system by the manufacturer.
3. Cable type duct hangers shall be provided and installed according to the manufacturer's recommendations.
4. Cable lock
    a. Cable locks shall have an ultimate breaking strength of at least 5 times the published working load limit.
    b. Cable locks shall be constructed of zinc alloy for interior use and stainless steel for exterior use.
    c. Cable locks shall be suitable for use up to 300°F.
5. Cable
    a. Wire rope shall be galvanized steel of $^{3}/_{16}$" or ⅛" diameter.
    b. All wire rope shall have an ultimate breaking strength of at least 5 times the published working load limit.
6. Duct trapeze
    a. Duct trapeze bracket shall include a cable lock which fastens to the duct utilizing sheet metal screws.
    b. Duct trapeze bracket shall have an ultimate breaking strength of at least 5 times the published working load limit.
7. Upper attachments
    a. Stud
        (1) Zinc coated steel threaded rod stud for connection of cable to building structure.
        (2) Stud shall have an ultimate breaking strength of at least 5 times the published working load limit.
    b. Loop
        (1) Loop cable around building structure and lock utilizing cable lock.

2.3 EQUIPMENT HANGERS AND SUPPORTS

A. Hanging equipment

1. Description: Welded, shop- or field-fabricated equipment support made from structural carbon-steel shapes.
2. Structural steel: ASTM A36/A 36M, carbon-steel plates, shapes, and bars; black and galvanized.
3. Attachments: Equipment support shall be directly attached to the building structure utilizing an upper attachment or by utilizing a building structure attachment as indicated in the Pipe Hanger and Support MSS Types – Part 3 table as specified in Division 20 Section "Hangers and Supports for Mechanical, Plumbing, Medical Gas, and Fire Suppression."

2.4 UPPER ATTACHMENTS

A. Concrete and masonry drilled in anchors

1. Wedge anchor
    a. Approved manufacturers
        (1) ITW Red Head
        (2) Hilti
        (3) Powers
    b. Wedge type, torque-controlled, with impact section to prevent thread damage complete with required nuts and washers. Provide anchors with length identification markings conforming to ICC ES AC01 or ICC ES AC193.
    c. Anchor shall be listed with ICC-ES.
    d. Interior use: Carbon steel anchors with zinc plating
    e. Exterior use: Stainless steel anchors of AISI Type 304 stainless steel provided with stainless steel nuts and washers of matching alloy group and minimum proof stress equal to or greater than the specified minimum full-size tensile strength of the externally threaded fastener. Stainless steel nuts shall conform to ASTM F594 unless otherwise specified. Avoid installing stainless steel anchors in contact with galvanically dissimilar metals.
    f. Basis of Design: Hilti Kwik Bolt 3
2. Screw anchors
    a. Approved manufacturers
        (1) ITW Red Head
        (2) Hilti
        (3) Powers
    b. Screw type: Pre-drilling of the hole requires a standard ANSI drill bit with the same diameter as the anchor and installing the anchor will be done with an impact wrench. Provide anchors with a diameter and anchor length marking on the head.
    c. Anchor shall be listed with ICC-ES.
    d. Interior use: Carbon steel anchors with zinc plating
    e. Basis of Design: Hilti Kwik-Hus

B. Precast concrete

1. Precast concrete with concrete topping or roof insulations: Support hangers from 4” x 4” x ¼” thick drilled steel plates set on deck over drilled holes before pouring of concrete topping or placing of roof insulation or from cinch anchors located in the precast deck

2.5 MULTIPLE PIPE SUPPORT SYSTEMS

A. Acceptable manufacturers

1. Cooper B-Line
2. Anvil International
3. Unistrut Corporation

B. Multiple pipe supports: Pipe supporting elements mounted to cold formed 12 gauge strip steel channel framing with thermoset acrylic finish. Provide specified pipe supporting elements to keep

pipe in alignment and allow for expansion. Provide all channel nuts and accessories required to mount pipe supporting elements. Model P1000 by Unistrut.

C. Strut type trapeze hangers shall be limited to copper tubing systems less than 2" diameter and selected for maximum deflection of ¼".

D. Provide tubing clamps at each pipe support.

1. Provide insulation couplings with strut clamp for all insulated piping. Insulation thickness to match that specified for piping.

2. Provide cushion inserts for uninsulated tubing.

E. Select hanger rods for two times the trapeze loads but not less than ⅜" diameter.

F. Secure hanger rod with square washers and locking nuts on top and bottom of strut.

2.6 HANGER RODS

A. Dry or non-corrosive environments: Continuously threaded carbon steel or 304 stainless steel rods and hardware.

B. Moist or corrosive environments:

1. Continuously threaded zinc plated (hot dipped galvanized) carbon steel rods and hardware with threads painted with zinc-chromate primer after installation.

2. Continuously threaded 304 stainless steel rods and hardware.

2.7 ROOF SUPPORTS

A. Equipment rail support

1. Acceptable manufacturers:

a. Pate

b. Thybar

2. Factory fabricated 18 gauge galvanized sheet steel structural members with internal bulkheads spaced to provide high load-bearing capacity of roof mounted equipment

3. Support shall incorporate a continuous 2x4 treated wood nailer covered by a removable counter flashing to allow for water tight roofing installation.

4. Support shall be designed to be compatible with roofing system and roofing pitch.

B. Roof equipment support

1. Acceptable manufacturers:

a. Pate

b. Thybar

2. Factory fabricated 18 gauge galvanized sheet steel curb with full mitered corners, fully welded seams, continuous 2x2 pressure treated wood nailer, and factory installed 1½" thick, 3 pounds per cubic foot density rigid insulation

3. Support shall be designed to be compatible with roofing system and roofing pitch.

4. Roof support shall be 12" minimum high above roofing surface.

C. Multiple pipe penetration curb

1. Acceptable manufacturers:
    a. Pate
    b. Thybar
2. Factory fabricated 18 gauge galvanized sheet steel curb with full mitered corners, fully welded seams, continuous 2x2 pressure treated wood nailer, and factory installed 1½" thick, 3 pounds per cubic foot density rigid insulation.
3. Support shall be designed to be compatible with roofing system and roofing pitch.
4. EPDM compression molded rubber cap for single or multiple pipes as required.
5. Stainless steel draw-band clamps.

D. Permanent pipe support

1. Acceptable manufacturers:
    a. Pate PRS/MPRS
2. Factory fabricated 18 gauge galvanized sheet steel support curb with fully welded corner seams, 2x4 pressure treated wood nailer, and 18 gauge galvanized steel counterflashing with galvanized steel channel track attached.
3. Vertical and horizontal adjustable roller assembly of galvanized steel channel track, galvanized steel fittings, washers and nuts and a painted cast iron roller.
4. Support shall be designed to be compatible with roofing system and roofing pitch.

E. Permanent duct support

1. Acceptable manufacturers:
    a. Pate DSS/MDSS
2. Factory fabricated 18 gauge galvanized sheet steel support curb with fully welded corner seams, 2x4 pressure treated wood nailer, and 18 gauge galvanized steel counterflashing with galvanized steel channel track attached.
3. Vertical and horizontal adjustable duct mounting assembly of galvanized steel channel track, galvanized steel fittings, washers and nuts.
4. Support shall be designed to be compatible with roofing system and roofing pitch.

2.8 MISCELLANEOUS MATERIALS

A. Metal framing: Provide products complying with NEMA STD ML 1.

B. Steel plates, shapes and bars: Provide products complying with ASTM A 36.

C. Cement grout: Portland cement (ASTM C 150, Type I or Type III) and clean uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum amount of water required for placement and hydration.

PART 3 - EXECUTION

3.1 PIPE HANGERS AND SUPPORTS

A. Hanger and support installation

1. Pipe hanger installation: Comply with MSS SP-58 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from the building structure.
2. Trapeze pipe hanger installation: Comply with MSS SP-58 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping, and support together on field-fabricated trapeze pipe hangers.
    a. Pipes of various sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified for individual pipe hangers.
    b. Field fabricate from ASTM A 36/A 36M, carbon-steel shapes selected for loads being supported. Weld steel according to AWS D1.1/D1.1M.
3. Thermal-hanger shield installation: Install in pipe hanger or shield for insulated piping.
4. Thermal hanger shields and inserts: Install in accordance with manufacturer’s instruction. Seal jacket to adjacent insulation and provide continuous vapor barrier.
5. Fastener system installation:
    a. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
    b. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.
6. Pipe stand installation:
    a. Pipe stand types except curb-mounted type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.
    b. Curb-mounted-type pipe stands: Assemble components or fabricate pipe stand and mount on permanent, stationary roof curb.
7. Install hangers and supports complete with necessary attachments, inserts, bolts, rods, nuts, washers, and other accessories.
8. Equipment support installation: Fabricate from welded-structural-steel shapes.
9. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.
10. Install lateral bracing with pipe hangers and supports to prevent swaying.
11. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, 2-1/2” and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.
12. Load distribution: Install hangers and supports so that piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

13. Pipe slopes: Install hangers and supports to provide indicated pipe slopes and to not exceed maximum pipe deflections allowed by ASME B31.9 for building services piping.

B. Hanger and support spacing

1. Pipe shall be adequately supported by pipe hanger and supports specified in Part 3. Hangers for insulated pipes shall be sized to accommodate insulation thickness.

2. Horizontal steel piping shall be supported in accordance with MSS SP-58 Tables 3, 4, and 5, excerpts of which follow below:

MAXIMUM HORIZONTAL PIPE HANGER AND SUPPORT SPACING WITHOUT MSS TYPE 40 SHIELDS (FEET)

Nominal Pipe or Tube Size	Standard Weight Steel Pipe		Copper Tube		Fire Protection	Ductile Iron Pipe	Cast Iron Soil	Glass	Plastic
	Water Service	Vapor Service	Water Service	Vapor Service					
¼	7	8	5	5	Follow require-ments of the NFPA.	20 feet maximum spacing; minimum of one hanger per pipe section close to the joint behind the bell and at change of direction and branch connections. For pipe sizes 6 inches and under subjected to loadings other than weight of pipe and contents, the span shall be limited to the maximum spacing for water service steel pipe.	10 feet maximum spacing; minimum of one hanger per pipe section close to joint on the barrel and at change of direction and branch connections.	8 feet maximum spacing, follow manufacturer's recommendations.	Follow pipe manufacturer's recommenda-tions for material and service condition.
⅜ – ½	7	8	5	6					
¾	7	9	5	7					
1	7	9	6	8					
1¼	7	9	7	9					
1½	9	12	8	10					
2	10	13	8	11					
2½	11	14	9	13					
3	12	15	10	14					
4	14	17	12	16					
5	16	19	13	18					
6	17	21	14	20					
8	19	24	16	23					
10	22	26	18	25					
12	23	30	19	28					
14	25	32	—	—					
16	27	35	—	—					
18	28	37	—	—					
20	30	39	—	—					
24	32	42	—	—					
30	33	44	—	—					

MINIMUM ROD DIAMETER FOR SINGLE RIGID ROD HANGERS		
	Steel, Ductile Iron, and Cast Iron Pipe	Copper, Glass, and Plastic Pipe
Nominal Pipe or Tubing Size (inches)	Nominal Rod Diameter (inches)	Nominal Rod Diameter (inches)
¼ - 2	⅜	⅜
2½ - 3	½	½
4 - 5	⅝	½
6	¾	⅝
8	¾	¾
10 - 12	⅞	¾
14 - 18	1	—
20 - 24	1¼	—

MAXIMUM HORIZONTAL PIPE HANGER, SUPPORT, AND SHIELD SPACING WITH MSS TYPE 40 SHIELDS (FT)			
Standard Weight Steel Pipe			
Nominal Pipe Size (inches)	Shield Length (inches)	Shield Thickness (gage)	Hanger and Support Spacing (feet)
½ - 1¼	12	18	7
1½	12	18	9
2 - 3	12	18	10
4	12	16	10
5 - 6	18	16	10
8 - 14	24	14	10
16 - 24	24	12	10
Copper Tubing			
Nominal Pipe Size (inches)	Shield Length (inches)	Shield Thickness (gage)	Hanger and Support Spacing (feet)
¼ – ¾	12	18	5
1	12	18	6
1¼	12	18	7
1½ - 2	12	18	8
2½	12	18	9
3	12	18	10
4	12	16	10
5 - 6	18	16	10
8	24	14	10

3.2 DUCT HANGERS

A. Duct hanging system shall be at contractor's option. Comply with SMACNA - HVAC Duct Construction Standards, Metal and Flexible.

B. Provide hangers at the center of every ell or change in direction of horizontal ductwork.

C. Wire strap or perforated hangers will not be permitted.

3.3 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make bearing surface smooth.

C. Provide lateral bracing, to prevent swaying, for equipment supports. Ensure that lateral motion under equipment at start-up, shut-down or when unbalanced is no more than ¼ inch.

D. Provide templates, anchor bolts and accessories for mounting and anchoring equipment.

E. Provide rigid anchors for pipes after vibration isolation components are installed.

F. Provide corrosion resistant mounting systems when exposed to the elements and other corrosive environments.

3.4 UPPER ATTACHMENTS

A. In remodeled areas, provide expanding concrete anchors. Holes for expanding fasteners to be drilled either by carbide bit or by teeth on fastener itself. Expansion shield to be “set” by driving it into hole and expanding it with conical plug.

3.5 ROOF SUPPORTS

A. Verify that roofing system is complete and roof surfaces are smooth, flat, and ready to receive work of this section.

B. Clean surfaces of roof in areas to receive supports.

C. Install in accordance with manufacturer’s instructions. Provide flexible sheet flash and counterflash with sheet metal and caulk as necessary to make installation water tight. Weld, bolt, or screw roof curbs as instructed by manufacturer.

D. Equipment supports

1. Locate bases and support framing as required by equipment manufacturer. Provide complete and adequate support of equipment whether or not all required devices are shown.

E. Pipe and duct supports

1. Locate bases and support framing as specified herein. Provide complete and adequate support of all piping and ducts whether or not all required devices are shown.
2. The use of wood for supporting piping is not permitted.
3. Provide supports spaced so deflection of piping does not exceed L/240 of span.
4. Install framing at spacing indicated, but in no case at greater than 10 feet (3 m) on center.

3.6 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers and equipment supports].

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field welding: Comply with AWS D1.1/D1.1M procedures for shielded, metal arc welding; appearance and quality of welds; and methods used in correcting welding work; and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and so contours of welded surfaces match adjacent contours.

3.7 ADJUSTING

A. Hanger adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1½".

C. Support adjustment: Provide grout under supports so as to bring piping and equipment to proper level and elevations.

END OF SECTION

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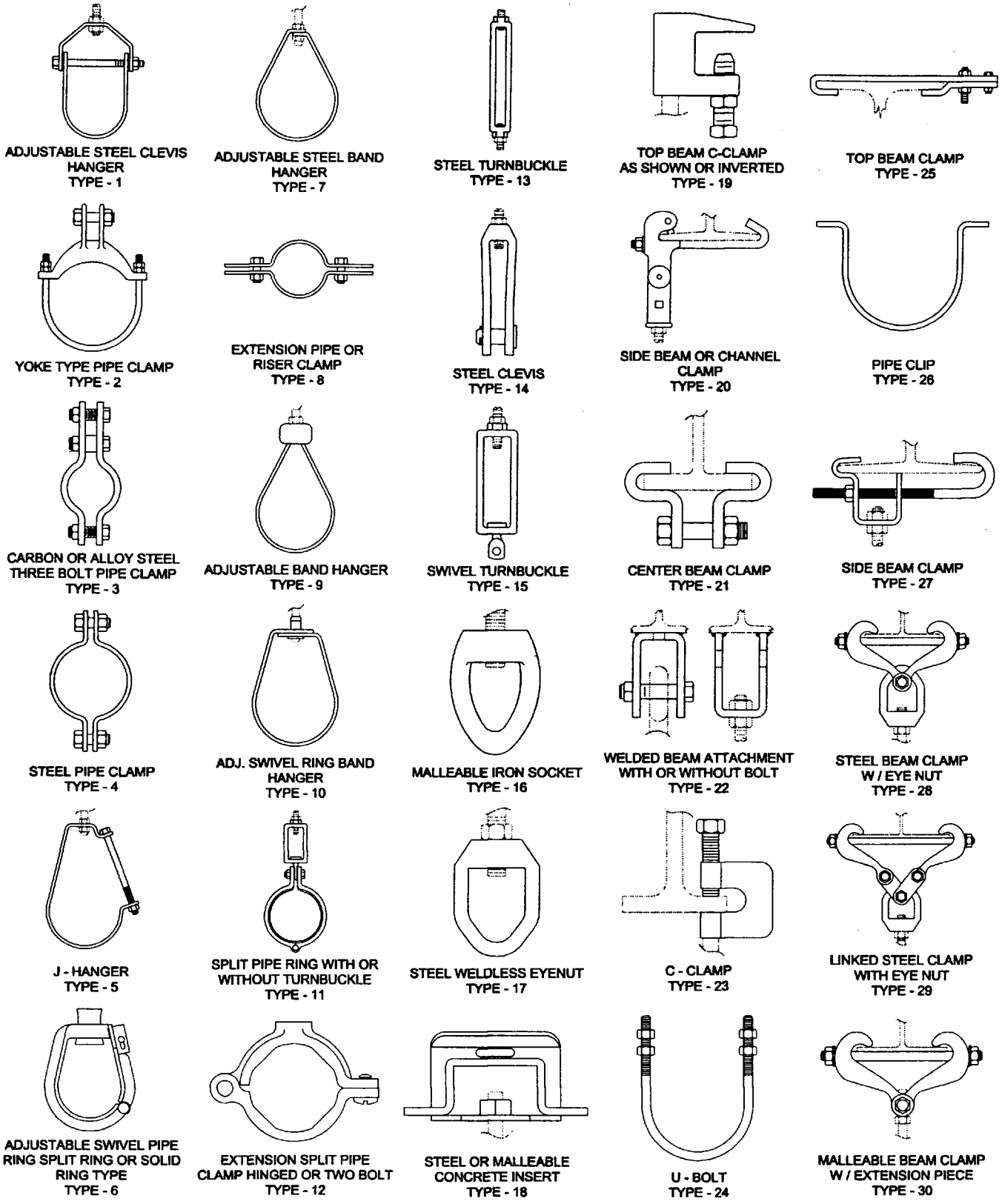
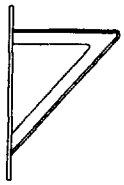
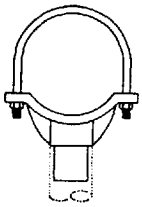


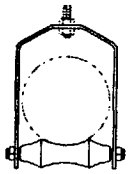
FIGURE 1. TYPE CHART



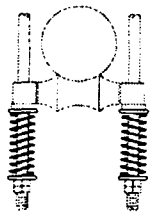
LIGHT WELDED STEEL BRACKET TYPE - 31



PIPE STANCHION SADDLE TYPE - 37

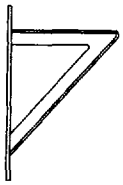


ADJUSTABLE ROLLER HANGER WITH OR WITHOUT SWIVEL TYPE - 43

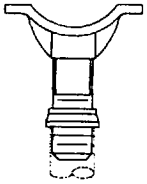


SPRING CUSHION ROLL TYPE - 49

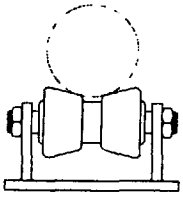
VERTICAL CONSTANT SUPPORT HANGER TYPE - 55



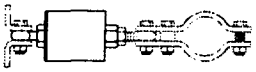
MEDIUM WELDED STEEL BRACKET TYPE - 32



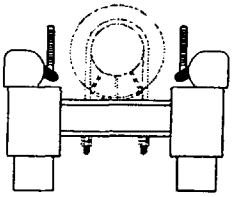
ADJUSTABLE PIPE SADDLE SUPPORT TYPE - 38



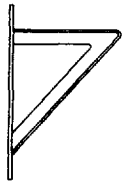
PIPE ROLL COMPLETE TYPE - 44



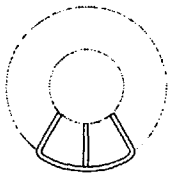
SPRING SWAY BRACE TYPE - 50



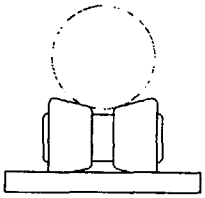
TRAPEZE CONSTANT SUPPORT HANGER TYPE - 56



HEAVY WELDED STEEL BRACKET TYPE - 33



STEEL PIPE COVERING PROTECTIVE SADDLE TYPE - 39



PIPE ROLL AND PLATE TYPE - 45

VARIABLE SPRING HANGER TYPE - 51

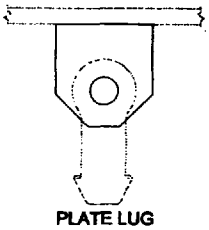
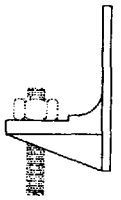
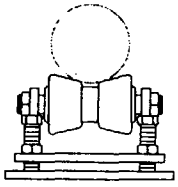


PLATE LUG TYPE - 57

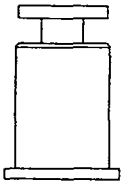


SIDE BEAM BRACKET TYPE - 34

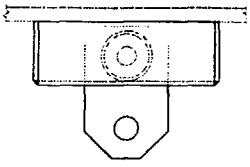
PROTECTION SHIELD TYPE - 40



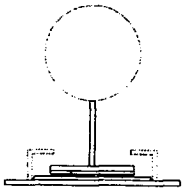
ADJUSTABLE PIPE ROLL AND BASE TYPE - 46



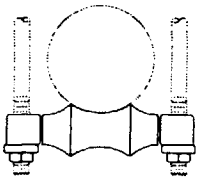
VARIABLE SPRING BASE SUPPORT TYPE - 52



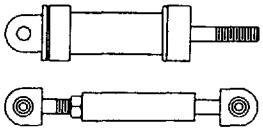
HORIZONTAL TRAVELER TYPE - 58



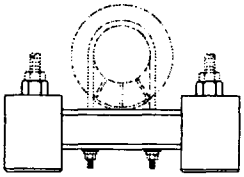
PIPE SLIDE & SLIDE PLATE TYPE - 35



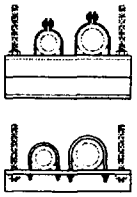
SINGLE PIPE ROLL TYPE - 41



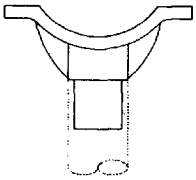
RESTRAINT CONTROL DEVICE TYPE - 47



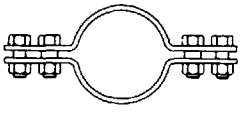
VARIABLE SPRING TRAPEZE HANGER TYPE - 53



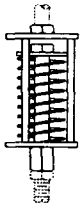
TRAPEZE HANGER TYPE - 59



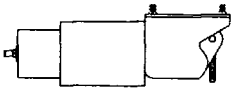
PIPE SADDLE SUPPORT TYPE - 36



CARBON OR ALLOY STEEL RISER CLAMP TYPE - 42



SPRING CUSHION TYPE - 48



HORIZONTAL CONSTANT SUPPORT HANGER TYPE - 54

FIGURE 1. TYPE CHART

SECTION 20 0700
THERMAL INSULATION FOR MECHANICAL, PLUMBING AND FIRE SUPPRESSION

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Products furnished and installed under this section:

1. Pipe insulation

1.2 DEFINITIONS

A. Exposed applications: Insulation on ductwork, piping or equipment that is located in an area such that is visible by the building occupants such as within a mechanical room or located in a space where there is no ceiling and all ductwork and piping is exposed.

B. Insert: Spacer placed between the equipment support system and the equipment to allow for the space required for insulation.

C. Insulation shield: Buffer material placed between the equipment support system and the insulation to prevent the insulation material from being crushed.

D. Jacket: Protective covering over insulation; may be factory-applied or field-applied to provide additional protection; of such materials as canvas, polyvinyl chloride (PVC), aluminum or stainless steel.

E. Piping insulation: Thermal insulation applied to limit or reduce heat transmission to or from a piping system.

F. SSL: Self-Sealing Lap

G. SSL+: Self-Sealing Lap with Advanced Closure System

H. Thermal conductivity (K value): Units of Btu-inch/hour per square foot per °F.

I. Vapor retarder jacket: Insulation jacket material which impedes the transmission of water vapor.

J. WHO: World Health Organization

1.3 SUBMITTALS

A. Preconstruction – Prior to construction provide the following in accordance with Division 01 and Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:

1. Product data: Provide a schedule, listing each type of insulation, thickness, density, type of protective covering, etc., and the work and service to which each type of insulation is to be applied. The schedule shall be submitted in quantities consistent with that required in the Conditions of the Contract. No insulation shall be purchased or installed until the schedule is reviewed by the Engineer.

B. Contract Closeout – At contract closeout provide the following in accordance with Division 01 and Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:

1. Test Reports
    a. Insulation Inspection Test
2. Warranties

1.4 DELIVERY, STORAGE AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

B. Protect products against dirt, water, chemical and mechanical damage before, during and after installation. Do not install damaged or wet insulation; remove from project site. Damage to products prior to final acceptance of the Work shall be repaired or replaced at no additional cost to Owner.

C. Maintain ambient conditions required by the manufacturer of each product.

PART 2 - PRODUCTS

2.1 PIPE INSULATION

A. **Type FEP**: Flexible elastomeric pipe insulation:

1. Acceptable manufacturers and products:
    a. Armacell LLC; AP Armaflex.
    b. Aeroflex USA, Inc.; Aeroflex EPDM.
    c. K-Flex USA; K-Flex LS.
2. Closed-cell, sponge- or expanded-rubber materials for use up to 220°F. Comply with ASTM C534, Type I for tubular materials.
3. Thermal conductivity (k-value) of 0.25 Btu in/hr ft^2 °F or less at 75°F mean temperature per ASTM C518 and C177.
4. For exterior applications, Armacell ArmaTuff or equivalent.

B. Finishes

1. Type FE and FEP insulation:
    a. Water-based latex enamel for use on flexible elastomeric insulation.
    b. Color: White
    c. Weather resistant, UV and ozone resistant
    d. ArmaFlex WB finish, or equal.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

A. Insulate all cold surfaces that can condense and all warm surfaces 105°F or higher. This includes, but is not limited to, surfaces supplied as part of a manufacturer's packaged equipment assembly.

B. Install products in accordance with manufacturers and NAIMA instructions.

C. Surface preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

D. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.

E. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of pipe system as specified in insulation system schedules.

F. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

G. Install insulation with longitudinal seams at top and bottom of horizontal runs.

H. Install multiple layers of insulation with longitudinal and end seams staggered.

I. Keep insulation materials dry during application and finishing.

J. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

K. Install insulation with least number of joints practical.

L. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

M. Cut insulation in a manner to avoid compressing insulation more than 75% of its nominal thickness.

N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4” beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

P. Where existing insulation has been removed or disturbed, due to new connections and/or alterations, repair and replace existing insulation per the requirements of this specification.

Q. Penetrations:

1. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.
    a. Seal penetrations with flashing sealant.
    b. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
    c. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
    d. Seal jacket to roof flashing with flashing sealant.

3.2 INSTALLATION - PIPE INSULATION

A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.

B. Installation of **Type FEP** insulation

1. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

2. On below ambient piping, the insulation shall be adhered directly to the piping at the high end with manufacturer's recommended adhesive on the interior of the piping. All endcuts of the insulation shall be sealed with adhesive for a complete vapor barrier seal.

3. Insulation installation on pipe fittings and elbows:
    a. Install mitered sections of pipe insulation.
    b. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
4. Insulation installation on valves and pipe specialties:
    a. Install preformed valve covers manufactured of same material as pipe insulation when available.
    b. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
    c. Install insulation to flanges as specified for flange insulation application.
    d. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
5. Outdoor insulation: Finish with two coats of manufacturer's recommended paint finish for UV protection or provide a product equivalent to Armacell ArmaTuff (built in jacket).

3.3 APPLICATION (PIPING)

A. Schedule:

PIPING SYSTEM	OPERATING TEMP (°F)	INSULATION TYPE	INDOOR JACKET	OUTDOOR JACKET
WARM AND HOT HVAC PIPING SYSTEMS				
Refrigerant hot gas and liquid piping and flexible tubing	125F and less	FEP	None	None

B. Insulation thickness shall be 1".

C. For systems with fluid temperatures 65°F or less, furnish and install removable elastomeric insulation covers, plugs or caps for all mechanical equipment and devices that require access by balancing contractors or service and maintenance personnel. Examples include but are not limited to: flow sensing devices, balancing valves, manual ball valve air vents, drain valves, blowdown valves, pressure/temperature test plugs, grease fittings, pump bearing caps, equipment labels, etc. Covers shall be tight fitting to ensure a complete vapor barrier.

D. For above ambient services, do not install insulation on vibration control devices.

END OF SECTION

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SECTION 23 0100
COMMON WORK REQUIREMENTS FOR MECHANICAL

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Basic requirements applicable to all Division 23 work.

1.2 RELATED SECTIONS

A. All specification sections in Division 20 are applicable to Division 23. It is the responsibility of the Division 23 Contractor to obtain all Division 20 specifications and conform to all applicable requirements. Division 20 Sections included are:

1. Section 20 0500: Basic Requirements for Mechanical, Plumbing, and Fire Suppression
2. Section 20 0501: Minor Mechanical, Plumbing, and Fire Suppression Demolition
3. Section 20 0517: Penetrations for Mechanical, Plumbing, and Fire Suppression
4. Section 20 0529: Hangers and Supports for Mechanical, Plumbing and Fire Suppression Systems
5. Section 20 0700: Thermal Insulation for Mechanical, Plumbing, and Fire Suppression
6. Section 20 2923: Variable Frequency Drives for Mechanical, Plumbing, and Fire Suppression
7. Section 20 9100: Painting for Mechanical, Plumbing, and Fire Suppression

PART 2 - PRODUCTS

Not Applicable

PART 3 - EXECUTION

3.1 SCOPE

A. Work included under Divisions 20 and 23 shall include all labor, services, materials, and equipment and performance of all work required for installation of mechanical systems as shown on Drawings and as specified.

END OF SECTION

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SECTION 23 2300
REFRIGERANT PIPING AND SPECIALTIES

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Refrigerant pipe and fitting materials, joining methods, valves, and specialties in this section include:

1. Refrigerant piping
2. Refrigerant valves and specialties

1.2 DEFINITIONS

A. ACR: Copper tubing for Air-Conditioning and Refrigeration (ACR) that is factory cleaned and sealed.

B. CDA: Copper Development Association

C. NRTL: National Recognized Testing Laboratory

1.3 CODES AND STANDARDS (USE LATEST EDITIONS)

A. Air Conditioning, Heating, and Refrigeration Institute (AHRI)

1. AHRI 495: Refrigerant Liquid Receivers
2. AHRI 730: Flow-Capacity Rating and Application of Suction-Line Filters and Filter-Driers
3. AHRI 750: Thermostatic Refrigerant Expansion Valves
4. AHRI 760: Solenoid Valves for Use with Volatile Refrigerants

B. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)

1. ASHRAE 15: Safety Code for Refrigeration Systems
2. ASHRAE 34: Designation and Safety Classification of Refrigerants

C. American Welding Society (AWS)

1. AWS A5.8: Specification for Filler Metals for Brazing and Braze Welding
2. AWS D10.12: Guide for Welding Mild Steel Pipe
3. Brazing Handbook (Chapter "Pipe and Tube")

D. American Society of Mechanical Engineers (ASME)

1. ASME B1.20.1: Pipe Threads, General Purpose, Inch
2. ASME B16.5: Pipe Flanges and Flanged Fittings
3. ASME B16.22: Wrought Copper and Copper Alloy Solder Joint Pressure Fittings
4. ASME B31.5: Refrigeration Piping and Heat Transfer Components
5. ASME Boiler and Pressure Vessel Code: Section II, Part C, "Welding Rods, Electrodes, and Filler Metals": Section VIII, "Pressure Vessels"; Section IX, "Welding and Brazing Qualifications"

E. American Society for Testing Materials (ASTM)

1. ASTM A 53: Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

2. ASTM A 234: Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Services
3. ASTM B 32: Specification for Solder Metal
4. ASTM B 88: Specification for Seamless Copper Water Tube
5. ASTM B 280: Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service
6. ASTM B 828: Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings

F. Copper Development Association Inc.
1. Copper Tube handbook

G. Manufacturers Standardization Society (MSS)
1. MSS SP-58: Pipe Hangers and Supports - Materials, Design and Manufacture

H. National Electrical Manufacturers Association (NEMA)
1. NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum)

I. Underwriters Laboratories Inc. (UL)
1. UL® 207: Refrigerant-Containing Components and Accessories, Nonelectrical
2. UL® 429: Electrically Operated Valves

1.4 QUALITY ASSURANCE

A. Pipe: Each length of pipe shall be legibly identified at mill by paint, stenciling, or raised symbols identifying manufacturer and class type or schedule of pipe. Copper pipe shall be identified at 3 foot intervals.

B. Fittings: To be identified by the manufacturer by permanently attached tags, imprints, or other approved means, indicating the class of wall thickness and material.

C. Valves: Manufacturer’s name and pressure rating marked on valve body.

D. Comply with ASHRAE 15, "Safety Code for Refrigeration Systems."

E. Comply with ASME B31.5, "Refrigeration Piping and Heat Transfer Components."

F. Refrigerant piping indicated on drawings is schematic only. The Contractor shall size piping and design actual piping layout, including oil traps, double risers, specialties, and pipe and tube sizes to accommodate, as a minimum, equipment provided, elevation difference between compressor and evaporator, and length of piping to ensure proper operation and compliance with warranties of connected equipment.

1.5 SUBMITTALS

A. Preconstruction – Prior to construction provide the following in accordance with Division 01 and Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:
1. Product data: Submit for each type of the products as listed below. Include component sizes, rough in requirements, service sizes, and finishes. Include product description, model, and dimensions. Include pressure drop and performance data where applicable.
a. Pipe materials and fittings

b. Valves

c. Filter dryers.

d. Strainers.

2. Shop drawings: For all new piping systems submit layout drawings in both hard-copy and AutoCAD compatible format. Shop drawings shall include, but not be limited to:

a. Show layout of refrigerant piping and specialties, including pipe, tube, and fitting sizes, valve arrangements and locations, elevations and slopes of horizontal runs, oil traps, and double risers.

b. Show piping size and piping layout, including oil traps, double risers, specialties, and pipe and tube sizes to accommodate, as a minimum, equipment provided, elevation difference between compressor and evaporator, and length of piping to ensure proper operation and compliance with warranties of connected equipment.

c. Equipment installation and connections based on the equipment being used on the Project

3. Manufacturer's installation instruction: Submit manufacturer's installation instructions for all manufactured products and assemblies required for this project.

B. Contract closeout – At contract closeout provide the following in accordance with Division 01 and Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:

1. Pipe testing submittals and reports

a. Submit documentation of pipe pressure testing and submit test result reports within two weeks of testing.

b. Contractor shall be responsible for any corrective action required due to a failed pipe pressure test.

2. Operation and maintenance data: For refrigerant valves and piping specialties to include installation instruction, assembly views, lubrication instructions, and replacement parts list. Include in maintenance manuals.

3. Final record drawings

a. During the construction process, the Contractor shall maintain a set of drawings showing the exact routing and location of piping systems being installed. The drawing shall be updated neatly by hand on a daily basis and account for routing modifications made in the field. Contractor shall use these drawing as a basis for generating the project as-built drawings.

4. As-built drawings

a. Upon completion of project, Contractor shall furnish as-built drawings showing in scale the exact routing and locations of all newly installed piping systems. Submit in both hard-copy and electronic AutoCAD format.

1.6 DELIVERY, STORAGE AND HANDLING

A. Protect new pipe interiors from moisture, construction debris and dust, and other foreign materials with the use of plastic end caps/plugs on each end of pipe. Maintain end-caps/plugs in place until piping is installed. Pipes should be capped/plugged throughout construction.

B. If end caps are not present on tube bearing the "ACR" designation, clean and re-cap in accordance with ASTM B280.

C. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, above ground packaging.

D. Store materials indoors, protected from the weather.

E. Deliver and store valves in shipping containers with labeling in place.

F. Replace any piping or devices which are damaged during shipping or storage.

1.7 SPARE PARTS

A. Not Applicable

1.8 WARRANTY

A. One-year warranty on products and complete installation commencing at the time of Substantial Completion

1.9 MAINTENANCE

A. Not applicable

PART 2 - PRODUCTS

2.1 REFRIGERANTS AND PERFORMANCE REQUIREMENTS

A. Line test pressure for refrigerant R-407C: Difluoromethane/Pentafluoroethane/1,1,1,2-Tetrafluoroethane

1. Suction lines for air-conditioning applications: 230 psig.
2. Suction lines for heat-pump applications: 380 psig.
3. Hot-Gas and liquid lines: 380 psig.

B. Line test pressure for refrigerant R-410A: Pentafluoroethane/difluoromethane

1. Suction lines for air-conditioning applications: 300 psig.
2. Suction lines for heat-pump applications: 535 psig.
3. Hot-Gas and liquid lines: 535 psig.

2.2 REFRIGERANT PIPE AND FITTINGS

A. Copper tube: ASTM B 280, Type ACR, hard drawn, as required by refrigerant system pressure.

1. Wrought-Copper fittings: ASME B16.22.
   a. Only long radius elbows should be used.
2. Wrought-Copper unions: ASME B16.22.
3. Brazing filler metals: AWS A5.8, Class BCuP-5

B. Flexible connectors

1. Tin-bronze bellows with woven, flexible, tinned-bronze-wire-reinforced protective jacket with solder end connections.
2. Offset performance: Capable of minimum ¾” misalignment in minimum 7” long assembly.
3. Working pressure rating: Factory test at minimum 500 psig.

4. Maximum operating temperature: 250°F.

2.3 VALVES AND SPECIALTIES

A. Pressure and temperature ratings of valves listed below are minimums; increase if required by characteristics of refrigerant being used, or if recommended by the equipment manufacturer.

B. Diaphragm packless valves

1. Body and bonnet: Forged brass or cast bronze; globe design with straight-through or angle pattern.
2. Diaphragm: Phosphor bronze and stainless steel with stainless-steel spring.
3. Operator: Rising stem and hand wheel.
4. Seat: Nylon.
5. End connections: Socket, union, or flanged.
6. Working pressure rating: 500 psig.
7. Maximum operating temperature: 275°F.

C. Packed-angle valves

1. Body and bonnet: Forged brass or cast bronze.
2. Packing: Molded stem, back seating, and replaceable under pressure.
3. Operator: Rising stem.
4. Seat: Nonrotating, self-aligning polytetrafluoroethylene.
5. Seal cap: Forged-brass or valox hex cap.
6. End connections: Socket, union, threaded, or flanged.
7. Working pressure rating: 500 psig.
8. Maximum operating temperature: 275°F.

D. Check valves

1. Body: Ductile iron, forged brass, or cast bronze; globe pattern.
2. Bonnet: Bolted ductile iron, forged brass, or cast bronze; or brass hex plug.
3. Piston: Removable polytetrafluoroethylene seat.
4. Closing spring: Stainless steel.
5. Manual opening stem: Seal cap, plated-steel stem, and graphite seal.
6. End connections: Socket, union, threaded, or flanged.
7. Maximum opening pressure: 0.50 psig
8. Working pressure rating: 500 psig
9. Maximum operating temperature: 275°F.

E. Service valves

1. Body: Forged brass with brass cap including key end to remove core.

2. Core: Removable ball-type check valve with stainless-steel spring.
3. Seat: Polytetrafluoroethylene.
4. End connections: Copper spring.
5. Working pressure rating: 500 psig

F. Safety relief valves
1. Comply with ASME Boiler and Pressure Vessel Code; listed and labeled by a National Recognized Testing Laboratory (NRTL)
2. Body and bonnet: Ductile iron and steel, with neoprene O-ring seal.
3. Piston, closing spring, and seat insert: Stainless steel.
4. Seat: Polytetrafluoroethylene.
5. End connections: Threaded.
6. Working pressure rating: 400 psig
7. Maximum operating temperature: 240°F

G. Straight-type strainers
1. Body: Welded steel with corrosion-resistant coating.
2. Screen: 100-mesh stainless steel.
3. End connections: Socket or flare.
4. Working pressure rating: 500 psig.
5. Maximum operating temperature: 275°F.

H. Moisture/liquid indicators
1. Body: Forged brass.
2. Window: Replaceable, clear, fused glass window with indicating element protected by filter screen.
3. Indicator: Color coded to show moisture content in ppm.
4. Minimum moisture indicator sensitivity: Indicate moisture above 60 ppm.
5. End connections: Socket or flare.
6. Working pressure rating: 500 psig.
7. Maximum operating temperature: 240°F.

I. Replaceable-core filter dryers
1. Comply with AHRI 730.
2. Body and cover: Painted-steel shell with ductile-iron cover, stainless-steel screws, and neoprene gaskets.
3. Filter media: 10 micron, pleated with integral end rings; stainless-steel support.
4. Desiccant media: Activated alumina or charcoal.
5. End connections: Socket.

6. Access ports: NPS ¼ connections at entering and leaving sides for pressure differential measurement.
7. Maximum pressure loss: 2 psig.
8. Working pressure rating: 500 psig.
9. Maximum operating temperature: 240°F.

J. Receivers

1. Comply with AHRI 495.
2. Comply with ASME Boiler and Pressure Vessel Code; listed and labeled by an NRTL.
3. Comply with UL® 207; listed and labeled by an NRTL.
4. Body: Welded steel with corrosion-resistant coating.
5. Tappings: Inlet, outlet, liquid level indicator, and safety relief valve.
6. End connections: Socket or threaded.
7. Working pressure rating: 500 psig.
8. Maximum operating temperature: 275°F.

K. Liquid accumulators: Comply with AHRI 495.

1. Body: Welded steel with corrosion-resistant coating.
2. End connections: Socket or threaded.
3. Working pressure rating: 500 psig.
4. Maximum operating temperature: 275°F.

PART 3 - EXECUTION

3.1 PIPING APPLICATIONS FOR REFRIGERANT R-407C

A. Suction, hot-gas and liquid lines: Copper, Type ACR, hard drawn tubing and wrought-copper fittings with brazed joints.

3.2 PIPING APPLICATIONS FOR REFRIGERANT R-410A

A. All piping shall be R-410A rated for use up to 700 psi and shall be marked “R-410A Rated” along the length of pipe.

B. Suction, hot-gas and liquid lines: Copper, Type ACR, hard drawn tubing and wrought-copper fittings with brazed joints.

3.3 INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated piping locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Protect new pipe interiors from moisture, construction debris and dust, and other foreign materials with the use of plastic end caps/plugs on each end of pipe. Maintain end-caps/plugs in place until piping is installed. Open end of pipes should be capped/plugged throughout construction.

C. Install refrigerant piping according to ASHRAE 15.

D. Install refrigerant piping in accordance with equipment manufacturer's recommendations.

E. Install piping in concealed locations except in equipment rooms and service areas, or where otherwise indicated.

F. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

G. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

H. Arrange piping to allow inspection and service of refrigeration equipment. Install valves and specialties in accessible locations to allow for service and inspection.

I. Install piping as short and direct as possible, with a minimum number of joints, elbows, and fittings.

J. Fittings and bends

    1. Hard drawn copper tubing: Do not bend, utilize long radius elbows.

    2. Minimize use of fittings.

K. Slope refrigerant piping as follows:

    1. Install horizontal hot-gas discharge piping with a uniform slope downward away from compressor.

    2. Install horizontal suction lines with a uniform slope downward to compressor.

    3. Install traps and double risers to entrain oil in vertical runs.

    4. Liquid lines may be installed level.

L. When brazing, remove solenoid-valve coils and sight glasses; also remove valve stems, seats, and packing, and accessible internal parts of refrigerant specialties. Do not apply heat near expansion-valve bulb.

M. Prior to brazing, fill piping with dry grade nitrogen. Continue to flow nitrogen through piping at a rate of 20 fpm while piping is being heated to prevent oxidation of inside of piping and fittings.

N. Install piping with adequate clearance between pipe and adjacent walls and hangers or between pipes for insulation installation.

O. Identify piping with pipe lables.

P. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

Q. Pipe joint construction

    1. Ream pipe and tube ends. Remove burrs.

    2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

    3. Brazed joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

R. Coordination of mechanical work installation and access requirements:

1. Provide access where valves and fittings are not exposed. Coordinate size and location of access doors with Owner and General Contractor.
2. Furnish advance information on locations and sizes of frames, boxes, sleeves and openings needed for work and also furnish information and shop drawings necessary to permit installation of other work without delay.
3. Where there is evidence that parts of Mechanical Work will interfere with other work, assist in working out space conditions and/or structure, and make necessary adjustments to accommodate work.
4. Mechanical Work installed before coordinating with other work so as to cause interference with other work to be changed to correct such condition without additional cost to Owner.
5. Install Mechanical work to permit removal (without damage to other parts) of coils, heat exchangers, pumps, fan shafts and wheels, belt guards, sheaves and drives and other parts requiring periodic replacement or maintenance.
6. Arrange pipes, ducts and equipment to permit ready access to valves, cocks, traps, starters, motors, dampers, control components and to clear the openings of swinging and overhead doors and of access panels.
7. Provide access panels in equipment, ducts and like items for inspection of interiors and proper maintenance.

S. Appliances and equipment to be installed and connected with best engineering practices and in accordance with manufacturer's instructions and recommendations. Piping, valves, connections and other like items recommended by manufacturer or as required for proper operation to be provided without additional cost to Owner.

T. In no case will any pipe, conduit or duct be installed where it is supported on or suspended from another pipe, conduit or duct.

U. Follow manufacturers' directions in installation and operation of all equipment and materials.

3.4 APPLICATIONS

A. Select system components with pressure rating equal to or greater than system operating pressure.

B. Install diaphragm packless valves in suction and discharge lines of compressor.

C. Install service valves for gage taps at inlet and outlet of hot-gas bypass valves and strainers if they are not an integral part of valves and strainers.

D. Except as otherwise indicated, install diaphragm packless valves on inlet and outlet side of filter dryers.

E. Install a full-size, three-valve bypass around filter dryers.

F. Install safety relief valves where required by ASME Boiler and Pressure Vessel Code. Pipe safety-relief-valve discharge line to outside according to ASHRAE 15.

G. Install moisture/liquid indicators in liquid line at the inlet of the thermostatic expansion valve or at the inlet of the evaporator coil capillary tube.

H. Install strainers upstream from and adjacent to the following unless they are furnished as an integral assembly for the device being protected:

1. Solenoid valves.
2. Thermostatic expansion valves.
3. Hot-gas bypass valves.
4. Compressor.

I. Install filter dryers in liquid line between compressor and thermostatic expansion valve, and in the suction line at the compressor.

J. Install flexible connectors at compressors.

3.5 TESTING

A. Furnish all labor, material, instruments, supplies and services and bear all costs for the accomplishment of tests herein specified. Correct all defects appearing under test and repeat the tests until no defects are disclosed; leave the equipment clean and ready for use.

B. Field test all piping before start-up of systems. Tests of piping systems shall be conducted before connections to equipment are made and before piping is covered, buried or otherwise concealed.

C. Perform all tests other than herein specified which may be required by legal authorities or by agencies to whose requirements this work is to conform.

D. Furnish all necessary testing apparatus, make all temporary connections and perform all testing operations required, at no additional cost to Owner.

E. No work shall be insulated, painted, backfilled or concealed until authorized by Owner's representative and/or the Engineer representative.

F. Inform Engineer and Owner's representative 48 hours prior to when work is ready for test.

G. Systems found to have leaks shall be subjected to further tests when faulty joints have been repaired or replaced.

H. Test refrigerant piping according to ASME B31.5 and as follows:

1. Test refrigerant piping, specialties, and receivers. Isolate compressor, condenser, evaporator, and safety devices from test pressure if they are not rated above the test pressure.
2. Test high- and low-pressure side piping of each system separately at not less than the pressures indicated in Part 2 "Refrigerants and Performance Requirements" Article.
3. Fill system with nitrogen to the required test pressure.
4. System shall maintain test pressure within 2% at the manifold gage throughout duration of test. Pressure test duration shall not be less than four hours.
5. Test joints and fittings with electronic leak detector or by brushing a small amount of soap and glycerin solution over joints.
6. Remake leaking joints using new materials, and retest until satisfactory results are achieved.
7. Leave joints, including welds, uninsulated and exposed for examination during test.
8. Prepare written report of testing. Submit to Owner.

I. Test pressures shall be increased, if necessary, to comply with applicable codes.

3.6 SYSTEM CHARGING

A. Install core in filter dryers after leak test but before evacuation.

B. Evacuate entire refrigerant system with a vacuum pump to 500 micrometers. If vacuum holds for 12 hours, system is ready for charging.

C. Break vacuum with refrigerant gas, allowing pressure to build up to 2 psig.

D. Charge system with a new filter-dryer core in charging line.

END OF SECTION

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SECTION 23 3113
METAL AND FLEXIBLE DUCT

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Duct and duct-associated materials and procedures in this section include:

1. Sheet metal materials
2. Single-wall rectangular ducts and fittings
3. Hangers and supports

1.2 DEFINITIONS

A. Duct size: Duct sizes indicated herein or on associated drawings shall be the inside clear dimensions of actual air path for both unlined and lined ducts.

B. Pressure class: A "SMACNA - HVAC Duct Construction Standards, Metal and Flexible" pressure classification system designating static pressure values (in inches w.g.) equal to the maximum operating pressure to which the ductwork can safely be subjected.

1.3 CODES AND STANDARDS (USE LATEST EDITIONS)

A. American Society for Testing Materials (ASTM)

1. ASTM A 36/A 36M: Specification for Carbon Structural Steel
2. ASTM A 366/A 366M: Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality
3. ASTM A 480/A 480M: Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
4. ASTM A 653/A 653M: Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
5. ASTM B 209: Specification for Aluminum and Aluminum-Alloy Sheet and Plate
6. ASTM C 203: Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
7. ASTM C209: Standard Test Methods for Cellulosic Fiber Insulating Board
8. ASTM C 411: Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation
9. ASTM C 534: Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form
10. ASTM C 916: Specification for Adhesives for Duct Thermal Insulation
11. ASTM C 920: Specification for Elastomeric Joint Sealants
12. ASTM C 1071: Specification for Thermal and Acoustical Insulation (Glass Fiber, Duct Lining Material)
13. ASTM D 256: Standard Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics
14. ASTM D 638: Standard Test Method for Tensile Properties of Plastics

15. ASTM D 790: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
16. ASTM D 1621: Standard Test Method for Compressive Properties of Rigid Cellular Plastics
17. ASTM E 84: Test Method for Surface Burning Characteristics of Building Materials

B. National Fire Protection Association (NFPA)

1. NFPA 90A: Installation of Air Conditioning and Ventilating Systems
2. NFPA 90B: Installation of Warm Air Heating and Air Conditioning Systems
3. NFPA 96: Ventilation Control and Fire Protection of Commercial Cooking Operations
4. NFPA 255: Standard Method of Test of Surface Burning Characteristics of Building Materials

C. North American Insulation Manufacturers Association (NAIMA)

1. NAIMA AH124: Fibrous Glass Duct Liner Standard

D. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)

1. SMACNA: Duct Cleanliness for New Construction
2. SMACNA: HVAC Air Duct Leakage Test Manual
3. SMACNA: HVAC Duct Construction Standards - Metal and Flexible (excluding all amendments and proposed revisions)
4. SMACNA: IAQ Guidelines for Occupied Buildings Under Construction

E. Underwriters Laboratory

1. UL® 94: Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
2. UL® 181: Factory-Made Air Ducts and Air Connectors
3. UL® 723: Test for Surface Burning Characteristics of Building Materials

1.4 QUALITY ASSURANCE

A. Construct ductwork to NFPA 90A standards.

B. Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall, at a minimum, comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," excluding all amendments and proposed revisions, and performance requirements and design criteria indicated.

1. All further references to conformance with the requirements of SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" shall always mean with the exclusion of all amendments and proposed revisions.
2. Where the requirements of this specification exceed the requirements of the SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," the specifications shall govern.

C. Size round ducts installed in place of rectangular ducts in accordance with ASHRAE table of equivalent rectangular and round ducts.

D. Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1.5 DELIVERY, STORAGE AND HANDLING

A. Protect new duct interiors from moisture, construction debris and dust, and other foreign materials. If inside of new duct becomes dirty, Contractor shall clean duct per Duct Cleaning specifications.

B. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Intermediate Level.

1.6 WARRANTY

A. One-year warranty on products and complete installation commencing at the time of Substantial Completion.

PART 2 - PRODUCTS

2.1 SHEET METAL MATERIALS

A. General material requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

1. Galvanized sheet steel: Comply with ASTM A 653. Lock forming quality with G-90 galvanized coating designation (not less than 1.25 oz. of zinc on each side of each square foot of sheet).

2. Paint grip steel: Mill-phosphatized "Paintgrip" or "Zincgrip" finish suitable for field painting.

3. Minimum ducts gauges shall be in accordance with the following tables. This table shall be used in conjunction with SMACNA table for application of appropriate reinforcement in accordance with proper pressure class.

MINIMUM GALVANIZED AND STAINLESS STEEL RECTANGULAR DUCT GAUGE WITHOUT REINFORCEMENT					
DUCT DIMENSION (IN.)	**1" W.G.**	**2" W.G.**	**3" W.G.**	**4" W.G.**	**6" W.G.**
8 and under	26	26	24	24	24
9 – 10	26	26	24	22	24
11 – 12	26	26	24	22	20
13 – 14	26	24	22	20	20
15 – 16	26	24	22	20	18
17 – 18	24	22	20	18	18
19 – 20	24	20	18	18	16
21 – 22	22	18	18	18	16
23 – 24	22	18	18	18	16
25 – 26	20	18	18	16	
27 – 28	18	18	18	16	
29 – 30	18	18	18	16	
31 – 36	18	16	16		
37 – 42	16				
43 – 48	16				
49 – 54	REINFORCEMENT REQUIRED REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE				
55 – 60					
61 – 72					

MINIMUM GALVANIZED AND STAINLESS STEEL RECTANGULAR DUCT GAUGE WITHOUT REINFORCEMENT					
DUCT DIMENSION (IN.)	**1" W.G.**	**2" W.G.**	**3" W.G.**	**4" W.G.**	**6" W.G.**
73 – 84					
85 – 96					
97 – 108					
109 – 120					

MINIMUM GALVANIZED AND STAINLESS STEEL ROUND DUCT GAUGE WITHOUT REINFORCEMENT								
Duct Diameter (in.)	**+10" w.g. Long Seam**	**+10" w.g. Spiral Seam**	**- 2" w.g. Long. Seam**	**-2" w.g. Spiral Seam**	**-4" w.g. Long Seam**	**-4" w.g. Spiral Seam**	**-6" w.g. Long. Seam**	**-6" w.g. Spiral Seam**
4	28	28	28	28	28	28	28	28
6	28	28	28	28	28	28	28	28
8	28	28	28	28	28	28	26	28
10	28	28	28	28	26	28	24	26
12	28	28	26	28	24	26	24	24
14	28	28	24	28	22	24	22	24
16	26	26	24	26	22	24	20	22
18	26	26	22	24	20	22	20	22
20	24	26	22	24	20	22	18	20
22	24	26	22	22	18	20	18	20
24	24	26	20	22	18	20	18	18
30	22	24	18	20	16	18	16	18
36	22	24	16	18		16		16
42	22	24	16	18		16		
48	20	22		16				
54	20	22		16				
60	20	22						
66	18	22						
72	18	20						
78	18	20						
84	18	20						
90	18	20						
96	18	20						

REINFORCEMENT REQUIRED
REFER TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE

2.2 SINGLE WALL RECTANGULAR DUCTS AND FITTINGS (SHOP AND FACTORY FABRICATED)

A. Acceptable manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Lindab Inc.
2. McGill AirFlow LLC.
3. SEMCO Inc.
4. Sheet Metal Connectors, Inc.

5. Shop fabricated duct is acceptable for ducts with a pressures class rating of 6" w.g. or less provided compliance with the requirements herein are met.

B. General fabrication requirements

1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

2. Comply with SMACNA's "Industrial Duct Construction Standards" where indicated.

C. Transverse joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-4, "Transverse (Girth) Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" except as otherwise noted.

1. No duct shall be constructed to less than 2" w.g.

D. Longitudinal seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-5, "Longitudinal Seams - Rectangular Ducts," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," except as otherwise noted:

1. Button punch snap lock is not acceptable.

E. Elbows, transitions, offsets, branch connections, and other duct construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 2, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," except as otherwise noted.

2.3 SEALANT AND GASKETS

A. Acceptable manufacturers for duct sealant

1. Hardcast

2. United McGill

3. Ductmate

B. General sealant and gasket requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

C. Duct sealant

1. Water-based non hardening, water resistant, mold and mildew resistant sealant classified compounded specifically for sealing joints and seams in ductwork.

a. Maximum Static-Pressure Class: 10" w.g., positive and negative.

b. Service: Indoor or outdoor.

c. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets for specific applications.

2. Duct tapes are not allowed.

D. Flanged joint sealant: Comply with ASTM C 920. General: Single-component, acid-curing, silicone, electrometric. Type S, Grade NS, Class 25, Use O.

E. Flange gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

1. Gaskets used in chemical, laboratory, or process exhaust duct systems shall be suitable for exposure to substances in the air stream. Contractor shall verify the compatibility with Engineer prior to installation.

2.4 HANGERS AND SUPPORTS

A. Hanger rods for dry or non-corrosive environments: Cadmium-plated steel rods and nuts.

B. Steel cables for galvanized-steel ducts: Galvanized steel complying with ASTM A 603.

C. Trapeze and riser supports

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Install duct with duct material for pressure class as per the following table:

DUCT SYSTEM AND LOCATION	MATERIAL	PRESSURE CLASS
Return system with no air terminal units: all duct	Galvanized steel (G90)	-2”

3.2 INSTALLATION

A. General

1. All ducts shall be airtight and free from pulsation and vibration at normal operating conditions.
2. Install ducts with fewest possible joints.
3. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.
4. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.
5. Install ducts with a minimum clearance of 1”, plus allowance for insulation thickness.
6. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
7. Galvanized surfaces altered or damaged (including the damage due to welding) shall be painted with a galvanized paint.
8. For paint grip steel ducts, place identification stickers in side ducts off of the surface to be painted.
9. Gaskets shall not protrude into airstream.
10. Seam and joint sealing
    a. For **all new ducts**, all transverse joints, longitudinal seams and connections shall be sealed in conformance with SMACNA Class A sealing requirements as defined in the 2005 SMACNA HVAC Duct Construction Standards - Metal and Flexible, Second Edition.

11. Hangers and supports: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."
    a. Refer to Division Section 20 0529 "Hangers and Supports for Mechanical, Plumbing and Fire Suppression Systems" for additional information.
    b. Support ducts using traverse steel and threaded rods or 1" wide straps of 16 gauge galvanized steel. Wire or perforated straps of any kind are not acceptable.
    c. No hangers and supports shall be attached to ducts with sheet metal screws that penetrate any part of ducts.
    d. Hanger spacing: Except where requirements herein exceed, comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct,"
        (1) Provide duct supports at a maximum of 6 foot intervals, within 24" of each elbow, and within 24" of each branch intersection.
        (2) Provide vertical ducts supports at a maximum of 10 foot intervals.

END OF SECTION

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SECTION 23 3300
DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Accessories addressed in this section include:

1. Flexible connectors

1.2 DEFINITIONS

Not Applicable

1.3 QUALITY ASSURANCE

A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems."

1.4 SUBMITTALS

A. Preconstruction – Prior to construction provide the following in accordance with Specification 20 0500 – Basic Requirements for Mechanical, Plumbing, and Fire Suppression:

1. Product data: Submit product data for each of the products listed in Part 2 including:

a. Drawings indicating quantities, dimensions, weights, clearances, configuration and materials used in fabrication.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site under provisions of Section 01 6000.

B. Deliver products to site in containers with manufacturer's and UL stamp affixed.

C. Protect products against dirt, water, chemical and mechanical damage before, during and after installation. Damage to products prior to final acceptance of the Work shall be repaired or replaced at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 FLEXIBLE CONNECTORS

A. Acceptable manufacturers

1. Ductmate
2. Duro Dyne Corp.
3. Ventfabrics, Inc.

B. General description: Flame-retardant or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.

C. Metal-edged connectors: Factory fabricated with a fabric strip minimum 4" wide attached to two strips of 2¾" wide, 24 gauge (0.028" thick), galvanized sheet steel or 0.032" thick aluminum sheets. Select metal compatible with ducts.

D. Indoor system, flexible connector fabric: Glass fabric double coated with neoprene.

1. Minimum weight: 26 oz/yd^2.
2. Tensile strength: 475 lbf/inch in the warp and 360 lbf/inch in the filling.
3. Service temperature: -10°F to +200°F
4. Air pressure rating: ± 10" w.g.

PART 3 - EXECUTION

3.1 APPLICATION AND INSTALLATION

A. General

1. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards – Metal and Flexible" except where otherwise noted to exceed the requirements of this Standard.
2. Provide duct accessories of materials suited to duct materials; use galvanized steel accessories in galvanized-steel, paint grip steel accessories in paint grip steel ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.
3. Install accessories in accordance with manufacturer's instructions.

B. Flexible connectors

1. Install flexible connectors immediately adjacent to equipment in ducts associated with fans and motorized equipment supported by vibration isolators. Installed width shall be not less than 4".

END OF SECTION

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SECTION 23 8123
COMPUTER ROOM AIR CONDITIONING UNITS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Air conditioning units

B. Air cooled condensers

C. Controls and control panels

1.2 CODES AND STANDARDS (USE LATEST EDITIONS)

A. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

1. ASHRAE 15: Safety Standard for Refrigeration Systems
2. ASHRAE 52.1: Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter

B. National Electrical Manufacturers Association (NEMA)

1. NEMA 250: Enclosures for Electrical Equipment (1000 Volts Maximum)

C. National Fire Protection Association (NFPA)

1. NFPA 70-2005: National Electrical Code
2. NFPA 90A: Installation of Air Conditioning and Ventilation Systems

D. Federal Specification (FS)

1. FS TT C 490: Cleaning Method and Pretreatment of Ferrous Surfaces for Organic Coatings

E. Underwriters Laboratories, Inc. (UL®)

1.3 REGULATORY REQUIREMENTS

A. Conform to NFPA 90A for the installation of computer room air conditioning units.

1.4 SUBMITTALS

A. Submit shop drawings and product data for manufactured products and assemblies required for this project.

B. Indicate water, drain, electrical and refrigeration rough in connections on shop drawings or product data.

C. Provide details on equipment controls.

D. Submit manufacturer’s installation instructions under provisions of Division 01.

1.5 OPERATION AND MAINTENANCE DATA

A. Include manufacturer’s descriptive literature, operating instructions, installation instructions and maintenance and repair data.

1.6 WARRANTY

A. Provide five-year manufacturer's parts and labor warranty

B. Warranty: Include coverage of entire unit.

1.7 EXTRA MATERIALS

A. Provide two sets of extra filters

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Liebert Corporation

B. Stulz ATS

2.2 MANUFACTURED UNITS

A. Provide packaged, air cooled, factory assembled, pre wired and pre piped unit, consisting of cabinet, compressors, DX coils, fans filters, controls.

B. Assemble unit for down flow air delivery.

2.3 CABINET AND FRAME

A. Structural frame: Welded steel suitably braced for rigidity, capable of supporting compressors and other mechanical equipment and fittings. Provide with welded tubular steel floor stand with adjustable legs and vibration isolation pads.]

B. Doors and access panels: Heavy gauge galvanized steel with polyurethane gaskets, hinges to allow removal of panels and concealed fastening devices.

C. Insulation: Thermally and acoustically line cabinet interior with 1" thick, 1.5 lb. density acoustic duct liner.

D. Finish of exterior surfaces: FS TT C 490 prepared, baked-on textured vinyl enamel; manufacturer's standard color.

2.4 EVAPORATOR FANS AND MOTORS

A. Fans: Double inlet, forward curved centrifugal or plenum type fans, statically and dynamically balanced, directly driven.

B. Motor: Electronically commutated motors (ECM) variable speed.

2.5 COMPRESSORS

A. Digital Scroll Compressors: The compressors shall be scroll type with a variable capacity operation capability. The compressors solenoid valve shall unload the compressors and allow for variable capacity operation. The compressors shall have suction gas cooled motor, vibration isolators, thermal overloads, automatic reset high pressure, service valves, low pressure transducer.

B. Each unit shall include two independent refrigeration circuits and shall include liquid line filter driers, and refrigerant sight glasses with moisture indicator, externally equalized expansion valves, and liquid line solenoid valves.

C. Compressors shall be located outside the air stream and shall be removable and serviceable from the front of the unit.

D. Thermostatic Expansion Valve (TXV)

1. A manual adjustable externally equalized expansion valve thermostatic expansion valve (TXV) shall control the flow of liquid refrigerant entering the direct expansion coil. The TXV shall maintain consistent superheat of the refrigerant vapor at the outlet of the evaporator coil over the unit's operating range.The TXV shall prevent liquid refrigerant from returning to the compressor.

E. Crankcase Heaters

1. The compressors shall include crankcase heaters, powered from the indoor unit electric panel.

F. R-407C Refrigerant

1. The system shall be designed for use with R-407C refrigerant.

2.6 EVAPORATOR COILS

A. Direct expansion cooling coils of seamless copper tubes expanded into aluminum fins in A frame or vertical flat face configuration.

B. Two refrigeration circuits, each with thermal expansion valve with external equalizer, liquid line solenoid valve, liquid line filter drier, refrigerant sight glass with moisture indicator, service shut off valves and charging valves. All serviceable components to be accessible.

2.7 CONDENSERS

A. Air cooled: Air cooled refrigerant condenser consisting of corrosion resistant cabinet, copper tube aluminum fin coils arranged for two circuits, multiple direct drive propeller fans with permanently lubricated ball bearing single phase motors with internal overload protection.

2.8 FILTERS

A. Media: Pleated, lifted, non-woven, reinforced cotton fabric; supported and bonded to welded wire grid; enclosed in cardboard frame; 4” nominal thickness MERV 8.

2.9 ELECTRICAL PANEL

A. The electrical panel shall provide at least 65,000A SCCR (60 HZ) short circuit current rating.

B. Service connections, wiring and disconnect requirements: Conform to Division 26.

C. Control cabinet: NEMA 250; Type 2 enclosure, UL listed, with piano hinged door, grounding lug, combination magnetic starters with overload relays, circuit breakers and cover interlock and fusible control circuit transformer.

D. Disconnect switch: Non automatic molded case circuit breaker with handle accessible with panel close and capable of preventing access until switched to “off” position.

E. Contactors: To interlock unit with dry agent extinguishing system.

2.10 MICROPROCESSOR CONTROL SYSTEM

A. Logic circuitry: Microprocessor shall continuously monitor operation of process cooling system; continuously digitally display room temperature and room relative humidity; sound alarm on system

malfunction and simultaneously display problem. When more than one malfunction occurs, flash fault in sequence with room temperature, remember alarm even when malfunction cleared and continue to flash fault until reset.

B. The two units to be interconnected with Ethernet cable and be scheduled in a lead-lag configuration to equalize run time.

C. Malfunctions: Power Loss, Loss of Air Flow, Clogged Air Filter, High Room Temperature, Low Room Temperature, High Humidity, Low Humidity, Smoke/Fire, Compressor No. 1 - Overload, Compressor No. 1 Low Pressure, Compressor No. 1 High Pressure, Compressor No. 2 Overload, Compressor No. 2 Low Pressure, Compressor No. 2 High Pressure, Water Under Floor, and Supply Fan Overload.

D. Digital display: Manufacturer's standard iCOM digital display (or equivalent).

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install indoor units on 24" prefabricated steel stands. Connect to existing return ductwork with a flexible connector.

C. Install outdoor units on roof rails. Modify existing rails or provide new rails. Coordinate with roofing warranty.

D. Install refrigerant piping in accordance with manufacturers' recommendations.

E. Install power and control wiring to indoor and outdoor units in accordance with manufacturer's recommendations.

F. Provide interlocks with existing dry agent fire extinguishing system and building fire alarm system.

G. Provide adequate drainage connections for condensate.

3.2 FIELD INSPECTION AND REPORT

A. Provide report, in accordance with Division 01, prepared by manufacturer's representative, stating that systems installed and services provided under this Section are in accordance with manufacturer's recommendations and are properly operating.

END OF SECTION

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SECTION 26 0500
BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This Section includes general administrative and procedural requirements for electrical installations and shall apply to all phases of the work specified, indicated on the drawings, or required to provide for complete installation of electrical systems for this project. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 01:

1. Submittals
2. Record documents
3. Maintenance manuals
4. Rough ins
5. Electrical installations

1.2 DEFINITIONS

A. The following definitions shall apply throughout the contract documents:

1. Architect/Engineer: Architect or Engineer
2. Code: All applicable local, state, and national codes - latest edition
3. Contractor: Any contractor performing work required by the Contract Documents
4. Electrical: All electrical work required by the contract documents
5. Furnish: Supply and deliver to the site ready for installation
6. Indicated: Noted, scheduled, or specified
7. Installed: Erected, mounted, secured, connected, and ready for use
8. Mechanical: All mechanical work required by the contract documents
9. Provide: Furnish, install, and connect, complete and ready for use

1.3 CODES AND STANDARDS

A. The electrical system shall comply with the following codes, and all other state, local, municipal, and national bureaus and departments which have authority over this project: anything in these contract documents notwithstanding. This shall not be construed as waiving compliance with any requirements of the plans and specifications that may be in excess of any requirements of any applicable code.

1. National Fire Protection Association (NFPA)
2. American National Standards Institute (ANSI)
3. Occupational Safety and Health Administration (OSHA)
4. Factory Mutual Research Corporation (FM)
5. Underwriters Laboratories Inc. (UL®)

B. All systems and components shall be FM approved and listed and labeled by UL.

C. Where there is a conflict between the code and contract documents, the code shall have precedence only when it is more stringent than the contract documents. Items that are allowed by code, but are less stringent than those specified, shall not be substituted.

1.4 QUALITY ASSURANCE

A. Workmanship: The work shall be performed by competent craftsman, skilled in the trade involved, and shall be done in a manner consistent with the NECA National Electrical Installation Standards.

B. Permits: The contractor shall familiarize themselves with all requirements regarding all permits, fees, etc. and shall comply with them. The contractor at his expense shall obtain all permits, licenses, inspections, and arrangements required for the execution of the work. All utilities shall be installed in accordance with the local rules and regulations, and the contractor shall pay all charges.

1. All permits and certificates of inspection shall be turned over to Owner prior to request for final payment.

1.5 SUBMITTALS

A. General: Follow the procedures specified in Division 01 Section 01 3300, “Submittals,” and as indicated in this section.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Where recommended by the equipment supplier, deliver equipment in fully enclosed vans after specified environmental conditions have been permanently established in spaces where equipment is to be placed. The products accepted on the site shall be wrapped in factory packing and shall be inspected for damage prior to acceptance.

C. Store equipment in clean, dry environments that are controlled within manufacturer’s ambient tolerances for non-operating equipment. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

D. Handle equipment carefully to prevent damage, breaking, and scoring. The contractor shall not install damaged units or components; replace them with new.

1.7 SPARE PARTS

Not Applicable

1.8 WARRANTIES

A. The contractor shall warrant all materials, workmanship, and equipment against defects for a period of one year after the date of substantial completion. Certain equipment shall be warranted at the time of final acceptance, or for longer periods of time as specified in those sections of the project manual.

B. The contractor shall repair or replace, at no additional cost to Owner, any item that may become defective within the warranty period.

C. Any manufacturer’s warranties concerning any item installed shall be to the benefit of Owner.

D. The contractor agrees not to void or impair or to allow any sub-contractor to void or impair any warranties regarding products or items installed as part of this project.

E. The repair of faulty workmanship shall be considered included in the contract.

1.9 SITE EXAMINATION

A. Visit the site prior to submitting bids, examine the premises, and make a thorough survey of the conditions under which the installation is to be made.

B. The submission of a proposal will be construed as evidence that such an examination has been made, and later claims for labor, equipment, or materials required for difficulties encountered which could have been foreseen had such an examination been made, will not be recognized.

1.10 ELECTRICAL SERVICE DISRUPTIONS

A. No electrical service disruptions may occur without permission of Owner.

B. Submit a written request for any work electrical outages before taking any operating electrical equipment out of service. Any work involving a task, which requires an electrical service disruption to any part of this facility, shall be closely coordinated with Owner prior to the disruption. All disruptions shall occur at times and of durations acceptable to Owner.

1.11 SAFETY

A. The contractor shall take all steps necessary to ensure the safety of the occupants, students, Owner's employees, visitors, project related personnel, or any other authorized personnel, as well as their own forces, by adequately protecting any exposed energized cable, equipment, or devices throughout the course of this work.

B. Comply with NFPA 241 for safeguarding during construction and alteration operations. In addition, any openings in fire-rated separations between occupied and unoccupied (or operational and non-operational) areas shall be sealed at the end of each workday with an appropriate fire-rated enclosure or sealant. Do not compromise existing security or fire alarm systems serving the occupied or operational areas.

1.12 INTERFERENCE WITH OCCUPANCY

A. The existing building is occupied. The work covered by these documents shall be executed with a minimum of inconvenience to the building occupants.

1.13 DAMAGE TO OTHER WORK

A. This contractor shall be responsible for damage to other work caused by this installation. Patching and repairing of damaged work done by this Division shall be part of the cost of this Division.

1.14 LAYOUT OF WORK

A. Layout work to be installed in coordination with other trades engaged on this project whenever their work is likely to affect the electrical installation. Be fully responsible for all dimensions and conflicts between this work and that of other trades and make the necessary changes in the work without additional cost to Owner if the work does not comply properly with these requirements.

B. Compare contract documents with those of other trades before proceeding with the installation. Electrical wiring, conduits, or electrical equipment which has been installed without checking for

interference and without thorough coordination with other trades shall be moved or relocated without additional expense to Owner.

C. Equipment shall be installed with ample space allowed for removal, repair, or change to the equipment. Ready accessibility to removable parts or equipment and to the wiring shall be provided without moving other equipment which is installed, or which is already in place.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Unless otherwise specified, all materials and equipment shall be new, unused, and undamaged. Materials and equipment shall be the current and standard designs of manufacturers regularly engaged in their production.

PART 3 - EXECUTION

3.1 ROUGH-IN

A. Verify final locations for rough ins with field measurements and with the requirements of the actual equipment to be connected.

3.2 ELECTRICAL INSTALLATIONS

A. General: Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

1. Coordinate electrical systems, equipment, and materials installation with other building components.
2. Verify all dimensions by field measurements.
3. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.
4. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the Work. Give particular attention to large equipment requiring positioning prior to closing in the space.
5. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.
6. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the Work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the Architect.
7. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.
8. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

9. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

END OF SECTION

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SECTION 26 0505
BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Scope: The work specified in this section includes, but shall not be limited to, providing labor, material, equipment and services necessary for electrical work as shown on the drawings and as herein specified.

B. Section includes: The work specified in this section includes, but shall not be limited to, providing the following:

1. Motor and equipment connections
2. Sleeves and openings
3. Fire stopping
4. Hangers and supports
5. Demolition

1.2 DEFINITIONS

Not Applicable

1.3 CODES AND STANDARDS

A. The electrical system shall comply with the following codes, and all other state, local, municipal, and national bureaus and departments which have authority over this project: anything in these contract documents notwithstanding. This shall not be construed as waiving compliance with any requirements of the plans and specifications that may be in excess of any requirements of any applicable code.

1. National Fire Protection Association (NFPA)
2. American National Standards Institute (ANSI)
3. Occupational Safety and Health Administration (OSHA)
4. Factory Mutual Research Corporation (FM)
5. Underwriters Laboratories Inc. (UL®)

B. All systems and components shall be FM approved and listed and labeled by UL.

C. Where there is a conflict between the code and contract documents, the code shall have precedence only when it is more stringent than the contract documents. Items that are allowed by code, but are less stringent than those specified, shall not be substituted.

1.4 QUALITY ASSURANCE

A. Contractor's quality assurance responsibilities: The Contractor shall be solely responsible for quality control of the work.

B. Manufacturer's qualifications: Firms shall be engaged in the manufacture of products and materials of types and sizes required, and whose products have been in satisfactory use in similar service for not less than five years.

C. Contractor's qualifications: Firms shall have at least five years of successful installation experience with projects utilizing products and materials similar to that required for this Project.

D. Regulatory requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and Municipal authorities having jurisdiction. Obtain approvals from such authorities.

E. Installation: Comply with NECA National Electrical Installation standards for electrical construction methods.

1.5 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

C. Coordinate electrical service connections to components furnished by utility companies.

1. Coordinate installation and connection of exterior underground and overhead utilities and services, including provision for electricity-metering components.

2. Comply with requirements of authorities having jurisdiction and of utility company providing electrical power and other services.

D. Coordinate location of access panels and doors for electrical items that are concealed by finished surfaces.

PART 2 - PRODUCTS

2.1 QUALITY

A. Electrical equipment, devices and associated materials used on this project shall be UL listed and/or labeled.

B. Equipment and devices installed under this division and not constructed with enclosure suited for mounting and protecting all live parts shall be installed in approved metal cabinets.

2.2 HANGERS AND SUPPORTS

A. Hanger rods:

1. Provide hanger rods of proper length for electrical items requiring same

2. Minimum rod diameter shall be ⅜" for cable trays, and racks supporting more than 8" of total conduit diameter

3. Hanger rods shall be zinc plated or galvanized steel

B. Cable supports: Riser cables shall be supported by means of O.Z./Gedney Co, Thomas and Betts, or Joslyn cable supports at each panel and pull box in accordance with Code requirements.

C. Conduit supports and hangers:

1. Individually suspended conduits shall be supported with galvanized pipe clamps, from threaded steel rods, spaced 5’ 0” on centers.

2. The steel rods shall be affixed to the building structure by means of inserts in concrete slab or beam clamps affixed to the steel structure.

3. Where multiple conduits are installed adjacent to each other, a trapeze hanger consisting of galvanized P l000 unistrut suspended from at least two threaded steel rods, shall be used. The conduits shall be affixed to the unistrut with galvanized split pipe clamps, Nos. P 1109 through P 1126, for rigid conduit and Nos. P l425 through P 1431, for EMT.

4. Hangers and clamps shall be as manufactured by Unistrut, B-Line or as approved by Engineer.

PART 3 - EXECUTION

3.1 DEMOLITION

A. Examination

1. The contractor shall visit the site and examine areas under which the work is to be performed and notify the Owner in writing of any conditions detrimental to the proper and timely completion of the work. Contractor shall not proceed with work until satisfactory conditions have been corrected.

B. Preparation

1. Disconnect electrical systems scheduled for removal.

2. Coordinate utility service shut-down with the utility company.

3. Notify the Owner at least 48 hours before disabling any electrical system.

4. Provide temporary wiring and connections to maintain existing systems in service during construction. Experienced personnel shall be used when working on energized equipment or circuits.

5. Existing electrical service: maintain existing system in service until new service is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from Owner at least 48 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

6. Maintain existing fire alarm system in service until new system is accepted. Disable system only to make switchovers and connections. Notify Owner at least 48 hours before partially or completely disabling system. Where fire alarm devices must be removed to accommodate the removal of walls, notify the Owner and Engineer in writing with locations of devices.

C. Demolition and Extension of Existing Electrical Work

1. Remove, relocate, and extend existing electrical work as indicated on the drawings and as noted herein.

2. Remove abandoned wiring back to source of supply.

3. Where source of supply is a panelboard, re-label protective device as “Spare.” After demolition is complete, submit revised panelboard schedules indicating “Spares” to Owner and Engineer.

4. Remove exposed abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors and patch surfaces.
5. Remove and disconnect abandoned outlets and associated devices.
6. Disconnect and remove abandoned panelboards and distribution equipment.
7. Disconnect and remove electrical devices and equipment that is no longer in use.
8. Disconnect and remove abandoned lighting fixtures. Remove brackets, stems, hangers, and other accessories.
9. Repair adjacent construction and finishes damaged during demolition and extension of work

D. Cleaning, repair, and replacement

1. General: Clean and repair existing materials and equipment that will remain or are to be reused.
2. Panelboards: Clean exposed surfaces and tighten all electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed schedule showing revised circuiting information.
3. Lighting fixtures: Remove existing lighting fixtures for cleaning. Use mild detergent to clean exterior and interior surfaces, rinse clean with clean water, and wipe dry. Replace existing lamps and ballasts with new.

E. Disposal

1. Owner shall have right to retain any equipment or materials that have been demolished prior to disposal or removal from site.
2. Any equipment or materials not wanted by the Owner shall become the property of the contractor and removed from site.
3. Contractor shall comply with environmental laws and regulations for disposal of demolished materials and equipment.

3.2 PHASE SEQUENCE, ROTATION AND IDENTIFICATION

A. Transformers, switchgear, feeders, panelboards, motor branch circuits, etc., shall be completely phased out for sequence and motor rotation. Phase identification shall be permanently identified in all equipment including conductors by use of all temperature adhesive markers or colored tape similar to Minnesota Mining #35 vinyl tape or as approved.

B. Phase sequence shall be A B C (viewed from front):

1. Left to right
2. Top to bottom
3. Front to rear

3.3 SLEEVES AND OPENINGS

A. Provide openings and sleeves in walls and floor as required for this work.

B. Sleeves shall be galvanized steel conduit or schedule 40 black steel pipe, unless otherwise noted. Aluminum conduit shall not be used.

C. Unless specific sizes are indicated on the drawings, sleeves shall be sized to provide ½" clearance around outside surface of the item for which they are installed.

D. Annular space between sleeve and surface of item protruding shall be suitably provided with fire stop as hereinafter specified.

E. Sleeves shall be cut flush with wall surfaces and shall extend 1½" above finished floors unless otherwise indicated.

3.4 CORING, CUTTING, AND PATCHING

A. Necessary coring or cutting in walls, floors, and ceilings shall be neatly and carefully done and repaired in an approved and workmanlike manner.

B. No cutting into the structural work of the building shall be done without the approval of the Engineer/Architect.

3.5 FIRE STOPPING

A. Provide fire and cold smoke stopping construction, as specified, for all through penetrations in rated fire construction (and smoke barriers) in accordance with UL fire resistance directory under categories XHCR and XHEZ. These guides have specific requirements for core and opening sizes based on the size of the penetrating item.

B. Fire and smoke stopping compounds shall be by 3M, or approved equal.

C. Conduit penetrations through fire rated gypsum and concrete construction shall be filled with 3M Fire Barrier CP 25WB+ Caulk according to UL and 3M guides.

END OF SECTION

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SECTION 26 0519
CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Scope: The work specified in this section includes, but shall not be limited to, providing labor, materials, equipment, and services necessary for the electrical work as shown on the drawings and as herein specified.

B. Section includes: building wires, cables, and associated connectors, splices, and terminations for wiring systems rated 600 V and less

1.2 DEFINITION

A. THHN: Heat-resistant thermoplastic insulation

B. THWN: Moisture and heat-resistant thermoplastic insulation

C. XHHW: Moisture-resistant thermoset

1.3 CODES AND STANDARDS

A. NEMA WC3: Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

B. NEMA WC5: Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

1.4 SUBMITTALS

A. Product data: For each type of product indicated

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products and materials properly packaged in factory fabricated containers and mounted on shipping skids.

B. Store products and materials in clean, dry, heated space. Protect from dirt, fumes, water, construction debris, and traffic. Where necessary to store outdoors, store above grade and enclose with watertight wrapping.

C. Handle products and materials carefully to prevent internal damage, breakage, denting, and scoring enclosure finish. Do not install damaged products or materials. Replace and return damaged products or materials to manufacturer.

1.6 SPARE PARTS

A. Not Applicable

PART 2 - PRODUCTS

2.1 QUALITY

A. Electrical equipment, devices and associated materials used on this project shall be UL listed and/or labeled.

B. Equipment and devices installed under this division and not constructed with enclosure suited for mounting and protecting all live parts shall be installed in approved metal cabinets.

2.2 WIRE AND CABLE (600 V OR LESS)

A. Acceptable manufacturers

1. General Cable Corporation (BICC)
2. Southwire
3. Okonite
4. Rome

B. Wire and cable used in this installation shall be copper and shall have 600 V insulation unless otherwise noted.

C. The wires used in this installation shall be run in conduits or approved raceways, unless specifically indicated otherwise.

D. Conductors shall conform to the latest requirements of the Code and meet ICEA Specifications. Submit the name of manufacturer for the Engineer/Architect and Owner's approval, before work is started.

E. Wire and cable shall be delivered to the project in complete coils with the manufacturer's name and approval tag attached thereto, indicating wire size and type of insulation, and be labeled and listed.

F. Unless otherwise noted, conductors for lighting and power circuits shall be #12 AWG minimum size.

G. Wire for control circuits may be #14 AWG.

H. Wire of #8 AWG size and larger shall be stranded. Wire of #10 and smaller shall be solid.

I. All conductors shall be rated 90°C for dry/wet locations.

J. AC branch circuit wiring shall be installed with color coded conductors throughout the installation as specified in the identification sections of this specification.

2.3 WIRE CONNECTIONS

A. Acceptable manufacturers

1. Thomas and Betts
2. Hy-Press Corporation
3. FCI Burndy Products

B. All wire connections shall be made by means of solderless connectors.

C. Clean conductor surfaces before installing lugs and connectors. Apply "no-ox" compound.

D. Branch circuit joints or splices for wires #10 and smaller shall be made with 3M brand Scotchlok electrical spring connectors. No splices shall be made in a conductor except at outlet boxes, junction boxes, or in splice boxes.

E. Control wires shall be made by 3M Scotchlok crimp connectors.

F. Use high press long barrel, cast copper, compression connectors for splices and joints for wires #8 and higher.

G. Wires and cables that terminate onto a bus bar shall be made by cast copper, two hole, long barrel lug, two crimps of fifteen ton compression, hex lugs. Lug bolts shall have lock washers.

H. The phases of all feeders shall be marked at all taps, joints, splices, and near the lugs at each end with permanently colored tapes. Tapes shall be Minnesota Mining #35 vinyl tape or as approved. Tape un-insulated conductors to 150% of insulation rating of conductor.

2.4 FISH WIRE

A. Conduits which are left empty shall contain fish wire of such a gauge required to pull in wire or cable to fill the conduit as determined by Code.

B. Each length of conduit which is to be used for the telephone system shall contain a #l4 gauge nylon fish wire.

C. Terminations of empty conduits shall be properly tagged.

PART 3 - EXECUTION

3.1 CONDUCTOR AND INSULATION APPLICATIONS

A. Exposed branch circuits, including in crawlspaces: Type THHN-THWN, single conductors in raceway.

B. Fire alarm circuits: Type THHN-THWN, in raceway or power-limited, fire-protective, signaling circuit cable per manufacturer's direction.

C. Class 1 control circuits: Type THHN, in raceway.

D. Class 2 control circuits: Type THHN, in raceway.

3.2 INSTALLATION

A. All wires and cables shall be installed in conduits unless noted otherwise.

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Identify and color-code conductors and cables according to Division 26 Section 26 0553, "Identification for Electrical Systems".

3.3 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.4 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified testing agency to perform the following field quality-control testing.

1. After installing conductors and cables and before electrical circuitry has been energized, test for proper installation and polarization.

2. Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.3.1. Certify compliance with test parameters.

END OF SECTION

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SECTION 26 0533
RACEWAYS AND BOXES

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This Section includes raceways, fittings, pull boxes, outlet boxes, floor fittings, surface and tele/power pole raceways, enclosures, and cabinets for electrical wiring.

1.2 DEFINITIONS

A. EMT: Electrical metallic tubing

B. RMC: Rigid metal conduit (heavy wall steel)

C. FMC: Flexible metal conduit

D. IMC: Intermediate metal conduit

E. LFMC: Liquidtight flexible metal conduit

F. RNC-40: Rigid non-metallic conduit, schedule 40 PVC

G. RNC-80: Rigid non-metallic conduit schedule 80 PVC

H. Fittings: Conduit connection or coupling

I. Body: Enlarged fittings with opening allowing access to the conductors for pulling purposes only

J. Mechanical spaces: Enclosed areas, usually kept separated from the general public, where the primary use is to house service equipment and to route services. These spaces generally have exposed structures, bare concrete and non-architecturally emphasized finishes.

K. Finished spaces: Enclosed areas where the primary use is to house personnel and the general public. These spaces generally have architecturally emphasized finishes, ceilings and floors.

L. Concealed: Not visible by the general public. Often indicates a location either above the ceiling, in the walls, in or beneath the floor slab, in column coverings, or in the ceiling construction.

M. Above grade: Not directly in contact with the earth. For example, an **interior** wall located at an elevation below the finished grade shall be considered above grade but a wall retaining earth shall be considered below grade.

N. Slab: Horizontal pour of concrete used for the purposes of a floor or sub-floor

1.3 CODES AND STANDARDS

A. American National Standards Institute (ANSI)

1. ANSI C80.1: Rigid Steel Conduit, Zinc-Coated
2. ANSI C80.3: Electrical Metallic Tubing, Zinc-Coated and Fittings
3. ANSI C80.4: Fittings for Rigid Metal Conduit
4. ANSI C80.6: Intermediate Metal Conduit, Zinc-Coated
5. ANSI/NEMA OS-1: Sheet Steel Outlet Boxes, Device Box Covers and Bottom Supports
6. ANSI/NEMA OS-2: Non-Metallic Outlet Boxes, Device Boxes, and Box Support

B. Federal Specifications (FS)

1. WC-586: Conduit Outlet Boxes, Bodies, and Entrance Caps, Electrical Cast Metal
2. WC-408: Fittings for Conduit, Metal, Rigid, (Thick-Wall and Thin-Wall EMT Type)
3. WC-1904A: PVC Rigid Non-Metallic Conduit
4. WC-563A: Electrical Metallic Tubing
5. WC-566: Specification for Flexible Metal Conduit
6. WC-581E: Specification for Galvanized Rigid Conduit

C. NECA "Standard of Installation"

D. National Electrical Manufacturers Association (NEMA)

1. ANSI/NEMA FB 1: Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies
2. RN 2: Packaging of master bundles for Steel Rigid Conduit, Intermediate Metal Conduit, and Electrical Metallic Tubing
3. TC 2: Rigid Non-Metallic Conduit, PVC Schedule 40 (EPC-40) and Schedule 80 (EPC-80) PVC
4. TC 3: Rigid Non Metallic Conduit and electrical Non-Metallic Tubing Fittings
5. TC 6: PVC and ABS Plastics Utilities Duct for Underground Installation
6. TC-8: Extra-Strength PVC Plastic Utilities Duct for Underground Installation
7. TC-9: PVC and ABS Plastic Utilities Duct and Fittings for Underground Installation
8. TC 10: PVC and ABS Plastic Communications Duct and Fittings for Underground Installation
9. TC 13: Electrical Non-Metallic Tubing
10. TC 14: Filament-Wound Reinforced Thermosetting Resin Conduit and Fittings
11. TC 18: Packaging of Master Bundles for EPC 40 (Polyvinyl Chloride) Conduit
12. NEMA 250: Enclosures for Electrical Equipment (1,000 volts maximum)

E. National Fire Protection Association (NFPA)

1. ANSI/NFPA 70: National Electrical Code

F. Underwriters Laboratories (UL®): Applicable Listings

1. UL 1: Flexible Metal Conduit
2. UL 6: Rigid Metal Conduit
3. UL 360: Liquid Tight Flexible Steel Conduit
4. UL 514-B: Fittings for Conduit and Outlet Boxes
5. UL 651-A: Type EB and a PVC Conduit and HDPE Conduit
6. UL 797: Electrical Metal Tubing
7. UL 1242: Intermediate Metal Conduit

1.4 QUALITY ASSURANCE

A. 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.

B. Comply with NFPA 70.

C. Regulatory requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and Municipal authorities having jurisdiction. Obtain approvals from such authorities.

D. Installation: Comply with NECA National Electrical Installation standards for electrical construction methods.

1.5 SUBMITTALS

A. Product data: For surface raceways, wireways and fittings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products and materials properly packaged in factory fabricated containers and mounted on shipping skids.

B. Store products and materials in clean, dry, heated space. Protect from dirt, fumes, water, construction debris, and traffic. Where necessary to store outdoors, store above grade and enclose with watertight wrapping.

C. Handle products and materials carefully to prevent internal damage, breakage, denting, and scoring enclosure finish. Do not install damaged products or materials. Replace and return damaged products or materials to manufacturer.

1.7 PROJECT CONDITIONS

A. Field measurements: Verify that field measurements are as indicated on the shop drawings and as shown on the drawings.

B. Project location environment: Furnish and install materials suitable for the altitude, weather, and seismic requirements of the project location.

1.8 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in building structure during progress of construction to facilitate the electrical installations that follow.

1. Set inserts and sleeves in poured-in-place concrete, masonry work, and other structural components as they are constructed.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment requiring positioning before closing in the building.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Rigid Steel Conduit: (Heavy Wall), hot-dipped galvanized with threaded fittings

B. IMC: zinc-coated steel, with threaded fittings

C. Plastic-Coated Steel Conduit: NEMA RN 1, with threaded fittings

D. Plastic-Coated IMC: NEMA RN 1, with threaded fittings

E. EMT: zinc-coated steel, with insulated throat compression fittings (no set screw)

F. FMC: Zinc-coated steel, with insulated throat squeeze-type connectors

G. LFMC: Zinc-coated steel with sunlight-resistant and mineral oil-resistant PVC jacket

H. Fittings: compatible with conduit and tubing materials

2.2 NONMETALLIC CONDUIT AND TUBING

A. RNC: Schedule 40 and Schedule 80 PVC

B. RNC Fittings: match to conduit or tubing type and material

2.3 METAL WIREWAYS

A. Manufacturers:

1. Hoffman
2. Square D
3. Approved Equal

B. Material and construction: Sheet metal sized and shaped as indicated, NEMA rating as indicated on the electrical drawings

C. Fittings and accessories: Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

D. Select features, unless otherwise indicated, as required to complete wiring system and to comply with NFPA 70

E. Wireway covers: Hinged type, screw-cover type, or flanged-and-gasketed type as indicated on the electrical drawings

F. Finish: Manufacturer’s standard enamel finish

2.4 BOXES, ENCLOSURES, AND CABINETS

A. Available manufacturers:

1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
2. Appleton Electric Company
3. Erickson Electrical Equipment Co.
4. Hoffman
5. Hubbell, Inc.; Killark Electric Manufacturing Co.
6. O-Z/Gedney; Unit of General Signal
7. RACO; Division of Hubbell, Inc.
8. Spring City Electrical Manufacturing Co.
9. Thomas & Betts Corporation

10. Walker Systems, Inc.; Wiremold Company (The)
11. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary

B. Construction:

1. Sheet Metal Outlet and Device Boxes: Galvanized Steel
2. Cast-Metal Outlet and Device Boxes: Type FD, with gasketed cover
3. Floor Boxes: Cast metal, fully adjustable, rectangular
4. Small Sheet Metal Pull and Junction Boxes: Screwcover or hinged as shown on the electrical drawing
5. Cast-Metal Pull and Junction Boxes: Cast aluminum with gasketed cover
6. Cabinets: Galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage and include accessory feet where required for freestanding equipment.

2.5 PULL BOXES

A. Provide pull boxes as shown on the plans and where necessary to meet code and specification requirements for proper installation of associated wiring systems.

B. Pull boxes shall be sized in accordance with the National Electric Code, NFPA 70.

C. Boxes indicated on the plans are not intended to be drawn to scale.

D. Conduit runs of more than 100 feet or with more than the equivalent of three 90° bends shall have suitable pull boxes installed in convenient intermediate locations. Such pull boxes shall be shown on the shop drawings and construction record drawings.

E. Pull boxes over 100 cubic inches shall be supported independently of the conduits.

F. Pull boxes shall be accessible after completion of installation.

2.6 OUTLET BOXES

A. Boxes for suspended or bracket mounted lighting fixtures: Ceiling outlets and bracket outlets which are to support lighting fixtures shall be equipped with a ⅜" malleable iron fixture stud securely fastened into the outlet box.

B. Surface mounted outlet boxes: Where outlet boxes are to be installed exposed on ceiling or wall surfaces, the boxes shall be specifically designed for such a type of installation and shall be square or rectangular as required. Device plates shall match the contour of the boxes and shall be of the type manufactured for these particular type boxes. In finished areas, all boxes shall be flush mounted unless specifically noted otherwise.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Outdoors:

1. Exposed: Rigid steel or IMC

2. Boxes and enclosures: NEMA 250, Type 3R or Type 4

B. Indoors:

1. Exposed dry locations: EMT

2. Connection to vibrating equipment (including transformers and hydraulic, pneumatic, electric solenoid, or motor-driven equipment): FMC; except use LFMC in damp or wet locations

3. Boxes and enclosures: NEMA 250, Type 1, except as follows:

a. Damp or wet locations: NEMA 250, Type 4, stainless steel

C. Minimum raceway size: ¾" trade size (DN 21).

D. Raceway fittings: Compatible with raceways and suitable for use and location.

1. Rigid steel and intermediate steel conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

2. PVC externally coated, rigid steel conduits: Use only fittings approved for use with that material. Patch all nicks and scrapes in PVC coating after installing conduits.

3.2 INSTALLATION

A. Keep raceways at least 6" (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

B. Complete raceway installation before starting conductor installation.

C. Support raceways as specified in Division 26 Section 26 0505, "Basic Electrical Materials and Methods."

D. Identify and color-code raceways and boxes according to Division 26 Section 26 0553, "Identification for Electrical Systems".

E. Install temporary caps to prevent foreign matter from entering raceways.

F. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portions of bends are not visible above the finished slab.

G. Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and keep straight legs of offsets parallel, unless otherwise indicated.

H. Conceal conduit and EMT within finished walls, ceilings, and floors, unless otherwise indicated.

1. Install concealed raceways with a minimum of bends in the shortest practical distance, considering type of building construction and obstructions, unless otherwise indicated.

I. Raceways embedded in slabs: Install in middle third of slab thickness where practical and leave at least 2" (50 mm) of concrete cover.

1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.

2. Space raceways laterally to prevent voids in concrete.

3. Run conduit larger than 1" trade size (DN 27) parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support.

4. Change from nonmetallic tubing to Schedule 80 nonmetallic conduit, rigid steel conduit, or IMC before rising above the floor.

J. Install exposed raceways parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.

   1. Run parallel or banked raceways together on common supports.

   2. Make parallel bends in parallel or banked runs. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.

K. Join raceways with fittings designed and approved for that purpose and make joints tight.

L. Terminations:

   1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.

   2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

M. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength.

N. Telephone and Signal System Raceways, 2" Trade Size (DN 53) and Smaller: In addition to above requirements, install raceways in maximum lengths of 150 feet (45 m) and with a maximum of two 90° bends or equivalent. Separate lengths with pull or junction boxes where necessary to comply with these requirements.

O. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points:

   1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces

   2. Where otherwise required by NFPA 70

P. Stub-up connections: Extend conduits through concrete floor for connection to freestanding equipment. Install with an adjustable top or coupling threaded inside for plugs set flush with finished floor. Extend conductors to equipment with rigid steel conduit; FMC may be used 6" (150 mm) above the floor. Install screwdriver-operated, threaded plugs flush with floor for future equipment connections.

Q. Flexible connections: Use maximum of 72" (1830 mm) of flexible conduit for recessed and semi-recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use LFMC in damp or wet locations. Install separate ground conductor across flexible connections.

R. Install hinged-cover enclosures and cabinets plumb. Support at each corner.

S. Bushings

   1. Provide bushings wherever IMC, RMC, or EMT conduit is terminated, including stub-outs, and locations not provided with connection fittings or boxes.

   2. Insulated bushings

      a. Provide insulated bushings or connections for IMC, RMC, or EMT conduit terminations.

b. Insulated bushings shall be OZ/Gedney Co., Type PBP for rigid conduit or Type “SBT” for EMT, or approved equal.

3. Grounded type insulated bushings
   a. Provide grounded type insulated bushings for all electric service and distribution feeder conduits, including stub-outs.
   b. Bushings shall be properly grounded and/or bonded.
   c. Ground type insulated bushings shall be OZ/Gedney Co. Type “BLG” or approved equal.
4. Insulating bushings
   a. Provide insulating bushings where cables pass through walls of metal enclosures. Bushings shall be OZ/Gedney Co. Type “BBL” or “ABB” or approved equal.
   b. Insulated bushings shall be used at ends of threaded rigid conduits and threaded fittings. Provide double locknuts when terminated in enclosure.
   c. Bushings shall be OZ/Gedney Co. Type “A” or approved equal.

T. Rigid conduit fittings and couplings
1. Running threads shall not be used on conduit for connection at couplings.
2. IMC and RMC conduits shall be joined by approved threaded couplings.
   a. Threadless couplings and connectors are not acceptable.
   b. Set screw couplings are not acceptable.
   c. Split couplings are not acceptable.
3. Joints in conduit which are installed under or in the floor slab, or in exterior walls shall be made watertight by using T&B Kopr-shield thread compound on each joint.

U. Electric metallic tubing (EMT) conduit fittings and couplings
1. Only insulated throat type compression fittings shall be used.
2. Only compression-type fittings shall be used, set screw fittings and couplings are not acceptable.

V. Couplings and unions shall be mechanically strong and shall be so installed to make a continuous bond between the conduits connected.

3.3 PULLING COMPOUND

A. If it is desired to use a pulling compound on wire and cable, first obtain the approval of the Engineer/Architect before employing such compounds. Compound shall be UL listed and compatible with conductor insulation covering.

B. Conduits shall be swabbed until moisture and dirt are removed and before wires are pulled or cables are installed.

3.4 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.
1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC or paint finishes with matching touchup coating recommended by manufacturer.

3.5 CLEANING

A. After completing installation of exposed, factory-finished raceways and boxes, inspect exposed finishes and repair damaged finishes.

END OF SECTION

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SECTION 26 2726
WIRING DEVICES

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Scope: The work specified in this section includes, but shall not be limited to, providing labor, materials, equipment, and services necessary for the electrical work shown on the drawings and as herein specified.

B. Section includes: Receptacles.

1.2 DEFINITIONS

A. GFI: Ground-fault circuit interrupter.

1.3 CODES AND STANDARDS

A. FS W-C-596: Electrical Power Connector, Plug, Receptacle, and Cable Outlet

B. FS W-S-896: Switch, Toggle

C. NEMA WD 1: General Color Requirements for Wiring Devices

D. NEMA WD 6: Wiring Devices – Dimensional Requirements

E. UL 1472: Solid State Dimming Controls

F. UL 943: Standard for Ground Fault Circuit Interrupters

G. UL 498: Standard for Attachment Plugs and Receptacles

H. UL 20: Standard for General Use Snap Switches

I. DSCC W-C-896F: General Specification for Electrical Power Connector

1.4 QUALITY ASSURANCE

A. Electrical components, devices, and accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

B. Comply with NFPA 70.

1.5 SUBMITTALS

A. Product data: For each product specified

PART 2 - PRODUCTS

2.1 SWITCHES AND RECEPTACLES

A. Provide the various switches and receptacles shown on the plans.

B. In general, the color of all devices shall be brown or ivory. UPS protected receptacles shall have an orange nylon face, emergency system receptacles shall have a red nylon face, and surge suppression shall have a blue nylon face.

C. All devices shall be Underwriters' Laboratories listed, Federal specification listed, heavy duty type. Receptacles shall be grounding type.

D. Devices shall be manufactured by the following:
    a. Ground fault circuit interrupter (GFI)
        (1) P&S/Legrand #1591
        (2) Hubbell #GF5362
        (3) Leviton #6899-HG
        (4) Cooper #GF20

2.2 POWER OUTLETS

A. Power outlets for equipment requiring outlets other than standard duplex receptacle configurations shall match the "NEMA" rating of the equipment to be served or as specified on the electrical drawings.

B. Manufacturers of power outlets shall match those specified under duplex receptacles.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install devices and assemblies plumb and secure.

B. Install wall plates when painting is complete.

C. Install wall dimmers to achieve indicated rating after derating for ganging as instructed by manufacturer.

D. Do not share neutral conductor on load side of dimmers.

E. Arrangement of devices: Unless otherwise indicated, mount flush, with long dimension vertical, and grounding terminal of receptacles on top. Group adjacent switches under single, multi-gang wall plates.

F. Protect devices and assemblies during painting.

G. Adjust locations at which floor service outlets and telephone/power service poles are installed to suit arrangement of partitions and furnishings.

3.2 IDENTIFICATION

A. Comply with Division 26 Section 26 0553, "Identification for Electrical Systems."

1. Switches: Where three or more switches are ganged, and elsewhere as indicated, identify each switch with approved legend engraved on wall plate.

2. Receptacles: Identify panelboard and circuit number from which served. Use machine-printed, pressure-sensitive, abrasion-resistant label tape on face of plate and durable wire markers or tags within outlet boxes.

3.3 CONNECTIONS

A. Connect wiring device grounding terminal to outlet box with bonding jumper.

B. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor.

C. Isolated-ground receptacles: Connect to isolated-ground conductor routed to designated isolated equipment ground terminal of electrical system.

D. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

A. Test wiring devices for proper polarity and ground continuity. Operate each device at least six times.

B. Check TVSS receptacle indicating lights for normal indication.

C. Test GFCI operation with both local and remote fault simulations according to manufacturer's written instructions.

D. Replace damaged or defective components.

3.5 CLEANING

A. Internally clean devices, device outlet boxes, and enclosures. Replace stained or improperly painted wall plates or devices.

END OF SECTION

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SECTION 26 2816
SAFETY AND DISCONNECT SWITCHES/ENCLOSED CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This Section includes the following:

1. Equipment disconnects
2. Molded case circuit breaker in an individual enclosure

1.2 DEFINITIONS

Not Applicable

1.3 CODES AND STANDARDS

A. NEMA KS-1: Enclosed Switches

B. NFPA 70: National Electrical Code

1.4 QUALITY ASSURANCE

A. Comply with codes for components and installation.

B. Listing and labeling: Provide products specified in this Section that are listed and labeled.

1. The terms “Listed” and “Labeled”: As defined in the National Electrical Code, Article 100.
2. Listing and labeling agency qualifications: A Nationally Recognized Testing Laboratory (NRTL) as defined in OSHA Regulation 1910.7.

C. Single-source responsibility: All enclosed switches and circuit breakers shall be the product of a single manufacturer.

1.5 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 01 Specification Sections.

B. Product data for switches and accessories specified in this Section.

C. Descriptive data and time-current curves for protective devices and let-through current curves for those devices with current-limiting characteristics. Include coordination charts and tables, and related data.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Where recommended by the equipment supplier, deliver equipment in fully enclosed vans after specified environmental conditions have been permanently established in spaces where equipment is to be placed. The products accepted on the site shall be wrapped in factory packing and shall be inspected for damage prior to acceptance.

C. Store equipment in clean, dry environments that are controlled within manufacturer's ambient tolerances for non-operating equipment. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

D. Handle equipment carefully to prevent damage, breaking, and scoring. The contractor shall not install damaged units or components; replace with new.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide enclosed switches and circuit breakers by one of the following:

1. Safety switches
    a. General Electric
    b. Square D
    c. Cutler-Hammer
2. Circuit breakers
    a. General Electric
    b. Square D
    c. Cutler-Hammer

2.2 GENERAL

A. Disconnect and safety disconnect switches:

1. General: Provide heavy duty surface-mounted safety switches for motors and equipment unless otherwise indicated, of types, sizes, and electrical characteristics as indicated on the electrical drawings and equipment schedules.
2. Switch interiors: Switches shall have switch blades which shall be fully visible in the off position when the enclosure door is open. Current carrying parts shall be plated copper and switch contacts shall be silver-tungsten. Lugs shall be removable and shall be UL-listed for 75°C, copper wire.
3. Switch operator: Switches shall be quick-made, quick-break type. The operating handle shall be an integral part of the enclosure base and shall be padlockable in the off position. The handle position shall indicate whether the switch is in the on or off position.
4. Interlock contacts: Provide two Form C auxiliary, 10 ampere, 300V rated contacts. The contacts shall provide for two normally open and two normally closed contacts for switch open or closed position.

B. Circuit breakers:

1. All circuit breakers shall comply with NEMA ABI and FSW-C-375.
2. Circuit breakers shall be securely bolted to the enclosure and be flush with the box assembly.
3. Circuit breakers shall have over center toggle mechanism with quick-make, quick break action, common trip for all pole positions, and a handle position indicator with breaker rating imprinted in a location easily verified without removing the box cover.

4. Circuit breakers for heating, air conditioning, refrigeration and all motor loads shall be HCAR rated.

5. Circuit breaker size(s) shall be listed on the electrical plan drawings or equipment schedule.

2.3 ENCLOSURES

A. NEMA 1: Provide NEMA 1 general purpose enclosures for indoor installation unless otherwise indicated on the drawings. Enclosure covers shall be attached with pin type hinges. Enclosures shall have a gray baked enamel finish, electrodeposited on clean, phosphatized steel.

B. NEMA 3R: Provide NEMA 3R general purpose enclosures for outdoor installation unless otherwise indicated on the drawings. Enclosure cover shall be attached with pin type hinges and shall be securable in the open position. NEMA 3R enclosures shall be manufactured from galvanized steel. Enclosures shall have a gray baked enamel finish, electrodeposited on cleaned, phosphatized steel. Provide rainproof bolt-on hubs.

2.4 RATINGS

A. General: Provide heavy duty safety switches and circuit breakers with ampere rating as shown on the drawings.

B. Horsepower-rated: Safety switches shall be horsepower-rated for 250, 480, and 600V, AC and DC, and shall be rated for the motor driven loads supplied by the switch.

C. Short circuit rating: Safety switches with Class RK1 or Class L fuses shall have a UL short circuit rating of 100,000 amperes RMS symmetrical minimum.

D. Circuit breakers shall have a UL short circuit rating of 65,000 amperes RMS symmetrical minimum.

2.5 IDENTIFICATION DEVICES

A. Each disconnect switch, circuit breaker, and shunt trip control panel shall have an engraved, laminated bakelite nameplate attached to the outside of the enclosure. The nameplate shall include the switch or breaker designation and the equipment it serves. Attach the nameplate by screws or rivets.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install enclosed switches, breakers, and control panels in locations as indicated, according to manufacturer's written instructions. Comply with all applicable requirements of electrical installations and for the seismic zone of this project.

B. Install enclosures level and plumb.

C. Install wiring between enclosed switches and control/indication devices as required.

D. Connect switches, breakers, panels, enclosures, and components to wiring system and to equipment ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torque requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

E. Mounting: Mount enclosures on building structures adjacent to equipment unless otherwise noted. Enclosures shall not be mounted on equipment served, unless it is a part of a preassembled control

panel. If building structure is not adjacent to the equipment, provide a separate unistrut rack with supports, clear of equipment, for mounting of switch and breaker enclosure. Conduits shall not be used for the support means.

F. Location:

1. Disconnects and breaker enclosures shall be readily accessible and shall not interfere with removal of equipment parts or with standard maintenance. Disconnects and breaker enclosures shall be installed with their top at 5½ feet above the floor unless otherwise noted on the drawings.

2. Elevator shunt trip control panel shall be mounted at the location(s) specified by the elevator manufacturer's requirements. If no requirements are available, mount panel as close as possible to the latch side of the door, inside the elevator machine room.

3.2 FIELD QUALITY CONTROL

A. Testing agency: Owner will employ and pay an independent testing agency to perform specified field quality-control testing.

3.3 CLEANING

A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, and abrasions.

3.4 FLASH PROTECTION WARNING SIGNS

A. The electrical contractor shall provide all flash protection warning signs as required by the NEC Article 110.16. Warning signs shall conform to the requirements of NFPA 70E.

1. All electrical equipment such as switchboards, panelboards, control panels, meter socket enclosures, and motor control centers, that are likely to require examination, adjustment, servicing, or maintenance while energized shall be field marked to warn qualified persons of potential electrical hazards. The marking shall be located so as to be clearly visible to qualified persons before examination, adjustment, servicing, or maintenance of the equipment.\

2. All warning signs MUST be installed before owner's personnel are trained on the use of the equipment.

3.5 DEMONSTRATION

A. Train Owner's maintenance personnel on procedures and schedules for start-up and shutdown, troubleshooting, servicing, and preventive maintenance.

END OF SECTION

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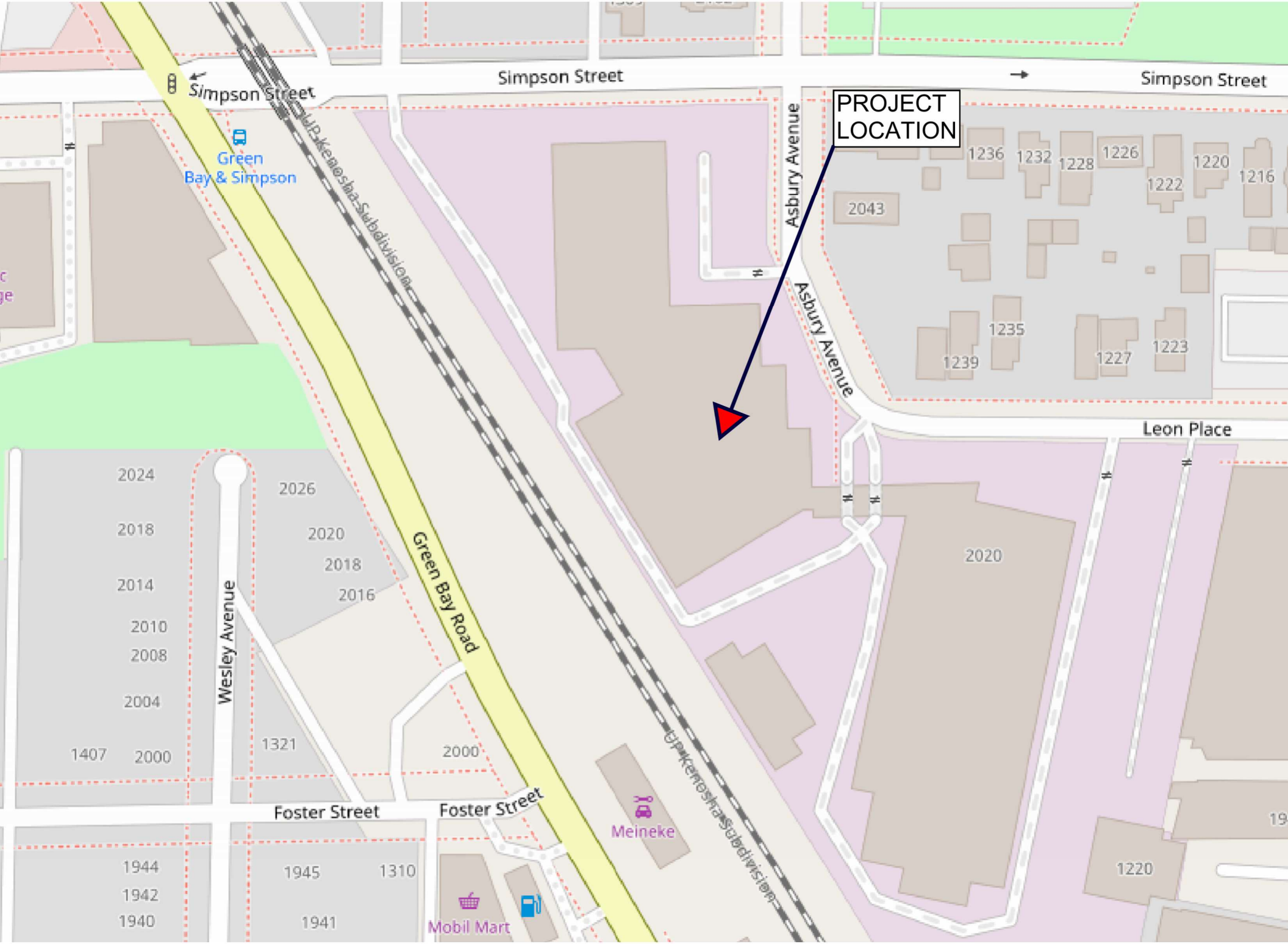
EXHIBIT A
PROJECT LOCATION


PROJECT LOCATION
Simpson Street
Simpson Street
Simpson Street
Green Bay & Simpson
Asbury Avenue
Asbury Avenue
Leon Place
Green Bay Road
Wesley Avenue
Foster Street
Foster Street
Meineke
Mobil Mart
1236
1232
1228
1226
1222
1220
1216
2043
1235
1239
1227
1223
2024
2026
2018
2020
2018
2014
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2010
2008
2004
1407
2000
1321
2000
2020
1944
1942
1940
1945
1941
1310
1220


EXISTING
CONDENSERS
ON ROOF

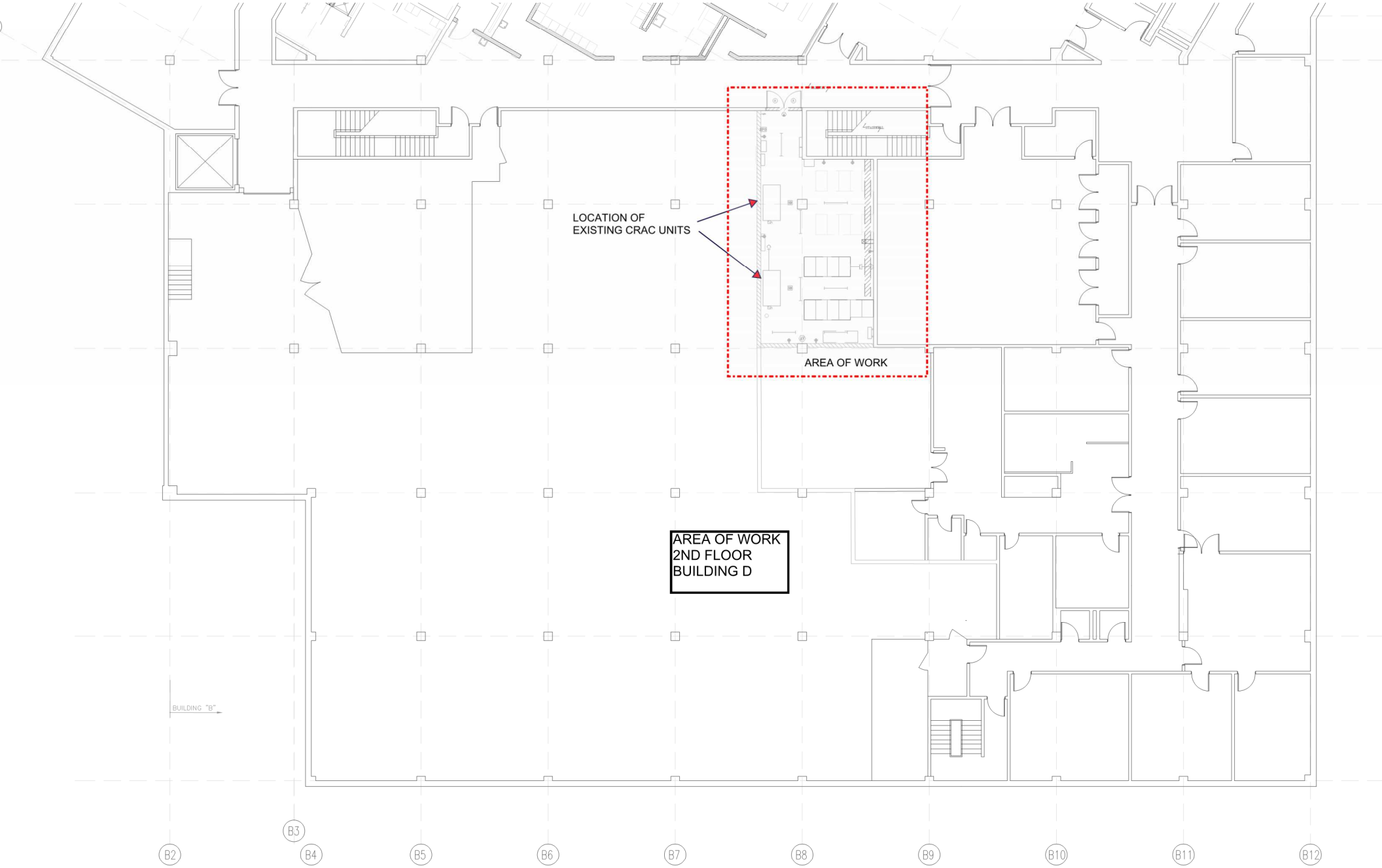

LOCATION OF
EXISTING CRAC UNITS
AREA OF WORK
AREA OF WORK
2ND FLOOR
BUILDING D
BUILDING "B"
B2
B3
B4
B5
B6
B7
B8
B9
B10
B11
B12

EXHIBIT B

BASIS OF DESIGN EQUIPMENT INFORMATION

GRUMMAN|BUTKUS
ENERGY EFFICIENCY CONSULTANTS
AND SUSTAINABLE DESIGN ENGINEERS

Project Name: City of Evanston
Customer Name: Grumman Butkus
Item Notes:
Issued by: Imani Patterson
Print Date: 2026 May 1st

Unit Information - Indoor			
Cooling Type	**DX Indoor**	Compressor 1 - Circuit 2	**Digital Scroll**
Configuration	**Air Cooled**	Valve Type	**Thermostatic Exp Valve**
Operation Mode	**DX Mode**	Fan Module	**Standard**
Refrigerating Circuits No	**2**	Fan Type	**Backward Curve Blower**
Refrigerant	**R454B**	Fan Quantity	**2**
Product Line	**CoolPhase Perimeter**	Filter Class	**Merv8**
Product Family	**DS**	Height	**76 in**
Unit Model	**DS053AZA*00**	Width	**96 in**
Power Supply	**460V/3ph/60Hz**	Depth	**35 in**
Airflow Configuration	**Downflow Front Discharge**	Weight	**2070 lb**
Compressor 1 - Circuit 1	**Digital Scroll**		

Options - Indoor			
External Air Filter	**Not selected**	Electric Reheat	**Not selected**
Humidifier	**Not selected**	Damper	**Not selected**

Unit Information - Outdoor			
Product Line	**Remote Condenser**	Fan Quantity / Ckt	**1**
Product Family	**MC**	Height	**82 in**
Unit Model	**1 x MCS056-Dual**	Width	**95 in**
Unit Power Supply	**460V/3ph/60Hz**	Depth	**42 in**
Fan Module	**Standard**	Weight	**288 lb**
Fan Type	**Axial**		

Design Conditions -Data Input-			
Calculation Mode	**Fan Modulation + Compressor Modulation**	Outdoor Fan Modulation C1	**100.0 %**
Indoor Return Air Temperature	**75.0 °F**	Subcooling C1	**10.0 R**
Indoor Return Air DP	**52 °F**	Outdoor ESP C1	**0.000 in-H2O**

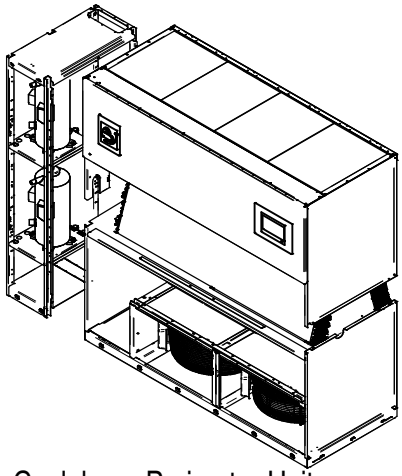
Project Name: City of Evanston
Customer Name: Grumman Butkus
Item Notes:
Issued by: Imani Patterson
Print Date: 2026 May 1st

Design Conditions -Data Input-			
Altitude Sea Level	**0.0 ft**	Fan Speed Control C1	**On**
Atmospheric Pressure	**14.696 psi**	Outdoor Air Temp C2	**95.0 °F**
Indoor ESP	**0.200 in-H2O**	Outdoor Fan Modulation C2	**100.0 %**
Indoor Fan Modulation	**80.0 %**	Subcooling C2	**10.0 R**
Compressor Modulation	**100.0 %**	Outdoor ESP C2	**0.000 in-H2O**
Outdoor Air Temp C1	**95.0 °F**	Fan Speed Control C2	**On**
General Performance at Design Conditions			
Gross Total Capacity	**57.1 kW**	Supply Air RH	**81.5 %**
Gross Sensible Capacity	**55.3 kW**	Supply Air DP	**51.5 °F**
nSHR	**0.97**	Return Airflow	**9193 cfm**
Net Total Capacity	**53.5 kW**	Indoor Fan Modulation	**80.0 %**
Net Sensible Capacity	**51.7 kW**	Unit Net Sens nSCOP	**2.38**
Compressor Modulation	**100.0 %**	System Net Sens nSCOP	**2.28**
System Power Input	**22.7 kW**	Total Outdoor Airflow	**11575 cfm**
Supply Air DB	**57.1 °F**	Outdoor Fan Modulation C1	**100.0 %**
Supply Air WB	**53.8 °F**	Outdoor Fan Modulation C2	**100.0 %**
Electrical Data			
Indoor Unit Power Supply	**460V/3ph/60Hz**	Outdoor Unit Power Supply	**460V/3ph/60Hz**
Indoor Operating Power	**21.7 kW**	Outdoor Operating Power	**1.0 kW**

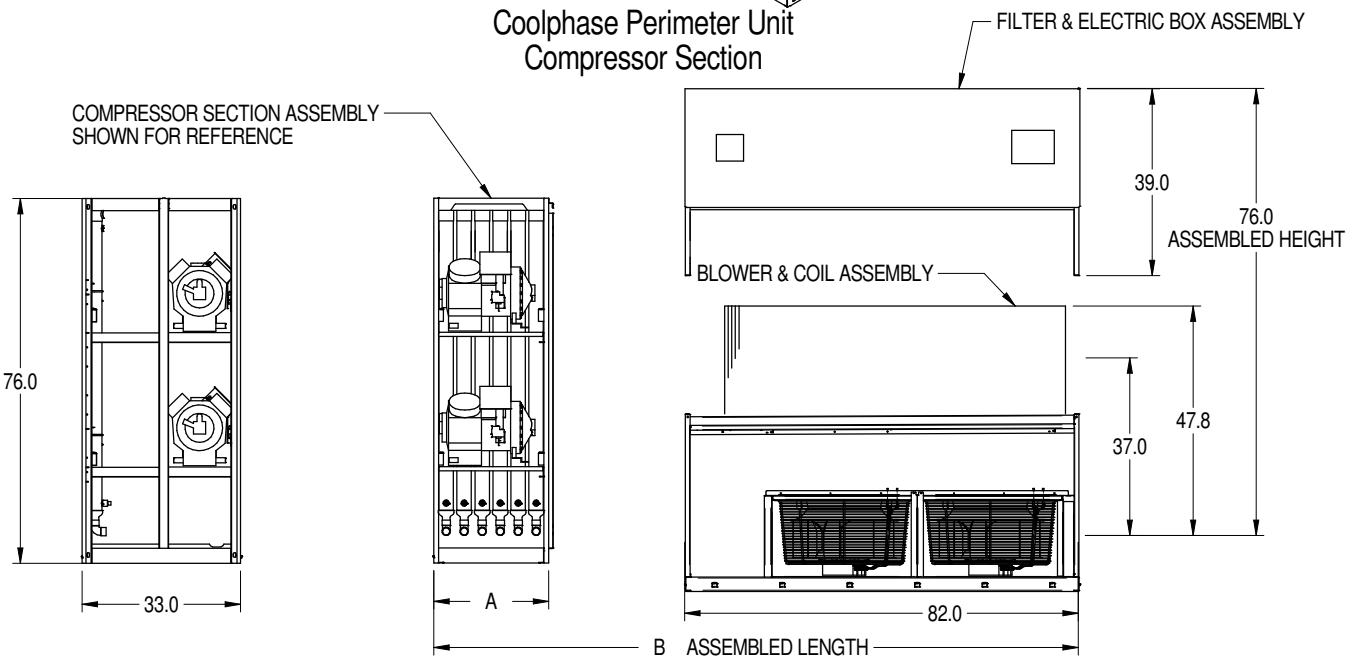
VERTIV.

COOLPHASE PERIMETER

DISASSEMBLY DIMENSIONAL DATA
DOWNFLOW DS053-DS077 (15-22 TONS) MODELS



Coolphase Perimeter Unit
Compressor Section



Model Number	Cooling Type	A in. (mm)	B in. (mm)
DS053-DS077	Air Cooled	15 (381)	97 (2464)
	Air Cooled w/ Dual Cool		
	Water/Glycol	26 (660)	108 (2743)
	GLYCOOL/Dual Cool		

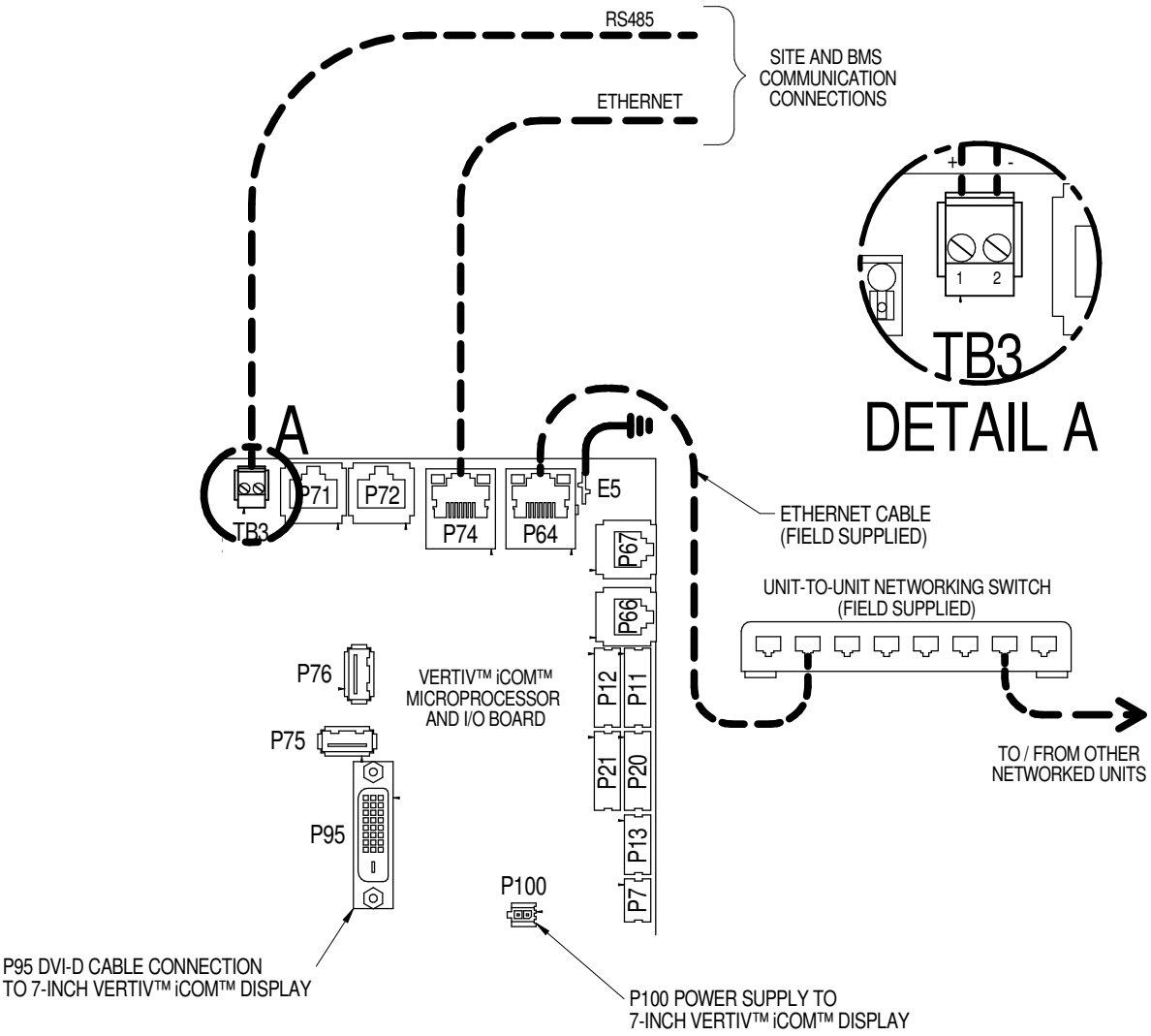
Notes:
1. Drawing Views are simplified with panels removed to show overall dimensions. See disassembly and handling instructions in installation manual.

Assembly	APPROXIMATE DRY WEIGHT lb (kg) (Includes Panels)			
	Air Cooled	A/C w/ Dual Cool	Water/Glycol	GLYCOOL/Dual Cool
Compressor Assembly	540 (246)	540 (246)	840 (382)	840 (382)
Filter & Electric Box Assembly	250 (114)	250 (114)	250 (114)	250 (114)
Blower & Coil Assembly	1230 (560)	1410 (641)	1230 (560)	1410 (641)

VERTIV.

iCOM™

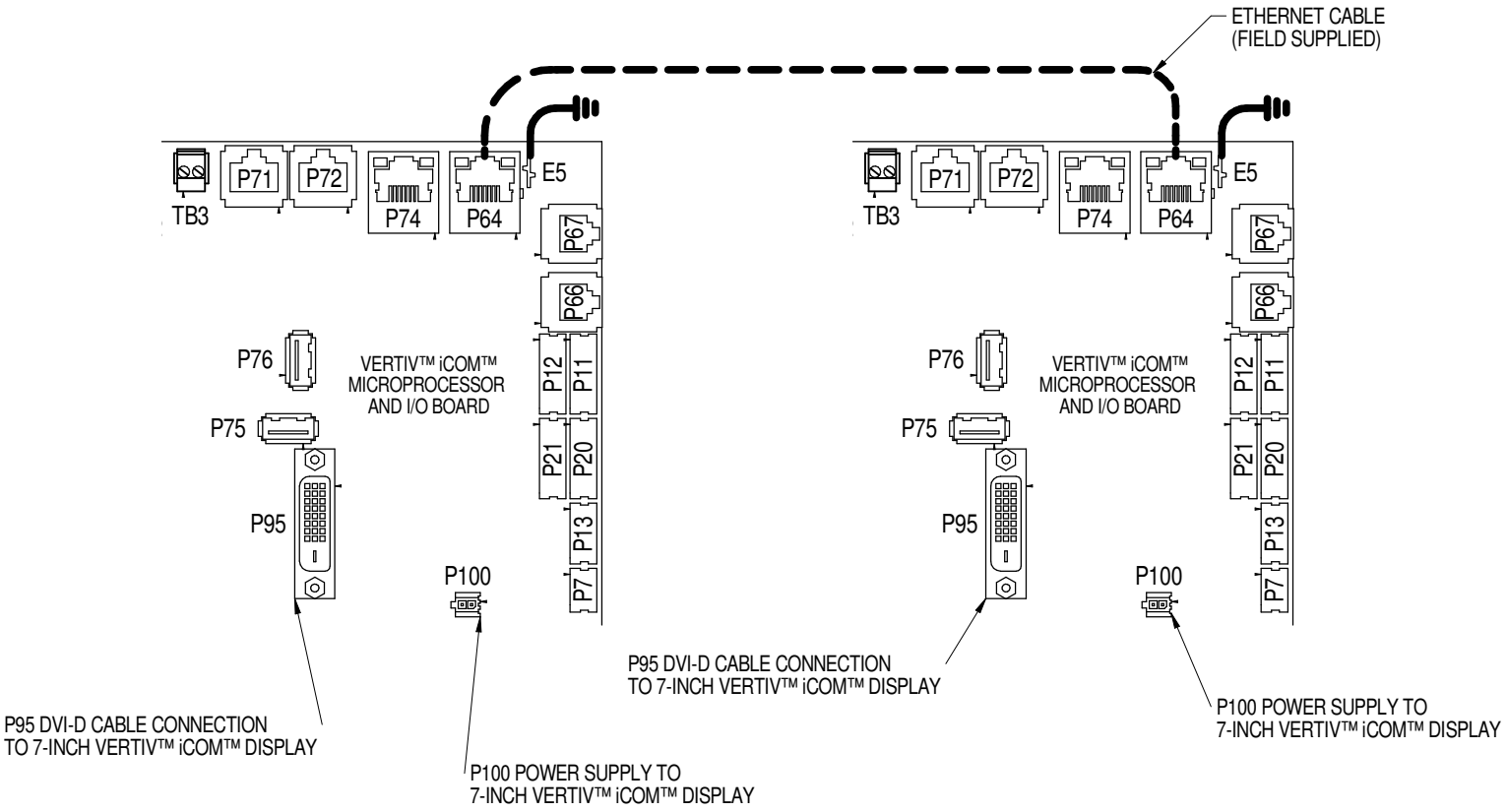
UNIT TO UNIT NETWORK CONNECTIONS
COOLPHASE PERIMETER UNITS



VERTIV.

iCOM™

UNIT TO UNIT NETWORK CONNECTIONS
COOLPHASE PERIMETER UNITS



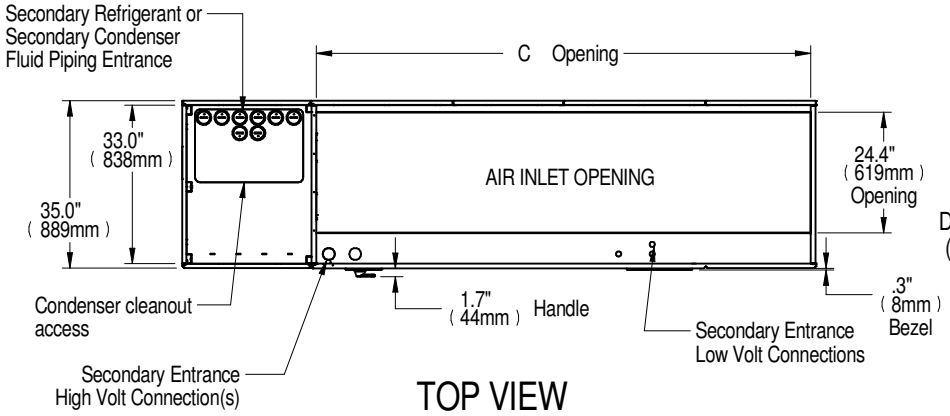
NOTE* For dual-unit network configurations only

VERTIV.

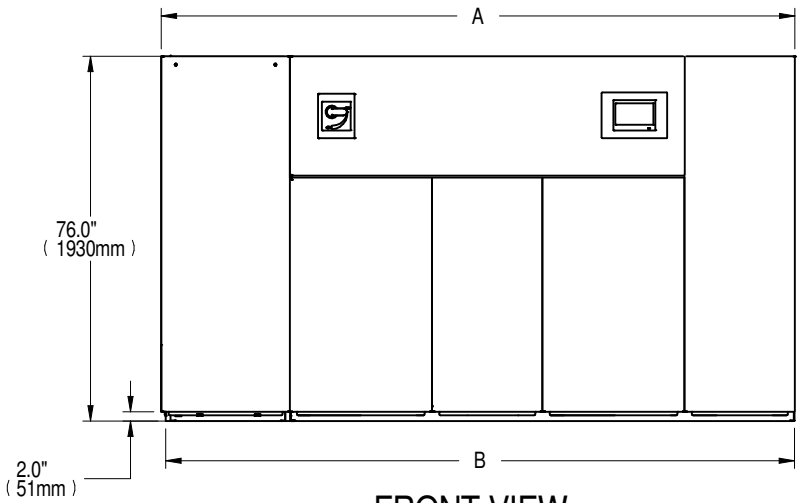
COOLPHASE PERIMETER

CABINET DIMENSIONAL DATA

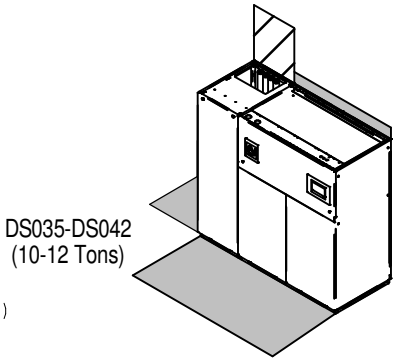
DOWNFLOW DS035-DS105 (10-30 TONS) MODELS

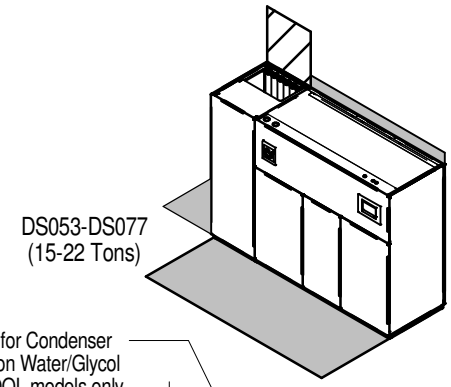


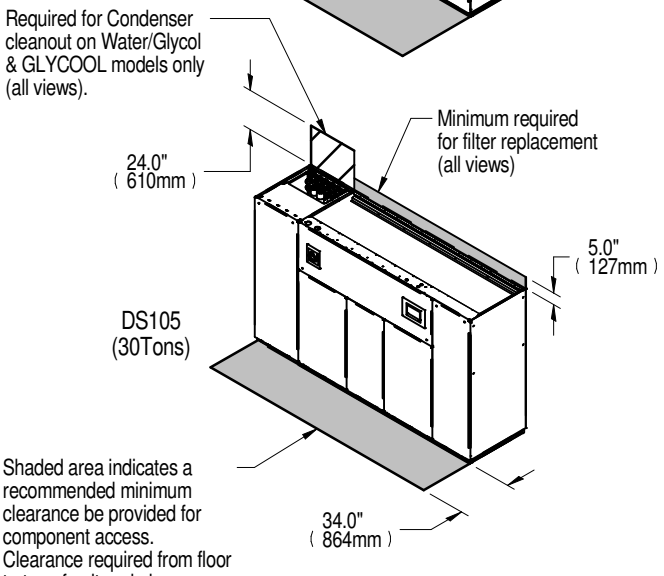
TOP VIEW



FRONT VIEW







Notes:
1. Filters are accessible through top of unit only.
2. Downflow electrical connections can be made from top or bottom of unit
3. All notes, references, and dimensions not in table are typical for all downflow models.

4. Unit power must be off when performing transformer and THD filter maintenance.

Model Number	Cooling Type	A in. (mm)	B in. (mm)	C in. (mm)
DS035 - DS042	Air Cooled & AirCooled w/ Dual Cool	73 (1854)	72 (1854)	56-7/8 (1445)
	Water/Glycol/GLYCOOL/Dual Cool	86 (2184)	85 (2184)	
DS053 - DS070	Air Cooled & AirCooled w/ Dual Cool	98 (2489)	97 (2489)	80 (2032)
	Water/Glycol/GLYCOOL/Dual Cool	109 (2769)	108 (2743)	
DS077	Air Cooled & AirCooled w/ Dual Cool	98 (2489)	97 (2489)	
	Water/Glycol/GLYCOOL/Dual Cool	109 (2769)	108 (2743)	
DS105	Air Cooled & AirCooled w/ Dual Cool	132 (3353)	131 (3327)	102-13/16 (2611)
	Water/Glycol/GLYCOOL/Dual Cool			

LIEBERT® iCOM™

PRODUCT INFORMATION
UNIT MOUNTED DISPLAY

The Liebert® iCOM™ display is a 7-inch capacitive, color-touchscreen display in an ergonomic, aesthetically pleasing housing. The display and housing will be viewable while the unit accent panels are open or closed. The display can be easily detached to view while the panel is open.

Menu Layout- The menus will be broken out into two main menu screens: User screen and Service screen. The User screen contains the menus to access parameters required for basic unit control and setup. The Service screen is designed for service personal and provides access to advanced control setup features and diagnostic information.

Password Protection- The display will contain two unique passwords to protect against unauthorized changes. An auto hide/show feature allows the user to see applicable information based on the login used. These four-digit passwords may be customized according to User preference.

Unit Backup and Restore- The user shall have the ability to create safety copies of important control parameters. The display has the ability for the user to automatically backup unit configuration settings to internal memory or USB storage drive. Configuration settings may be transferred to another unit for a more streamlined unit startup.

Parameter Search- The display has search fields for efficient navigation and parameter lookup.

Parameter Download- The Liebert® iCOM™ shall enable the user to download a report that lists parameter names, factory default settings, and the user programmed settings in .csv format for remote reference.

Parameter Directory- The Liebert® iCOM™ shall provide a directory that lists all parameters in the control. The list shall provide Line ID numbers, parameter labels, and current parameter values.

VERTIV.

LIEBERT® iCOM™

PRODUCT INFORMATION
UNIT MOUNTED DISPLAY

Context Sensitive Help- The display will have an onboard help database. The database will provide context sensitive help to assist with setup and navigation of the menus.

Display Setup- The user has the ability to configure the display information based on the specific user's preference. Language, units of measure, screen contrast, home screen layout, back light timer and the hide/show of certain readouts will be configurable through the display.

Additional Readouts- The display has the ability for the user to configure custom widgets on the main screen. Widget options will include items such as fan speed, call for cooling, call for free cooling, maintenance status, call for hot water reheat, call for electric reheat, call for dehumidification, call for humidification, airflow, static pressure, fluid flow rate and cooling capacity.

Status LEDs- The display will provide the user with the unit's operating status using an integrated LED. The LED will indicate if the unit has an active alarm; if the unit has an active alarm that has been acknowledged; or if the unit is on, off, or in a standby status.

Unit Alarms – All unit alarms are annunciated through both audio and visual cues, clearly displayed on the screen, automatically recorded in the event log, and communicated to monitoring plug connections.

Event Log – The display will automatically store the last 400 unit-only events (messages, warnings, and alarms).

Service Contact Information – The display has the ability to store the local service or sales contact information.

Upgradeable –Display and Control Board software upgrades are performed through a USB connection.

Unit-to-Unit (U2U) Communication – Communication via private Ethernet network allows for advanced control functionality (Teamwork modes, sharing sensor data, Standby Rotation, Lead-Lag, and Cascade operation).

Temperature Control- Precision temperature control is maintained while maximizing efficiency based on a user entered setpoint and tolerance.

Various Control Types- Proportional, PI (proportional-integral), or Intelligent control types can be selected for supply or return temperature. These control types have been developed to maximize component life and maintain precise environmental control.

Timers/Sleep Mode- The menus shall allow various customer settings for turning the unit On or Off.

Sensor Calibration- The menus shall allow unit sensors to be calibrated with external sensors.

Maintenance/Wellness Settings- The menus shall allow reporting of potential component problems before they occur.

VERTIV.

LIEBERT® iCOM™

PRODUCT INFORMATION
UNIT MOUNTED DISPLAY

Options Setup- The menus shall provide operation settings for the installed components.

Auto Restart- The unit will return to its previous operating status after loss of power. Units can be stagger started to minimize system current draw.

Auxiliary Boards- The menus shall allow setup of optional expansion boards.

Various Sensors: The menus shall allow setup and display of optional custom sensors. The control shall include four customer accessible analog inputs for field-supplied sensors. The analog inputs shall accept a 4 to 20mA signal. The user shall be able to change the input to 0 to 5VDC or 0 to 10VDC. The gains for each analog input shall be programmable from the front display. The analog inputs shall be able to be monitored from the front display.

Diagnostics/Service Mode- The Liebert® iCOM™ control shall be provided with self-diagnostics to aid in troubleshooting. The microcontroller board shall be diagnosed and reported as pass/not pass. Control inputs shall be indicated as On or Off at the front display. Control outputs shall be able to be turned On or Off from the front display without using jumpers or a service terminal. Each control output shall be indicated by an LED on a circuit board.

LIEBERT® LIQUI-TECT™ 410 POINT LEAK DETECTION SENSOR

Product Specification/Installation Guide

The Liebert® Liqui-Tect™ 410 (LT410) provides single-point detection of leaks. The point-detection sensor has two gold-plated sensing probes to prevent corrosion and to provide accurate readings. The LT410 constantly monitors for leaks, internal faults, and power failures and warns of any abnormal conditions. Mounting brackets allow for sensor height adjustment and leveling.

The LT410 is the ideal solution for sensing leaks under a raised computer floor or air conditioning drip pans. Two independent outputs provide added flexibility with the capacity to signal both a local alarm panel, Liebert cooling unit and a remote building management system or external equipment, such as motorized water shutoff valves.

LT410 APPLICATIONS

The LT410 is ideally suited for:

- Glycol and chilled water cooling,
- Humidification supply water piping,
- Condensate pumps and drains,
- Unit and ceiling auxillary drip pans,
- Overhead piping troughs.

LOCATIONS/PLACEMENT

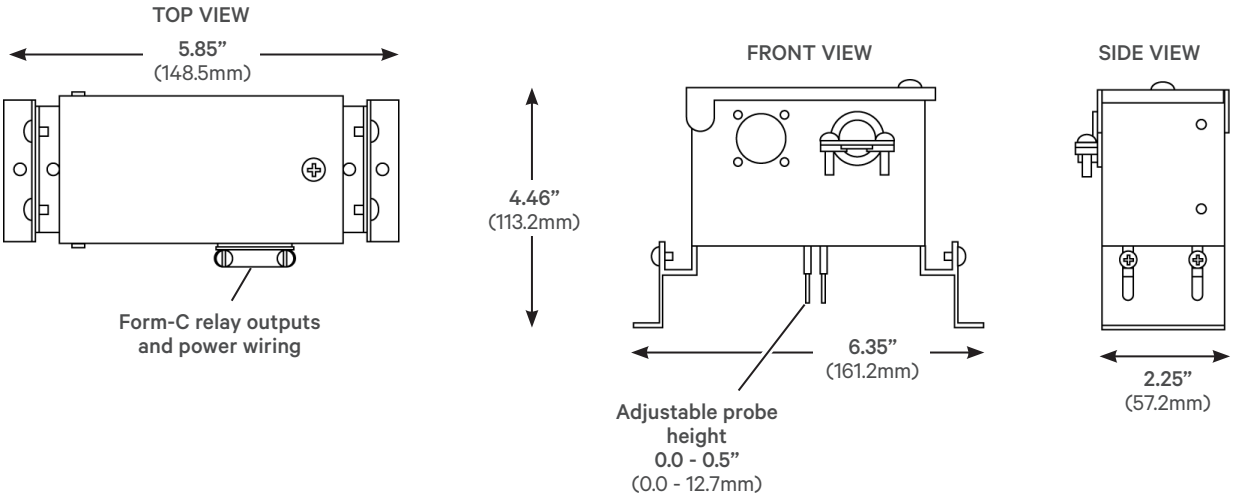
The LT410 is an excellent choice for:

- Large scale network control centers,
- Data centers,
- Server rooms and closets,
- Unattended, remote shelters,
- Mechanical equipment rooms,
- Sensitive areas with overhead piping,
- Industrial process control rooms.

COMPONENTS OF THE LIQUI-TECT™ 410 MODULE

The LT410 consists of a metal enclosure with a hinged top door that provides access to the internal wiring termination. It includes side access through a box connector for installation of the power and contact wiring. The mounting brackets attach to the enclosure with adjustable slots to allow custom setting of the height of the sensing probes.

DIMENSIONS - TOP, FRONT AND SIDE



SPECIFICATIONS

Power Requirements	24 VAC 100 mA, 50/60 Hz, 3 VA (max.)
Dimensions, W x D x H	6.35 in. x 2.25 in. x 4.46 in. (161.2 mm x 57.2 mm x 113.2 mm)
Weight (assembled)	2.0 lb. (0.9 kg)
Metal Enclosure	NEMA 1, IP 30

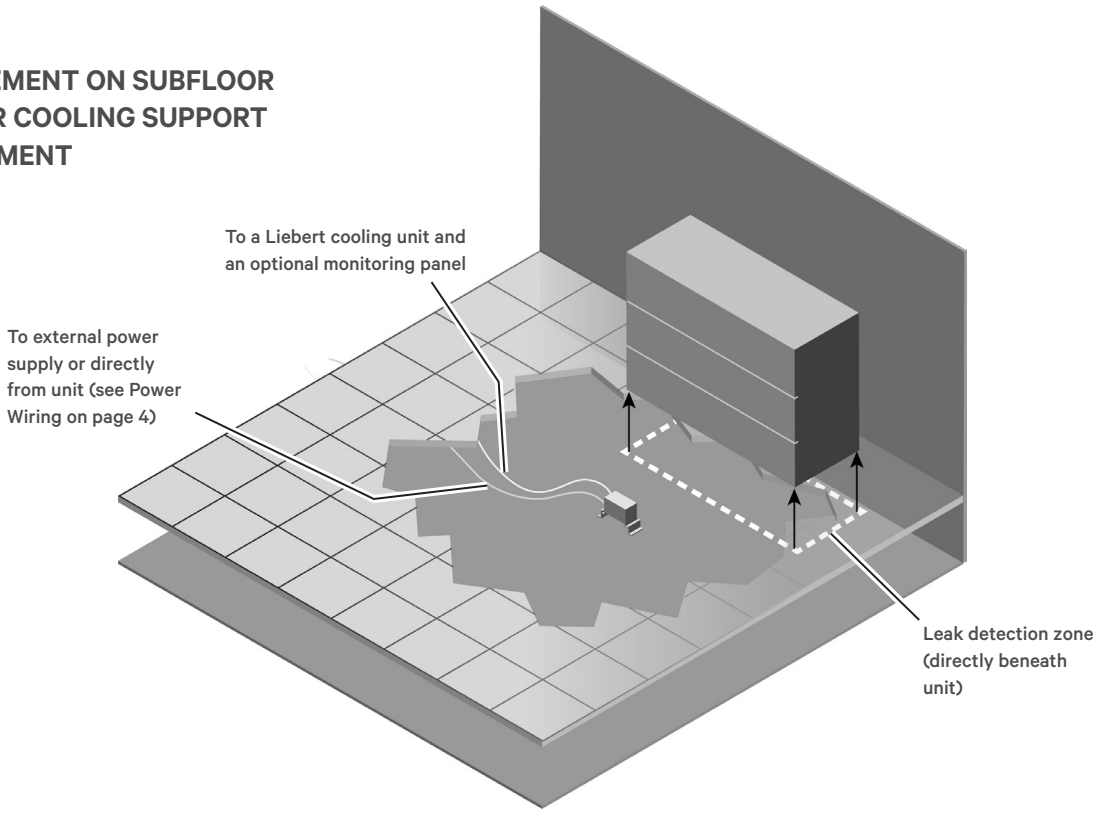
ENVIRONMENTAL CONDITIONS

Operating Temperature	50°F to 104°F (10°C to 40°C)
Operating Humidity	10% to 95% relative humidity (non-condensing)
Operating Altitude	0 to 10,000 ft. (0 to 3,048 m)
Output Relay Contact Rating	2 Form-C; 3 A rating at 24 VAC

AGENCY LISTINGS

UL	UL916
C-UL	C22.2, No. 205-M1983
CE	Yes
FCC Compliance	47 CFR, Part 15

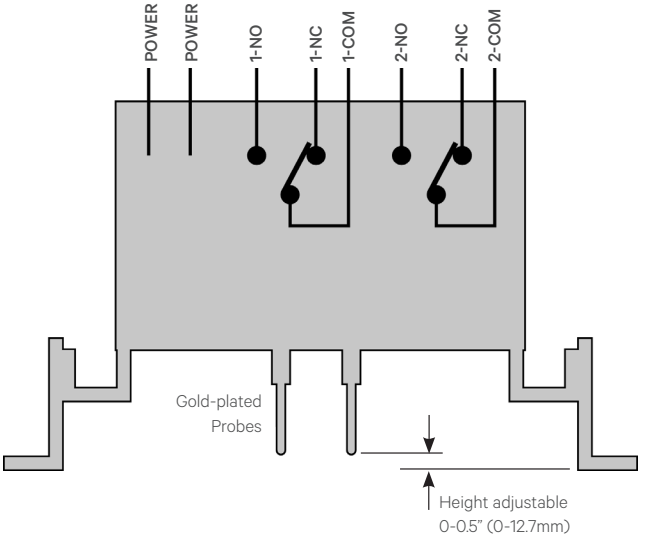
PLACEMENT ON SUBFLOOR UNDER COOLING SUPPORT EQUIPMENT



WIRING INTERCONNECTIONS

Circuits are shown in powered, non-alarm state.

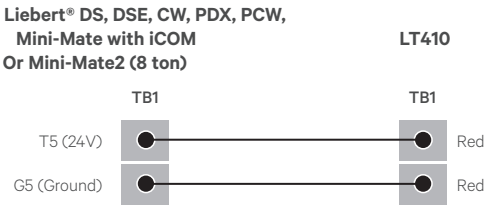
NOTE: All power and alarm connections must be Class 2 circuits.

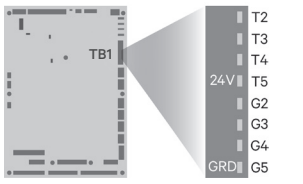


Red Wires	Orange Wires	Yellow Wires
24 V, AC/DC @ 0.10A, 50-60 Hz, DC Class 2 Circuit Only	Alarm Contact Rating 24 VAC @ 3A Class 2 Circuit Only	Alarm Contact Rating 24 VAC @ 3A Class 2 Circuit Only

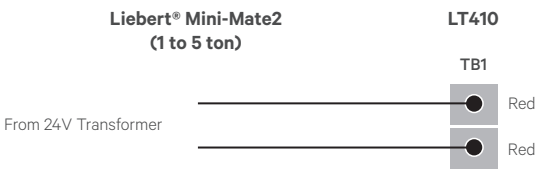
POWER WIRING

The LT410 is rated for 24 VAC, 50/60 Hz, and 0.10 A.

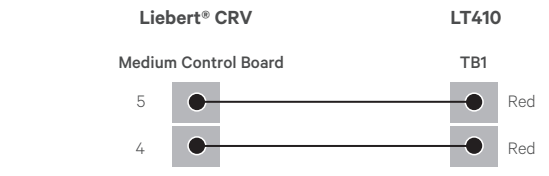


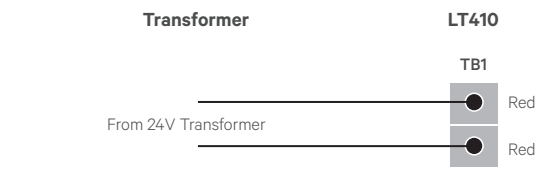


Location of T5 (24V) connection on main controller board of Liebert unit.



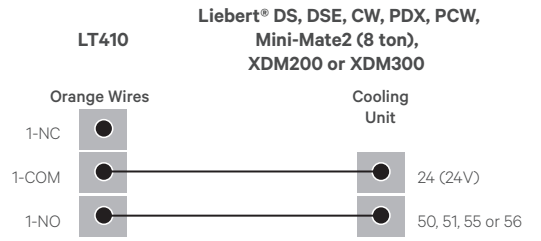
** Requires external transformer (there are no designated terminal connections on the unit)*



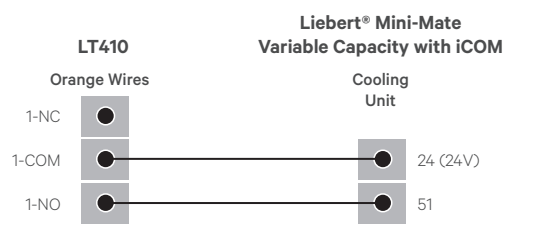


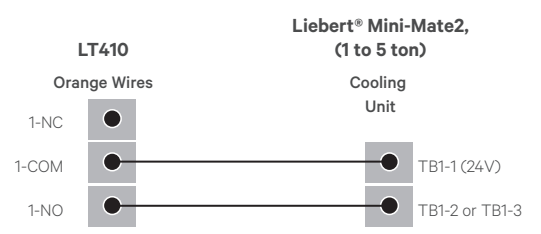
WIRING TO AUXILIARY ALARM PANELS

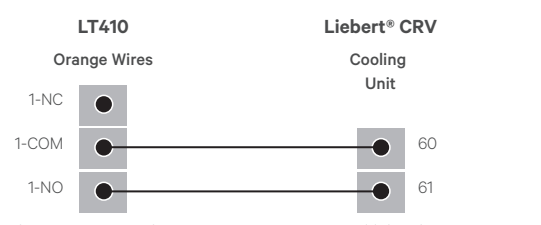
The LT410 has two Form-C dry contact alarm output contacts: one orange wire and two yellow wires. Each contact is rated for 24 VAC at 3 amp.



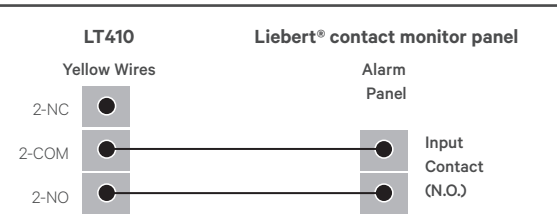
Note: Terminal 50 not available on Mini-Mate2 (8 ton)







NOTE: In Liebert® iCOM™, use the Service Options menu to add that the Liqui-Tect™ is installed.



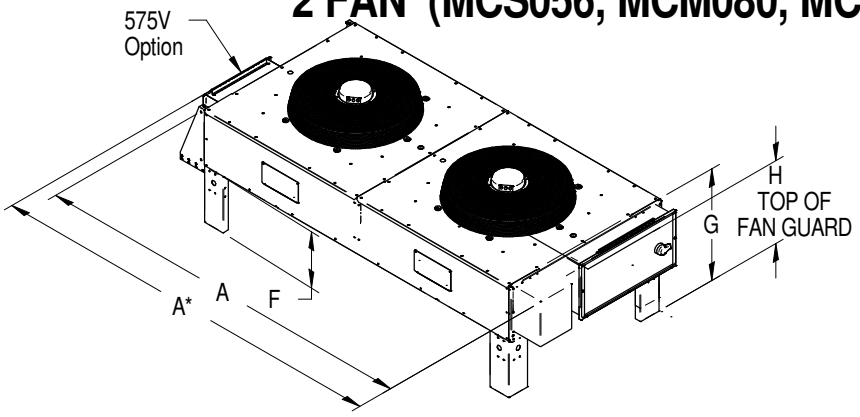
SL-31050_Rev4_11-24

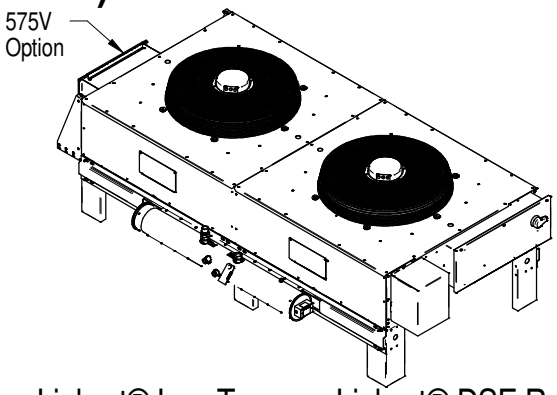
VERTIV.

LIEBERT® MC

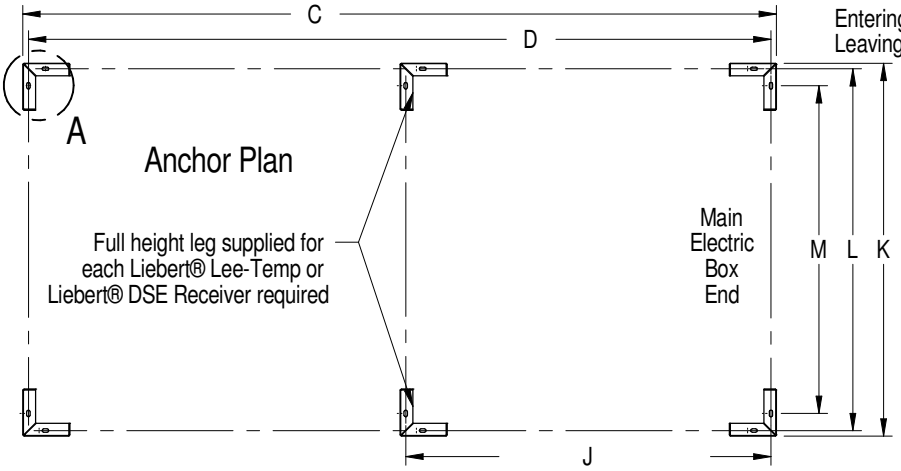
CABINET & ANCHOR DIMENSIONAL DATA

2 FAN (MCS056, MCM080, MCL110) DUAL CIRCUIT

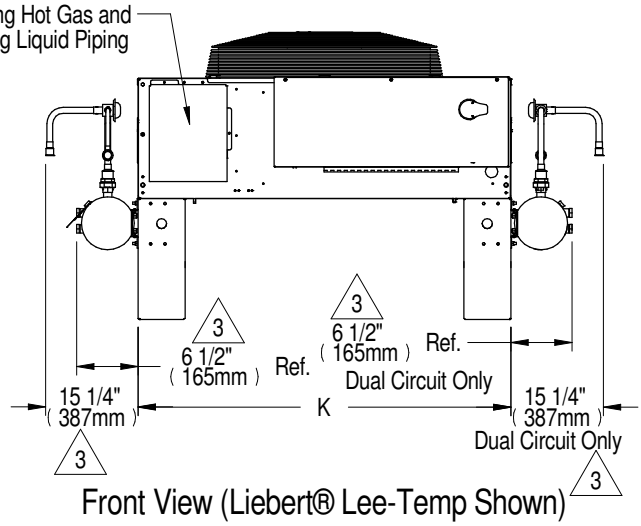




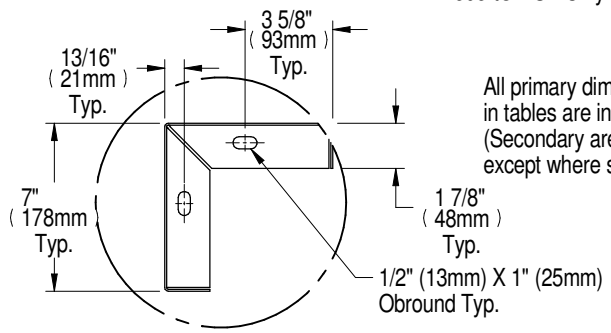
Liebert® Lee-Temp or Liebert® DSE Receiver



Left Side of Unit



Front View (Liebert® Lee-Temp Shown)



DETAIL A
Typical All Legs

All primary dimensions in tables are in inches (Secondary are in mm) except where specified

MODEL NUMBER	F △2 (LEG HEIGHT DIMENSIONS)			
MCS056 MCM080	18 (457)	36 (914)	48 (1219)	60 (1524)
DIM "G"	31-5/8 (803)	49-5/8 (1260)	61-5/8 (1565)	73-5/8 (1870)
DIM "H"	39-5/8 (1006)	57-5/8 (1464)	69-5/8 (1768)	81-5/8 (2073)
MCL110				
DIM "G"	35-7/8 (911)	53-7/8 (1368)	65-7/8 (1673)	77-7/8 (1978)
DIM "H"	43-5/8 (1108)	61-5/8 (1565)	73-5/8 (1870)	85-5/8 (2175)

Note:
1. Vertiv recommends a clearance of 36" (915mm) on each side for proper operation and component access.

△2 Cross bracing required for legs longer than 18" (457mm). Quantity varies per model & options selected.

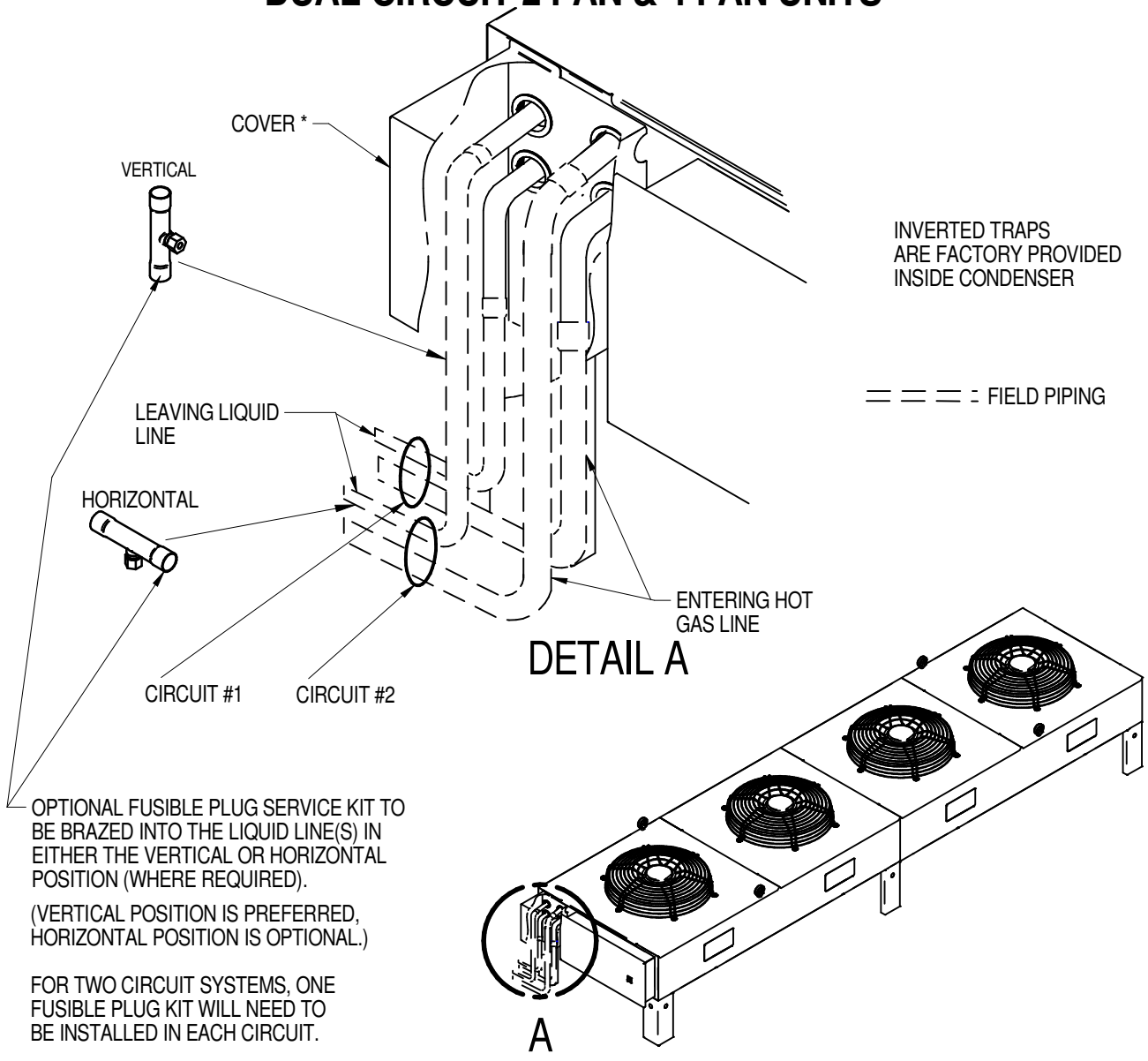
△3 For Liebert® DSE models only, 6-1/2" (165mm) dimension is 9-1/4" (235mm) and 15-1/4 (387mm) dimension is not applicable.

MODEL NUMBER	A	A* (575V ONLY)	C	D	J Liebert® Lee-Temp or Liebert® DSE Receivers Only	K	L	M
MCS056	94-7/8 (2411)	103-1/8 (2619)	88-3/8 (2245)	86-3/4 (2203)	42-1/2 (1079)	42-1/2 (1080)	40-7/8 (1038)	35-7/8 (910)
MCM080	105-1/4 (2674)	113-7/16 (2882)	96-1/16 (2440)	94-7/16 (2398)	46-5/16 (1177)	46 (1168)	44-3/8 (1127)	39-5/16 (999)
MCL110	124-1/8 (3152)	133-1/8 (3381)	112-1/8 (2848)	110-1/2 (2806)	54-3/8 (1381)	55-1/2 (1410)	53-7/8 (1368)	48-3/4 (1238)

VERTIV.

LIEBERT® MC

PIPING DIMENSIONAL DATA
DUAL CIRCUIT 2 FAN & 4 FAN UNITS



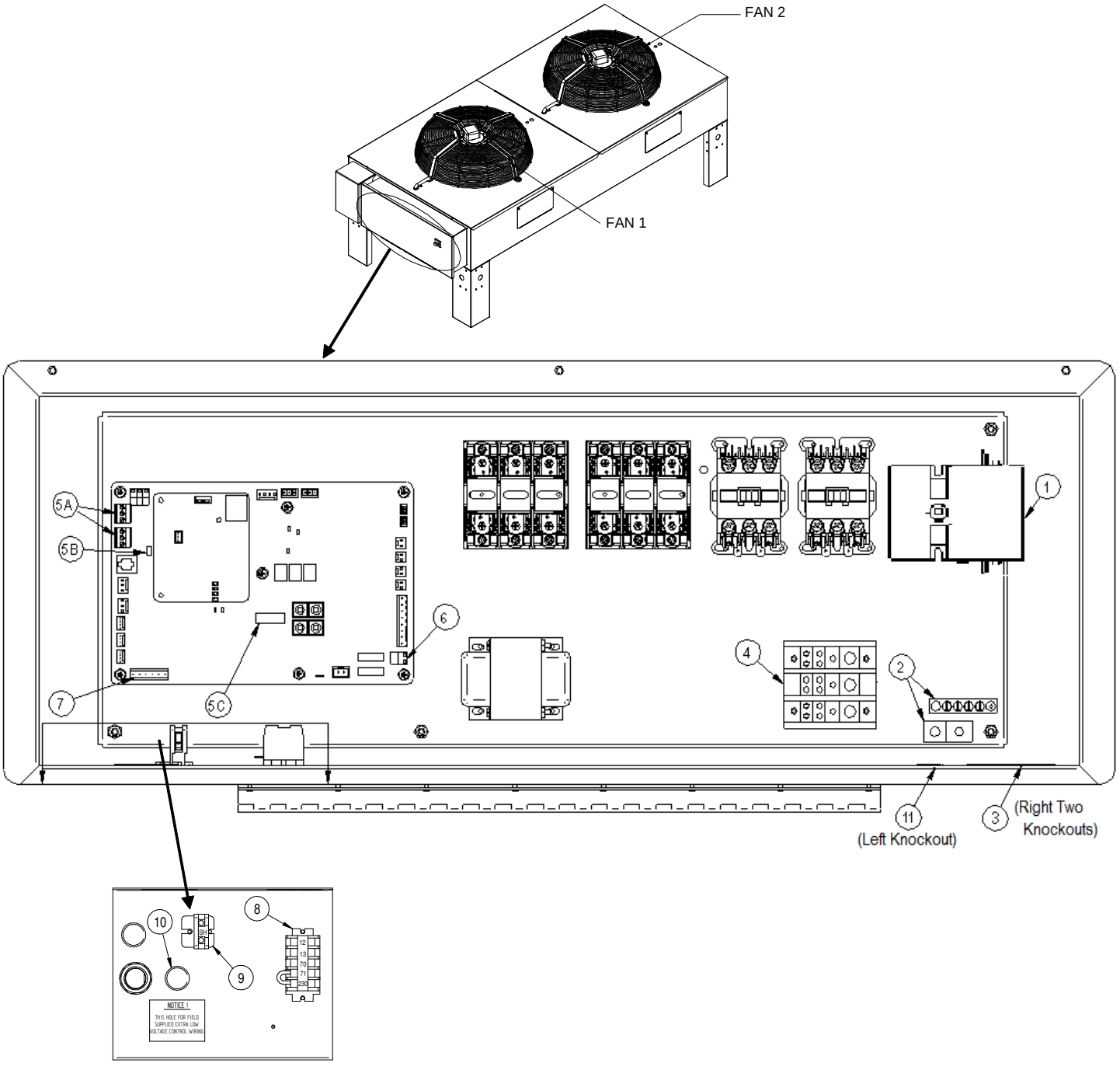
MODEL NO.	NUMBER OF FANS	CONDENSER CIRCUITS	CONNECTION SIZES ,OD,IN	
			HOT GAS LINE	LIQUID LINE
MCS 056	2	2	7/8	5/8
MCM 080	2	2	7/8	5/8
MCL 110	2	2	1-1/8	7/8
MCM 160	4	2	1-1/8	7/8
MCL 220	4	2	1-3/8	1-1/8

* SHIPPING COVER IS NOT NECESSARY FOR PROPER CONDENSER OPERATION AND MAY BE RECYCLED IF FIELD PIPING INTERFERES WITH PROPER REATTACHMENT.

VERTIV.

LIEBERT® MC

ELECTRICAL FIELD CONNECTIONS
PREMIUM EFFICIENCY CONTROL



KEY ELECTRICAL DETAILS:

1) **Three phase electrical service –** Terminals are on top of disconnect switch for one and two fan units. Terminals are on bottom of disconnect switch for three and four fan units. Three phase service not by Vertiv. See note 5.
2) **Earth ground –** Field lug terminal for earth ground connection. Ground terminal strip for fan motor ground connection.
3) **Primary high voltage entrance –** Two 7/8" (22.2mm) diameter knockouts located at the bottom of the enclosure.
4) **SPD field connection terminals –** High voltage surge protective device (SPD) terminals. SPD is an optional device.

VERTIV.

LIEBERT® MC

ELECTRICAL FIELD CONNECTIONS
PREMIUM EFFICIENCY CONTROL

5) **CANbus terminal connections –** Field terminals for CANbus cable connection.
   - 5A is the CANbus connectors.
     - TB49-1 is the input terminal for CANbus high.
     - TB49-3 is the input terminal for CANbus low.
     - TB50-1 is output terminal for CANbus high.
     - TB50-3 is the output terminal for CANbus low.
     - Each CANbus cable shield is connected to terminal “SH”, item 9.
   - 5B is the “END OF LINE” jumper.
   - 5C is the CANbus “DEVICE ADDRESS DIP SWITCH”. CANbus cable not by Vertiv. See Note 2. (below)

6) **Remote unit shutdown –** Replace existing jumper between terminals TB38-1 and TB38-2 with field supplied normally closed switch having a minimum 75VA 24VAC rating. Use field supplied Class 1 wiring. (This is an optional feature that may be owner specified.)

7) **Alarm terminal connections –**
   - **a.** Common Alarm Relay indicates when any type of alarm occurs. TB74-1 is common, TB74-2 is normally open, and TB74-3 is normally closed. 1 Amp 24VAC is the maximum load. Use Class 1 field supplied wiring.
   - **b.** Shutdown Alarm Relay indicates when condenser loses power, or when a critical alarm has occurred that shuts down the condenser unit. TB74-4 is common, TB74-5 is normally open, and TB74-6 is normally closed. 1 Amp 24VAC is the maximum load. Use Class 1 field supplied wiring.

8) **Indoor unit interlock and SPD alarm terminals –**
   - **a.** On any call for compressor operation, normally open contact is closed across terminals 70 and 71 for Circuit 1, and normally open contact is closed across terminals 70 and 230 for Circuit 2 from indoor room unit.
   - **b.** During SPD alarm, normally open contact is closed across terminals 12 & 13. SPD is an optional device.

9) **CANbus shield terminal –** Terminal for field shield connection of the CANbus field supplied cables. The shield of CANbus field supplied cables must not be connected to ground at the condenser.

10) **Primary low voltage entrance –** One knockout hole sized appropriately for a NPT male threaded connection on the SPD, that is free for customer low voltage wiring.

11) **SPD entrance –** One knockout hole sized appropriately for a NPT male threaded connection on the SPD, located at the bottom of the enclosure. High voltage surge protective device (SPD) is optional.

NOTES:

1. Refer to specification sheet for unit voltage rating, full load amp, and wire size amp ratings.
2. The CANbus wiring is field supplied and must be:
   - Braided shield or foil shield with drain wire
   - Shield must be wired to ground at indoor unit
   - 22-18AWG stranded tinned copper
   - Twisted pair (minimum 4 twists per foot)
   - Low Capacitance (15pF/FT or less)
   - Must be rated to meet local codes and conditions
   - EXAMPLES BELDEN 89207 (PLENUM RATED), OR ALPHA WIRE 6454 CATEGORY 5, 5E, OR HIGHER
3. Do not run in same conduit, raceway, or chase as high voltage wiring.
4. For CANbus network lengths greater than 450FT (137M) call Factory.

VERTIV.

LIEBERT® MC

ELECTRICAL FIELD CONNECTIONS
PREMIUM EFFICIENCY CONTROL

5. All wiring must be sized and selected for insulation case per NEC and other local codes.
6. Do not bend cables to less than four times the diameter of the cable.
7. Do not deform cables when securing in bundles or when hanging them.
8. Avoid running the cables by devices that may introduce noise, such as machines, fluorescent lights, and electronics.
9. Avoid stretching cables.
10. The electrically commutated (EC) motors included in the Liebert® MC are suitable for connection to power supplies with a solidly grounded neutral or high resistance to ground or corner ground.
    a. Acceptable power supplies for 208 to 575V nominal units:
        - 208V wye with solidly grounded neutral and 120V line to ground;
        - 380V wye with solidly grounded neutral and 220V line to ground;
        - 480V wye with solidly grounded neutral and 277V line to ground;
        - 575V wye with solidly grounded neutral and 332V line to ground (uses step-down transformer);
        - Wye with high resistance (or impedance) ground;
        - Delta with corner ground
    b. Unacceptable power supplies for 208V to 575V nominal units:
        - Delta without ground or with floating ground;
        - Delta with grounded center tap.

2/9/2026

1-O-26

AN ORDINANCE

Amending Title 1, Chapter 17, "Contracts with the City"

WHEREAS, the City of Evanston is a unit of local government organized and operating under federal and state laws; and

WHEREAS, on May 27, 2025, the City of Evanston adopted the Responsible Bidder Ordinance to ensure that only qualified contractors and subcontractors are awarded contracts on public works construction projects, and to ensure that workers on public works construction projects are paid appropriate wages and receive appropriate benefits in accordance with state and federal law; and

WHEREAS, from time to time the City of Evanston is able to secure external sources of funding, for instance from federal or state grants, that impose distinct sets of requirements for grant eligibility that do not always dovetail with the requirements of the current City Code; and

WHEREAS, the City of Evanston wishes to amend its ordinance on Contracts with the City to clarify how it intersects with external funding conditions;

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF EVANSTON, COOK COUNTY, ILLINOIS:

SECTION 1: Title 1, Chapter 17, "Contracts with the City," is hereby amended as follows:

(A) All contracts with the City costing in excess of twenty-five thousand dollars ($25,000.00) must be approved by the City Council. Contracts for the purchase of goods or services to be utilized in the conduct of the affairs of the City, shall be let by the City Manager or his/her designee, with the approval of the City Council, to a reliable, responsible and acceptable bidder, after advertising for the same, and bonds to be approved by the City Council may be taken for the faithful performance thereof.

(B) All contracts for the purchase of goods or services with entirely City funds shall be awarded to the lowest quote/bid price or lowest evaluated quote/bid price from a responsive and responsible Evanston business enterprise ("EBE") provided the EBE's quote/bid price does not surpass the lowest quote/bid price or lowest evaluated quote/bid price from a responsive and responsible nonlocal business by more than five percent (5%). All contracts let from requests for proposals (RFPs) and requests for qualifications (RFQs) with entirely City funds shall be awarded to the most qualified consultant that is an EBE, provided the EBE price/cost does not surpass the lowest price/cost or lowest evaluated price/cost from a nonlocal business by more than five percent (5%). This requirement is waived if the contract is partially or completely funded from a source other than funds belonging to the City of Evanston, such as federal, state, or other grants, and (ii) the other funding source mandates terms that are inconsistent with or supersede this Section (B).

1. An "EBE" shall mean an entity which is located in or has one or more offices located in the City for a minimum of one year and which performs a "commercially useful function."

a. An EBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the EBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether an EBE is performing a commercially useful function, the City will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the EBE credit claimed for its performance of the work and other relevant factors.

b. An EBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of EBE participation. In determining whether an EBE is such an extra participant, the City will examine similar transactions, particularly those in which EBEs do not participate.

c. If an EBE does not perform or exercise responsibility for at least thirty (30) percent of the total cost of its contract with its own work force, or the EBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of

work involved, then it is not performing a commercially useful function.

d. When an EBE is presumed not to be performing a commercially useful function as provided in Subsection (B)1c of this Section, the EBE may present evidence to rebut this presumption. The City may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

2. In determining whether a business has been located in Evanston for one (1) year, the MWEBE Committee will consider the following:

a. Whether the vendor pays property and/or sales taxes in Evanston; and

b. Whether the business entity's address or the address given on the federal and/or state income tax return is within Evanston.

c. The date of issuance of an Evanston business license.

The City may waive the one-year requirement if the entity provides evidence of a substantial commitment to Evanston.

3. Businesses that maintain a distribution warehouse or which manufacture in Evanston will receive EBE credit of sixty (60) percent and one hundred (100) percent, respectively. Those that do not maintain a distribution warehouse or manufacturing operation but have an office in Evanston will be considered a broker and receive a five (5) percent credit.

4. Eligibility as an EBE will be periodically reviewed and may be revoked at any time if the entity no longer meets the above requirements.

(E) *Additional Requirements for Public Works Contracts*. All bidders for public works contracts must comply with the below specifications in bid submission and during the project for a successful bidder. The City Council may, by a majority vote of the members present, waive any of these requirements for an Evanston-owned business enterprise as defined in Subsection 1-17-1(D)(1) or a nearby business enterprise as defined in Subsection 1-17-1(E)(1).

1. *Definitions*. For the purposes of this Subsection, the following definitions apply:

APPRENTICESHIP TRAINING PROGRAM.	A program approved and registered by the United States Department of Labor's Office of Apprenticeship, or its successor organization, that has graduated at least five (5) apprentices in each other past five (5) years for each of the construction crafts the bidder will perform on the project. Evidence of graduation rates are not required for apprentice able crafts dedicated exclusively to the transportation of material and equipment to and from the public works project.
BIDDER.	A contractor that submits a bid in response to a City of Evanston request for proposal.
COMMERCIALLY USEFUL FUNCTION.	A business enterprise that is responsible for the execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved.
NEARBY BUSINESS ENTERPRISE ("NBE").	A business enterprise located within five (5) miles of Evanston City limits for a minimum of one (1) year and performs a commercially useful function.
PUBLIC WORKS CONTRACT.	Any construction, alteration, demolition, or repair work done under contract on City-owned property.
RELIABLE, RESPONSIVE AND ACCEPTABLE	A bidder who submits a bid that conforms in all material respects to the requirements and criteria in the invitation for bids. This means the bid promises to perform in the precise manner requested by the government, and any minor irregularities in the bid shall not defeat responsiveness.

2. *Excessive Pass Through Prohibited.* Any bidder must directly perform at least twenty-five (25) percent of the services identified in the project solicitation. The named bidder submitting the bid must be the entity directly performing the services. Any affiliates and/or subsidiaries shall not contribute to the minimum performance percentage required.

3. *Apprenticeship Training Program Required*.

(a) Public Works contracts for over twenty-five thousand dollars ($25,000.00) or greater shall only be let to: (i) a contractor with evidence of participation in an

apprenticeship training program applicable to the work to be performed on the project; or (ii) a contractor who has satisfied the experience requirements under subsection (d).

(b) All contracts submitted to the City Council must identify whether the contractor meets this requirement.

(c) Required evidence of participation in an apprenticeship program includes but is not limited to a copy of all applicable apprenticeship standards and apprenticeship agreement(s) for any apprentice(s) who will perform work on the public works project; and documentation from each applicable apprenticeship program certifying that it has graduated at least five (5) apprentices in each of the past five (5) years for each construction craft the bidder will perform on the project.

(d) Contractors may alternatively satisfy this requirement by certifying that all workers who will perform work on the public works project have relevant experience in lieu of participation in an apprenticeship program. Relevant experience may include: (i) performing at least one thousand eight hundred (1,800) hours of work in the trade the worker will perform on the public works project over the preceding two (2) years; (ii) completion of an apprenticeship program in the trade the worker will perform on the public works project; or (iii) obtaining a journeyman credential in the trade the worker will perform on the public works project. Required evidence to be eligible under this section includes but is not limited to W-2 records, journeyman credentials, apprenticeship completion cards, or certificates of graduation from apprenticeship programs. This requirement is waived if the contract is partially or completely funded from a source other than funds belonging to the City of Evanston, such as federal, state, or other grants, and (ii) the other funding source mandates terms that are inconsistent with or supersede this Section (E)(3)(d).

(e) Additional evidence of apprenticeship participation, graduation requirements, or previous experience may be requested by the City of Evanston in its discretion.

4. *Occupational Safety and Health Administration Safety Cards Required.* Prior to beginning work for the City, the bidder shall certify that all employees for the contractor that will be on the work site shall have completed a ten-hour or greater OSHA safety program. The contractor must submit copies of the employees' OSHA cards to the City prior to the project commencing.

5. *Nearby Business Enterprises*. In the absence of an Evanston business enterprise as required by City Code 1-17-1(B), the City shall award the contract for the public works

contract to the lowest bid price or lowest evaluated quote/bid price from a responsive or responsible NBE, provided that the NBE's bid price does not surpass the lowest bid price or lowest evaluated bid price from a responsible and responsible non NBE or EBE business by more than three (3) percent. This requirement is waived if the contract is partially or completely funded from a source other than funds belonging to the City of Evanston, such as federal, state, or other grants, and (ii) the other funding source mandates terms that are inconsistent with or supersede this Section (E)(5).

a. An NBE shall perform a commercially useful function.

i. To determine whether an NBE is performing a commercially useful function, the City will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the NBE credit claimed for its performance of the work and other relevant factors.

ii. An NBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of NBE participation. In determining whether an NBE is such an extra participant, the City will examine similar transactions, particularly those in which NBEs do not participate.

iii. If an NBE does not perform or exercise responsibility for at least thirty (30) percent of the total cost of its contract with its own work force, or the NBE subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, then it is not performing a commercially useful function.

iv. When an NBE is presumed not to be performing a commercially useful function as provided in Subsection (B)1c of this Section, the EBE may present evidence to rebut this presumption. The City may determine that the firm is performing a commercially useful function given the type of work involved and normal industry practices.

b. In determining whether a business has been located in Evanston or within five (5) miles of Evanston City limits for one (1) year, the MWEBE Committee will consider the following:

i. Whether the vendor pays property and/or sales taxes in Evanston, or, in the case of a NBE, in a community that is within five (5) miles of City limits; ~~and~~

ii. Whether the business entity's address or the address given on the federal and/or state income tax return is within Evanston or, in the case of a NBE, in a community that is within five (5) miles of City limits; and

iii. The date of issuance of an Evanston business license or, in the case of a NBE, the date of issuance of a business license by a community located within five (5) miles of City limits.

iv. The City may waive the one-year requirement if the entity provides evidence of a substantial commitment to Evanston.

c. Businesses that maintain a distribution warehouse or which manufacture in Evanston will receive EBE credit of sixty (60) percent and one hundred (100) percent, respectively. Those that do not maintain a distribution warehouse or manufacturing operation but have an office in Evanston will be considered a broker and receive a five (5) percent credit.

d. Eligibility as an NBE will be periodically reviewed and may be revoked at any time if the entity no longer meets the above requirements.

6. *Certifications Required at Time of Bid Submittal*. All bidders, including any subcontractors included in the bid, as applicable, shall be compliant and shall submit certification of compliance with the following at the time of the bid submittal:

a. The Prevailing Wage Act, 820 ILCS 130/1 *et seq*.

i. Compliance with the Prevailing Wage Act is required for the previous five (5) years and certification that the contractor has not been found in violation of the Prevailing Wage Act by the Illinois Department of Labor; and

ii. A contractor who has been found by the Illinois Department of Labor to be in violation of the Prevailing Wage Act twice in a five-year period shall be barred from bidding for a Public Works contract for four (4) years from the date of the most recent finding from the Illinois Department of Labor.

b. The Substance Abuse Prevention on Public Works Project Act, 820 ILCS 265/1 *et seq*;

i. Compliance with the Substance Abuse Prevention on Public Works Act must include a copy of its written program for the prevention of substance abuse pursuant to the Act.

c. The Workers' Compensation Act, 820 ILCS 305/1 et seq.;

i. A copy of the applicable workers' compensation policy must be submitted to the City along with documentation of the Illinois Department of Labor registration. The bidder shall additionally certify that all employees are properly classified under the workers' compensation policy.

d. The Unemployment Insurance Act, 820 ILCS 405/100, *et seq*.;

i. .A copy of the applicable Illinois Department of Employment Security current registration.

e. A copy of the Illinois Secretary of State's Department of Business Services online records evidencing that the bidder has a current corporate annual report on file. If the bidder is an individual, sole proprietor, or partnership, this subsection shall not apply;

f. A copy of the current registration with the Illinois Department of Revenue, if the bidder has employees;

g. A disclosure of any Federal, State or local tax liens or tax delinquencies against the bidder or any officers of the bidder in the last five (5) years;

~~h. Reserved;~~

~~i.~~ h. Compliance with the Federal Davis-Bacon Act and Related Acts, if applicable;

~~j.~~ i. Compliance with the Employee Classification Act 820 ILCS 185/1, *et seq*.;

i. All contractors and subcontractors shall submit certified payrolls as specified in Illinois Public Act 94-0515.

~~k.~~ j. All applicable professional or trade licensure, including documentation of said licenses, certification that all licenses are current, and disclosure of any suspension or revocation of such license held by the company, or of any director, officer or manager of the company;

~~l.~~ k. Certification of compliance with 720 ILCS 5/33E-11 and that the bidder is not barred from contracting with any unit of State or local government as a result of a violation of 720 ILCS 5/33E-3, 4;

~~m.~~ l. Certification that all individuals who perform work on behalf of the contractor are properly classified as either (i) an employee, or (ii) an independent contractor under all applicable state and federal laws and local ordinances; and

~~n.~~ m. Disclosure of any determinations by a court, State or Federal agency of violations of any federal, state or local laws, including but not limited to OSHA, contracting or antitrust laws, tax or licensing laws, environmental laws or the Federal Davis-Bacon and Related Acts.

Any bidder who fails to adhere to this Subsection shall be deemed disqualified from the bid process. If a bidder or contractor has a material change to the information provided to the City of Evanston, the bidder or contractor must notify the City within fourteen (14) days of this material change in writing. Failure to self-report a material change may result in disqualification from the bid.

7. *Subcontractors.* A bidder shall submit documentation including the name and address of each subcontractor from whom the bidder has accepted a bid and/or intends to hire on any part of the project. Further, each such subcontractor shall be required to adhere to the requirements set forth herein as though it were bidding directly to the City of Evanston. Each contractor shall submit all subcontractor information and supporting documentation to the City of Evanston prior to the subcontractor commencing work on the project. It shall be the responsibility of the bidder to ensure its subcontractors comply with all of the requirements of this Code, including the timely and complete submittals of all required documentation and full compliance with all obligations set forth in this Section.

8. *Certification for 12-Month Period*. In anticipation of bidding on a project, a contractor may submit the certifications identified in the preceding section to the City's Purchasing Manager or their designee. The Purchasing Manager or their designee shall review the certifications for completeness. Upon review, if the certifications are complete, the Purchasing Manager or their designee shall advise the contractor of same via an email address designated by the contractor. If the certifications are incomplete, the contractor shall be also notified via email and given fourteen (14) days to complete the submission. Once the certifications are completed, the contractor shall be notified of a "Certification for 12-Month Period" and shall not be required to resubmit these certifications for a period of twelve (12) months following the notification. Any material changes to these certifications shall be reported in writing to the City's Purchasing Manager or designee. In the event that these documents are still required to be submitted by a State or Federal agency that is contributing funding to a project, this provision shall not apply.

9. *Projects of Similar Size and Scope*. In projects in the amount of twenty-five

thousand dollars ($25,000.00) or greater, bidders shall identify and submit documentation with their bid of relevant experience on projects of similar size and scope in the past five (5) years and submit references for same. Projects of similar size and scope shall be as further defined and outlined in the request for proposal ("RFP"). The bidder shall also identify any civil judgments, mediation or arbitration awards against it for default, breach, or damages due to delay or work inadequately performed. Information submitted pursuant to this section shall be considered in determining responsible bidders for the project at issue.

10. *Statement of Past Performance*. Bidders shall submit with their bid a record of all work performed for public bodies completed in the prior three (3) years. Such statements shall include the name of the public body, the type of work performed, the original contract price, the final contract price, the names of all subcontractors used and if liquidated damages were assessed.

11. *Public Records*. All information submitted by a successful bidder pursuant to this Section ~~are~~ is subject to review pursuant to the Illinois Freedom of Information Act (5 ILCS 140/1 *et seq*.).

SECTION 2: All ordinances or parts of ordinances in conflict herewith are hereby repealed.

SECTION 3: If any provision of this Ordinance or application thereof to any person or circumstance is held unconstitutional or otherwise invalid, such invalidity shall not affect other provisions or applications of this Ordinance that can be given effect without the invalid application or provision, and each invalid application of this Ordinance is severable.

SECTION 4: This Ordinance shall be in full force and effect beginning upon passage.

SECTION 5: The findings and recitals contained herein are declared to be prima facie evidence of the law of the City and shall be received in evidence as provided by the Illinois Compiled Statutes and the courts of the State of Illinois.

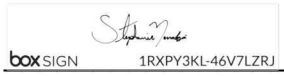
Introduced: February 9, 2026

Adopted: February 9, 2026

Approved: February 10, 2026

Daniel Biss, Mayor

Attest:



Stephanie Mendoza, City Clerk

Approved as to form:

Alexandra B. Ruggie, Corporation Counsel

Cook County Prevailing Wage Rates posted on 7/15/2026

						Overtime										
Trade Title	**Rg**	**Type**	**C**	**Base**	**Foreman**	**M-F**	**Sa**	**Su**	**Hol**	**H/W**	**Pension**	**Vac**	**Trng**	**Other Ins**	**Add OT 1.5x owed**	**Add OT 2.0x owed**
ASBESTOS ABT-GEN	All	ALL		53.00	54.00	1.5	1.5	2.0	2.0	19.86	18.34	0.00	0.91		0.00	0.00
ASBESTOS ABT-MEC	All	BLD		43.52	47.00	1.5	1.5	2.0	2.0	17.84	16.75	0.00	1.01		3.42	6.84
BOILERMAKER	All	BLD		62.06	67.64	2.0	2.0	2.0	2.0	7.07	27.81	0.00	3.69	2.72	0.00	40.50
BRICK MASON	All	BLD		54.81	60.29	1.5	1.5	2.0	2.0	14.74	25.51	0.00	1.59	0.00	13.05	17.40
CARPENTER	All	ALL		58.51	60.51	1.5	1.5	2.0	2.0	14.49	28.26	3.03	1.04		0.00	0.00
CEMENT MASON	All	ALL		57.10	60.60	2.0	1.5	2.0	2.0	18.50	24.00	0.00	1.25		2.50	5.00
CERAMIC TILE FINISHER	All	BLD		51.09	51.09	1.5	1.5	2.0	2.0	14.00	18.32	0.00	1.41	0.00	17.32	23.08
CERAMIC TILE LAYER	All	BLD		59.44	64.44	1.5	1.5	2.0	2.0	14.00	22.43	0.00	1.54	0.00	23.67	31.56
COMMUNICATION ELECTRICIAN	All	BLD		53.64	59.00	1.5	1.5	2.0	2.0	18.29	15.05	1.50	1.29	0.05	0.00	0.00
CONCRETE SPECIALIST	All	BLD		53.56	60.18	1.5	1.5	2.0	2.0	14.74	26.81	0.00	1.59	0.00	15.00	20.00
CONCRETE SPECIALIST WELDER	All	BLD		56.24	60.18	1.5	1.5	2.0	2.0	14.74	26.81	0.00	1.59	0.00	15.00	20.00
ELECTRIC PWR EQMT OP	All	ALL		67.18	73.73	1.5	1.5	2.0	2.0	12.99	23.34	0.00	3.69	0.00	0.00	0.00
ELECTRIC PWR GRNDMAN	All	ALL		52.40	73.73	1.5	1.5	2.0	2.0	10.13	18.20	0.00	2.87	0.00	0.00	0.00
ELECTRIC PWR LINEMAN	All	ALL		67.18	73.73	1.5	1.5	2.0	2.0	12.99	23.34	0.00	3.69	0.00	0.00	0.00
ELECTRICIAN	All	ALL		63.15	69.47	1.5	1.5	2.0	2.0	20.35	22.14	0.00	1.97	0.10	0.00	0.00
ELEVATOR CONSTRUCTOR	All	BLD		73.65	82.86	2.0	2.0	2.0	2.0	16.37	21.76	5.89	0.85		0.00	0.00
FENCE ERECTOR	All	ALL		53.73	56.73	1.5	1.5	2.0	2.0	14.79	19.77	0.00	1.00	0.00	0.00	0.00
GLAZIER	All	BLD		55.35	56.85	1.5	2.0	2.0	2.0	16.54	27.36	0.00	2.35	0.00	0.00	0.00
HEAT/FROST INSULATOR	All	BLD		58.02	61.50	1.5	1.5	2.0	2.0	17.84	20.05	0.00	1.01		5.07	10.14
IRON WORKER	All	ALL		64.19	67.69	2.0	2.0	2.0	2.0	19.80	28.60	0.00	0.44	0.00	0.00	0.00
LABORER	All	ALL		53.00	53.75	1.5	1.5	2.0	2.0	19.86	18.34	0.00	0.91		0.00	0.00
LATHER	All	ALL		58.51	60.51	1.5	1.5	2.0	2.0	14.49	28.26	3.03	1.04		0.00	0.00
MACHINIST	All	BLD		61.89	65.89	1.5	1.5	2.0	2.0	14.43	9.95	1.85	1.47		0.00	0.00
MARBLE FINISHER	All	ALL		41.74	56.44	1.5	1.5	2.0	2.0	14.74	22.81	0.00	1.01	0.00	9.00	12.00
MARBLE SETTER	All	BLD		53.75	59.13	1.5	1.5	2.0	2.0	14.74	24.78	0.00	1.27	0.00	11.96	15.94
MATERIAL TESTER I	All	ALL		43.00		1.5	1.5	2.0	2.0	19.86	18.34	0.00	0.91		0.00	0.00

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MATERIALS TESTER II	All	ALL		48.00		1.5	1.5	2.0	2.0	19.86	18.34	0.00	0.91		0.00	0.00
MILLWRIGHT	All	ALL		58.51	60.51	1.5	1.5	2.0	2.0	14.49	28.26	3.03	1.04		0.00	0.00
OPERATING ENGINEER	All	BLD	1	68.80	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	2	67.50	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	3	64.95	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	4	63.20	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	5	72.55	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	6	69.80	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	BLD	7	71.80	72.80	2.0	2.0	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	FLT	1	78.55	78.55	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.90	0.00	0.00	0.00
OPERATING ENGINEER	All	FLT	2	77.05	78.55	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.90		0.00	0.00
OPERATING ENGINEER	All	FLT	3	72.55	78.55	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.90	0.00	0.00	0.00
OPERATING ENGINEER	All	FLT	4	68.05	78.55	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.90	0.00	0.00	0.00
OPERATING ENGINEER	All	FLT	5	80.05	78.55	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.90	0.00	0.00	0.00
OPERATING ENGINEER	All	FLT	6	68.05	78.55	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.90	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	1	67.00	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	2	66.45	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	3	64.40	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	4	63.00	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	5	61.80	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	6	70.00	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
OPERATING ENGINEER	All	HWY	7	68.00	71.00	1.5	1.5	2.0	2.0	25.95	22.30	2.00	2.80	0.00	0.00	0.00
ORNAMENTAL IRON WORKER	All	ALL		61.36	65.36	2.0	2.0	2.0	2.0	15.36	28.70	0.00	2.40	0.00	0.00	0.00
PAINTER	All	ALL		56.30	63.34	1.5	1.5	1.5	2.0	16.86	18.24	0.00	1.86	0.00	0.00	0.00
PAINTER - SIGNS	All	BLD		48.16	54.11	1.5	1.5	2.0	2.0	8.20	16.81	0.00	0.00	0.00	0.00	0.00
PILEDRIVER	All	ALL		58.51	60.51	1.5	1.5	2.0	2.0	14.49	28.26	3.03	1.04		0.00	0.00
PIPEFITTER	All	BLD		59.50	62.50	1.5	1.5	2.0	2.0	16.00	23.85	0.00	2.87	0.00	0.00	0.00
PLASTERER	All	BLD		54.98	58.28	1.5	1.5	2.0	2.0	18.50	22.10	0.00	1.25		0.00	0.00
PLUMBER	All	BLD		62.00	65.70	1.5	1.5	2.0	2.0	20.85	18.00	0.00	2.17		0.00	0.00

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ROOFER	All	BLD		53.75	58.75	1.5	1.5	2.0	2.0	12.95	18.19	0.00	1.14	0.00	0.00	0.00
SHEETMETAL WORKER	All	BLD		56.85	62.54	1.5	1.5	2.0	2.0	17.81	29.20	0.00	1.25	0.00	0.00	0.00
SIGN HANGER	All	BLD		37.62	40.63	1.5	1.5	2.0	2.0	7.85	4.90	0.00	0.00	0.00	0.00	0.00
SPRINKLER FITTER	All	BLD		63.20	65.95	1.5	1.5	2.0	2.0	15.45	19.95	0.00	1.15	0.00	0.00	0.00
STEEL ERECTOR	All	ALL		64.19	67.69	2.0	2.0	2.0	2.0	19.80	28.60	0.00	0.44	0.00	0.00	0.00
STONE MASON	All	BLD		54.81	60.29	1.5	1.5	2.0	2.0	14.74	25.51	0.00	1.59	0.00	13.05	17.40
SURVEY WORKER	All	BLD		60.00	61.00	1.5	1.5	2.0	2.0	20.50	14.95	0.00	1.59		0.00	0.00
SURVEY WORKER	All	HWY		60.00	61.00	2.0	2.0	1.5	1.5	20.50	14.95	0.00	1.59		0.00	0.00
TERRAZZO FINISHER	All	BLD		53.44	53.44	1.5	1.5	2.0	2.0	14.00	19.59	0.00	1.14	0.00	13.89	18.52
TERRAZZO MECHANIC	All	BLD		57.35	60.85	1.5	1.5	2.0	2.0	14.00	20.97	0.00	1.50	0.00	14.63	19.50
TRAFFIC SAFETY WORKER I	All	HWY		44.65	46.65	1.5	1.5	2.0	2.0	11.00	10.33	0.00	1.05	0.00	0.00	0.00
TRAFFIC SAFETY WORKER II	ALL	HWY		45.65	47.65	1.5	1.5	2.0	2.0	11.00	10.33	0.00	1.05	0.00	0.00	0.00
TRUCK DRIVER	E	ALL	1	47.55	48.20	1.5	1.5	2.0	2.0	13.50	16.34	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	E	ALL	2	47.80	48.20	1.5	1.5	2.0	2.0	13.50	16.34	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	E	ALL	3	48.00	48.20	1.5	1.5	2.0	2.0	13.50	16.34	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	E	ALL	4	48.20	48.20	1.5	1.5	2.0	2.0	13.50	16.34	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	W	ALL	1	46.23	46.78	1.5	1.5	2.0	2.0	12.70	17.11	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	W	ALL	2	46.38	46.78	1.5	1.5	2.0	2.0	12.70	17.11	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	W	ALL	3	46.58	46.78	1.5	1.5	2.0	2.0	12.70	17.11	0.00	0.35	0.00	0.00	0.00
TRUCK DRIVER	W	ALL	4	46.78	46.78	1.5	1.5	2.0	2.0	12.70	17.11	0.00	0.35	0.00	0.00	0.00
TUCKPOINTER	All	BLD		53.53	54.53	1.5	1.5	2.0	2.0	12.05	23.73	0.00	1.48	0.00	0.00	0.00

Legend

Rg Region
Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers
C Class
Base Base Wage Rate
OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.
OT Sa Overtime pay required for every hour worked on Saturdays
OT Su Overtime pay required for every hour worked on Sundays
OT Hol Overtime pay required for every hour worked on Holidays

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H/W Health/Welfare benefit
Vac Vacation
Trng Training
Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations COOK COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

TRUCK DRIVERS (WEST) - That part of the county West of Barrington Road.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date. ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER

The grouting, cleaning, and polishing of all classes of tile, whether for interior or exterior purposes, all burned, glazed or unglazed products; all composition materials, granite tiles, warning detectable tiles, cement tiles, epoxy composite materials, pavers, glass, mosaics, fiberglass, and all substitute materials, for tile made in tile-like units; all mixtures in tile like form of cement, metals, and other materials that are for and intended for use as a finished floor surface, stair treads, promenade roofs, walks, walls, ceilings, swimming pools, and all other places where tile is to form a finished interior or exterior. The mixing of all setting mortars including but not limited to thin-set mortars, epoxies, wall mud, and any other sand and cement mixtures or adhesives when used in the preparation, installation, repair, or maintenance of tile and/or similar materials. The handling and unloading of all sand, cement, lime, tile, fixtures, equipment, adhesives, or any other materials to be used in the preparation, installation, repair, or maintenance of tile and/or similar materials. Ceramic Tile Finishers shall fill all joints and voids regardless of method on all tile work, particularly and especially after installation of said tile work. Application of any and all protective coverings to all types of tile installations including, but not be limited to, all soap compounds, paper products, tapes, and all polyethylene coverings, plywood, masonite, cardboard, and any new type of products that may be used to protect tile installations, Blastrac equipment, and all floor scarifying equipment used in preparing floors to receive tile. The clean up and removal of all waste and materials. All demolition of existing tile floors and walls to be re-tiled.

COMMUNICATIONS ELECTRICIAN

Installation, operation, inspection, maintenance, repair and service of radio, television, recording, voice sound vision production and reproduction, telephone and telephone interconnect, facsimile, data apparatus, coaxial, fibre optic and wireless equipment, appliances and systems used for the transmission and reception of signals of any nature, business, domestic, commercial, education, entertainment, and residential purposes, including but not limited to, communication and telephone, electronic and sound equipment, fibre optic and data communication systems, and the performance of any task directly related to such installation or service whether at new or existing sites, such tasks to include the placing of wire and cable and electrical power conduit or other raceway work within the equipment room and pulling wire and/or cable through conduit and the installation of any incidental conduit, such that the employees covered hereby can complete any job in full.

MARBLE FINISHER

Loading and unloading trucks, distribution of all materials (all stone, sand, etc.), stocking of floors with material, performing all rigging for heavy work, the handling of all material that may be needed for the installation of such materials, building of scaffolding, polishing if needed, patching, waxing of material if damaged, pointing up, caulking, grouting and cleaning of marble, holding water on diamond or Carborundum blade or saw for setters cutting, use of tub saw or any other saw needed for preparation of material, drilling of holes for wires that anchor material set by setters, mixing up of molding plaster for installation of material, mixing up thin set for the installation of material, mixing up of sand to cement for the installation of material and such other work as may be required in helping a Marble Setter in the handling of all material in the erection or installation of interior marble, slate, travertine, art marble, serpentine, alberene stone, blue stone, granite and other stones (meaning as to stone any foreign or domestic materials as are specified and used in building interiors and exteriors and customarily known as stone in the trade), carrara, sanionyx, vitrolite and similar opaque glass and the laying of all marble tile, terrazzo tile, slate tile and precast tile, steps, risers treads, base, or any other materials that may be used as substitutes for any of the aforementioned materials and which are used on interior and exterior which are installed in a similar manner.

MATERIAL TESTER I: Hand coring and drilling for testing of materials; field inspection of uncured concrete and asphalt.

MATERIAL TESTER II: Field inspection of welds, structural steel, fireproofing, masonry, soil, facade, reinforcing steel, formwork, cured concrete, and concrete and asphalt batch plants; adjusting proportions of bituminous mixtures.

OPERATING ENGINEER - BUILDING

Class 1. Asphalt Plant; Asphalt Spreader; Autograde; Backhoes with Caisson Attachment; Batch Plant; Benoto (requires Two Engineers); Boiler and Throttle Valve; Caisson Rigs; Central Redi-Mix Plant; Combination Back Hoe Front End-loader Machine; Compressor and Throttle Valve; Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Conveyor (Truck Mounted); Concrete Paver Over 27E cu. ft; Concrete Paver 27E cu. ft. and Under: Concrete Placer; Concrete Placing Boom; Concrete Pump (Truck Mounted); Concrete Tower; Cranes, All; Cranes, Hammerhead; Cranes, (GCI and similar Type); Creter Crane; Spider Crane; Crusher, Stone, etc.; Derricks, All; Derricks, Traveling; Formless Curb and Gutter Machine; Grader, Elevating; Grouting Machines; Heavy Duty Self-Propelled Transporter or Prime Mover; Highlift Shovels or Front Endloader 2-1/4 yd. and over; Hoists, Elevators, outside type rack and pinion and similar machines; Hoists, One, Two and Three Drum; Hoists, Two Tugger One Floor; Hydraulic Backhoes; Hydraulic Boom Trucks; Hydro Vac (and similar equipment); Locomotives, All; Motor Patrol; Lubrication Technician; Manipulators; Pile Drivers and Skid Rig; Post Hole Digger; Pre-Stress Machine; Pump Cretes Dual Ram; Pump Cretes: Squeeze Cretes-Screw Type Pumps; Gypsum Bulker and Pump; Raised and Blind Hole Drill; Roto Mill Grinder; Scoops - Tractor Drawn; Slip-

Form Paver; Straddle Buggies; Operation of Tie Back Machine; Tournapull; Tractor with Boom and Side Boom; Trenching Machines.

Class 2. Boilers; Broom, All Power Propelled; Bulldozers; Concrete Mixer (Two Bag and Over); Conveyor, Portable; Forklift Trucks; Highlift Shovels or Front Endloaders under 2-1/4 yd.; Hoists, Automatic; Hoists, Inside Elevators; Hoists, Sewer Dragging Machine; Hoists, Tugger Single Drum; Laser Screed; Rock Drill (Self-Propelled); Rock Drill (Truck Mounted); Rollers, All; Steam Generators; Tractors, All; Tractor Drawn Vibratory Roller; Winch Trucks with "A" Frame.

Class 3. Air Compressor; Combination Small Equipment Operator; Generators; Heaters, Mechanical; Hoists, Inside Elevators (remodeling or renovation work); Hydraulic Power Units (Pile Driving, Extracting, and Drilling); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Low Boys; Pumps, Well Points; Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 4. Bobcats and/or other Skid Steer Loaders; Oilers; and Brick Forklift.

Class 5. Assistant Craft Foreman.

Class 6. Gradall.

Class 7. Mechanics; Welders.

OPERATING ENGINEERS - HIGHWAY CONSTRUCTION

Class 1. Asphalt Plant; Asphalt Heater and Planer Combination; Asphalt Heater Scarfire; Asphalt Spreader; Autograder/GOMACO or other similar type machines: ABG Paver; Backhoes with Caisson Attachment; Ballast Regulator; Belt Loader; Caisson Rigs; Car Dumper; Central Redi-Mix Plant; Combination Backhoe Front Endloader Machine, (1 cu. yd. Backhoe Bucket or over or with attachments); Concrete Breaker (Truck Mounted); Concrete Conveyor; Concrete Paver over 27E cu. ft.; Concrete Placer; Concrete Tube Float; Cranes, all attachments; Cranes, Tower Cranes of all types: Creter Crane: Spider Crane; Crusher, Stone, etc.; Derricks, All; Derrick Boats; Derricks, Traveling; Dredges; Elevators, Outside type Rack & Pinion and Similar Machines; Formless Curb and Gutter Machine; Grader, Elevating; Grader, Motor Grader, Motor Patrol, Auto Patrol, Form Grader, Pull Grader, Subgrader; Guard Rail Post Driver Truck Mounted; Hoists, One, Two and Three Drum; Heavy Duty Self-Propelled Transporter or Prime Mover; Hydraulic Backhoes; Backhoes with shear attachments up to 40' of boom reach; Lubrication Technician; Manipulators; Mucking Machine; Pile Drivers and Skid Rig; Pre-Stress Machine; Pump Cretes Dual Ram; Rock Drill - Crawler or Skid Rig; Rock Drill - Truck Mounted; Rock/Track Tamper; Roto Mill Grinder; Slip-Form Paver; Snow Melters; Soil Test Drill Rig (Truck Mounted); Straddle Buggies; Hydraulic Telescoping Form (Tunnel); Operation of Tieback Machine; Tractor Drawn Belt Loader; Tractor Drawn Belt Loader (with attached pusher - two engineers); Tractor with Boom; Tractaire with Attachments; Traffic Barrier Transfer Machine; Trenching; Truck Mounted Concrete Pump with Boom; Raised or Blind Hole Drills (Tunnel Shaft); Underground Boring and/or Mining Machines 5 ft. in diameter and over tunnel, etc; Underground Boring and/or Mining Machines under 5 ft. in diameter; Wheel Excavator; Widener (APSCO).

Class 2. Batch Plant; Bituminous Mixer; Boiler and Throttle Valve; Bulldozers; Car Loader Trailing Conveyors; Combination Backhoe Front Endloader Machine (Less than 1 cu. yd. Backhoe Bucket or over or with attachments); Compressor and Throttle Valve; Compressor, Common Receiver (3); Concrete Breaker or Hydro Hammer; Concrete Grinding Machine; Concrete Mixer or Paver 7S

Series to and including 27 cu. ft.; Concrete Spreader; Concrete Curing Machine, Burlap Machine, Belting Machine and Sealing Machine; Concrete Wheel Saw; Conveyor Muck Cars (Haglund or Similar Type); Drills, All; Finishing Machine - Concrete; Highlift Shovels or Front Endloader; Hoist - Sewer Dragging Machine; Hydraulic Boom Trucks (All Attachments); Hydro-Blaster; Hydro Excavating (excluding hose work); Laser Screed; All Locomotives, Dinky; Off-Road Hauling Units (including articulating) Non Self-Loading Ejection Dump; Pump Cretes: Squeeze Cretes - Screw Type Pumps, Gypsum Bulker and Pump; Roller, Asphalt; Rotary Snow Plows; Rototiller, Seaman, etc., self-propelled; Self-Propelled Compactor; Spreader - Chip - Stone, etc.; Scraper - Single/Twin Engine/Push and Pull; Scraper - Prime Mover in Tandem (Regardless of Size); Tractors pulling attachments, Sheeps Foot, Disc, Compactor, etc.; Tug Boats.

Class 3. Boilers; Brooms, All Power Propelled; Cement Supply Tender; Compressor, Common Receiver (2); Concrete Mixer (Two Bag and Over); Conveyor, Portable; Farm-Type Tractors Used for Mowing, Seeding, etc.; Forklift Trucks; Grouting Machine; Hoists, Automatic; Hoists, All Elevators; Hoists, Tugger Single Drum; Jeep Diggers; Low Boys; Pipe Jacking Machines; Post-Hole Digger; Power Saw, Concrete Power Driven; Pug Mills; Rollers, other than Asphalt; Seed and Straw Blower; Steam Generators; Stump Machine; Winch Trucks with "A" Frame; Work Boats; Tamper-Form-Motor Driven.

Class 4. Air Compressor; Combination - Small Equipment Operator; Directional Boring Machine; Generators; Heaters, Mechanical; Hydraulic Power Unit (Pile Driving, Extracting, or Drilling); Light Plants, All (1 through 5); Pumps, over 3" (1 to 3 not to exceed a total of 300 ft.); Pumps, Well Points; Vacuum Trucks (excluding hose work); Welding Machines (2 through 5); Winches, 4 Small Electric Drill Winches.

Class 5. SkidSteer Loader (all); Brick Forklifts; Oilers.

Class 6. Field Mechanics and Field Welders

Class 7. Dowell Machine with Air Compressor; Gradall and machines of like nature.

OPERATING ENGINEER - FLOATING

Class 1. Craft Foreman; Master Mechanic; Diver/Wet Tender; Engineer; Engineer (Hydraulic Dredge).

Class 2. Crane/Backhoe Operator; Boat Operator with towing endorsement; Mechanic/Welder; Assistant Engineer (Hydraulic Dredge); Leverman (Hydraulic Dredge); Diver Tender.

Class 3. Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more); Tug/Launch Operator; Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock, or Scow, Deck Machinery, etc.

Class 4. Deck Equipment Operator, Machineryman/Fireman (4 Equipment Units or More); Off Road Trucks; Deck Hand, Tug Engineer, Crane Maintenance (50 Ton Capacity and Under) or Backhoe Weighing (115,000 pounds or less); Assistant Tug Operator.

Class 5. Friction or Lattice Boom Cranes.

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Class 6. ROV Pilot, ROV Tender

SURVEY WORKER

Operates survey equipment (such as levels, transits, data collectors, GPS and robotic total stations) for the purpose of performing construction layout and/or grade checking.

SURVEY FOREMAN

Operates survey equipment (such as levels, transits, data collectors, GPS and robotic total stations) for the purpose of performing construction layout and/or grade checking; oversees survey crew operations; and/or coordinates work of survey crews.

TERRAZZO FINISHER

The handling of sand, cement, marble chips, and all other materials that may be used by the Mosaic Terrazzo Mechanic, and the mixing, grinding, grouting, cleaning and sealing of all Marble, Mosaic, and Terrazzo work, floors, base, stairs, and wainscoting by hand or machine, and in addition, assisting and aiding Marble, Masonic, and Terrazzo Mechanics.

TRAFFIC SAFETY Worker I

Traffic Safety Worker I - work associated with the delivery, installation, pick-up and servicing of safety devices during periods of roadway construction, including such work as set-up and maintenance of barricades, barrier wall reflectors, drums, cones, delineators, signs, crash attenuators, glare screen and other such items, and the layout and application or removal of conflicting and/or temporary roadway markings utilized to control traffic in construction zones, as well as flagging for these operations.

TRAFFIC SAFETY WORKER II

Work associated with the installation and removal of permanent pavement markings and/or pavement markers including both installations performed by hand and installations performed by truck.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION - EAST & WEST

Class 1. Two or three Axle Trucks. A-frame Truck when used for transportation purposes; Air Compressors and Welding Machines, including those pulled by cars, pick-up trucks and tractors; Ambulances; Batch Gate Lockers; Batch Hopperman; Car and Truck Washers; Carry-alls; Fork Lifts and Hoisters; Helpers; Mechanics Helpers and Greasers; Oil Distributors 2-man operation; Pavement Breakers; Pole Trailer, up to 40 feet; Power Mower Tractors; Self-propelled Chip Spreader; Skipman; Slurry Trucks, 2-man operation; Slurry Truck Conveyor Operation, 2 or 3 man; Teamsters; Unskilled Dumpman; and Truck Drivers hauling warning lights, barricades, and portable toilets on the job site.

Class 2. Four axle trucks; Dump Crets and Adgetors under 7 yards; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump Turnapulls or Turnatrailers when pulling other than self-loading equipment or similar equipment under 16 cubic yards; Mixer Trucks under 7 yards; Ready-mix Plant Hopper Operator, and Winch Trucks, 2 Axles.

Class 3. Five axle trucks; Dump Crets and Adgetors 7 yards and over; Dumpsters, Track Trucks, Euclids, Hug Bottom Dump

Turnatrailers or turnapulls when pulling other than self-loading equipment or similar equipment over 16 cubic yards; Explosives and/or Fission Material Trucks; Mixer Trucks 7 yards or over; Mobile Cranes while in transit; Oil Distributors, 1-man operation; Pole Trailer, over 40 feet; Pole and Expandable Trailers hauling material over 50 feet long; Slurry trucks, 1-man operation; Winch trucks, 3 axles or more; Mechanic--Truck Welder and Truck Painter.

Class 4. Six axle trucks; Dual-purpose vehicles, such as mounted crane trucks with hoist and accessories; Foreman; Master Mechanic; Self-loading equipment like P.B. and trucks with scoops on the front.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

MATERIAL TESTER & MATERIAL TESTER/INSPECTOR I AND II

Notwithstanding the difference in the classification title, the classification entitled "Material Tester I" involves the same job duties as the classification entitled "Material Tester/Inspector I". Likewise, the classification entitled "Material Tester II" involves the same job duties as the classification entitled "Material Tester/Inspector II".

Cook County Prevailing Wage Rates posted on 7/15/2026

City of Evanston has partnered with **Euna OpenBids** – an online network connecting local governments with suppliers across the nation. Euna OpenBids is open and accessible to all businesses. Euna OpenBids gives you instant access to RFPs, bids, quotes, and other opportunities with City of Evanston.

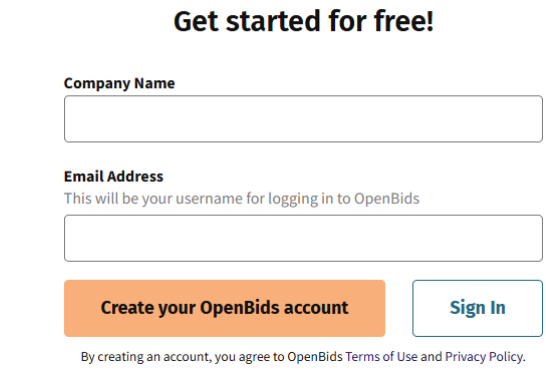
By registering for a complimentary account with Euna OpenBids, you get Instant Access to bids for City of Evanston. Your free Euna OpenBids account provides:

- **Instant** access to all bid and quotes for City of Evanston
- **Automatic** notifications from City of Evanston right to your inbox
- The ability to **quickly view** the contractual terms and scope of work
- All the **forms and documents** you need in one place.

It's Easy! Get started in 4 easy steps.

REGISTER

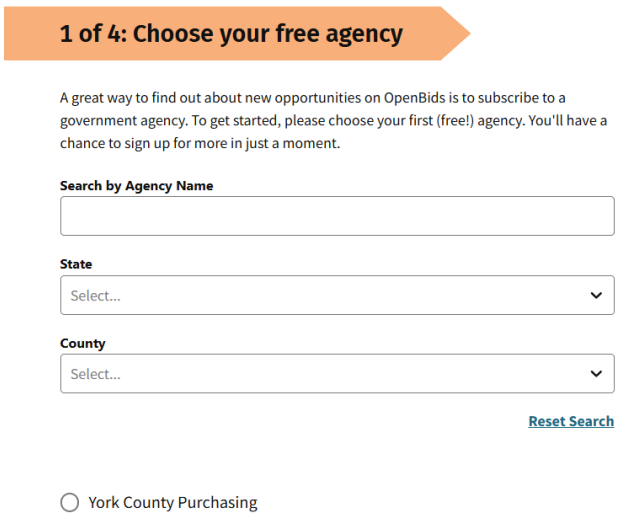
Go to
demandstar.com/registration



STEP 1

CHOOSE YOUR FREE AGENCY

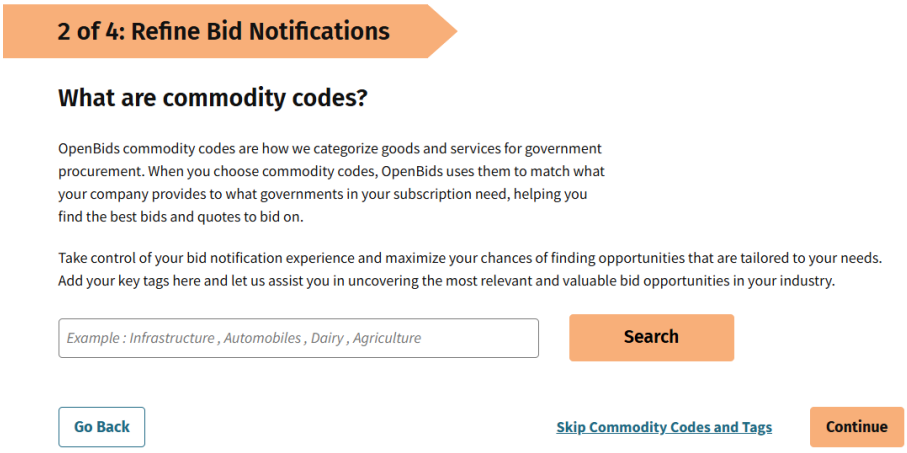
Type "City of Evanston" in the Search Box, select the agency, then click "Next" .



STEP 2

CHOOSE COMMODITY CODES

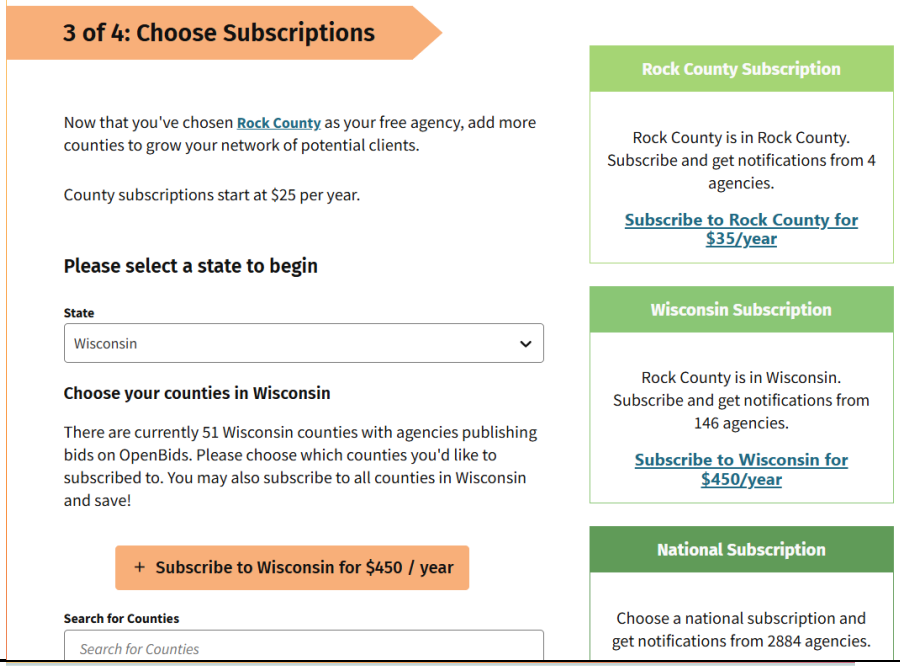
Get notifications – ones that are relevant to your business by describing what you offer via “commodity codes”



STEP 3

CHOOSE MORE NOTIFICATIONS

Click “Continue without Adding Subscriptions” to proceed to City of Evanston specifically. Or, if you’d like to get notifications when other governments near you post a relevant solicitation, you can select any combination of our county, state or national plans on this page.

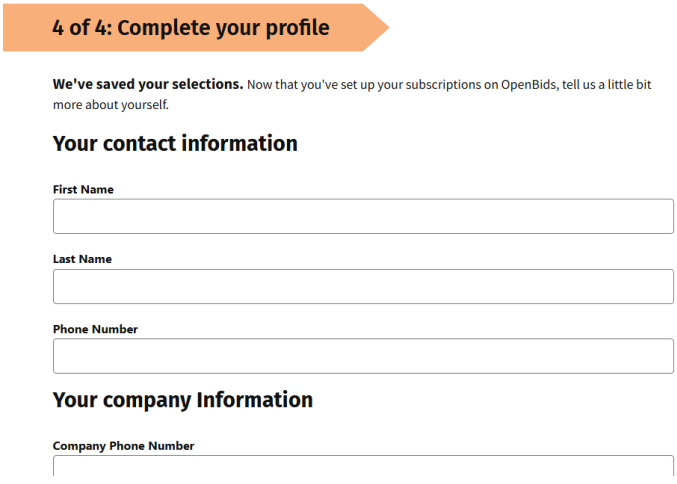


STEP 4

COMPLETE YOUR PROFILE

Enter your contact and company information and Click “Finish Registration”. You’ll receive an email to set up your password.

You’re done!



EUNA solutions

EUNA OpenBids