City of Green Bay
Wisconsin

CONTRACT DOCUMENTS

BIDDER'S PROPOSAL
for
PUBLIC WORKS CONSTRUCTION

"TRANSIT 1-22 BUS LIFT REPLACEMENT"

NOTE TO BIDDERS

ANY DESIGN QUESTIONS PERTAINING TO THIS PROJECT SHALL BE DIRECTED TO:

DEPARTMENT OF PUBLIC WORKS
100 N. JEFFERSON STREET
GREEN BAY, WI 54301
(920) 448-3100

Only the Bidder's Proposal Pages, Bid Bond or Certified Check, and any Addenda issued shall be submitted.

CONTRACTOR:_____

CONTRACT AWARDED ON: _____, ____

I HEREBY APPROVE OF THE LEGAL FORM OF THE CONTRACTS AND BONDS HEREIN.

_____ _____
CITY ATTORNEY DATE

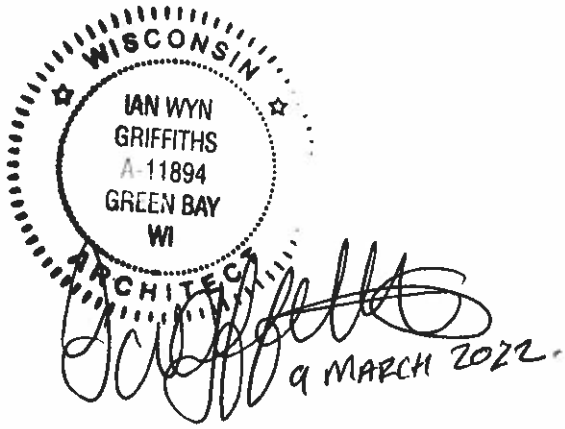
I HEREBY CERTIFY THAT THE NECESSARY FUNDS HAVE BEEN ALLOCATED TO PAY FOR THE WORK IDENTIFIED IN THE CONTRACTS HEREIN.

_____ _____
CITY COMPTROLLER DATE

I HEREBY CERTIFY THAT THE REQUISITE PROOF OF INSURANCE FOR THE WORK DESCRIBED IN THE CONTRACTS HEREIN HAS BEEN PROVIDED.

_____ _____
RISK MANAGEMENT DIVISION DATE

SPECIFICATIONS



DIVISION 26 ELECTRICAL

26 05 00 Basic Electrical Requirements, 7 pages
26 05 02 Electrical Demolition for Remodeling, 2 pages
26 05 19 Electrical Power Conductors and Cables, 4 pages
26 05 26 Grounding and Bonding, 2 pages
26 05 29 Hangers and Supports for Electrical Piping and Equipment, 2 pages
26 05 33 Raceway and Boxes for Electrical Systems, 5 pages
26 05 53 Identification for Electrical Systems, 2 pages
26 27 26 Wiring Devices, 3 pages
26 27 28 Disconnect Switches, 2 pages
26 28 13 Fuses, 1 page

DIVISION 31 EARTHWORK

31 00 00 Earthwork, 5 pages
31 50 00 Excavation Support and Protection, 5 pages

APPENDIX/ATTACHMENT

Lift Manufacturer's Drawings "For Info Only"

DRAWINGS (Bound Separately)

Architectural	A001, AD101, A101, A301, A401, A402, A403, A404, A501
Plumbing	PD101, PD102, P101, P102
Electrical	ED101, E101, E601

Vendor Drawings

SECTION 00 11 00

NOTICE TO CONTRACTORS

Contract: Transit 1-22 Bus Lift Replacement
City of Green Bay, Wisconsin

Sealed proposals will be received in the Office of the City Clerk/Treasurer of the City of Green Bay, Room 106, City Hall, 100 North Jefferson Street, Green Bay, Wisconsin, 54301 until 2:00 P.M. on April 12, 2022 at which time they will be opened in Room 310, City Hall, for Public Works Improvement Contract:

Transit 1-22 Bus Lift Replacement

in accordance with the contract documents, all of which are on file in the City Clerk's/Treasurer's Office and the Director of Public Works Office in the Green Bay City Hall.

In general, the Project involves removal and replacement of (5) metro garage bus lifts. Project includes phasing, demolition and new infrastructure. The lifts themselves will be furnished and installed under separate contract.

A pre-bid meeting will be held at Green Bay Metro Transit located at 901 University Avenue on March 30, 2022 at 2:00 P.M.

Bids will be received for one contract which includes all Work necessary and/or required to complete the project per the Contract Documents.

All work required in this contract shall be completed by September 31, 2022.

The Contract Documents, including plans and specifications, may be examined electronically and downloaded at www.demandstar.com or http://vendornet.state.wi.us/vendornet.

The work shall be let in accordance with the following Sections of the Wisconsin Statutes.

1. Section 62.15 regarding public works construction.
2. Section 779.15 regarding lien on contractors
3. Section 66.0901(2) regarding proof of responsibility.

All bidders shall provide proof of responsibility on the form furnished by the Director of Public Works and it shall be filed with the Director of Public Works not less than five (5) days prior to the time set for opening of bids. Proof of Responsibility form can be found on the City's website: https://greenbaywi.gov/796/engineering. Said proof of responsibility shall not be valid if filed prior to one year of the date of opening bids.

In accordance with Section 9.16 of the City of Green Bay Code of Ordinances, any corporation, firm, or individual violating Chapter 133.01 of the Wisconsin Statutes, or any subsequent amendment thereof, shall upon conviction thereof be thereby disqualified as a bidder on any City of Green Bay project for a period of three (3) years from the date of such conviction; however, nothing herein shall be interpreted to preclude such corporation, firm, or individual from completing any and all contracts he/she may already have with the City at the time of such conviction, nor shall this ordinance be applied retroactively to convictions occurring prior to the adoption and publication of this ordinance. This prohibition applies with like force to officers of convicted corporations, firms, or individuals who thereafter have business interest in new corporations or business enterprises of whatever kind or description.

Sealed bids shall be delivered and addressed to the City Clerk/Treasurer, Room 106, City Hall, 100 North Jefferson Street, Green Bay, Wisconsin, 54301.

The Transit Commission reserves the right to reject any or all bids and to waive any informalities in bidding.

No bids shall be withdrawn after the opening of bids without the consent of the Transit Commission for a period of sixty (60) days after the scheduled time for closing bids.

All proposals must be submitted on the Bidder's Proposal provided for that purpose and issued to the specific bidder by the Director of Public Works together with a certified check or a bid bond equal to at least five (5) but not more than ten (10) percent of the bid payable to the City of Green Bay as a guarantee that if his/her bid is accepted, he/she will execute and file the contract and a performance bond in the amount of one hundred percent (100%) of the total bid within ten (10) days after the award of the contract. Only the Bidder's Proposal Pages, Bid Bond or Certified Check, any Addenda issued, and the **Government-Wide Debarment and Suspension Certification and Lobbying Certification from the Required Federal Certifications and Clauses** portion of the bid package shall be submitted.

In case the successful bidder shall fail to execute such contract and performance bond, the amount of the check or bid bond shall be forfeited to the Transit Commission as liquidated damages.

Attention is called to the fact that not less than the minimum salaries and wages, as set forth in the Contract Documents, must be paid in the performance of this work.

Contractor shall abide by the Required Federal Certifications and Clauses as set forth in the Contract Documents. All associated costs shall be considered incidental to the work.

Published by the authority of the Transit Commission of the City of Green Bay, Wisconsin.

Advertised: March 21, 2022
March 28, 2022
April 4, 2022

By: Roger Kolb, Chairperson

***

SECTION 00 21 00

INSTRUCTIONS TO BIDDERS

1. SUBMISSION OF BIDS

A. Proposals must be placed in a sealed envelope addressed to the City Clerk/Treasurer, Room 106, City Hall, 100 North Jefferson Street, Green Bay, Wisconsin, 54301 and marked "Transit 1-22 Bus Lift Replacement". The sealed envelope shall also be marked to indicate the base bid or part for which the bid is being submitted (e.g. - Part "A", Part "A" and Part "B", Base Bid 3, or Base Bid 1 and Base Bid 4).

B. The legal business name of the contractor submitting the proposal shall also appear on the outside of the sealed envelope.

C. Bidders are to submit their proposal on the Bidder's Proposal form provided. Only the Bidder's Proposal Pages, Bid Bond or Certified Check, any Addenda issued, and the **Government-Wide Debarment and Suspension Certification and Lobbying Certification from the Required Federal Certifications and Clauses** portion of the bid package shall be submitted.

2. PROOF OF RESPONSIBILITY

A. Each Bidder shall demonstrate qualifications to the satisfaction of the Transit Commission. All Bidders shall provide proof of responsibility on the form furnished by the Director of Public Works, and it shall be on file with the Director of Public Works not less than five (5) calendar days prior to the date and time set for opening of bids. Said proof shall include written evidence that Bidder maintains a permanent place of business, has adequate labor and equipment to perform the work properly and expeditiously, has adequate financial capability, has adequate experience, and has authority to conduct business in the State of Wisconsin.

1. Forms are located on City's website: https://greenbaywi.gov/796/Engineering.

3. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. Before submitting a bid, each Bidder shall:

1. Examine the Contract Documents thoroughly, including work required by other trades;

2. Visit the site to become familiar with local conditions that may in any manner affect cost, progress, and performance of furnishing the work

3. Become familiar with federal, state, and local laws, ordinances, rules and regulations that may in any manner affect cost, progress, and performance of furnishing the work; and

4. At Bidder's own expense, make such surveys and investigations as may be deemed necessary to determine a bid price for performance of the work within the terms of the Contract Documents. (NOTE: Bidder shall obtain property owner's permission, as necessary, prior to commencement of any such activity).

B. Bidder shall promptly notify Engineer, at least five (5) calendar days prior to bid opening, of any conflicts, errors, ambiguities, or discrepancies which bidder has discovered in or between the Contract Documents and such other related documents.

4. INTERPRETATION OF CONTRACT DOCUMENTS

A. All questions about the meanings or intent of the Contract Documents shall be submitted to the City in writing. Replies will be issued by addendum posted on www.demandstar.com and http://vendornet.state.wi.us/vendornet . Only questions answered by formal written addendum shall be binding. Oral and other interpretations or clarifications shall be without legal effect.

B. In order to guarantee a response, questions shall be submitted no later than four (4) calendar days prior to the bid opening date. Engineer shall attempt to address questions up to twenty-four (24) hours prior to the bid opening but shall not guarantee such a response. No questions submitted less than twenty-four (24) hours prior to the bid opening shall be addressed.

5. SUBSTITUTION OF MATERIALS

A. Certain materials are specified by manufacturer in order to establish standards of quality, not to limit competition. Where an item of material is specified to be a certain manufacturer's make, then the Bidder's Proposal shall include such material as specified unless approved otherwise.

B. Up to seven (7) days prior to the bid date, a Bidder or manufacturer may request approval in writing of an item of material by submitting adequate product data to the Engineer for evaluation. Included with the product data shall be a list of five (5) or more similar projects where the product has been used under similar conditions. The list of projects shall include their location and the name and phone number of the owner's representative. The substitute product shall have been in place for a minimum of three (3) years at each location. Notice of approval shall be given only by an addendum issued by the Engineer. No verbal or other written approval will be given.

C. Within ten (10) days after award of Contract, the Contractor may submit alternate proposals for other kinds of material that they consider equal to those specified. These proposals for substitute products shall be submitted in writing to the Engineer for evaluation. There shall be included all pertinent product data and samples thereof, as well as a listing of five (5) or more similar projects where the product has been used under similar conditions. The list of projects shall include their location and name and phone number of the owner's representative. The substitute product shall have been in place for a minimum of three (3) years at each location. Any cost differences shall be included with submittal. If the requested change is acceptable to the Engineer, then a change order will be prepared. If the requested change is not acceptable, the Contractor shall be obligated to furnish the item as specified.

6. ESTIMATE OF QUANTITIES

A. An estimate of the quantity of work to be performed under the Contract is stipulated in the proposal. The quantities of work may be considered as approximate and for comparison of bids only. The City does not guarantee nor imply that the actual quantities involved in the work will correspond exactly therewith and shall not be liable for any misunderstanding as to the exact quantities, location, or conditions pertaining to the work. No adjustment in the contract unit prices will be made due to any variance between bid quantities and the actual measured quantities.

7. PERMITS AND LICENSES

A. Bidder is responsible, unless otherwise noted in the Agreement, for determining the applicable permits, licenses, and other approvals and authorizations required by law for performance of work and shall include such costs in their Bidder's Proposal. No extra compensation shall be paid by the City to the successful bidder for failure to include these costs in its Bidder's Proposal.

8. DISCLOSURE OF OWNERSHIP

A. Each bidder submitting a bid shall execute the Disclosure of Ownership Form DWD-ERD-7777 (R. 01/2011), if applicable.

B. Any bidder disclosing information hereunder is aware of and agrees to be bound by Chapter DWD 294, Wisconsin Administrative Code.

9. SUBSTANCE ABUSE PREVENTION AFFIDAVIT

A. Each Bidder submitting a bid on Contract shall execute the Affidavit of Compliance with Section 103.503, Wisconsin Statutes, regarding substance abuse prevention on public works contracts.

10. SUBCONTRACTORS

A. Section 66.0901(7), Wis. Statutes, provides that a Bidder, as part of the proposal, shall submit a list of Subcontractors proposed to be used on the contract with and the class of work to be performed by, provided that to qualify for such listing each Subcontractor must first submit their bid in writing to the General Contractor at least 48 hours prior to the time of the bid closing. It further provides that a proposal of a bidder shall not be invalid if any subcontractor, and the class of work to be performed by such subcontractor, has been omitted from the proposal.

B. No subcontract, whether listed or later proposed, may be entered into without the written consent of the Engineer.

11. TIME OF COMPLETION

A. Time of completion of each part of the work under the Contract will be specified in the Contract Documents as a specific number of work days, calendar days including Sundays and Holidays, or a given calendar day on or before which the work shall be completed, as well as a fixed and agreed amount of liquidated damages due the City from the Contractor for failure to complete the work in the specified time. It is agreed and understood that the completion of the work within the time as specified is an integral part of the Contract. The starting date of the Contract will be the date the Contractor begins work on that particular part of the Contract, but in no event will it be later than the date the Engineer requests the Contractor to begin work on that particular part of the Contract by written notification.

B. Work shall be prosecuted effectively and diligently to completion. Once work on the Contract has commenced, the contractor shall proceed continuously to completion. Failure to begin operations, or failure to diligently prosecute the work, may be considered as a breach of Contract and render the Contractor liable to action under the Contract, or the revocation or suspension of the Contractor's privilege to bid additional work, or both. Failure to proceed continuously in prosecution of the work, may also result in the denial to authorize work during weekends or holidays.

C. In the event that the Contractor is successful in being awarded more than one part of a Contract, or multiple City contracts, the work shall be performed on each part or Contract concurrently and continuously in order that the completion dates are met. Prior to being awarded two or more parts or Contracts, the Contractor shall submit to the Engineer, in writing, a work schedule and evidence that the Contractor has adequate labor and equipment to meet the completion dates of all Contract parts.

D. Contract time will not be charged during periods of complete suspension of operations, when approved by the City in conjunction with an order by the Engineer suspending operations.

E. Contract time may be extended in an amount as is mutually agreed upon by the Engineer and the Contractor, on the basis of contract change orders involving alterations in the Contract affecting the prosecution of work, or involving extra or additional work, when such alterations are necessary for the purpose or convenience of the City when such extra additional work is of such character or is ordered to be done at such a time that the amount of time reasonably necessary to perform such work is disproportionate to the contract specific originally set up in the proposal. Any agreement for extended time on this account shall be arrived at concurrently with and as a part of the consideration for the specific alteration or extra or additional work covered by that order.

F. Permitting the Contractor to continue working after the expiration of the time fixed for its completion or after the date of time extension shall in no way act as a waiver on the part of the City for any of its rights under the Contract.

12. BID DEPOSIT

A. No bid shall be considered unless accompanied by a bid deposit of the character and amount described in the Notice to Contractors.

B. The City will return the bid deposit of unsuccessful bidders following the award of the Contract by the Common Council. The bid deposit for the successful bidder will be returned following the execution of the Contract and submittal of required Performance and Payment Bond within ten (10) calendar days after the award of the Contract.

13. REQUIREMENTS FOR SIGNING PROPOSALS

A. Proposals that are not signed by individuals making them should have attached thereto a power of attorney evidencing authority to sign the proposal in the name of the person to whom it is signed.

B. Proposals that are signed for a partnership should be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there should be attached to the proposal a power of attorney evidencing authority to sign the proposal executed by the partners.

C. Proposals that are signed for a corporation should have the correct corporate name thereof and the signature of the president or other authorized officer of the corporation, manually written in the signature block. If such a proposal is manually signed by an officer other than the president of the corporation, a certified copy of a resolution of the Board of Directors evidencing the authority of such official to sign the proposal should be attached to it. Such proposal should also bear the attesting signature of the secretary of the corporation and the impression of the corporate seal.

14. WITHDRAWAL OF BIDS

A. All proposals filed with the City will be kept secure and unopened and will not be allowed to pass out of the custody of a representative for the City, except on written request of the Bidder or the Bidder's authorized representative made prior to the time set for receipt of proposals, and if such withdrawal is made, such prospective Bidder shall not be entitled to bid on the Contract at hand unless the same is re-advertised and proposals are again requested upon such advertisement.

B. No bid shall be withdrawn after the opening of the bids without the consent of the City for a period of sixty (60) days after the bid opening.

15. OPENING OF BIDS

A. Bids will be publicly opened on the date, time and place as indicated in the Notice to Contractors.

16. AWARD OF CONTRACT

A. The Contract will be awarded to the responsible Bidder submitting the lowest acceptable base bid plus any accepted alternates. The City reserves the right to reject the bid of any bidder who is incompetent or otherwise unreliable for the performance of the work bid. The City further reserves the right to reject any and all proposals, to waive technicalities, to re-advertise for bids, or to proceed to do the work otherwise, if in the best interest of the City will be served thereby.

17. BIDS TO REMAIN OPEN

A. All bids shall remain open for sixty (60) calendar days after the date of the bid opening unless otherwise noted in the Notice to Contractor.

18. WHEN AWARD EFFECTUAL

A. The Contract shall be deemed as having been awarded when a written notice of award has been duly served to the successful bidder by an officer or agent of the City duly authorized to give such notice.

19. INSTRUCTIONS FOR SIGNING CONTRACT

A. If the Contract is signed by the secretary of the corporation, the certificate as to Corporate Principal should be executed by some other officer of the corporation, under the corporate seal. In lieu of aforementioned certificate, there may be attached to the Contract copies of such records of the corporation as will show the official character and authority of the officers signing, duly certified by the secretary or assistant secretary under the corporate seal to be true copies.

B. The full name and business address of the Contractor should be inserted and the Contract should be signed with his/her official signature. The name of the signing party or parties shall be typewritten or printed under all signatures to the Contract. Contracts that are signed for a partnership should be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there should be attached to the Contract a power of attorney evidencing authority to sign the Contract executed by the partners.

C. If the Contractor is an individual, the trade name (if the Contractor is operating under a trade name) should be indicated in the Contract and such individual should sign the Contract. Contracts that are not signed by individuals making them should have attached thereto a power of attorney evidencing authority to sign the Contract in the name of the person to whom it is signed.

20. PERFORMANCE AND PAYMENT BOND

A. The Contractor shall file with the City, within ten (10) calendar days after the written Notice of Award, a Payment and Performance Bond on the prescribed form in the full amount of the contract price as security for the payment of all persons supplying labor, services, and materials for the execution of the work and the faithful performance of the Contract. The bond shall remain in effect for a period of one year after the date of final acceptance of the work by the City. The surety furnishing this bond shall have a sound financial standing, a record of service satisfactory to the City, and shall be authorized to do business in the State of Wisconsin.

1. Prescriptive Forms

a. AIA Document A312-2010 Performance Bond
b. AIA Document A312-2010 Payment Bond

21. WAGES AND SALARIES

A. Attention of Bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and salary rates specified in the Contract Documents and the conditions of employment with respect to certain categories and classifications of employees.

B. The rates of pay set forth in the Contract Documents are the minimums to be paid during the life of the contract. It is, therefore, the responsibility of Bidders to acquaint themselves with local labor conditions, such as the length of workday and work week, overtime compensation, health and welfare contributions, labor supply, and prospective changes or adjustments of rates.

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BIDDER'S PROPOSAL

PUBLIC WORKS IMPROVEMENTS CONTRACT: Transit 1-22 Bus Lift Replacement
City of Green Bay, Wisconsin

TO THE:
Transit Commission
City of Green Bay, Wisconsin

The undersigned Bidder, having carefully examined in detail all contract documents, drawings, and specifications for this contract, "Transit 1-22 Bus Lift Replacement", which are on file in the office of the City Clerk/Treasurer at the City Hall, 100 North Jefferson Street, Green Bay, Wisconsin, and fully understanding the local conditions affecting the cost of the work, hereby proposes to furnish all labor, materials, tools, and equipment to perform the work stipulated in, required by, and in accordance with the proposed contract documents referred to therein (as altered, amended, or modified by addenda) and for and in consideration of the following prices.

Item No.	Description	Est. Qty.	Unit	Unit Price	Total
1.00	Repair Bay 152 Work (Sequence 2)	1	LS		
2.00	Wash Bay Repairs (Sequence 1)	1	LS		
3.00	Concrete Stoop Repair	1	LS		
4.00	Asphalt Driveway Repair	1	LS		
Total "Transit 1-22 Bus Lift Replacement"					

Bidder has executed the Disclosure of Ownership Form DWD-ERD-7777 (R.01/2011)

☐ Yes ☐ Not Applicable

Bidder proposes to employ the following subcontractors for the stated categories of work within the contract:

CATEGORY OF WORK	SUBCONTRACTOR

Accompanying this proposal is a certified check or Bid Bond in the amount of_____
_____ ($_____)

as required in the Notice to Contractors.

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The undersigned Bidder agrees to furnish the required performance and payment bonds and to execute the Contract within ten (10) days after the award of the contract and agrees to complete all work covered by the foregoing proposal in accordance with the Contract Documents.

I hereby certify that all statements herein are made on behalf of

_____

(Name of corporation, partnership, or person submitting bid)

a corporation organized and existing under the laws of the State of _____;

a partnership consisting of _____;

an individual trading as _____

of the City of _____, State of _____;

Federal Tax Identification Number _____

and, that:

(1) I am fully informed in respect to the preparation and content of the attached Bid, and of all pertinent circumstances respecting such Bid;

(2) Such Bid is genuine and is not collusive or a sham bid;

(3) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm or persons, to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted, or to refrain from bidding in connection with such Contract; or has in any manner directly or indirectly, sought by agreement, collusion, communication, or conference with any other Bidder, firm, or person, to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the bid price, or the bid price of any other Bidder, or to secure through any collusion conspiracy, connivance, or unlawful agreement, any advantage against the City of Green Bay, Wisconsin, or any person interested in the proposed Contract; and

(4) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder, or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Signature _____

_____

(Title, if any)

Sworn and subscribed to before me this _____ day of _____, 20___.

_____

Notary or other officer authorized to administer oaths.

My Commission Expires _____

(Bidders should not add any conditions or qualifying statements to this proposal as otherwise the proposal may be declared irregular as being not responsive to the notice.)

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State of Wisconsin
Department of Workforce Development
Equal Rights Division

Disclosure of Ownership

The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d), 66.0904(10)(d) and 103.49(7)(d), Wisconsin Statutes.
The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.
Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1) (m), Wisconsin Statutes].

(1) On the date a contractor submits a bid to or completes negotiations with a state agency, local governmental unit, or developer, investor or owner on a project subject to Section 66.0903, 66.0904 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency, local governmental unit, or developer, investor or owner, the name of any "other construction business," which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.

(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 66.0904(2), 103.49(2) and 103.50(2), Wisconsin Statutes.

(3) This form must ONLY be filed, with the state agency project owner, local governmental unit project owner, or developer, investor or owner of a publicly funded private construction project that will be awarding the contract, if **both (A) and (B) are met.**

(A) The contractor, or a shareholder, officer or partner of the contractor:
(1) Owns at least a 25% interest in the "other construction business," indicated below, on the date the contractor submits a bid or completes negotiations; or
(2) Has owned at least a 25% interest in the "other construction business" at any time within the preceding three
(3) years.

(B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for hours worked in excess of the prevailing hours of labor, to any employee at any time within the preceding three (3) years.

Other Construction Business

Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code
Business Name			
Street Address or P O Box	City	State	Zip Code

I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.

Print the Name of Authorized Officer			
Authorized Officer Signature	Date Signed		
Corporation, Partnership or Sole Proprietorship Name			
Street Address or P O Box	City	State	Zip Code

If you have any questions, call (608) 266-6861.

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AFFIDAVIT OF COMPLIANCE
WITH SECTION 103.503, WIS. STATUTES, REGARDING SUBSTANCE ABUSE PREVENTION ON PUBLIC WORKS CONTRACTS

State of Wisconsin)
)ss.
County of _____)

_____, being first duly sworn, on oath, deposes and states that:

1. I am an officer or partner or individual of the contractor, who is authorized to make this affidavit on behalf thereof.

2. I am the contractor responsible for submitting a bid to the City of Green Bay.

3. I understand that I must comply with Section 103.503, Wisconsin Statutes, "Substance Abuse Prevention on Public Works Contracts."

4. I certify that I and the subcontractors that I intend to use have written substance abuse prevention programs in effect during the time of any contract agreement.

5. To the best of my knowledge, I comply with all of the provisions of Section 103.503, Wisconsin Statutes, "Substance Abuse Prevention on Public Works Contracts."

6. I understand that if I am found non-compliant with Section 103.503, Wisconsin Statutes, the City of Green Bay, in its sole discretion, may remove my company from the list of pre-qualified contractors or decline the award of a bid.

_____
Signature

_____
Print Name

_____
Title

_____
Name of Corporation, Partnership or Sole Proprietorship

Subscribed and sworn to before me
this _____ day of _____, 20__.

_____
Notary Public, State of Wisconsin
My Commission _____

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SECTION 00 52 00

AGREEMENT FORM

PART 1 GENERAL

1.01 SUMMARY

A. The successful bidder will be required to enter into an agreement with the Owner incorporating the attached AIA Document A105-2017, Standard Short Form of Agreement Between Owner and Contractor.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

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AIA® Document A105™ – 2017

Standard Short Form of Agreement Between Owner and Contractor

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

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

CITY OF GREEN BAY
100 North Jefferson Street
Room 106
Green Bay, Wisconsin 54301

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

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

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

Transit 1-22 Bus Lift Replacement
901 University Avenue
Green Bay, Wisconsin 54302

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

BERNERS-SCHOBER ASSOCIATES, INC.
310 Pine Street
Green Bay, Wisconsin 54301

The Owner and Contractor agree as follows.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

.1 this Agreement signed by the Owner and Contractor;

.2 the drawings and specifications prepared by the Architect, dated , and enumerated as follows:

Drawings:

Number	Title	Date

Specifications:

Section	Title	Pages

.3 addenda prepared by the Architect as follows:

Number	Date	Pages

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

Exhibit A – Insurance

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

§ 2.2 Date of Commencement:
Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.
(Insert the date of commencement if other than the date of this Agreement.)

Within 10 days of Notice to Proceed

§ 2.3 Substantial Completion:
Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:
(Check the appropriate box and complete the necessary information.)

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

[ ] By the following date:

ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is:

($)

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:
(Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:
(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:
(Identify each allowance.)

Item	Price

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

Item	Units and Limitations	Price per Unit ($0.00)

ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12, as follows:
(Insert below timing for payments and provisions for withholding retainage, if any.)

N/A

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

N/A %

ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance until the expiration of the period for correction of Work as set forth in Section 14.2, subject to the terms and conditions set forth in ~~this Section 5.1:~~the enclosed Exhibit A.

~~**§ 5.1.1** Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than ($) each occurrence, ($) general aggregate, and ($) aggregate for products-completed operations hazard.~~

~~**§ 5.1.2** Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than ($) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.~~

~~**§ 5.1.3** The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 5.1.1 and 5.1.2, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require exhaustion of the underlying limits only through the actual payment by the underlying insurers.~~

~~**§ 5.1.4** Workers' Compensation at statutory limits.~~

~~**§ 5.1.5** Employers' Liability with policy limits not less than ($) each accident, ($) each employee, and ($) policy limit.~~

~~**§ 5.1.6** The Contractor shall provide builder's risk insurance to cover the total value of the entire Project on a replacement cost basis.~~

~~**§ 5.1.7 Other Insurance Provided by the Contractor**~~
~~*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*~~

~~Coverage~~	~~Limits~~

§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

ARTICLE 6 GENERAL PROVISIONS

§ 6.1 The Contract

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

§ 6.2 The Work

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

§ 6.3 Intent

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

§ 6.4 Ownership and Use of Architect's Drawings, Specifications and Other Documents

Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

§ 6.5 Electronic Notice

Written notice under this Agreement may be given by one party to the other by email as set forth below.
(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)

N/A

ARTICLE 7 OWNER

§ 7.1 Information and Services Required of the Owner

§ 7.1.1 If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

§ 7.1.2 Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

§ 7.1.3 Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

§ 7.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

§ 7.3 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies, correct such

deficiencies. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts

§ 7.4.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

§ 7.4.2 The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

ARTICLE 8 CONTRACTOR

§ 8.1 Review of Contract Documents and Field Conditions by Contractor

§ 8.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 8.1.2 The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect.

§ 8.2 Contractor's Construction Schedule

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work.

§ 8.3 Supervision and Construction Procedures

§ 8.3.1 The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.

§ 8.3.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

§ 8.4 Labor and Materials

§ 8.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

§ 8.4.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 8.5 Warranty

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

§ 8.6 Taxes

The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

§ 8.7 Permits, Fees and Notices

§ 8.7.1 The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

§ 8.7.2 The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

§ 8.8 Submittals

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

§ 8.9 Use of Site

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

§ 8.10 Cutting and Patching

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 8.11 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material; and shall properly dispose of waste materials.

§ 8.12 Indemnification

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the ~~Owner,~~ Architect, Architect's consultants, and agents and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder.

§ 8.12.1 Contractor hereby agrees to indemnify, defend and hold harmless the Owner, its elected and appointed officials, officers, employees, agents, representatives and volunteers, and each of them, from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorneys' fees, costs and expenses of whatsoever kind or nature in any manner directly or indirectly caused, occasioned, or contributed to in whole or in part or claimed to be caused, occasioned, or contributed to in whole or in part, by reason of any act, omission, fault, or negligence, whether active or passive, of Contractor or of anyone acting under its direction or control or on its behalf, even if liability is also sought to be imposed on Owner, its elected and appointed officials, officers, employees, agents, representatives and volunteers. The obligation to indemnify, defend and hold harmless the Owner, its elected and appointed officials, officers, employees, agents, representatives and volunteers, and each of them, shall be applicable unless liability results from the sole negligence of the Owner, its elected and appointed officials, officers, employees, agents, representatives and volunteers.

Contractor shall reimburse the Owner, its elected and appointed officials, officers, employees, agent or authorized representatives or volunteers for any and all legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided.

In the event that Contractor employs other persons, firms, corporations or entities (sub-contractor) as part of the work covered by this Agreement, it shall be Contractor's responsibility to require and confirm that each sub-contractor enters into an Indemnity Agreement in favor of the Owner, its elected and appointed officials, officers, employees, agents, representatives and volunteers, which is identical to this Indemnity Agreement.

This indemnity provision shall survive the termination or expiration of this Agreement.

ARTICLE 9 ARCHITECT

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

ARTICLE 10 CHANGES IN THE WORK

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

ARTICLE 11 TIME

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

ARTICLE 12 PAYMENTS AND COMPLETION

§ 12.1 Contract Sum

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 12.2 Applications for Payment

§ 12.2.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 12.2.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment, all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

§ 12.3 Certificates for Payment

The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is not made within such ~~seven day~~ seven-day period, the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

§ 12.4 Progress Payments

§ 12.4.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.

§ 12.4.2 The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

§ 12.4.3 Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.

§ 12.4.4 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

§ 12.5 Substantial Completion

§ 12.5.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

§ 12.5.2 When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect will make an inspection to determine whether the Work is substantially complete. When the Architect determines that the Work is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of

Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 12.6 Final Completion and Final Payment

§ 12.6.1 Upon receipt of a final Application for Payment, the Architect will inspect the Work. When the Architect finds the Work acceptable and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment.

§ 12.6.2 Final payment shall not become due until the Contractor submits to the Architect releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

§ 12.6.3 Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

ARTICLE 14 CORRECTION OF WORK

§ 14.1 The Contractor shall promptly correct Work rejected by the Architect as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

§ 14.2 In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

§ 14.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

ARTICLE 15 MISCELLANEOUS PROVISIONS

§ 15.1 Assignment of Contract

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

§ 15.2 Tests and Inspections

§ 15.2.1 At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

§ 15.2.2 If the Architect requires additional testing, the Contractor shall perform those tests.

§ 15.2.3 The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 15.3 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

ARTICLE 16 TERMINATION OF THE CONTRACT

§ 16.1 Termination by the Contractor

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

§ 16.2 Termination by the Owner for Cause

§ 16.2.1 The Owner may terminate the Contract if the Contractor

- **.1** repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- **.2** fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** is otherwise guilty of substantial breach of a provision of the Contract Documents.

§ 16.2.2 When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- **.1** take possession of the site and of all materials thereon owned by the Contractor, and
- **.2** finish the Work by whatever reasonable method the Owner may deem expedient.

§ 16.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 16.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 16.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work ~~executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not~~ executed.

ARTICLE 17 OTHER TERMS AND CONDITIONS

(Insert any other terms or conditions below.)

§ 17.1 Force Majeure

Neither party shall be in default or otherwise liable for any delay in or failure of its performance under this Agreement if such delay or failure arises by any reason beyond its reasonable control, including any act of God or the common enemy or earthquakes, floods, fires, epidemics, riots, telecommunications delays, failure of electrical power, lightning, national emergency, war, action of court or public authority, terrorist act, military action, civil disturbance, internet outages, failures or delay in transportation or communications. The parties will promptly inform and consult with each other as to any of the above causes which in their judgment may or could be the cause of a delay in the performance of this Agreement.

§ 17.2 Waiver

The waiver by either party of a breach or violation of any provision of this Agreement shall not operate as, or be construed to be, a waiver of any subsequent breach of the same or any other provision hereof.

§ 17.3 Severability

If any provision of this Agreement or the application thereof to any persons or circumstances shall, to any extent, be invalid or unenforceable, then the remainder of this Agreement or the application of such provision, or portion thereof, and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

§ 17.4 No Agency

Nothing in this Agreement is intended nor may be construed to create between City and the Contractor either an employer/employee, joint venture, landlord/tenant, or any other similar relationship. No agent, employee or representative of either Party shall be deemed to be an agent employee or representative of the other party. Neither party shall have the authority to act for on behalf of the other party to bind the other party without the express written approval of the other party.

§ 17.5 No Discrimination

During the term of this Agreement, the parties, and the employees, representatives, agents and or volunteers thereof, shall not discriminate against any person on the basis of actual or perceived sex, race, religion, creed, color, national origin, ancestry, age, disability, lawful source of income, marital status, familial status, sexual orientation, gender identity, gender expression, gender non-conformity, transgender status, past or present military service, or status as a victim of domestic abuse, sexual assault, or stalking.

This Agreement entered into as of the day and year first written above.
(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)

OWNER *(Signature)*
Eric GenrichMayor
(Printed name and title)

OWNER (Signature)
Celestine Jeffreys City Clerk
(Printed name and title)

CONTRACTOR *(Signature)*

(Printed name and title)
LICENSE NO.:
JURISDICTION:

Insurance Requirements

General: All insurance is the responsibility of the Contractor. The Contractor and each separate Subcontractor shall purchase and maintain such insurance as will protect them, and indemnify and save harmless the City from any and all claims for General and Automobile Liability and Worker's Compensation/Employers' Liability, including claims for damages resulting in bodily injury, including but not limited to death, and property damage and arising out of or resulting from the Contractor's direct or indirect operations under this Contract, whether such operations be performed by their own work forces or by any Subcontractor or anyone directly or indirectly employed by any of them.

This insurance shall be written for not less than any limit of liability specified herein, or required by law, whichever is the greater, notwithstanding that the policy may have lower limits of liability applying elsewhere in the policy, and shall include contractual liability insurance as applicable to the Contractor's obligations.

The Contractor's and Subcontractor's insurance shall always be primary with respect to the City's responsibilities under this Contract. The City of Green Bay shall be named as additional insured on the types of insurance listed in this section, and shall be listed as the Certificate Holder on any Certificate of Insurance issued to the City as proof of coverage. Insurance policies must remain in an active status for the life of the project, and shall not be allowed to expire until a minimum of one year after final payment has been approved by City Council.

The Contractor's and Subcontractor's insurance shall contain a provision that provides 30 days written notice of cancellation or change to the City.

No insurance required under the Contract shall be carried with an insurer not authorized to do business in Wisconsin by the Wisconsin State Insurance Department. The City reserves the right to disapprove any insurance company.

Type of Insurance will vary per contract and at a minimum the following will be required:

A. General Liability:

1. Commercial General Occurrence policy, edition 2006 or 2010 including:

   a. Premises and Operations
   b. Products and Completed Operations
   c. Advertising and Personal Injury
   d. Explosion, Collapse and Underground Hazard coverage
   e. Contractual Insurance in writing under General Liability
   f. Broad Form Property Damage
   g. Coverage for Independent Contractors
   h. Care, Custody and Control coverages for City-owned materials at worksite
   i. Endorsement naming the City of Green Bay, its employees, agents and assigns as Additional Insureds as respects work performed by the Contractor/Subcontractor for the City/Owner.

2. Limits of Liability:

   Bodily Injury/Property Damage Combined Single Limits:

Per Occurrence	$1,000,000
Products/Completed Operations Aggregate	$2,000,000
Personal Injury/ Advertising Injury	$1,000,000
Fire Damage Limit	$ 50,000
Medical Payments Limit	$ 5,000
General Aggregate	$2,000,000

B. Automobile Liability:

1. Coverages must include the following extensions:

Comprehensive Forms

a. All Owned Autos
b. All Hired Autos
c. All Non-Owned Autos
d. Mobile Equipment
e. Specialized Equipment
f. Contractual Insurance
g. Uninsured Motorists to Limit of Policy
h. Additional Insured Endorsement naming City of Green Bay, its employees, agents and assigns.

2. Limits of Liability:

Combined Single Limit/Bodily Injury and Property Damage:

$1,000,000 per person/accident

Uninsured Motorists:

$25,000 per person
$50,000 per accident

C. Worker's Compensation and Employers' Liability Insurance:

Limits of Liability

Workers' Compensation	$1,000,000 per accident
	$1,000,000 disease policy limit
	$1,000,000 disease each employee
Employers' Liability	$1,000,000

Waiver of Workers Compensation Subrogation - The workers' compensation policy is to be endorsed with a waiver of subrogation. The insurance company, in its endorsement, agrees to waive all rights of subrogation against the City, its officers, officials, employees and volunteers for losses paid under the terms of the policy that arises from the work performed by the named insured for or on behalf of the City of Green Bay.

D. Umbrella Liability

The Contractor shall provide $2,000,000 cover for bodily injury, personal injury and property damage per occurrence in excess of coverage carried for Employer's Liability, Commercial General Liability, and Automobile Liability

E. Contractor's Pollution Liability (Occurrence Basis)
Minimum Limit of Liability $1,000,000
Must include coverage for natural resources damage
Must include waiver of subrogation endorsement in favor of the City
Coverage must include transportation, loading and unloading.

CONSTRUCTION PROJECTS

($2,000 or greater)

Required Federal Certifications and Clauses

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1. Notification of Federal Participation

This project is expected to be funded in part by the Federal Transit Administration (FTA) as authorized under 49 U.S.C. § 5307, 5337 and/or 5339 . This notification of federal participation will be included in each subcontract financed in whole or in part with federal assistance provided by FTA.

2. Full and Open Competition

In accordance with 49 U.S.C. § 5325(h), all procurement transactions shall be conducted in a manner that provides full and open competition.

3. Prohibition Against Exclusionary or Discriminatory Specifications

Apart from inconsistent requirements imposed by Federal statute or regulations, the Contractor shall comply with the requirements of 49 USC 5323(h)(2) by refraining from using any FTA assistance to support procurements using exclusionary or discriminatory specifications.

4. Compliance with Federal Regulations

Any contract entered pursuant to this solicitation shall contain the following provisions: All USDOT-required contractual provisions, as set forth in FTA Circular 4220.1F, are incorporated by reference. Anything to the contrary herein notwithstanding, FTA mandated terms shall control in the event of a conflict with other provisions contained in this Agreement. Contractor shall not perform any act, fail to perform any act, or refuse to comply with any grantee request that would cause the municipal corporation to be in violation of FTA terms and conditions. Contractor shall comply with all applicable FTA regulations, policies, procedures and directives, including, without limitation, those listed directly or incorporated by reference in the Master Agreement between the municipal corporation and FTA, as may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

5. No Obligation by the Federal Government

(a) The Purchaser and Contractor acknowledge and agree that, notwithstanding any concurrence by the Federal Government in or approval of the solicitation or award of the underlying contract, absent the express written consent by the Federal Government, the Federal Government is not a party to this contract and shall not be subject to any obligations or liabilities to the Purchaser, Contractor, or any other party (whether or not a party to that contract) pertaining to any matter resulting from the underlying contract.
(b) The Contractor agrees to include the above clause in each subcontract financed in whole or in

part with Federal assistance provided by FTA. It is further agreed that the clause shall not be modified, except to identify the Subcontractor who will be subject to its provisions.

6. Program Fraud and False or Fraudulent Statements or Related Acts

(a) The Contractor acknowledges that the provisions of the Program Fraud Civil Remedies Act of 1986, as amended, 31 U.S.C. § 3801 et seq. and U.S. DOT regulations, "Program Fraud Civil Remedies," 49 C.F.R. Part 31, apply to its actions pertaining to this procurement. Upon execution of the underlying contract, the Contractor certifies or affirms the truthfulness and accuracy of any statement it has made, it makes, it may make, or causes to be made, pertaining to the underlying contract or the FTA assisted project for which this contract work is being performed. In addition to other penalties that may be applicable, the Contractor further acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification, the Federal Government reserves the right to impose the penalties of the Program Fraud Civil Remedies Act of 1986 on the Contractor to the extent the Federal Government deems appropriate.

(b) The Contractor also acknowledges that if it makes, or causes to be made, a false, fictitious, or fraudulent claim, statement, submission, or certification to the Federal Government under a contract connected with a project that is financed in whole or in part with Federal assistance originally awarded by FTA under the authority of 49 U.S.C. § 5307, the Government reserves the right to impose the penalties of 18 U.S.C. § 1001 and 49 U.S.C. § 5307(n)(1) on the Contractor, to the extent the Federal Government deems appropriate.

(c) The Contractor agrees to include the above two clauses in each subcontract financed in whole or in part with Federal assistance provided by FTA. It is further agreed that the clauses shall not be modified, except to identify the Subcontractor who will be subject to the provisions.

7. Access to Records

The following access to records requirements apply to this Contract:

(a) Where the Purchaser is not a State but a local government and is the FTA Recipient or a Subgrantee of the FTA Recipient in accordance with 49 C. F. R. 18.36(i), the Contractor agrees to provide the Purchaser, the FTA Administrator, the Comptroller General of the United States or any of their authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions. Contractor also agrees, pursuant to 49 C. F. R. 633.17 to provide the FTA Administrator or his authorized representatives including any PMO Contractor access to Contractor's records and construction sites pertaining to a major capital project,

defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311.

(b) Where the Purchaser is a State and is the FTA Recipient or a Subgrantee of the FTA Recipient in accordance with 49 C.F.R. 633.17, Contractor agrees to provide the Purchaser, the FTA Administrator or his authorized representatives, including any PMO Contractor, access to the Contractor's records and construction sites pertaining to a major capital project, defined at 49 U.S.C. 5302(a)1, which is receiving federal financial assistance through the programs described at 49 U.S.C. 5307, 5309 or 5311. By definition, a major capital project excludes contracts of less than the simplified acquisition threshold currently set at $100,000.

(c) Where the Purchaser enters into a negotiated contract for other than a small purchase or under the simplified acquisition threshold and is an institution of higher education, a hospital or other non-profit organization and is the FTA Recipient or a subgrantee of the FTA Recipient in accordance with 49 C.F.R. 19.48, Contractor agrees to provide the Purchaser, FTA Administrator, the Comptroller General of the United States or any of their duly authorized representatives with access to any books, documents, papers and record of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts and transcriptions.

(d) Where any Purchaser which is the FTA Recipient or a Subgrantee of the FTA Recipient in accordance with 49 U.S.C. 5325(a) enters into a contract for a capital project or improvement (defined at 49 U.S.C. 5302(a)1) through other than competitive bidding, the Contractor shall make available records related to the contract to the Purchaser, the Secretary of Transportation and the Comptroller General or any authorized officer or employee of any of them for the purposes of conducting an audit and inspection.

(e) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.

(f) The Contractor agrees to maintain all books, records, accounts and reports required under this contract for a period of not less than three years after the date of termination or expiration of this contract, except in the event of litigation or settlement of claims arising from the performance of this contract, in which case Contractor agrees to maintain same until the Purchaser, the FTA Administrator, the Comptroller General, or any of their duly authorized representatives, have disposed of all such litigation, appeals, claims or exceptions related thereto. Reference 49 CFR 18.39(i)(11).

(g) FTA does not require the inclusion of these requirements in subcontracts.

8. Federal Changes

Contractor shall at all times comply with all applicable FTA regulations, policies, procedures and directives, including without limitation those listed directly or by reference in the Master Agreement between Purchaser and FTA, as they may be amended or promulgated from time to time during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

9. Disadvantaged Business Enterprise

(a) This contract is subject to the requirements of Title 49, Code of Federal Regulations, Part 26, Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs. The Metro Transit Commission's goal for participation of Disadvantaged Business Enterprises (DBE) is 1.45%.

(b) The Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this contract. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the municipal corporation deems appropriate. Each subcontract the Contractor signs with a Subcontractor must include the assurance in this paragraph (see 49 CFR 26.13(b)).

(c) If a separate contract goal has been established, Bidders/Offerors are required to document sufficient DBE participation to meet these goals or, alternatively, document adequate good faith efforts to do so, as provided for in 49 CFR 26.53.

(d) If no separate contract goal has been established, the successful Bidder/Offeror will be required to report its DBE participation obtained through race-neutral means throughout the period of performance.

(e) The Contractor must promptly notify the Recipient whenever a DBE Subcontractor performing work related to this contract is terminated or fails to complete its work, and must make good faith efforts to engage another DBE Subcontractor to perform at least the same amount of work. The Contractor may not terminate any DBE Subcontractor and perform that work through its own forces or those of an affiliate without prior written consent of the Recipient.

PROMPT PAYMENT AND RETURN OF RETAINAGE

The Contractor is required to pay its Subcontractors performing work related to this contract for satisfactory performance of that work no later than 30 days after the Contractor's receipt of payment for that work from the Recipient. In addition, the Contractor may not hold retainage from its Subcontractors or must return any retainage payments to those Subcontractors within 30 days after the Subcontractor's work related to this contract is satisfactorily completed or must return any retainage payments to those Subcontractors within 30 days after incremental acceptance of the Subcontractor's work by the Recipient and Contractor's receipt of the partial retainage payment related to the Subcontractor's work.

10. Incorporation of Federal Transit Administration (FTA) Terms

The preceding provisions include, in part, certain Standard Terms & Conditions required by USDOT, whether or not expressly stated in the preceding contract provisions. All USDOT required contractual provisions, as stated in FTA Circular 4220.1F, are hereby incorporated by reference. Anything to the contrary herein notwithstanding, all FTA mandated terms shall be deemed to control in the event of a conflict with other provisions contained in this Agreement. The Contractor shall not perform any act, fail to perform any act, or refuse to comply with any request that would cause the Recipient to be in violation of FTA terms and conditions.

11. Energy Conservation

The Contractor agrees to comply with mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act.

12. Recycled Products

All contracts for items designated by the EPA, when the Purchaser or Contractor procures $10,000 or more of one of these items during the current or previous fiscal year using Federal funds. The Contractor agrees to comply with all the requirements of Section 6002 of the Resource Conservation and Recovery Act (RCRA), as amended (42 U.S.C. 6962), including but not limited to the regulatory provisions of 40 CFR Part 247, and Executive Order 12873, as they apply to the procurement of the items designated in Subpart B of 40 CFR Part 247.

13. Clean Water Requirements

Pursuant to 33 U.S.C. 1251, Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC 1251 et seq. Contractor shall report each violation to the municipal corporation and

understands and agrees that the municipal corporation shall, in turn, report each violation as required to FTA and the appropriate EPA Regional Office. Contractor shall include these requirements in each subcontract exceeding $100,000 financed in whole or in part with FTA assistance.

14. Clean Air

Pursuant to 42 U.S.C. 7401 et seq, 40 CFR 15.61, 49 CFR Part 18, Contractor shall comply with all applicable standards, orders or regulations pursuant to the Clean Air Act, 42 USC 7401 et seq. Contractor shall report each violation to the municipal corporation and understands and agrees that the municipal corporation will, in turn, report each violation as required to FTA and the appropriate EPA Regional Office. Contractor shall include these requirements in each subcontract exceeding $100,000 financed in whole or in part with FTA assistance.

15. Access Requirements for Persons with Disabilities

Contractor shall comply with 49 USC 5301(d), stating Federal policy that the elderly and persons with disabilities have the same rights as other persons to use mass transportation services and facilities and that special efforts shall be made in planning and designing those services and facilities to implement that policy. Contractor shall also comply with all applicable requirements of Sec. 504 of the Rehabilitation Act (1973), as amended, 29 USC 794, which prohibits discrimination on the basis of handicaps, and the Americans with Disabilities Act of 1990 (ADA), as amended, 42 USC 12101 et seq., which requires that accessible facilities and services be made available to persons with disabilities, including any subsequent amendments thereto.

16. Breaches and Dispute Resolution

Pursuant to 49 CFR Part 18, FTA Circular 4220.1F, disputes arising in the performance of this contract which are not resolved by agreement of the parties shall be decided in writing by the municipal corporation's authorized representative. This decision shall be final and conclusive unless within ten (10) days from the date of receipt of its copy, Contractor mails or otherwise furnishes a written appeal to the municipal corporation's CEO. In connection with such appeal, Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the municipal corporation's CEO shall be binding upon Contractor and Contractor shall abide by the decision.

Performance During Dispute - Unless otherwise directed by the municipal corporation, Contractor shall continue performance under this contract while matters in dispute are being resolved.

Claims for Damages - Should either party to the contract suffer injury or damage to person or

property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefore shall be made in writing to such other party within ten days after the first observance of such injury or damage.

Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the municipal corporation and Contractor arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the residing State.

Rights and Remedies - Duties and obligations imposed by the contract documents and the rights and remedies available there under shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the municipal corporation or Contractor shall constitute a waiver of any right or duty afforded any of them under the contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach there under, except as may be specifically agreed in writing.

17. Termination

(a) Termination for Convenience. The Recipient may terminate this contract, in whole or in part, at any time by written notice to Contractor when it is in the Recipient's best interest. Contractor shall be paid its costs, including contract close-out costs, and profit on work performed up to the time of termination. Contractor shall promptly submit its termination claim to the Recipient. If Contractor is in possession of any of the Recipient's property, Contractor shall account for same, and dispose of it as the Recipient directs.

(b) Termination for Default [Breach or Cause]. If Contractor does not deliver items in accordance with the contract delivery schedule, or, if the contract is for services, and Contractor fails to perform in the manner called for in the contract, or if Contractor fails to comply with any other provisions of the contract, the Recipient may terminate this contract for default. Termination shall be effected by serving a notice of termination to Contractor setting forth the manner in which Contractor is in default. Contractor shall only be paid the contract price for supplies delivered and accepted, or for services performed in accordance with the manner of performance set forth in the contract. If it is later determined by the Recipient that

Contractor had an excusable reason for not performing, such as a strike, fire, or flood, events which are not the fault of or are beyond the control of Contractor, the Recipient, after setting up a new delivery or performance schedule, may allow Contractor to continue work, or treat the termination as a termination for convenience.

(c) Opportunity to Cure. The Recipient in its sole discretion may, in the case of a termination for breach or default, allow Contractor an appropriately short period of time in which to cure the defect. In such case, the notice of termination shall state the time period in which cure is

permitted and other appropriate conditions. If Contractor fails to remedy to the Recipient's satisfaction the breach or default or any of the terms, covenants, or conditions of this Contract within ten (10) days after receipt by Contractor or written notice from the Recipient setting forth the nature of said breach or default, the Recipient shall have the right to terminate the Contract without any further obligation to Contractor. Any such termination for default shall not in any way operate to preclude the Recipient from also pursuing all available remedies against Contractor and its sureties for said breach or default.

(d) Waiver of Remedies for any Breach. In the event that the Recipient elects to waive its remedies for any breach by Contractor of any covenant, term or condition of this Contract, such waiver by the Recipient shall not limit its remedies for any succeeding breach of that or of any other term, covenant, or condition of this Contract.

(e) Termination for Convenience (Professional or Transit Service Contracts). The Recipient, by written notice, may terminate this contract, in whole or in part, when it is in the Recipient's interest. If the contract is terminated, the Recipient shall be liable only for payment under the payment provisions of this contract for services rendered before the effective date of termination.

(f) Termination for Default (Supplies and Service). If Contractor fails to deliver supplies or to perform the services within the time specified in this contract or any extension or if the Contractor fails to comply with any other provisions of this contract, the Recipient may terminate this contract for default. The Recipient shall deliver to Contractor a notice of termination specifying the nature of default. Contractor shall only be paid the contract price for supplies delivered and accepted, or services performed in accordance with the manner or performance set forth in this contract. If, after termination for failure to fulfill contract obligations, it is determined that Contractor was not in default, the rights and obligations of the parties shall be the same as if termination had been issued for the Recipient's convenience.

(g) Termination for Default (Transportation Services). If Contractor fails to pick up the commodities or to perform the services, including delivery services, within the time specified in this contract or any extension or if Contractor fails to comply with any other provisions of this contract, the Recipient may terminate this contract for default. The Recipient shall terminate by delivering to Contractor a notice of termination specifying the nature of default. Contractor shall only be paid the contract price for services performed in accordance with the manner of performance set forth in this contract. If this contract is terminated while Contractor has possession of the Recipient goods, Contractor shall, as directed by the Recipient, protect and preserve the goods until surrendered to the Recipient or its agent. Contractor and the Recipient shall agree on payment for the preservation and protection of goods. Failure to agree on an amount shall be resolved under the Dispute clause. If, after termination for failure to fulfill contract obligations, it is determined that Contractor was not in default, the rights and obligations of the parties shall be the same as if termination had been issued for the Recipient's

convenience.

(h) Termination for Default (Construction). If Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified, or any extension, or fails to complete the work within this time, or if Contractor fails to comply with any other provisions of this contract, the Recipient may terminate this contract for default. The Recipient shall terminate by delivering to Contractor a notice of termination specifying the nature of default. In this event, the Recipient may take over the work and compete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. Contractor and its sureties shall be liable for any damage to the Recipient resulting from Contractor's refusal or failure to complete the work within specified time, whether or not Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Recipient in completing the work.

Contractor's right to proceed shall not be terminated nor shall Contractor be charged with damages under this clause if:

(1) Delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of Contractor. Examples of such causes include: acts of God, acts of the Recipient, acts of another Contractor in the performance of a contract with the Recipient, epidemics, quarantine restrictions, strikes, freight embargoes; and

(2) Contractor, within 10 days from the beginning of any delay, notifies the Recipient in writing of the causes of delay. If in the Recipient’s judgment, delay is excusable, the time for completing the work shall be extended. The Recipient’s judgment shall be final and conclusive on the parties, but subject to appeal under the Disputes clauses. If, after termination of Contractor's right to proceed, it is determined that Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if termination had been issued for the Recipient’s convenience.

(i) Termination for Convenience or Default (Architect & Engineering). The Recipient may terminate this contract in whole or in part, for the Recipient's convenience or because of Contractor’s failure to fulfill contract obligations. The Recipient shall terminate by delivering to Contractor a notice of termination specifying the nature, extent, and effective date of termination. Upon receipt of the notice, Contractor shall (1) immediately discontinue all

services affected (unless the notice directs otherwise), and (2) deliver to the Recipient all data, drawings, specifications, reports, estimates, summaries, and other information and materials accumulated in performing this contract, whether completed or in process. If termination is for the Recipient’s convenience, it shall make an equitable adjustment in the contract price but shall allow no anticipated profit on unperformed services. If termination is for Contractor’s failure to fulfill contract obligations, the Recipient may complete the work by contact or otherwise and

Contractor shall be liable for any additional cost incurred by the Recipient. If, after termination for failure to fulfill contract obligations, it is determined that Contractor was not in default, the rights and obligations of the parties shall be the same as if termination had been issued for the Recipient's convenience.

(j) Termination for Convenience or Default (Cost-Type Contracts). The Recipient may terminate this contract, or any portion of it, by serving a notice or termination on Contractor. The notice shall state whether termination is for convenience of the Recipient or for default of Contractor. If termination is for default, the notice shall state the manner in which Contractor has failed to perform the requirements of the contract. Contractor shall account for any property in its possession paid for from funds received from the Recipient, or property supplied to Contractor by the Recipient. If termination is for default, the Recipient may fix the fee, if the contract provides for a fee, to be paid to Contractor in proportion to the value, if any, of work performed up to the time of termination. Contractor shall promptly submit its termination claim to the Recipient and the parties shall negotiate the termination settlement to be paid to Contractor. If termination is for the Recipient's convenience, Contractor shall be paid its contract close- out costs, and a fee, if the contract provided for payment of a fee, in proportion to the work performed up to the time of termination. If, after serving a notice of termination for default, the Recipient determines that Contractor has an excusable reason for not performing, such as strike, fire, flood, events which are not the fault of and are beyond the control of Contractor, the Recipient, after setting up a new work schedule, may allow Contractor to continue work, or treat the termination as a termination for convenience.

18. Civil Rights Requirements

(a) Nondiscrimination - In accordance with Title VI of the Civil Rights Act, as amended, 42 USC 2000d, Sec. 303 of the Age Discrimination Act (1975), as amended, 42 USC 6102, Sec. 202 of the Americans with Disabilities Act (1990), 42 USC 12132, and 49 USC 5332, Contractor shall not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age or disability. Contractor shall also comply with applicable Federal implementing regulations and other requirements.

(b) Equal Employment Opportunity - The following equal employment opportunity requirements apply to the underlying contract:

> (i.) Race, Color, Creed, National Origin, Sex - In accordance with Title VII of the Civil Rights Act, as amended, 42 USC 2000e, and 49 USC 5332, Contractor shall comply with all applicable equal employment opportunity requirements of USDOL, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, USDOL," 41 CFR 60 et seq., (implementing Executive Order No. 11246, "Equal Employment Opportunity," as amended by Executive Order No. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," 42 USC 2000e), and any applicable Federal statutes,

executive orders, regulations, and policies that may in the future affect construction activities undertaken in the course of the project. Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, creed, national origin, sex or age. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. In addition, Contractor shall comply with any implementing requirements FTA may issue.

(ii.) Age - In accordance with Sec. 4 of the Age Discrimination in Employment Act (1967), as amended, 29 USC 623 and 49 USC 5332, Contractor shall refrain from discrimination against present and prospective employees for reason of age. Contractor shall also comply with any implementing requirements FTA may issue.

(iii.) Disabilities - In accordance with Sec. 102 of the Americans with Disabilities Act (ADA), as amended, 42 USC 12112, Contractor shall comply with the requirements of US Equal Employment Opportunity Commission (EEOC), Regulations to Implement Equal Employment Provisions of the Americans with Disabilities Act, 29 CFR 1630, pertaining to employment of persons with disabilities. Contractor shall also comply with any implementing requirements FTA may issue.

(c) Contractor shall include these requirements in each subcontract financed in whole or in part with FTA assistance, modified only if necessary to identify the affected parties.

19. Real Property

Contractor shall at all times comply with all applicable statutes and USDOT regulations, policies, procedures and directives governing the acquisition, use and disposal of real property, including, but not limited to, 29 CFR 18.31, 49 CFR 24 Subpart B, FTA Circular 5010.1D, and FTA Master Agreement, as they may be amended or promulgated during the term of this contract. Contractor's failure to so comply shall constitute a material breach of this contract.

20. Interest of Members or Delegates to Congress

No members of, or delegates to, the US Congress shall be admitted to any share or part of this contract nor to any benefit arising therefrom.

21. Cargo Preference - Use of United States Flag Vessels

The Contractor agrees to:

(a) Use privately owned United States-Flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to the underlying contract to the extent such vessels are available at fair and reasonable rates for United States-Flag commercial vessels;

(b) Furnish within 20 working days following the date of loading for shipments originating within the United States or within 30 working days following the date of leading for shipments originating outside the United States, a legible copy of a rated, "on-board" commercial ocean bill-of -lading in English for each shipment of cargo described in the preceding paragraph to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590 and to the FTA Recipient (through the Contractor in the case of a Subcontractor's bill-of-lading.); and

(c) Include these requirements in all subcontracts issued pursuant to this contract when the subcontract may involve the transport of equipment, material, or commodities by ocean vessel.

22. Fly America Requirements

The Contractor agrees to comply with 49 U.S.C. 40118 (the "Fly America" Act) in accordance with the General Services Administration's regulations at 41 CFR Part 301-10, which provide that Recipients and Subrecipients of Federal funds and their Contractors are required to use U.S. Flag air carriers for U.S Government-financed international air travel and transportation of their personal effects or property, to the extent such service is available, unless travel by foreign air carrier is a matter of necessity, as defined by the Fly America Act. The Contractor shall submit, if a foreign air carrier was used, an appropriate certification or memorandum adequately explaining why service by a U.S. flag air carrier was not available or why it was necessary to use a foreign air carrier and shall, in any event, provide a certificate of compliance with the Fly America requirements. The Contractor agrees to include the requirements of this section in all subcontracts that may involve international air transportation.

23. Davis-Bacon Act

The Davis-Bacon Act (40 U.S.C. 3141 et seq.) provides that contracts in excess of $2,000 to which the United States or the District of Columbia is a party for construction, alteration, or repair (including painting and decorating) of public buildings or public works within the United States, shall contain a clause (see FAR clause 52.222-6) that no laborer or mechanic employed

directly upon the site of the work shall receive less than the prevailing wage rates as determined by the Secretary of Labor. The text of FAR Clause 52.222-6 follows:

Davis-Bacon Act (July 2005)

(a) Definition. - "Site of the work" (1) Means-

(i) The primary site of the work. The physical place or places where the construction called for in the contract will remain when work on it is completed; and
(ii) The secondary site of the work, if any. Any other site where a significant portion of the building or work is constructed, provided that such site is—

(A) Located in the United States; and

(B) Established specifically for the performance of the contract or project.

(2) Except as provided in paragraph (3) of this definition, includes any fabrication plants, mobile factories, batch plants, borrow pits, job headquarters, tool yards, etc., provided—

(i) They are dedicated exclusively, or nearly so, to performance of the contract or project; and

(ii) They are adjacent or virtually adjacent to the "primary site of the work" as defined in paragraph (a)(1)(i), or the "secondary site of the work" as defined in paragraph (a)(1)(ii) of this definition.

(3) Does not include permanent home offices, branch plant establishments, fabrication plants, or tool yards of a Contractor or subcontractor whose locations and continuance in operation are determined wholly without regard to a particular Federal contract or project. In addition, fabrication plants, batch plants, borrow pits, job headquarters, yards, etc., of a commercial or material supplier which are established by a supplier of materials for the project before opening of bids and not on the Project site, are not included in the "site of the work." Such permanent, previously established facilities are not a part of the "site of the work" even if the operations for a period of time may be dedicated exclusively or nearly so, to the performance of a contract.

(b)(1) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, or as may be incorporated for a secondary site of the work, regardless of any contractual relationship which may be alleged to exist between the Contractor

and such laborers and mechanics. Any wage determination incorporated for a secondary site of the work shall be effective from the first day on which work under the contract was performed at that site and shall be incorporated without any adjustment in contract price or estimated cost. Laborers employed by the construction Contractor or construction subcontractor that are transporting portions of the building or work between the secondary site of the work and the primary site of the work shall be paid in accordance with the wage determination applicable to the primary site of the work.

(2) Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (e) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period.

(3) Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided that the employer's payroll records accurately set forth the time spent in each classification in which work is performed.

(4) The wage determination (including any additional classifications and wage rates conformed under paragraph (c) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the primary site of the work and the secondary site of the work, if any, in a prominent and accessible place where it can be easily seen by the workers.

(c)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.
(ii) The classification is utilized in the area by the construction industry.
(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the: Wage and Hour Division Employment Standards Administration U.S. Department of Labor Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to paragraphs (c)(2) and (c)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(d) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(e) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis- Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

24. Copeland (Anti-Kickback) Act.

The Copeland (Anti-Kickback) Act (18 U.S.C. 874 and 40 U.S.C. 3145) makes it unlawful to induce, by force, intimidation, threat of procuring dismissal from employment, or otherwise, any person employed in the construction or repair of public buildings or public works, financed in whole or in part by the United States, to give up any part of the compensation to which that person is entitled under a contract of employment. The Copeland Act also requires each contractor and subcontractor to furnish weekly a statement of compliance with respect to the wages paid each employee during the preceding week. Contracts subject to the Copeland Act shall contain a clause (FAR Clause 52.222-10) requiring contractors and subcontractors to comply with the regulations issued by the Secretary of Labor under the Copeland Act. Text of FAR Clause 52.222-10 follows:

Compliance with Copeland Act Requirements (Feb 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

25. Contract Work Hours and Safety Standards Act

(a) Overtime requirements - No Contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(b) Violation; liability for unpaid wages; liquidated damages - In the event of any violation of the clause set forth in para. (a) of this section, Contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such Contractor and subcontractor shall be liable for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in para. (a) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in para. (a) of this section.

(c) Withholding for unpaid wages and liquidated damages - the municipal corporation shall upon its own action or upon written request of USDOL withhold or cause to be withheld, from any moneys payable on account of work performed by Contractor or subcontractor under any such contract or any other Federal contract with the same prime Contractor, or any other federally-

assisted contract subject to the Contract Work Hours & Safety Standards Act, which is held by the same prime Contractor, such sums as may be determined to be necessary to satisfy any liabilities of such Contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in para. (b) of this section.

(d) Subcontracts - Contractor or subcontractor shall insert in any subcontracts the clauses set forth in this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in this section.

26. Bonding

Applicability to Contracts:

For those construction or facility improvement contracts or subcontracts exceeding $100,000, FTA may accept the bonding policy and requirements of the recipient, provided that they meet the minimum requirements for construction contracts as follows:

(a) A bid guarantee from each bidder equivalent to five (5) percent of the bid price. The "bid guarantees" shall consist of a firm commitment such as a bid bond, certifies check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.

(b) A performance bond on the part to the Contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

(c) A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment, as required by law, of all persons supplying labor and material in the execution of the work provided for in the contract. Payment bond amounts required from Contractors are as follows:

(1) 50% of the contract price if the contract price is not more than $1 million;

(2) 40% of the contract price if the contract price is more than $1 million but not more than $5

million; or

(3) $2.5 million if the contract price is more than $5 million.

(d) A cash deposit, certified check or other negotiable instrument may be accepted by a grantee in

lieu of performance and payment bonds, provided the grantee has established a procedure to assure that the interest of FTA is adequately protected. An irrevocable letter of credit would also satisfy the requirement for a bond.

Bonding requirements flow down to the first tier contractors.

(a) Bid Security

A Bid Bond must be issued by a fully qualified surety company acceptable to Recipient and listed as a company currently authorized under 31 CFR, Part 223 as possessing a Certificate of Authority as described thereunder.

(b) Rights Reserved

In submitting this Bid, it is understood and agreed by bidder that the right is reserved by Recipient to reject any and all bids, or part of any bid, and it is agreed that the Bid may not be withdrawn for a period of [ninety (90)] days subsequent to the opening of bids, without the written consent of Recipient.

It is also understood and agreed that if the undersigned bidder should withdraw any part or all of his/her bid within [ninety (90)] days after the bid opening without the written consent of Recipient, shall refuse or be unable to enter into this Contract, as provided above, or refuse or be unable to furnish adequate and acceptable Performance Bonds and Labor and Material Payments Bonds, as provided above, or refuse or be unable to furnish adequate and acceptable insurance, as provided above, he/she shall forfeit his bid security to the extent of Recipient's damages occasioned by such withdrawal, or refusal, or inability to enter into an agreement, or provide adequate security therefor.

It is further understood and agreed that to the extent the defaulting bidder's Bid Bond, Certified Check, Cashier's Check, Treasurer's Check, and/or Official Bank Check (excluding any income generated thereby which has been retained by Recipient as provided in [Item x "Bid Security" of the Instructions to Bidders]) shall prove inadequate to fully recompense Recipient for the damages occasioned by default, then the undersigned bidder agrees to indemnify Recipient and pay over to Recipient the difference between the bid security and Recipient's total damages, so as to make Recipient whole.

The undersigned understands that any material alteration of any of the above or any of the material contained on this form, other than that requested, will render the bid unresponsive.

Performance and Payment Bonding Requirements (Construction)

The Contractor shall be required to obtain performance and payment bonds as follows:

(a) Performance bonds

1. The penal amount of performance bonds shall be 100 percent of the original contract price, unless the Recipient determines that a lesser amount would be adequate for the protection of the Recipient.

2. The Recipient may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The Recipient may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(b) Payment bonds

1. The penal amount of the payment bonds shall equal:

(i) Fifty percent of the contract price if the contract price is not more than $1 million.

(ii) Forty percent of the contract price if the contract price is more than $1 million but not more than $5 million; or

(iii) Two and one half million if the contract price is more than $5 million.

2. If the original contract price is $5 million or less, the (Recipient) may require additional protection as required by subparagraph 1 if the contract price is increased.

Performance and Payment Bonding Requirements (Non-Construction)

The Contractor may be required to obtain performance and payment bonds when necessary to protect the Recipient's interest.

(a) The following situations may warrant a performance bond:

1. (Recipient) property or funds are to be provided to the contractor for use in performing the contract or as partial compensation (as in retention of salvaged material).

2. A contractor sells assets to or merges with another concern, and the Recipient, after recognizing the latter concern as the successor in interest, desires assurance that it is financially capable.

3. Substantial progress payments are made before delivery of end items starts.
4. Contracts are for dismantling, demolition, or removal of improvements.

(b) When it is determined that a performance bond is required, the Contractor shall be required to obtain performance bonds as follows:

1. The penal amount of performance bonds shall be 100 percent of the original contract price, unless the Recipient determines that a lesser amount would be adequate for the protection of the Recipient.

2. The Recipient may require additional performance bond protection when a contract price is increased. The increase in protection shall generally equal 100 percent of the increase in contract price. The (Recipient) may secure additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) A payment bond is required only when a performance bond is required, and if the use of payment bond is in the Recipient's interest.

(d) When it is determined that a payment bond is required, the Contractor shall be required to obtain payment bonds as follows:

1. The penal amount of payment bonds shall equal:

(i) Fifty percent of the contract price if the contract price is not more than $1 million;

(ii) Forty percent of the contract price if the contract price is more than $1 million but not more than $5 million; or

(iii) Two and one half million if the contract price is increased.

Advance Payment Bonding Requirements

The Contractor may be required to obtain an advance payment bond if the contract contains an advance payment provision and a performance bond is not furnished. The Recipient shall determine the amount of the advance payment bond necessary to protect the Recipient.

Patent Infringement Bonding Requirements (Patent Indemnity)

The Contractor may be required to obtain a patent indemnity bond if a performance bond is not furnished and the financial responsibility of the Contractor is unknown or doubtful. The Recipient shall determine the amount of the patent indemnity to protect the Recipient.

Warranty of the Work and Maintenance Bonds

1. The Contractor warrants to Recipient, the Architect and/or Engineer that all materials and equipment furnished under this Contract will be of highest quality and new unless otherwise specified by Recipient, free from faults and defects and in conformance with the Contract Documents. All work not so conforming to these standards shall be considered defective. If required by the Project Manager, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

2. The Work furnished must be of first quality and the workmanship must be the best obtainable in the various trades. The Work must be of safe, substantial and durable construction in all respects. The Contractor hereby guarantees the Work against defective materials or faulty workmanship for a minimum period of one (1) year after Final Payment by Recipient and shall replace or repair any defective materials or equipment or faulty workmanship during the period of the guarantee at no cost to Recipient. As additional security for these guarantees, the Contractor shall, prior to the release of Final Payment [as provided in Item X below], furnish separate Maintenance (or Guarantee) Bonds in form acceptable to (Recipient) written by the same corporate surety that provides the Performance Bond and Labor and Material Payment Bond for this Contract. These bonds shall secure the Contractor's obligation to replace or repair defective materials and faulty workmanship for a minimum period of one (1) year after Final Payment and shall be written in an amount equal to ONE HUNDRED PERCENT (100%) of the CONTRACT SUM, as adjusted (if at all).

27. Seismic Safety

The contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

The contractor agrees that any new building or addition to an existing building will be designed and constructed in accordance with the standards for Seismic Safety required in Department of Transportation Seismic Safety Regulations 49 CFR Part 41 and will certify to compliance to the extent required by the regulation. The contractor also agrees to ensure that all work performed under this contract including work performed by a subcontractor is in compliance with the standards required by the Seismic Safety Regulations and the certification of compliance issued on the project.

28. Conformance with ITS National Architecture

Contractor shall conform, to the extent applicable, to the National Intelligent Transportation Standards architecture as required by SAFETEA-LU Section 5307(c), 23 U.S.C. Section 512 note and follow the provisions of FT Notice, "FT National rchitecture Policy on Transit Projects," 66 Fed. Reg.1455 et seq., January 8, 2001, and any other implementing directives FTA may issue at a later date, except to the extent FTA determines otherwise in writing.

29. Ineligible Contractors and Subcontractors

Any name appearing upon the Comptroller General's list of ineligible Contractors for federally-assisted contracts shall be ineligible to act as a subcontractor for Contractor pursuant to this contract. If Contractor is on the Comptroller General's list of ineligible Contractors for federally financed or assisted construction, the municipal corporation shall cancel, terminate or suspend this contract.

30. Buy America

This procurement is subject to Federal law which makes the purchase of American made products a requirement. The law is found under 49 U.S.C. 5323(j), and the related regulations are written under Title 49 of the Code of Federal Regulations, Part 661. The law and regulations establish a general requirement as well as certain exceptions.

The Contractor agrees to comply with 49 U.S.C. 5323(j) and 49 C.F.R. Part 661, which provide that Federal funds may be obligated unless steel, iron, and manufactured products used in FTA-funded projects are produced in the United States, unless a waiver has been granted by FTA or the product is subject to a general waiver. General waivers are listed in 49 C.F.R. 661.7, include microcomputer equipment, software, and small purchases (currently less than $100,000) made with capital, operating, or planning funds. Separate requirements for rolling stock are set out at 5323(j)(2)(C) and 49 C.F.R. 661.11. Rolling stock not subject to a general waiver must be manufactured in the United States and have a 60 percent domestic content.

31. Government-Wide Debarment and Suspension

(a) Background and Applicability: In conjunction with the Office of Management and Budget and other affected Federal agencies, DOT published an update to 49 CFR Part 29 on November 26, 2003. This government-wide regulation implements Executive Order 12549, Debarment and Suspension, Executive Order 12689, Debarment and Suspension, and 31 U.S.C. 6101 note (Section 2455, Public Law 103-355, 108 Stat. 3327).

The provisions of Part 29 apply to all grantee contracts and subcontracts at any level expected to equal or exceed $25,000 as well as any contract or subcontract (at any level) for Federally required auditing services. 49 CFR 29.220(b). This represents a change from prior practice in that the dollar threshold for application of these rules has been lowered from $100,000 to $25,000. These are contracts and subcontracts referred to in the regulation as "covered transactions." Grantees, Contractors, and Subcontractors (at any level) that enter into covered transactions are required to verify that the entity (as well as its principals and affiliates) they propose to contract or subcontract with is not excluded or disqualified.

They do this by (1) Checking the Excluded Parties List System, (2) Collecting a certification from that person, or (3) Adding a clause or condition to the contract or subcontract. This represents a change from prior practice in that certification is still acceptable but is no longer required; 49 CFR 29.300.

Grantees, Contractors, and Subcontractors who enter into covered transactions also must require the entities they contract with to comply with 49 CFR 29, subpart C and include this requirement in their own subsequent covered transactions (i.e., the requirement flows down to subcontracts at all levels).

(b) Instructions for Certification: By signing and submitting this bid or proposal, the prospective lower tier participant is providing the signed certification set out below.

(c) Suspension and Debarment

This contract is a covered transaction for purposes of 49 CFR Part 29. As such, the Contractor is required to verify that none of the Contractor, its principals, as defined at 49 CFR 29.995, or affiliates, as defined at 49 CFR 29.905, are excluded or disqualified as defined at 49 CFR 29.940 and 29.945.

Please read, sign and date the certification on the following page and return it with your bid proposal.

Government-Wide Debarment and Suspension CERTIFICATION

The Contractor is required to comply with 49 CFR 29, Subpart C and must include the requirement to comply with 49 CFR 29, Subpart C in any lower tier covered transaction it enters into. By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by the Recipient. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to the Recipient, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 49 CFR 29, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

_____

Signature of Contractor's Authorized Official

DATE _____

_____

Name and Title of Contractor's Authorized Official

32. Lobbying

Pursuant to 31 U.S.C. 1352, 49 CFR Part 19, 49 CFR Part 20, Byrd Anti-Lobbying Amendment, 31 U.S.C. 1352, as amended by the Lobbying Disclosure Act of 1995, P.L. 104-65 [to be codified at 2 U.S.C. § 1601, et seq.] - Contractors who apply or bid for an award of $100,000 or more shall file the certification required by 49 CFR part 20, "New Restrictions on Lobbying." Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier shall also disclose the name of any registrant under the Lobbying Disclosure Act of 1995 who has made lobbying contacts on its behalf with non-Federal funds with respect to that Federal contract, grant or award covered by 31 U.S.C. 1352. Such disclosures are forwarded from tier to tier up to the recipient.

Please read, sign and date the certification on the following page and return it with your bid.

Lobbying
CERTIFICATION

I, _____ _____, hereby certify
Name and Title of Authorized Official

On behalf of_ _____ that:
Name of Bidder/Company Name

‰ No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.

‰ If any funds other than federal appropriated funds have been paid or will be paid to any person influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form – LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

‰ The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including sub-contracts, subgrants and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. § 1352 (as amended by the Lobbying Disclosure Act of 1995). Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure. The undersigned certifies or affirms the truthfulness and accuracy of the contents of the statements submitted on or with this certification and understands that the provisions of 31 U.S.C. Section 3801, et seq., are applicable thereto.

Name of Bidder/Company _____

Type or Print Name _____

Signature of Authorized Representative_____ Date_____

"General Decision Number: WI20210014 07/09/2021

Superseded General Decision Number: WI20200014

State: Wisconsin

Construction Type: Building

County: Brown County in Wisconsin.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes and apartments up to and including 4 stories)

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.95 for calendar year 2021 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.95 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2021. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate,if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/01/2021
1	05/07/2021
2	07/09/2021

ASBE0205-010 06/01/1998

	Rates	Fringes
Asbestos Removal worker/hazardous material handler Includes preparation, wetting, stripping, removal, scrapping vacuuming, bagging and disposing of all insulation materials from mechanical systems whether they contain asbestos or not	$ 16.56	3.10

BOIL0107-001 01/01/2017

	Rates	Fringes
BOILERMAKER		
Boilermaker	$ 35.65	29.89
Small Boiler Repair (under 25,000 lbs/hr)	$ 26.91	16.00

BRWI0003-003 06/01/2020

	Rates	Fringes
BRICKLAYER		
Bricklayer, Cement Mason, Plasterer, Tile Layer	$ 35.68	24.40

CARP0252-001 06/01/2016

	Rates	Fringes
CARPENTER (Including Drywall Hanging, Acoustical work, Excluding Batt Insulation)		
CARPENTER & SOFT FLOOR LAYER	$ 33.56	18.00
MILLWRIGHT	$ 35.08	18.35
PILEDRIVERMAN	$ 34.12	18.00

ELEC0014-005 07/05/2020

	Rates	Fringes
Teledata System Installer		
Installer/Technician	$ 27.75	15.14

Low voltage construction, installation, maintenance and removal of teledata facilities (voice, data, and video) including outside plant, telephone and data inside wire, interconnect, terminal equipment, central offices, PABX, fiber optic cable and equipment, micro waves, V-SAT, bypass, CATV, WAN (wide area networks), LAN (local area networks), and ISDN (integrated systems digital network).

ELEC0158-003 06/01/2020

	Rates	Fringes
ELECTRICIAN	$ 34.77	29.75%+10.26

ELEV0015-001 01/01/2020

	Rates	Fringes
ELEVATOR MECHANIC	$ 51.09	34.765+a+b

FOOTNOTE:
a. PAID VACATION: 8% of regular basic for employees with more than 5 years of service, and 6% for 6 months to 5 years of service.
b. PAID HOLIDAYS: New Years Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, and Christmas Day.

ENGI0139-002 06/01/2020

	Rates	Fringes
OPERATOR: Power Equipment		
Group 1	$ 42.92	23.15
Group 2	$ 41.67	23.15
Group 3	$ 39.97	23.15
Group 4	$ 39.44	23.15
Group 5	$ 37.37	23.15
Group 6	$ 35.84	23.15

HAZARDOUS WASTE PREMIUMS:
EPA Level '"'A'"' Protection: $3.00 per hour
EPA Level '"'B'"' Protection: $2.00 per hour
EPA Level '"'C'"' Protection: $1.00 per hour

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of over 100 tons; Cranes, Tower Cranes, and Derricks with boom, leads and/or jib lengths 176 ft or longer.

GROUP 2: Backhoes (Excavators) weighing 130,000 lbs & over; Cranes, Tower Cranes and Derricks with or without attachments with a lifting capacity of 100 tons or less; Cranes, Tower Cranes, and Derricks with boom, leads, and/or jib lengths 175 ft or less; Caisson Rigs; Pile Driver

GROUP 3: Backhoes (Excavators) weighing under 130,000 lbs; Travelling Crane (bridge type); Milling Machine; Concrete Paver over 27 E; Concrete Spreader and Distributor; Concrete Laser Screed; Concrete Grinder and Planing Machine; Slipform Curb and Gutter Machine; Boring Machine (Directional); Dredge Operator; Skid Rigs; Over 46 meter Concrete Pump.

GROUP 4: Hydraulic Backhoe (tractor or truck mounted); Hydraulic Crane, 10 tons or less; Tractor, Bulldozer, or End Loader (over 40 hp); Motor Patrol; Scraper Operator; Bituminous Plant and Paver Operator; Screed-Milling Machine; Roller over 5 tons; Concrete Pumps 46 meter & under; Grout Pumps; Rotec Type Machine; Hydro Blaster, 10,000 psi and over; Rotary Drill Operator; Percussion Drilling Machine; Air Track Drill with or without integral hammer; Blaster; Boring Machine (vertical or horizontal); Side Boom; Trencher, wheel type or chain type having 8 inch or larger bucket; Rail Leveling Machine (Railroad); Tie Placer; Tie Extractor; Tie Tamper; Stone Leveler; Straddle Carrier; Material Hoists; Stack Hoist; Man Hoists; Mechanic and Welder; Off Road Maaerial Haulers

GROUP 5: Tractor, Bulldozer, or Endloader (under 40 hp); Tampers -Compactors, riding type; Stump Chipper, large; Roller, Rubber Tire; Backfiller; Trencher, chain type (bucket under 8 inch); Concrete Auto Breaker, large; Concrete Finishing Machine (road type); Concrete Batch Hopper; Concrete Conveyor Systems; Concrete Mixers, 14S or over; Pumps, Screw Type and Gypsum); Hydrohammers, small; Brooms and Sweeeprs; Lift Slab Machine; Roller under 5 tons; Industrial Locomotives; Fireman (Pile Drivers and Derricks); Pumps (well points); Hoists, automatic; A-Frames and Winch Trucks; Hoists (tuggers); Boats (Tug, Safety, Work Barges and Launches); Assistant Engineer

GROUP 6: Shouldering Machine Operator; Farm or Industrial Tractor mounted equipment; Post Hole Digger; Auger (vertical and horizontal); Skid Steer Loader with or without attachments; Robotic Tool Carrier with or without attachments; Power Pack Vibratory/Ultra Sound Driver and Extractor; Fireman (Asphalt Plants); Screed Operator; Stone Crushers and Screening Plants; Air, Electric, Hydraulic Jacks (Slip Form); Prestress Machines; Air Compressor, 400 CFM or over; Refrigeration Plant/Freese Machine; Boiler Operators (temporary heat); Forklifts; Welding Machines; Generators; Pumps over 3""; Compressors, under 400 CFM; Heaters, Mechanical; Combination small equipment operator; Winches, small electric; Oiler; Greaser; Rotary Drill Tender; Conveyor; Elevator Operator

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* IRON0008-001 06/01/2021

	Rates	Fringes
IRONWORKER	$ 38.77	28.15

Paid Holidays: New Year's Day, Memorial Day, July 4th, Labor Day, Thanksgiving Day & Christmas Day.

LABO0330-004 06/01/2020

	Rates	Fringes
Asbestos Abatement/Hazardous Waste (Preparation, removal and Encapsulation of hazardous materials from non-mechanical systems)	$ 29.00	17.88
Laborer, General	$ 29.30	17.88

NOTE: Mason Tender $.25 over general laborer.

PAIN0802-007 06/01/2019

	Rates	Fringes
PAINTER		
Brush, Drywall Taper	$ 30.93	18.58

PAIN1204-001 06/01/2017

	Rates	Fringes
GLAZIER	$ 28.34	19.65

PLUM0400-001 06/04/2018

	Rates	Fringes
PLUMBER/PIPEFITTER (Including HVAC work)		
(1) Small buildings (except industrial and power plants) where plumbing or heating is $50,000 or less	$ 32.15	17.57
(2) All other work	$ 36.74	19.06

SFWI0669-002 04/01/2021

	Rates	Fringes
SPRINKLER FITTER	$ 43.87	25.41

SHEE0018-021 06/01/2020

	Rates	Fringes
Sheet Metal Worker (Including HVAC duct work and Technicians)	$ 37.51	25.96

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* TEAM0662-001 06/01/2021

	Rates	Fringes
TRUCK DRIVER		
1 & 2 Axles	$ 32.57	23.81
3 or more Axles	$ 32.72	23.81

SUWI2002-010 01/23/2002

	Rates	Fringes
Asbestos Worker/Heat and Frost Insulator	$ 25.36	8.37
Laborers:		
Concrete Worker	$ 16.34	3.59
Landscape	$ 8.73	4.90
ROOFER	$ 18.01	3.28
Tile & Marble Finisher	$ 13.89	8.25

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

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SECTION 01 00 00

GENERAL REQUIREMENTS

1. LAYING OUT THE WORK

A. At start of work, Contractor shall establish permanent benchmarks. Contractor shall lay out the Work and be responsible for all lines, elevations, and measurements of building, utilities, and other work executed under the contract. Contractor must exercise proper precaution to verify figures shown on drawings before laying out work and will be held responsible for any error resulting from failure to exercise such precaution.

B. Before proceeding with any part of their work, each Trade shall lay it out, taking all levels and measurements necessary for its perfect and complete assembling, building and installing, and to ensure the perfect fitting of their work where it joins or connects with the work of other trades. Check carefully all dimensions before starting any work and report to the Architect any discrepancies for correction.

C. Verify all grades, lines, levels, and dimensions and report any errors or inconsistencies to the Architect before commencing work.

D. As the work progresses, the General Trade shall lay out on the floors the exact location of all partitions as a guide to all trades.

E. Each Trade shall provide competent engineering services to execute the work in accordance with contract requirements and be responsible for the accuracy of the finished work.

2. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Contractor shall submit shop drawings, product data, samples and other requested items (i.e. submittals) as required by the technical sections of the specification.

1. Required submittals shall be submitted in digital format.

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

1. Identification of material, thickness, weight, and finish for each item and location in Project.

C. Contractor's Review of Submittals

1. Prior to transmitting submittals, Contractor shall review and approve submittal and affix Contractor's review stamp and signature to submittal. The Contractor's review stamp shall contain a statement that Contractor has checked the information in the submittal with the requirements of the Contract Documents and has verified all field conditions, measurements, and materials related thereto, and certifies that the submittal conforms to the requirements of the Contract Documents.

2. Submittals received by the Architect without the Contractor's review stamp and signature will be returned without action.

D. The Contractor shall keep one (1) approved set of shop drawings, product data and other requested items at the job site at all times.

E. Reprocessing of Submittals: The Architect's shop drawing review responsibilities include only two reviews for any shop drawing submittal. This will include the initial review and review of one resubmittal. Any architectural and/or engineering shop drawing review time beyond these two reviews will be charged to and must be paid by the Contractor. Billing rates will be the Architect's and/or Engineer's standard hourly rate for all hours associated with the processing and review of said shop drawing submission.

F. Fire Rated Assemblies/Systems:

1. Contractor submittals for fire rated systems or assemblies shall provide documentation confirming compatibility of all submittal materials of the proposed assembly or system.

3. CONSTRUCTION DOCUMENTS

A. Contractor will be responsible to distribute documents to all subcontractors, sub-subcontractors, and material or equipment suppliers as required.

4. SPACE PREFERENCE FOR MECHANICAL AND ELECTRICAL EQUIPMENT

A. Each Trade shall carefully check and coordinate the location and level of all service lines. Run preliminary levels and check with all other trades so that conflict in location may be avoided.

5. PROGRESS PAYMENTS

A. To request payment, Contractor shall submit four copies of AIA Form G702 Application and Certificate for Payment and Form G-703 Continuation Sheet. The forms shall be signed by Contractor and shall be notarized.

1. Applications for payment shall be submitted monthly for the period ending the last day of the month preceding the application for payment.

2. Owner will make progress payments to Contractor in accordance with the Conditions of the Contract within thirty (30) days of receipt of the application for payment by the Architect.

B. Contractor shall disburse funds received on account of progress payments as follows:

1. Pay for all transportation and utility service not later than the 20th day of the calendar month following that in which such services are rendered.

2. Pay for all materials, tools, and other expendable equipment to the extent of 90 percent (90%) of the cost thereof not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used.

3. Pay to each Subcontractor, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by each Subcontractor's interest therein.

C. Prior to submitting the first request for partial payment, Contractor shall submit the following.

1. Provide a cost breakdown showing the value of the various items of work. The cost breakdown shall follow, at a minimum, the sectional breakdown of the Project Manual. After approval, the cost breakdown will be used as the basis of partial payments.

2. Provide a Submittal Checklist indicating all project specific submittals required by Contract Documents.

D. At the completion of the project, Contractor shall submit final Waivers of Lien from the Contractor, approved sub-trades and all Subcontractors and material suppliers.

6. WORK IN EXISTING BUILDING

A. The Owner will carry on activities in existing building during period when construction work is in progress. Schedule work and store materials so as to interfere as little as possible with Owner's activities and use of premises.

B. At the end of each work day, secure any openings into the work area so as to prevent unauthorized entrance, vandalism, theft and similar violations of security.

C. Any connections or alterations to present steam, gas, electric, water, or sewer facilities shall be made at times which meet Owner's approval and shall cause as little interference as possible with Owner's use of premises.

1. Contractor shall obtain Owner’s approval a minimum of seven (7) days prior to any disruption of the aforementioned utilities and/or services.

D. Access to the building shall be limited to routes designated by the Owner. All debris shall be removed and material delivered via these routes. Except for areas where work is to be performed, workmen shall not enter the building.

E. Where work involves redecorating in existing areas, the respective trades shall remove coverplates, fixtures, and wall mounted equipment as needed to refinish the surfaces. All removed items shall be reinstalled after redecorating is completed.

F. The use of all tobacco products, including cigarettes, cigars and chewing tobacco, is prohibited throughout the entire facility. Personnel using these products must leave the building.

7. LIFE SAFETY MEASURES DURING CONSTRUCTION

A. Existing emergency exits from occupied areas of the building shall be maintained free and clear throughout the construction unless alternate arrangements which satisfy life-safety requirements are made with the Owner. Provide temporary ramps and walkways to extend the exits outside of the construction area. Provide means of egress for construction workers at all times.

B. Existing Life-Safety systems, such as fire alarms, detectors and sprinklers, shall be kept in operation at all times, unless arrangements are made with the Owner. Shutdown shall be limited to the time required to perform work on the affected system.

C. Maintain free and unobstructed access to emergency services and for emergency forces at all times.

D. Where work involves penetrations through fire and smoke barriers, the penetration shall be completed and the barrier restored to the required fire rating the same day.

E. Temporary partitions shall be smoke tight and constructed of non-combustible materials.

F. Combustible rubbish and debris shall be removed from the building daily. Control the storage of combustible materials to reduce the flammable and combustible fire load of the building to the lowest level necessary for daily operations.

8. WORK BY OWNER

A. Owner shall have the right to remove fixed and portable items prior to the start of remodeling work. Contractor shall coordinate this work and verify Owner has exercised that right before commencing operations.

9. REMOVAL AND SALVAGE OF CONSTRUCTION MATERIALS

A. Where building materials or components are scheduled to be removed and not reinstalled, verify if Owner desires to salvage and/or retain any items.

B. Store items in a secure area until delivery to Owner.

C. Transport items to Owner's storage area on-site.

D. Protect items from damage during removal, transport and storage.

10. HAZARDOUS SUBSTANCES

A. Asbestos and PCB's

1. Neither the Contractor nor any subcontractor shall provide products or equipment which contains asbestos or polychlorinated biphenyl (PCB) material.

2. Any Contractor or trade who suspects that an on-site material contains asbestos shall report the information to the Owner's representative who will arrange to have the material tested. If the material is found to contain asbestos, the Owner will have it removed under separate contract. The affected Contractors shall provide a credit for work deleted from their contracts.

B. Safety Data Sheets

1. All contractors and subcontractors who bring hazardous substances (as defined by OSHA) to the site shall have on file at the site a copy of the Safety Data Sheets (SDS) for that substance. The Contractor shall maintain a file of all SDS's required for the project at the site.

2. Prior to delivery of hazardous substances to the site, each contractor shall submit two copies of the SDS to the Architect. The Architect shall transmit one copy to the Owner.

3. Each contractor and subcontractor shall comply with all Federal and State regulations regarding hazardous substances they bring to the site.

11. JOB MEETINGS

A. The Contractor shall establish a regular time and place for a bi-weekly construction meeting. The Contractor shall schedule a pre-construction meeting. The meeting shall be attended by a representative of the Contractor, each major subcontractor, the Owner, and the Architect.

1. The representative attending the meeting shall have the authority to bind the Contractor to the decisions made at the meeting.

2. The Contractor shall keep minutes of the meetings and shall distribute copies to all parties involved.

B. Additional meetings with the job foremen and field representatives shall be scheduled as required at the discretion of the Contractor and Architect's field representative.

C. Prior to the start of work by any trade, the Contractor shall arrange a pre-installation meeting with the Architect's representative, the Contractor's superintendent, the Trade's labor foreman, and the Manufacturer's representative to review installation and job procedures for the product.

1. The Architect's representative may waive this requirement for minor work or for the installation of materials which do not require special skill.

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SECTION 01 12 16

WORK SCHEDULE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Sequence Requirements:

1. Contractor is responsible to prepare and maintain a construction schedule describing the sequencing, means-and-methods of construction, installation and removal of temporary facilities and protections and their impact and coordination with the Owner's continued occupation and operations.

2. Contractor is responsible to coordinate schedule with lift supplier/installer. Schedule shall incorporate 1 week between phases for mechanics to move operations to lifts in Wash Bay and Inspection Room.

a. Coordinate Lift Installation timeframe with Midwest Equipment Specialists, Inc., phone: 608-838-8151.

3. Schedule shall be in the form of a bar graph (Gantt chart).

4. Schedule shall be submitted to the Architect for review prior to preconstruction meeting.

B. Sequencing, means-and-methods of construction, safety, and all temporary items remain the responsibility of the Contractor.

C. The sequence of operations shown in the "PHASING SCHEDULE" found in this section is a suggested sequence, but it represents the Owner's and Architect/Engineer's expectations of what will occur and the Owner has made certain assumptions about when certain accommodations must be made in order to coordinate their operations with the construction. As a result, all variations (with the exception of those items that change the scope/schedule/cost) from the "PHASING SCHEDULE" in this section, must be approved by the Owner and the Architect/Engineer.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.01 SCHEDULING

A. Phasing Schedule:

1. Phasing schedule below includes major areas only. All areas and aspects of construction remain the Contractor's responsibility to coordinate.

2. The Owner's intentions are to complete all work associated with the Wash Bay and Inspection Room first, and then utilize that area for maintaining continuous operations during construction in Repair Bay 152.

B. Sequence Schedule:

1. Sequence 1 shall include all work with Washbay 166 and PM Inspection 173.

   a. Upon completion of construction in Washbay 166 and Inspection Room 173, the Owner will require 1 week to relocate operations to allow for work in Repair Bay 152 to begin.

2. Sequence 2 shall include all work associated with Repair Bay 152 and all remainder of construction activities.

   a. Installation of Diamond Lifts needs to be completed in stages. Following demolition and excavation, the cassettes need to be set and leveled by the Owner's Lift representative. This process will take (7) working days.

   b. Following the setting of the cassettes, the work can then be brought to final slab where the lift manufacturer will need to return for the remainder of their installation.

   c. The remainder of their installation will take approximately (2) weeks.

   d. Following the final installation, work can be completed for the project.

   e. The scheduled delivery date for the Repair Bay Lifts is July 11, 2022.

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SECTION 01 50 00

TEMPORARY FACILITIES & CONTROLS

1. GENERAL

A. All Contractor operations and procedures shall be in compliance with NFPA 241, Standard for Safeguarding Construction, Alteration and Demolition Operations.

2. FIRE PROTECTION

A. During construction period, provide and maintain in working order all-purpose, 20# size dry chemical fire extinguishers. Extinguishers shall be rated for Class A, B, and C fire.

1. Provide fire extinguishers so that travel distance to a fire extinguisher does not exceed 50 feet.

2. Provide a minimum of one (1) fire extinguisher in the immediate vicinity of each work area and within each temporary enclosure.

3. Provide one (1) fire extinguisher in each temporary office.

4. Where flammable liquids or gases are used, provide one (1) fire extinguisher at each work station using flammable liquids or gases.

B. In addition, each trade which maintains enclosed shed on premises shall provide and maintain one (1) fire extinguisher in each shed.

3. SITE SECURITY AND PROTECTION

A. Fencing:

1. Provide and maintain fencing of sufficient height and strength to maintain public safety and to restrict access to the construction site and/or staging areas.

a. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.

B. Barricades:

1. Install and maintain structurally adequate barricades around materials stored upon any street, highway, or other publicly accessible grounds such as will effectively prevent accidents.

C. Lighting:

1. Furnish and maintain warning lights as required to maintain public safety.

D. Warning Signs:

1. Furnish and maintain warning signs as required to maintain public safety.

E. Machinery, equipment, and all hazards shall be guarded or eliminated in accordance with safety provisions of the Manual of Accident Prevention for Construction, published by the Associated General Contractors of America.

4. PROTECTION OF EXISTING BUILDING

A. Protect existing flooring and distribute construction loads with wood planks or by other suitable means while work is in progress.

B. Protect wall surfaces from damage due to delivery or removal of materials. Provide temporary wood jambs as needed at doorways to avoid damage.

C. Where project requires access to an existing roof or the existing roof will be used as a work platform, provide adequate protection to prevent damage to the existing roof.

1. Cover work areas with 3/4" plywood or equivalent. Provide adequate ballast to prevent blow off.

D. Protect elevator car from damage due to construction activities.

5. COLD WEATHER FOUNDATION PROTECTION

A. Protect all footings and foundation work not protected by at least 5'-0" of ground fill with an ample coverage of straw, marsh hay, or shavings when temperature readings drop below 20°F or when the freezing penetrates 6" into ground surfaces. Where open foundation work will allow freezing on inside ground areas, such entire inside ground area shall be covered and protected to prevent not over 2" penetration into ground, and heavy covering shall be maintained at all footings and at 5'-0" distance in from footings or wall lines. Interior footings shall have such heavy covering at each side and over top. When zero temperatures are liable to follow, additional protection shall be provided so that freezing of ground will not occur under any footing bottom.

6. BRACING

A. Provide all bracing of walls, steel work and other unsecured parts throughout, necessary for the security of the building during its construction.

7. STORAGE OF MATERIALS

A. Allocate space within the project limits to all trades for storage of materials. No materials shall be stored outside of the project limits unless expressly approved by the City.

B. Each trade shall be responsible for moving temporarily located materials which are part of his contract in order for any trade to complete final installations.

C. Material stored on structural slabs or slabs on grade shall not exceed the design load for the slab.

8. TEMPORARY POWER AND LIGHTING

A. Energy for small power tools and temporary lighting may be obtained from existing facilities. The cost of energy will be paid by the Owner.

1. Furnish all lamps, wiring, switches, sockets, and similar equipment as required.

2. Receptacle circuits shall have ground fault interrupters in the circuit at all times.

B. If a trade contemplates the use of equipment that requires a different voltage or greater capacity than that which is readily available on-site, then that trade shall arrange with the local utility for this additional service. Contractor shall pay for installation of such service and the necessary additional switches and wiring required.

9. TEMPORARY HEAT

A. Where materials are specified or required to be installed within a certain temperature or humidity range, maintain the required conditions for a long enough period prior to installation of the material to bring the substrate to the required condition, and after installation of material until properly cured or to completion of project.

B. Heat will be provided by the Owner with existing equipment. If existing equipment is not usable due to remodeling work, provide temporary electrical heating units to maintain conditions required in Paragraph A.

1. Fuel for temporary heating units shall be paid for by the Contractor.

10. TEMPORARY WATER

A. Water may be obtained from the Owner's existing facilities. Water will be paid for by the Owner.

11. TEMPORARY TELEPHONES

A. Contractors shall make their own arrangements for making and receiving telephone calls.

12. TEMPORARY SANITARY FACILITIES

A. The Owner will designate toilet facilities in the existing building which may be used by the Contractor. No other toilet facilities shall be used. Cooperate with the Owner in maintaining the facilities in a clean and sanitary condition.

13. TEMPORARY ENCLOSURES

A. At exterior openings, provide temporary weathertight enclosures to maintain security, retain temporary heat and to protect the Work from weather.

B. For interior work, provide enclosures to limit the spread of dust from demolition and cutting operations outside the construction area.

1. Protect Owner's furniture, fixtures, and equipment in and around all construction areas with fire retardant polyethylene. Tape seams and joints around furnishings and equipment.

14. PARKING FACILITIES

A. Arrangements shall be made with the Owner for use of parking space at the site. All parking shall be strictly limited to those Owner designated areas.

15. PROJECT SIGN

A. A project sign will not be required for this work.

B. Posting of signs, advertising bills or posters about the site or on the building will not be permitted.

C. With the approval of the Architect, small directional signs may be used to direct deliveries to the site. Such signs shall be neatly lettered and of substantial construction.

16. RUBBISH REMOVAL AND CLEANING

A. All materials, rubbish, and debris shall be removed from the building and from the premises as soon as it accumulates. Removal of rubbish and debris shall be conducted in such a way that a minimum of dust is caused.

1. Owner occupied areas and public corridors shall be kept broom clean at all times.

2. Rubbish shall be removed via routes approved by the Owner. All materials spilled along the way shall be cleaned up immediately. Take precautions to prevent the spread of dust and dirt through the building.

3. Keep grounds free of debris.

B. Provide containers of adequate size at the site for the collection of all solid waste generated by construction operations.

1. Have containers emptied as frequently as necessary to keep the site clean. Do not allow solid waste to accumulate on the ground or in buildings. Provide covers if necessary to prevent debris from blowing around the site.

2. Each Trade shall haul solid waste generated by their work to the collection container. Cooperate in keeping the building and premises clean.

3. Observe local and State regulations regarding solid waste disposal, recycling, and hazardous materials.

C. Keep building broom clean by sweeping as many times as necessary to accomplish this end.

1. All cleaning after architectural finishes have been installed shall be done using waxed base sweeping compound to control the dust.

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SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

1. RECORD DRAWINGS

A. Maintain a record of all field changes made during the course of construction. At substantial completion of the project, the Architect will furnish the Contractor with two sets of prints for the purpose of making these changes. After the Contractor has marked all field changes, these prints shall be returned to the Architect. Record drawings shall be submitted before final payment is made to the Contractor.

1. Submit Record Drawings in hard copy format. Electronic file format will not be accepted unless approved by the Architect/Engineer.

2. OPERATING AND MAINTENANCE INSTRUCTIONS

A. Upon completion of the work, Contractor shall submit to Architect for review: one complete copy of an Operation and Maintenance (O&M) Manual. The O&M Manual shall include every item furnished by the Contractor which requires operation or periodic maintenance and/or as required by the technical sections of specification. Upon approval of submittal, Contractor shall provide three complete copies of this O&M Manual to Architect. One (1) copy shall be printed on paper and bound in a heavy weight, loose-leaf cover and two (2) copies shall be submitted in a bookmarked .pdf digital file format. Each .pdf copy of the O&M Manual shall be on a separate CD disk. Manuals shall be delivered to Architect prior to substantial completion.

B. Where systems interrelate to one another, furnish a typed description of the operation of the system written for this project. The instruction shall contain all information needed by the Owner to properly operate the equipment.

3. WARRANTIES AND GUARANTEES

A. Where guarantees and warranties are called for in the technical sections of the specification, submit three copies of the manufacturer's written guarantee.

B. Where the manufacturer provides a guarantee or warranty for more than one year as part of their normal business procedure, a copy of the written guarantee shall be transmitted to the Owner.

C. Provide proof of purchase if required for warranty. Activate warranty, if applicable.

4. CERTIFICATIONS

A. Where required by the technical sections, provide certification from the manufacturer showing that products furnished meet the requirements of the specification. The installer shall provide a statement certifying that the product was actually installed on this project.

B. The original certificate shall be signed by an authorized agent of the company and shall be sworn before a notary.

5. SUBMITTALS

A. All record drawings, operating and maintenance instructions, warranties, guarantees, certifications, test reports, and other documents shall be transmitted to the Architect at one time using the form provided by the Architect.

B. All documents required to be submitted in Paragraph A shall be received and approved by the Architect prior to substantial completion and prior to any request for reduction of retainage.

6. EXTRA MATERIAL

A. Where technical sections require extra material for the Owner's stock, deliver to a storeroom designated by the Owner and arrange materials in an orderly manner. Store in original cartons where possible.

1. Label the outside of the carton with the type of material, color, and other pertinent information.

B. Prepare an inventory of all extra materials and have signed by the Owner's representative showing receipt of the materials. Send two copies of the signed inventory to the Architect prior to final payment.

1. Where the quantity of extra stock is based on a percentage of material furnished, provide a schedule showing the amount required for the project and amount of extra stock to be provided. Schedule shall be submitted at the time payment is requested for the material.

7. FINAL CLEANING

A. In addition to regular broom cleaning, the Contractor shall do the following special cleaning at the completion of the work:

1. Clean Glass:

a. Remove putty stains, labels and paint from glass.
b. Wash and polish all new glass.
c. Wash and polish all existing glass in the immediate area of the Work.
d. Washing of glass shall be done by a professional window washer.

2. Remove stains, marks and fingerprints and other soil or dirt from painted, decorated, and stained work.

3. Remove temporary protection and clean floors at completion.

4. Clean and polish hardware for all trades and equipment installed under General Contract. This includes removal of stains, dust, dirt, paint, etc.

5. Remove spots, soil, paint from tile, other similar glazed or polished surfaces, upon completion.

6. Remove spots, soil, paint, plaster, mortar, from aluminum work. When directed by Architect, wash aluminum work with non-alkali soap and water solution and follow with clear water rinse.

7. Remove construction dust from all existing materials and equipment.

B. Mechanical Trades and Others: Clean fixtures, equipment, remove stains, paint spatters, dirt dust.

8. SITE RESTORATION

A. At the conclusion of the Work, restore the site to its original condition.

1. Remove stored materials, trailers, etc., from the site. Remove debris and restore ground to original grades.

2. All areas where grass has been disturbed shall be restored with sod similar to existing grass.

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SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 WORK INCLUDED

A. Remove materials required for remodeling work.

1.02 PROJECT CONDITIONS

A. All present services installed and operating shall be kept in operation through the new construction until equal new services or temporary lines satisfactory to Owner are installed and operating.

B. Provide and maintain protection for the public from hazards caused by this work.

PART 2 DOES NOT APPLY

PART 3 EXECUTION

3.01 PREPARATION

A. Provide enclosures to prevent the spread of dust during demolition operations.

B. The Owner shall have the right to remove fixed and portable items prior to the start of remodeling work. Verify that the Owner has exercised that right.

3.02 DEMOLITION

A. Remove all other material and equipment shown to be removed or as required for the completion of the project.

B. Existing materials which are intended to be reused shall be removed with care to avoid damage to finished surfaces. Store in a protected location, in the same manner required for new materials, until the project is ready for their reinstallation.

3.03 CLEANING

A. Materials removed shall become the Contractor's property unless specifically stated otherwise.

B. All materials, rubbish, and debris shall be removed from the building and from the premises as soon as it accumulates. Removal of rubbish and debris shall be conducted in such a way that a minimum of dust is caused.

C. Maintain Owner occupied areas as clean as possible to avoid interference with Owner's operations.

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SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

A. Furnish and install cast-in-place concrete.

B. Furnish and install concrete formwork.

1.02 SUBMITTALS

A. Submit concrete mix designs to the Architect for approval.

B. Results of field and laboratory tests.

C. Submit formwork calculations and shop drawings, including shoring and reshoring, to Architect for review. Calculations shall be signed and sealed by a Professional Engineer registered in the State of Wisconsin.

1.03 QUALITY ASSURANCE

A. Ready-Mix Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94 requirements for production facilities and equipment.

PART 2 PRODUCTS

2.01 FORM MATERIALS

A. Form material for concrete surfaces which will be exposed to view shall be Plyform, Class I, B.B. grade plywood conforming to US Product Standard PS-1.

B. Forms for joist slabs shall be reusable steel forms.

C. Unless noted otherwise, permanent steel forms shall be galvanized and shall have the following minimum physical properties:

Depth: ..... 1"
Steel Gauge: 24
Weight: ..... 1.38 lbs/ft^2
Section Modulus: ..... 0.098 in^3/ft

D. Form ties for exposed concrete shall be snap ties with 1" break back.

2.02 STEEL REINFORCEMENT

A. Reinforcing bars shall conform to the requirements of ASTM A615 Grade 60. Grade marks shall be rolled in the bars. All materials shall be produced by domestic mills.

B. Welded wire reinforcement (WWR) shall be electric welded wire mesh conforming to the requirements of ASTM A1064. Unless noted otherwise, provide 6 x 6-W2.9 x W2.9 WWR at interior and exterior slab(s)-on-grade and interior equipment pads. Provide 6 x 6-W1.4 x W1.4 WWR at interior topping slabs. Mesh shall be placed at the center of the slab.

2.03 CONCRETE MATERIALS

A. Cement for regular concrete shall conform to ASTM Specification C150 for Type I Portland Cement.

1. Type II Portland Cement shall be used in all walls and slabs 24" and more thick.

B. Concrete aggregates shall meet the requirements of ASTM Specification C-33.

C. Fly Ash shall conform to ASTM Specification C618, Type C.

D. Water shall be potable, clean and free of injurious amounts of oil, acid, alkali, salts, organic matter, and other deleterious substances.

2.04 ADMIXTURES

A. The Air Entraining Admixture shall conform to ASTM Specification C-260 and shall contain no chlorides.

2.05 WATERSTOPS

A. Waterstop for construction joints shall be 6" PVC split dumbbell type without center bulb as manufactured by W.R. Grace and Co., Greenstreak Plastic Products, or W.R. Meadows, Inc.

2.06 VAPOR RETARDERS

A. Under Slab Vapor Retarder:

1. Exceed ASTM E 1745, Class A requirements as follows:

a. Material: Polyolefin sheet membrane
b. Permeance, ASTM E 96: Less than 0.01 perms after mandatory conditioning tests per ASTM E 1745 (7.1.1 – 7.1.5)
c. Tensile Strength, ASTM E 154: 67 lbs/in minimum
d. Puncture Resistance, ASTM D 1709: 2326 grams minimum
e. Minimum Thickness: 15 mils

2. Acceptable Products:

    a. Insulation Solutions Inc. – Viper VaporCheck II 15-mil
    b. Stego Industries - Stego Wrap 15-Mil Vapor Barrier

3. Provide vapor proofing seam tapes, mastics and pipe boots as manufactured or as recommended by vapor retarder membrane manufacturer.

2.07 CURING MATERIALS

A. Provide 6 mil polyethylene sheeting conforming to ASTM Specification D2103 Type 1300.

B. Clear, Waterborn, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.08 RELATED MATERIALS

A. Expansion joint filler shall be closed cell polyethylene sheet material of the thickness required for the joint.

B. Expansion joint filler for exterior work shall be pre-molded asphalt conforming to ASTM Specification D-994, as manufactured by W.R. Meadows, Inc. or Grace Construction Products.

C. Floor Sealer/Hardener:

1. Type: Water soluble, magnesium-fluorosilicate based, reactive with free lime in concrete, non-film forming.

    a. Lapidolith, concrete hardener manufactured by Sonneborn / BASF Construction Chemicals, LLC, Shakopee, MN.

D. Sealant for pavement joints shall conform to the requirements of the Specifications for Concrete Joint Sealer, Hot Poured Elastic Type, AASHTO Designation M-173.

E. Grout:

1. Provide MasterFlow 100, general construction, mineral-aggregate, non-shrink grout manufactured by BASF Corp., Shakopee, MN, Phone: 800-433-9517.

2. Minimum Performance Requirements:

    a. Flow (5 drops) per ASTM..... 120-140%
    b. Volume Change
    (flowable consistency, after 28 days)
    per ASTM C109:.....0.07%

c. Compressive Strength (psi)

	Flowable[1]	Consistency Plastic[2]	Stiff[3] (damp pack)
1 day	1,500	----	----
3 days	5,000	6,000	7,500
7 days	6,000	8,000	9,500
28 days	7,000	10,000	10,500

[1] 130% flow on flow table, ASTM C230, 5 drops in 3 seconds
[2] 110% flow on flow table, ASTM C230, 5 drops in 3 seconds
[3] 40% flow on flow table, ASTM C230, 5 drops in 3 seconds

3. Aggregate extension shall be washed, graded, saturated, surface-dry (SSD), high-density, free from deleterious materials and comply with ASTM C 33. Aggregate size and quantity shall conform to all grout manufacturer's recommendations for intended application.

4. Grout shall be mixed and installed in strict accordance with manufacturer's specifications.

F. Anti-spalling Products:

1. Boiled linseed oil

2. Mineral spirits

2.09 MIXES

A. Concrete shall be thoroughly mixed to a uniform texture and consistency in accordance with ASTM Specification C-94. Concrete shall not be mixed at the site unless specifically permitted by the Architect.

B. The air content of air entrained concrete shall be between 4% and 7% by volume.

C. No admixtures, other than air entraining agents, shall be used unless specifically authorized by the Architect.

D. Concrete shall be mixed in accordance with the following table:

Class	Strength	Aggregate Gradation	Max. Water	Min. Cement	Fly Ash	Max. Sand	Allowable Slump	Notes
A	4000 psi	No. 467	300#	520#	65#	37%	3" to 5"	1,2,3
A a/e	4000 psi	No. 467	265#	560#	70#	34%	3" to 5"	1,2,3,4
B	4000 psi	No. 67	340#	560#	70#	45%	3" to 5"	1,2,3
B a/e	4000 psi	No. 67	300#	600#	75#	42%	3" to 5"	1,2,3,4
C	3500 psi	No. 67	325#	525#	60#	48%	1" to 3"	1,2,3

Notes:

1. Strength shall be the expected 28 day strength of field cured concrete. It is anticipated that the strength of laboratory cured test samples will exceed the expected strength of field cured specimens.

2. The maximum water shall include surface water contained in aggregate.

3. Sand percentage expressed as a percentage of the total aggregate.

4. Air-entrained concrete.

E. In cold weather, the concrete, when deposited, shall conform to the temperature limitations established in ACI: Committee 306.

F. In hot weather, ingredients shall be cooled so that the maximum concrete temperature does not exceed the recommendations of ACI Report 305, but in no case exceeds 90°F.

PART 3 EXECUTION

3.01 FORMWORK

A. Forms shall be used, wherever necessary, to confine concrete and shape it to the required dimensions. Forms shall have sufficient strength to withstand the pressure resulting from placement and vibration of the concrete and shall have sufficient rigidity to maintain specified tolerances.

1. Tolerances shall be in accordance with Table 4.3.1 of ACI-301.

B. The design and engineering of the formwork, as well as its construction, shall be the responsibility of the Contractor.

1. Formwork shall be designed in accordance with ACI-347 "Guide to Formwork for Concrete", ACI 347.02 R-05 "Guide for Shoring/Reshoring of Concrete Multi-Story Buildings", and for design considerations, wind, loads, allowable stresses, and applicable requirements of local building codes.

2. Provide temporary openings at the base of column forms, wall forms, and at other points where necessary to facilitate cleaning and observation immediately before concrete is placed.

3. Provide chamfer strips placed in forms at all permanently exposed outside corners.

4. Build into forms all necessary inserts, reglets, wood blocks, furring, nailing strips, grounds, etc. Form all recesses in the work as required or directed.

5. Install dovetail slots where required for masonry anchorage.

6. No forms or shoring shall be supported on frozen ground.

C. All formwork shall be thoroughly cleaned before reuse.

3.02 PREPARATION

A. General:

1. Check drawings carefully, including those for other trades, for inserts, fastening devices, sleeves, equipment pads, and openings required for general construction and other work.

a. Notify other trades sufficiently in advance of each pour to permit installation of items to be imbedded in concrete.

b. Assist others so that all anchors, inserts, bolts, sleeves, etc., are carefully and accurately located and placed.

2. All forms other than metal shall be drenched with water before concrete is deposited.

B. Slabs on Grade:

1. Level off ground for floor slabs on grade. Verify that all underfloor services are installed and properly backfilled. See that all fill around footings and other excavations are compacted.

2. Install vapor retarder, lapping all edges 6" and taping joints as recommended by the manufacturer.

3. Unless noted otherwise, slabs on grade shall be 5" thick and reinforced with 6 x 6 W2.9 x W2.9 wire mesh in the center slab.

4. Where vapor retarder is not used, water granular fill base so that material is uniformly moist to a depth of 4", but no water is ponded on the surface.

C. Exterior Slabs on Grade:

1. Unless noted otherwise, sidewalks shall be 5" thick unreinforced concrete.

2. Tops of forms shall be set to finished grades and pitched 1/4" per foot toward point of drainage. Where walks terminate at curbs, finish walk 1/2" above curb.

3. The subgrade shall be leveled and tamped. All required fill shall be gravel. Compact subsoil at all excavations. Provide a minimum of 4" of gravel under sidewalks.

4. Provide 1/2" pre-molded expansion filler at not over 30 feet on center and at the junction with platforms and other fixed structures. Provide 3/4" pre-molded expansion filler at junction between curbs and sidewalks.

5. Moisten subgrade before placing concrete but do not soak to form pools of water.

6. Where the requirements of the local municipality for public sidewalks and driveway aprons are greater than these specifications, the requirements of the municipality shall be followed.

D. Joints:

1. Construction Joints:

a. Locate and install construction joints which are not shown on drawings so as not to impair strength and appearance of the structure, as acceptable to Architect.

b. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.

c. Provide keyways at least 1-1/2" deep.

d. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

2. Contraction (Control) Joints:

a. Contraction joints shall be a formed, sawed or tooled groove which creates a weakened-plane, used to regulate the location of cracking. Contraction joint depth shall be one-fourth the slab thickness.

b. Locate and install contraction joints in slabs on grade at intervals not to exceed 12'-0" in either direction unless shown otherwise on the drawings. Maintain a length to width ratio of not more than 1-1/2 to 1, staying as close to square as possible.

c. Locate and install contraction joints in topping slabs at intervals not to exceed 8'-0" in either direction unless shown otherwise on the drawings. Maintain a length to width ratio of not more than 1-1/2 to 1, staying as close to square as possible.

d. Time of Sawing: Afternoon sawing of a morning pour and night sawing of an afternoon pour.

3. Expansion (Isolation) Joints:

a. Locate expansion joints at points of contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, or as required to accommodate differential horizontal and vertical movement.

E. Patch existing slabs on grade where floor has been cut for plumbing, heating and other remodeling work. Reinforce cuts greater than 24" in each direction with 6 x 6 WI.4 x WI.4 wire mesh. Reinforce trenches less than 24" wide with two #3 rods continuous. Repair under-slab vapor retarder with material equal to original installation.

F. Where mechanical and electrical penetrations through floor slabs are removed, patch holes through the slab.

1. Fill holes 3" and smaller in diameter with non-shrink grout.

2. Fill holes 3" to 12" in diameter with Class B concrete. Anchor to slab with two No. 4 dowels.

3. Fill holes 12" x 12" to 36" x 36" with No. 4 dowels, 8" o.c. both ways.

4. All holes to be filled in structural floor slabs shall be filled or formed in such a manner as to prevent new cured concrete from falling to floor below.

3.03 PLACING CONCRETE

A. Class A or A a/e concrete shall be used for all walls and footings 12" and over in thickness. Class B or B a/e concrete shall be used for all walls and footings less than 12" thick and all slabs, joists, beams and columns.

1. All concrete for exterior work, including foundation walls, shall be air entrained.

B. All concrete shall be carefully placed in such a manner so that no segregation of the aggregate occurs and the concrete is thoroughly in contact with the forms and reinforcing steel.

C. Concrete shall not be spouted directly into wall and column forms without the Architect's approval. Concrete in walls and columns shall be placed as the Architect directs.

D. Concrete shall be puddled and compacted by means of suitable motor driven vibrators having a frequency of not less than 3500 impulses per minute.

1. Vibrators shall be of sufficient size to consolidate the entire mass of concrete as it is placed. Equipment shall be subject to the acceptance of the Architect. Adequate reserve equipment shall be available at the site in case of failure of the primary equipment.

2. Apply vibration directly to concrete, not to forms or reinforcing steel. Use care not to cause segregation of the concrete mix. Vibrate only fresh concrete. Use care to keep vibrators away from concrete which has begun to set.

3. Work internal vibrators in and out of concrete mass slowly to prevent the formation of holes. Vibrated concrete shall be spaded or tamped by hand as much as necessary to assist in placing and compacting.

E. Exterior slabs on grade shall be Class B a/e concrete. Do not place concrete on frozen subgrade or place concrete when temperature is below 32ºF.

3.04 CONCRETE FINISHING

A. Base slabs which are to receive a separate bonded concrete topping or hard tile shall be brushed with a wire broom as soon as concrete has set, but before it is completely hardened. This brushing shall remove all laitance and loose aggregate.

B. Concrete slabs shall be struck off to the established grade, then floated. Floating shall be followed by steel troweling after the concrete has hardened sufficiently to prevent excess fine material from working to the surface. The finish shall be brought to a smooth surface free from defects and blemishes. No dry cement nor mixture of dry cement and sand shall be sprinkled directly on the surface of the wearing course to absorb moisture nor to stiffen the mix. After the concrete has further hardened, additional troweling shall be done with hand trowel to remove all blemishes.

1. Cut concrete into areas not to exceed 12'-0" in either direction, 8'-0" at topping slabs. Sawing shall begin as soon as the surface is firm enough so that it will not be torn or damaged by the blade.

2. Where hardened concrete is called for in the finish schedule, apply three coats of floor sealer/hardener solution, diluted in accordance with the manufacturer's recommendations.

C. Concrete floors shall be level to within 1/8" in 10'-0". The Concrete Trade shall be responsible for providing smooth, level floors, ready for the installation of finish. Level floors with latex cement as necessary to meet this standard.

D. The tops of walls, footings, etc., shall be struck off at the established elevation. The portion of walls which are exposed to view of the exterior shall be troweled smooth or given a brick rubbing using neat cement.

E. Interior concrete which is exposed to view shall have fins removed, rough edges ground smooth, and all honeycombing filled with neat cement.

1. Walls and ceilings in unfinished areas shall have fins removed, all tie holes filled and all holes larger than 0.25 square inches shall be filled and rubbed smooth.

F. Exterior sidewalks shall be steel troweled to a smooth even surface, free of irregularities. After the sheen has left the surface of the concrete, brush with a medium fine bristled brush such as a calcimine brush. All joints and edges shall be rounded to a 1/4" radius. Cut into flags approximately 5 feet in length.

G. The exposed surface of concrete curbs shall be floated, steel troweled and brushed. The back edge and edges adjacent to expansion joints shall be edged and rounded to a 1/4" radius.

3.05 FIELD QUALITY CONTROL

A. Samples of concrete shall be obtained in accordance with ASTM-C172 method and shall be transported to a place on the site where tests can be made and cylinders stored without being disturbed.

1. Use of alternate methods of strength testing will be considered upon request. However, any alternate methods proposed will be approved only as a supplement to, not a replacement for, the standard cylinder testing method.

B. A record shall be made by Contractor of the delivery ticket number for the particular load of concrete tested, date, name of ready-mix supplier, location in job, type and brand of cement, class of concrete, amount of concrete represented, admixtures, if any, water added at job if any, air temperature, slump and % air entrainment. In cold weather concreting, concrete temperature shall also be recorded.

C. All required sampling, preparation of specimens, transportation, and test expenses shall be paid by the Contractor. All testing shall be done by a testing laboratory approved by the Architect.

D. Strength tests shall be made for each of the following conditions: each day's pour; each class of concrete; each change of supply or source of concrete.

1. A strength test shall consist of four standard cylinders, with two cylinders tested at 7 days and two at 28 days.

2. Cylinders for strength tests shall be made in accordance with ASTM-31. Cylinders shall be cured on the job site in the same manner as pour from which the sample is procured.

3. To conform to the requirements of this specification, the average of all the strength tests representing each class of concrete, as well as the average of any three consecutive tests of the field cured specimens, shall be equal to or greater than the specified strength, and not more than 10% of the strength tests shall have values less than 90% of the specified strength.

E. Slump tests shall be made in accordance with ASTM Test C-143 from the same batch of concrete from which strength tests are made.

F. Air entrained concrete shall be tested for air entrainment in accordance with ASTM Test C-231 from the same batch other tests are made.

G. Test Failure and Rejection

1. If the measured slump or air content falls outside the limits specified, a check test shall be made immediately on another portion of the same sample. In the event of a second failure, the concrete shall be rejected and not used in the structure.

2. If job cured cylinders fail to conform to the above tests, the Architect reserves the right to make such changes to Proportions of Mixes as required at no additional cost to the Owner.

3. Any additional testing required because of failure of concrete to meet specifications shall be paid for by the Contractor including full scale load tests or samples taken in accordance with ASTM-C42 "Method of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete."

3.06 PROTECTION AND CURING

A. Concrete shall be protected from mechanical injury, premature drying, and excessively hot or cold temperatures beginning immediately after placement.

B. Maintain concrete with minimal moisture loss and temperature variation for the period necessary for hydration of the cement and hardening of the concrete.

1. The top surface of concrete slabs, where concrete is the substrate for an applied floor finish material, shall be cured with a 6-mil polyethylene moisture retaining cover.

a. Moisture retaining cover shall be placed in widest practicable width, with sides and ends lapped at least 12", and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

C. Temperature Control:

1. When the mean daily outside temperature is less than 40°F, the temperature of the concrete shall be maintained between 50°F and 70°F for at least 7 days or until the concrete has reached 70% of the specified strength.

2. Arrangements for heating, covering, insulating, or housing the concrete work shall be made in advance of placement and shall be adequate to maintain the required temperature without injury due to concentration of heat. Combustion heaters shall not be used during the first 48 hours unless precautions are taken to prevent exposure of the concrete to exhaust gases.

3. During hot weather, provision for wind breaks, shading, fog spraying, sprinkling, or wet covering shall be made in advance of placement and such protective measures shall be taken as quickly as concrete hardening and finishing operations allow.

4. Changes in temperature of the air immediately adjacent to the concrete during and immediately following the curing period shall be kept to a minimum and shall not exceed 5°F in any one hour period or 50°F in any 24 hour period.

D. Removal of Forms:

1. Wall and column forms may be removed after 24 hours cumulative curing time where the surrounding air temperature is above 50°F.

E. Protective Coating:

1. Apply an anti-spalling compound to all exterior exposed concrete drive slabs, sidewalks, curbs, stoops and equipment pads.

   a. Compound shall consist of a mixture of 50% boiled linseed oil and 50% mineral spirits by volume.

2. The anti-spalling compound shall meet the requirements of the Specification for Boiled Linseed Oil Mixture for Treatment of Portland Cement Concrete, AASHTO Designation M233.

3. Application shall be in accordance with the Standard Specification for Road and Bridge Construction, State of Wisconsin, Department of Transportation, Division of Highways, Section 502.3.13.3.

3.07 ADJUSTING AND CLEANING

A. All patching required by faulty work shall be done carefully and neatly as soon as forms are removed using a mortar mixed in the same proportions of cement to sand as specified for the concrete being patched. All the wires shall be clipped close and holes patched. Fins shall be removed with a carborundum stone.

B. All concrete which is not formed as shown on the drawings or is out of alignment or level shall be removed.

C. Excess concrete shall be removed from the site. Hardened concrete shall not be used for backfill.

D. Concrete truck shall not be cleaned out on site.

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SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Furnish and erect structural steel.

1.03 SUBMITTALS

A. Product Data: For each type of product specified.

B. Shop Drawings: Shop drawings shall be signed and sealed by a qualified professional engineer responsible for their preparation.

1. Show fabrication of structural-steel components. Include details of cuts, connections, splices, camber, holes and other pertinent data.

2. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.

3. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify high-strength bolted slip-critical, direct tension, or tensioned shear/bearing connections.

4. For structural steel connections indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

C. Mill Test Report: Provide two (2) copies, signed by material manufacturer certifying that products comply with requirements.

1.04 QUALITY ASSURANCE

A. The American Institute of Steel Construction, "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" and "Code of Standard Practice for Steel Buildings and Bridges" latest editions shall govern, except as modified herein.

B. Welding and equipment shall conform to American Welding Society's Code for Welding in Buildings Construction subject to State and local laws and ordinances. Fabricators and welders shall be licensed operators, certified in all positions.

1.05 DELIVERY, STORAGE AND HANDLING

A. Store steel on substantial shores or blocking to keep free of ground and to prevent bending, buckling or twisting. Provide adequate waterproof coverings in wet weather.

B. Take measures to avoid damaging prime coat while handling steel.

PART 2 PRODUCTS

2.01 MATERIALS

A. Structural steel shall meet the requirements of ASTM A6 and ASTM A36, except for wide-flange and WT sections which shall meet the requirements of ASTM A992.

B. Structural steel tubing shall meet the requirements of ASTM A500 Grade B.

2.02 ACCESSORIES

A. High strength bolts shall meet the requirements of ASTM A325. Bolts shall have bearing type connections.

B. Shear Connectors: ASTM A108, Grades 1015 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1, Type B.

C. Primers for steel shall be as noted below.

2.03 FABRICATION

A. Execute work in accordance with drawings, details and approved shop drawings.

B. Do all bracing, blocking, cutting, fitting, drilling, tapping, welding, punching, etc., as may be required to complete this work and to join work of others. Weld clip angles and plates to beams and punch holes for fastening work of other trades.

C. Drill holes, as required, where provision must be made for attaching other materials to structural steel (as plates, hanger rods, wood nailers, ceiling hangers, etc.). Verify requirements of other trades for location, size, and quantity of holes required.

D. Ends of compression members shall be sawn square or flame cut and ground. See drawings for members requiring milling at connections.

E. Shearing and punching shall leave clean, true lines and surfaces.

F. At steel columns in masonry walls, where beams are indicated to have masonry between flanges and at all other locations where masonry is to be tied to structural steel, install weld-on masonry ties per manufacturer's instructions.

2.04 SHOP PAINTING

A. Shop paint all steel work except contact surfaces at high strength slip critical type bolts and surfaces within 2" of field welds.

B. Paint Systems

1. All Steel Components in Wash Bay Affected By Repairs Shown in Details A3/A501 and A9/A501.

a. Prepare in accordance with Steel Structures Painting Council Specification SSPC-SP6.

b. Apply one coat zinc-rich primer equal to Tnemec 90-97, International Interzinc 52 or Ameron Amercoat 68HS. Minimum DFT 3.0 mils.

c. Apply top coat of low sheen, two component, aliphatic acrylic polyurethane equal to Tnemec: Series 73, Interthane 870 or Ameron's Amershield. Minimum DFT 4.0 mils.

d. Touch up damaged coatings after erection.

PART 3 EXECUTION

3.01 PREPARATION

A. Anchor bolts and anchors shall be preset where practical and shall be built into connection work. Verify location and elevation before erecting steel. Furnish anchor bolts, templates and drawings for setting the structural steel. Concrete and masonry trades shall set anchor bolts and plates in accordance with the setting drawings furnished by this Section.

3.02 ERECTION

A. Erect structural steel true and plumb with temporary bracing introduced wherever necessary to take care of all loads to which it may be subjected. Maintain bracing in place as long as may be required for safety and until permanent connections have been completed.

B. Erect structural steel as rapidly as progress by general work will permit.

C. Provide ASTM-A325 bolts for all truss, beam and girder connections to columns and all beams to girder connections. In general, connections are based on AISC framed beam connections with 3/4" A325 bolts.

D. All oversize, slotted or mismatched and reamed holes connected by A325 bolts require a washer under both the bolt head and nut.

E. After erecting, all areas not shop painted, such as bolts, connections and areas scraped or marred in the erecting, shall be painted by the erector using the same primer as that applied at the factory.

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SECTION 09 67 23

RESINOUS FLOORING

PART 1 GENERAL

1.01 WORK INCLUDED

A. High-performance resinous flooring systems.

1.02 RELATED WORK

A. Section 03 30 00 - Cast-In-Place Concrete

1.03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Installer Certificates for Qualification: Signed by manufacturer stating that installers comply with specified requirements.

C. Material Certificates: For each resinous flooring component, from manufacturer.

D. Maintenance Data: For maintenance manuals.

E. Samples: Submit two 6" X 6" samples of each resinous flooring system applied to a rigid backing. Provide sample which is a true representation of proposed field applied finish. Provide sample color and texture for approval from Owner in writing or approved by General Contractor prior to installation.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.

1. Engage an installer who is approved in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.

2. Installer Letter of Qualification: Installer to provide letter stating that they have been in business for at least 5 years and listing 3 projects in the last 2 years of similar scope. For each project provide: project name, location, date of installation, contact information, size of project, and manufacturer of materials with system information.

B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.

C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.

1. Maintain containers in clean condition, free of foreign materials and residue.

2. Remove rags and waste from storage areas daily.

1.06 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.

B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.

C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by:

1. The Sherwin Williams Company, Cleveland, OH. swflooring@sherwin.com.

2. Basis of Design Product: Fastop™ Topfloor.

3. Substitutions must be approved in writing 10 days prior to bid date.

4. No moisture testing required. No product allowed that requires moisture testing.

a. 1st Coat: Optional Primer Resuflor Aqua 3477 applied at 250 sq. ft./gal
b. 2nd Coat: Slurry FasTop 4050 applied at 25-30 sq. ft./ unit to yield 1/4" with Broadcast Standard Dry Silica Sand 20-40 mesh at 0.5 lbs per sq.ft.
c. 3rd Coat: Seal Coat FasTop 4090 applied at 80-100 sq. ft./ per unit. Other seal coat options available.
d. Total system thickness: ¼"

2.02 MATERIALS

A. VOC Content of Resinous Flooring: Provide resinous flooring systems, for use inside the weatherproofing system, that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
1. Resinous Flooring: 100 g/L.

2.03 HIGH-PERFORMANCE RESINOUS FLOORING

A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, high-performance, resin-based, monolithic floor surfacing designed to produce a seamless floor.

B. System Characteristics:

1. Color and Pattern: As indicated from manufacturers listed above.

2. Slip Resistance: Provide slip resistant finish.

PART 3 - EXECUTION

3.01 PREPARATION

A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate, or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces.

B. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable, try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile CSP 4-6 as follows:

1. Thin film, to 10 mils CSP-1 to CSP-3

2. Thin and medium films, 10 to 40 mils CSP-3 to CSP-5

3. Self-leveling mortars, to 3/16" CSP-4 to CSP-6

4. Mortars and laminates, to 1/4" or more CSP-5 to CSP-10

C. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.

1. Moisture Testing: Perform tests indicated below.

a. Calcium Chloride Test: Perform anhydrous calcium chloride test per ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lbs. of water/1000 sq. ft. in 24 hours. Perform tests so that each test area does not exceed 1000 sq. ft. and perform 3 tests for the first 1000 sq. ft. and one additional test for every additional 1000 sq ft.

b. In-Situ Probe Test: Perform relative-humidity test using in-situ probes per ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative-humidity-level measurement.

3.02 ENVIRONMENTAL CONDITIONS

A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers' installation instructions shall be implicitly instructions shall be implicitly followed.

B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.

C. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.

D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

E. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

F. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.03 APPLICATIONS

A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.

1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.

2. Install topcoat over flooring after excess aggregate has been removed.

3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping, or as instructed by manufacturer.

B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.

1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum inter-coat adhesion.

2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.

3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.

C. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application. Follow manufacturer's written recommendations.

D. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

E. Slip Resistant Finish: Provide grit for slip resistance.

F. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.04 COMPLETED WORK

A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all spattering and drippings, and all resulting stains.

B. Protection: Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.

C. Contractor shall insure that coating is protected from any traffic until it is fully cured to the satisfaction of the coating manufacturer.

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SECTION 22 05 00

COMMON WORK RESULTS FOR PLUMBING

PART 1 GENERAL

1.01 SCOPE

A. This section includes information common to two or more technical plumbing specification sections or items that are of a general nature, not conveniently fitting into other technical sections. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Standards
- Quality Assurance
- Continuity of Existing Services
- Sleeves and Openings
- Sealing and Firestopping
- Codes
- Certificates and Inspections
- Submittals
- Operating and Maintenance Instructions
- Training of Owner Personnel
- Scheduling
- Data and Drawings
- Electrical Coordination

PART 2 - PRODUCTS
- Identification
- Bedding and Backfill
- Sealing

PART 3 - EXECUTION
- Demolition
- Excavation and Backfill
- Sheeting, Shoring and Bracing
- Dewatering
- Surface Restoration
- Concrete Work
- Cutting and Patching
- Building Access
- Equipment Access
- Coordination
- Identification
- Lubrication
- Sleeves
- Storage and Handling
- Paint
- Protection of Existing Equipment

1.02 RELATED WORK

A. Division 26 - Electrical

B. This section applies to all Division 22 00 00 sections of plumbing.

1.03 STANDARDS

A. Provide all materials and equipment under this contract in accordance with the following applicable Technical Society, Organization, or Body.

Abbreviations of standards organizations referenced in this and other sections are as follows:

ACPA	American Concrete Pipe Association
ADA	Americans With Disabilities Act (1990)
AGA	American Gas Association
ANSI	American National Standards Institute
ARI	Air Conditioning and Refrigeration Institute
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
AWS	American Welding Society
BOCA	Building Officials Code Administrators International, Inc.
CISPI	Cast Iron Soil Pipe Institute
CDA	Copper Development Association
CS	Commercial Standards, Products Standards Sections, Office of Eng. Standards Service, NBS
EPA	Environmental Protection Agency
FS	Federal Specifications, Superintendent of Documents, U.S. Government Printing Office
FM	Factory Mutual
IAPMO	International Association of Plumbing & Mechanical Officials
IECC	International Energy Conservation Code
IPC	International Plumbing Code
IEEE	Institute of Electrical and Electronics Engineers
ISA	Instrument Society of America
MCA	Mechanical Contractors Association
MICA	Midwest Insulation Contractors Association
MSS	Manufacturer's Standardization Society of the Valve & Fitting Industry, Inc.
NBS	National Bureau of Standards
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NSF	National Sanitation Foundation
OSHA	Occupational Safety and Health Act
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
UL	Underwriters Laboratories Inc.
WQA	Water Quality Association

B. Reference to Standards shall mean and intend the latest edition of specifications adapted and published at the time of invitation to submit proposals.

Standards referenced in this section:

ACI 614	Recommended Practice for Measuring, Mixing and Placing of Concrete
ASTM D1557	Standard Test Method for Moisture-Density Relations of Soils
ASTM E814	Standard Test Method for Fire Tests of Through-Penetration Fire Stops
ASTM E84	Standard Test Method for Surface Burning Characteristics of Building Materials
D.O.T.	Standard Specifications for Road and Bridge Construction, State of Wisconsin Dept. of Transportation
UL1479	Fire Tests of Through-Penetration Firestops
UL723	Surface Burning Characteristics of Building Materials
ANSI/NSF 372	Lead-Free Products

1.04 QUALITY ASSURANCE

A. All products and materials, of first quality of manufacturers, used are to be new, undamaged, clean and in good condition. Existing products and materials are not to be reused unless specifically indicated.

B. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the Contractor is responsible for all costs involved in integrating the equipment or accessories into the system and for obtaining the intended performance from the system into which these items are placed.

C. Plumbing work shall be installed in strict conformity with the specifications and applicable State and local codes and ordinances.

1. The rules of the State of Wisconsin Department of Safety and Professional Services Plumbing Code shall be part of this specification and are hereby incorporated by reference.

a. All plumbing products and related appliance or equipment shall be listed and approved per the stipulated requirements of Comm. 384 PLUMBING PRODUCTS which includes being listed in the latest edition of the WISCONSIN PLUMBING PRODUCTS REGISTER - Document SBD-8871-P.

2. If the requirements of the applicable State and local codes and ordinances are contrary to or more stringent than the requirements of the specification, the requirements of the codes and ordinances shall govern.

D. Installation shall be by qualified personnel thoroughly trained and experienced in skills required and completely familiar with the manufacturer's current recommended methods of installation as well as the requirements of the work. System shall be ready for satisfactory use.

E. All plumbing equipment to be installed per manufacturer's recommendations.

1.05 CONTINUITY OF EXISTING SERVICES

A. Do not interrupt or change existing services without prior written approval from the Owner and the Architect's Representative. When interruption is required, coordinate scheduling of down-time with the Owner to minimize disruption to his activities. Unless specifically stated, all work involved in interrupting or changing existing services is to be done during normal working hours.

B. The existing buildings will be occupied and maintained in normal use by the Owner during the progress of these contracts.

C. Schedule work to reduce to the minimum the period of interruption or outages to the various services.

D. Notify the Owner and the Architect, no less than 120 hours before any system is to be put out of service, of the extent of the work to be done during the outage, the probable length of time required for that phase of the work, and the desired time at which the outage is to begin.

E. Provide temporary piping and systems as required to keep building operational with minimal shutdown/disruption. Temporary piping and systems to keep construction progressing shall be included in Plumbing Contractor's scope of work.

F. Plumbing Trade to protect existing sanitary sewer piping during construction of lift pit and during installation of temporary shoring.

1.06 SLEEVES AND OPENINGS

A. Refer to Section 22 05 00, Article 3.13 SLEEVES.

1.07 SEALING AND FIRESTOPPING

A. Sealing between piping, etc. and the non-rated partition opening shall be the responsibility of the contractor whose work penetrates the opening. Seal all openings with caulk sealant or another approved product.

1.08 CODES

A. Comply with requirements of Wisconsin Administrative Code, International Plumbing Code, City of Green Bay, WI Plumbing codes.

1.09 CERTIFICATES AND INSPECTIONS

A. Refer also to Division 01, General Requirements, Permits, Regulations, Utilities and Taxes.

B. Obtain and pay for all required State installation inspections in accordance with Wis. Admin. Code Section Comm. 61.30, State and Local Codes, Ordinances, and Authorities with Jurisdiction. Include copies of the certificates in the Operating and Maintenance Instructions.

C. The installing contractor is required to certify in writing the installations of the systems and equipment. See Conditions of Contract regarding progress payments defining Substantial Completion and Section 01 70 00 Project Closeout for certification requirements. The installing contractor shall certify that, to the best of his knowledge, the following has been completed:

1. The plumbing has been installed, complying with the specifications, and with National, State, and Local Codes.

2. Smoke and fire separation penetrations have been installed in accordance with the UL assembly requirements and in accordance with the product manufacturer's requirements.

Each Contractor is required to supply the appropriate support documentation and UL listings to substantiate the certifications.

1.10 SUBMITTALS

A. Not more than two weeks after award of contract but before any shop drawings are submitted, contractor to submit the following plumbing system data sheet. List piping material type for each piping service on the project, ASTM number, schedule or pressure class, joint type, manufacturer and model number where appropriate. List valves and specialties for each piping service, fixture and equipment with manufacturer and model number.

B. The approved plumbing system data sheet(s) will be made available to the Project Representative for their use on the project.

PLUMBING SYSTEM DATA SHEET

Item	Pipe Service/Sizes	Manufacturer/Model No.	Remarks
Pipe			
Fittings			
Unions			
Hangers and Supports			
Concrete Anchors			
Plbg. Specialties:			
Floor Drains			
Cleanouts			
Manhole Castings			
Plbg. Fixtures			
Plbg. Equipment			

C. Shop drawings for any material or product used in the plumbing system which does not comply with the requirements of Comm. 384 shall include a copy of the Wisconsin Department of Safety and Professional Services approval letter.

D. Submit 2 copies of final inspection report from District Plumbing Inspector.

E. Before submitting electrically powered equipment, verify that the electrical power and control requirements for the equipment are in agreement with the motor starter schedule on the electrical drawings. Include a statement on the shop drawing transmittal to the Architect/Engineer that the equipment submitted and the motor starter schedule are in agreement or indicate any discrepancies. See related comments in Section 22 05 13 and Section 22 05 00, Article 1.16 Electrical Coordination.

1.11 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Assemble material in three-ring or post binders, using an index at the front of each volume and tabs for each system or type of equipment. Provide electronic and paper copies as indicated in Division 01. In addition to the data indicated in the General Requirements, include the following information:

- Copies of all approved shop drawings.
- Manufacturer's wiring diagrams for electrically powered equipment.
- Records of tests performed to certify compliance with system requirements.
- Certificates of inspection by regulatory agencies.
- Parts lists for fixtures, equipment, valves and specialties.
- Manufacturer's installation, operation and maintenance recommendations for fixtures, equipment, valves and specialties.
- Lubrication instructions, including list/frequency of lubrication.
- Warranties.
- Additional information as indicated in the technical specification sections.

1.12 TRAINING OF OWNER PERSONNEL

A. Instruct user agency personnel in the proper operation and maintenance of systems and equipment provided as part of this project. Include not less than one hour of instruction, using the Operating and Maintenance manuals during this instruction. Demonstrate startup, operation and shutdown procedures for all equipment. All training to be during normal working hours. Provide a letter signed by the Owner indicating completion of training. The Contractor shall include written instruction for systems installed and shall include pertinent plans identifying system components requiring regular maintenance or seasonal maintenance. This information shall be included with the O&M Manual for reference.

1.13 SCHEDULING

A. Install all sewers and drains below grade as soon after the award of contract as possible. Start underground work immediately after building excavations are made.

B. Install general plumbing work as fast as construction progress permits.

C. Provide temporary piping and systems as required for construction.

1.14 DATA AND DRAWINGS

A. See Instructions to Bidders regarding examination of site and special site conditions.

B. The information given herein and on the drawings is as exact as can be secured. Its accuracy is not guaranteed. Examination of site will be required to verify all measurements, distances, levels, and elevations before starting the work.

C. If any omissions or discrepancies occur between the drawing and actual site conditions, the Architect shall be notified for clarification.

D. The location of piping, fixtures, or equipment which is governed by architectural features shall be established by reference to dimensions on architectural-structural drawings. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT DIMENSIONS. Consult complete drawings and details for dimensions of all partitions, their construction, and location in relation to plumbing fixtures.

E. The approximate locations of all fixtures, equipment, and piping are shown on the drawings. The Architect reserves the right to change the location of any fixtures and equipment 5 feet and piping 10 feet in any direction without these changes being made subject of an extra charge, provided such changes are made before the rough-in, piping, or sleeves have been installed.

F. Changes of the drawing necessary to make the plumbing systems conform to the building as constructed and to fit the work of other trades shall be made without extra cost.

G. Deviations or changes in location of fixtures, equipment, and/or piping made in the field shall be carefully recorded on field set of drawings and the Architect shall be informed of all deviations and changes. Submit (2) two sets of as-built drawings per Section 01 70 00.

H. Where demolition and remodeling work require removal and/or relocation of existing fixtures, equipment or trim, the Plumbing Contractor shall include same as part of his contract work.

1.15 ELECTRICAL COORDINATION

A. The Electrical Trade shall furnish the power wiring and conduit shown on the electrical drawings. All other wiring required for the plumbing system shall be furnished by the Plumbing Trade. All control wiring, conduit and junction boxes to be provided by Plumbing Trade. Control wiring to include controls for equipment, sensors, medical gas alarm panels, electronic sensor faucets, etc. See Section 26 05 33 - Raceway and Boxes.

B. Prior to ordering material/equipment, review equipment shop drawings and installation instructions, including equipment furnished by others. Coordinate all electrical requirements. When the required material/equipment differs from that detailed in construction documents, the Contractor shall notify the Architect/Engineer immediately. Material/equipment that is incorrect and is ordered or installed by the Contractor shall be returned/removed at no cost to the Owner.

PART 2 - PRODUCTS

2.01 IDENTIFICATION

A. Stencils

1. Not less than 1" high letters/numbers for marking pipe and equipment.

B. Engraved Name Plates

1. White letters on a black background, 1/16" thick plastic laminate, beveled edges, screw mounting, Setonply Style 2060 by Seton Name Plate Company, Emedolite Style EIP by EMED Co., W.H. Brady, or Marking Services.

C. Snap-Around Pipe Markers

1. One-piece, preformed, vinyl construction, snap-around or strap-around pipe markers with applicable labeling and flow direction arrows, 3/4" minimum size for lettering. Provide nylon ties on each end of pipe markers. Equal to Seton Setmark.

D. Underground Warning Tape

1. Detectable underground warning tape, 5.0 mil overall thickness, 6" width, 0.0035" thick aluminum foil core with polyethylene jacket bonded to both sides. Color code tape and print caution along with name of buried service in bold letters on face of tape. Thor Enterprises Magnatec or equal by Carlton, MSI Marking Services, Seton.

E. Tracer Wire

1. Install tracer wire or an equivalent means to locate all non-metallic water mains or sewers that connect to any municipality main - per Wisconsin Statute SPS 382.30(11)(h).

2. Provide 12 gauge HDPE insulated high strength (HS) copper-clad steel wire buried 6" above the top of pipe. Acceptable Manufacturer: Copperhead Industries, LLC. or equal.

3. Securely attach tracer wire a minimum of (3) three times for each length of pipe. A tracer wire shall be brought to grade at hydrants, valve boxes or every 400 ft. with a magnetized tracer box.

4. Splices and typical connection devices, ie: solder, crimp connection, split bolt connection, etc. to be used per manufacturer's recommendations.

5. Color code system tracer boxes and wiring per American Public Works Assoc. (APWA) standards.

6. After Contractor has completed all water/sewer pipe installation, system shall be tested for electrical continuity. Contractor is responsible for all costs required to establish the electrical continuity of tracer wire circuit.

2.02 BEDDING AND BACKFILL

A. Bedding up to a point 12" above the top of the pipe shall be thoroughly compacted sand or crushed stone chips meeting the following gradations:

Gradation for Bedding Sand

Sieve Size	% Passing (by Wt)
1 inch	100
No. 16	45 - 80
No. 200	2 - 10

Gradation for Crushed Stone Chip Bedding

Sieve Size	% Passing (by Wt)
1/2 inch	100
No. 4	75 - 100
No. 100	10 - 25

B. Backfill above the bedding in lawn areas shall be thoroughly compacted excavated material free of large stones, organic, perishable, and frozen materials.

C. Backfill above the bedding under existing and future utilities, paving, sidewalks, curbs, roads and buildings shall be granular materials, pit run sand, gravel, or crushed stone, free from large stones, organic, perishable, and frozen materials.

2.03 SEALING

A. In exterior wall openings below grade, use a modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the uninsulated pipe and the cored opening or a water-stop type wall sleeve. The operating bolts of the mechanical type seal shall be accessible from the interior of the building. Thunderline Corp. "Link-Seal" or approved equal waterproofing system for pipe and sleeve.

B. At pipe penetrations of non-rated interior partitions, floors and exterior walls, use urethane caulk in annular space between pipe insulation and sleeve. For non-rated drywall, plaster or wood partitions where sleeve is not required, use urethane caulk in annular space between pipe insulation and wall material

PART 3 EXECUTION

3.01 DEMOLITION

A. Perform all demolition as indicated on the drawings to accomplish new work. Where demolition work is to be performed adjacent to existing work that remains in an occupied area, construct temporary dust partition to minimize the amount of contamination of the occupied space. Where pipe is removed and not reconnected with new work, cap ends of existing services as if they were new work. Coordinate work with the Owner to minimize disruption to the existing building occupants.

B. All pipe, fixtures, equipment, wiring and associated conduit, insulation and similar items demolished, abandoned, or deactivated are to be removed from the site by the Contractor except as specifically noted otherwise. All designated equipment is to be turned over to the user agency for their use at a place and time so designated. Maintain the condition of material and/or equipment that is indicated to be reused equal to that existing before work began.

C. Demolition of floor and/or hub drains shall include the removal of the drain body, p-trap and capping the horizontal waste.

D. Where remodeling of floor and walls involves exposing existing stacks, risers and/or rough-in of services, same shall be verified and disconnected from mains below floor and above finished ceilings or relocated as required to maintain a working system. In all cases, the Contractor shall verify final quantities of demolition work and complete the required changes to the present system design to maintain the system in working condition.

E. Chasing of existing walls for new plumbing piping shall be done by This Trade. See Division 01, Section 01 00 00 for patching and restoring.

3.02 EXCAVATION AND BACKFILL

A. Perform all excavation and backfill work necessary to accomplish indicated plumbing systems installation. Excavate to bottom of pipe and structure bedding, 4" in stable soils, 6" in rock or wet trenches and 8" in unstable soil. Finish bottoms of excavations to true, level surface. All trenching excavations shall be open trench method, unless otherwise noted.

B. Sawcut and remove concrete slab to neat and straight lines to the limits of removal. Make sawcut lines parallel to existing joints, or parallel or perpendicular to pavement edges to form a neat patch. Carefully remove remaining pavement within the sawcut area. Leave existing base materials between the area disturbed by the work and the sawcut line undisturbed by the sawcutting, pavement removal, or pavement replacement processes.

C. Strip topsoil from area to be excavated, free from subsoil and debris, and store for later respreading.

D. At no time place excavated materials where they will impede surface drainage unless such drainage is being safely rerouted away from the excavation.

E. Excavate whatever materials are encountered as required to place at the elevations shown, all pipe, manholes, and other work. Remove debris and rubbish from excavations before placing bedding and backfill material.

F. Remove surplus excavated materials from site.

G. Verify the locations of any water, drainage, gas, sewer, electric, telephone or steam lines which may be encountered in the excavation. Underpin and support all lines. Cut off service connections encountered which are to be removed at the limits of the excavation and cap. In the event of a break in an existing utility main or service, notify immediately an official from the utility interrupted, lend all possible assistance in restoring the service, and assume costs or claims connected with the interruption and repair of utility break.

H. Provide and maintain all fencing, barricades, signs, warning lights, and/or other equipment necessary to keep all excavation pits and trenches and the entire subgrade area safe under all circumstances and at all times. No excavation shall be left unattended without adequate protection.

I. Verify existing sanitary, storm sewer elevations prior to installation of new piping and/or new piping connection(s). Camera/video of existing sewer(s) to be included in Plumbing Contractor's work as needed.

J. Elevations shown on the plans are subject to such revisions as may be necessary to fit field conditions. No adjustment in compensation will be made for adjustments up to two (2) feet above or below the grades indicated on the plans.

K. Install lines passing under foundations with minimum of 1-1/2" clearance to concrete and ensure there is no disturbance of bearing soil.

L. Bed pipe up to a point 12" above the top of the pipe. Take care during bedding, compaction and backfill not to disturb or damage piping.

M. Mechanically compact bedding and backfill to prevent settlement. The initial compacted lift to not exceed 24" compacted to 95% density per Modified Proctor Test (ASTM D-1557). Subsequent lifts under pavements, curbs, walks and structures are not to exceed 12" and be compacted to 95% density per Modified Proctor Test. In all other areas where construction above the excavation is not anticipated within 2 years, mechanically compact backfill in lifts not exceeding 24" to 90% density per Modified Proctor Test. Route the equipment over each lift of the material so that the compaction equipment contacts all areas of the surface of the lift.

3.03 SHEETING, SHORING AND BRACING

A. Provide shoring, sheet piling and bracing in conformance with the Wisconsin Administrative Code to prevent earth from caving or washing into the excavation. Shore and underpin to properly support adjacent or adjoining structures. Abandon in place shoring, sheet piling and underpinning below the top of the pipe, or, if approved in advance by the Engineer, maintained in place until other permanent support approved by the Engineer is provided.

3.04 DEWATERING

A. Provide, operate, and maintain all pumps and other equipment necessary to drain and keep all excavation pits, trenches and the entire subgrade area free from water under all circumstances. Obtain general permit from the Wisconsin Department of Natural Resources district office for discharge of construction dewatering effluent. Obtain well permit from the Wisconsin Department of Natural Resources district office for dewatering wells discharging more than 70 GPM. Comply with permit requirements.

B. Submit dewatering plans to Engineer for review.

3.05 SURFACE RESTORATION

A. Completely restore the surface of all disturbed areas to a like condition of the surface prior to the work. Level off all waste disposal areas and clean up all areas used for the storage of materials or the temporary deposit of excavated earth. Remove all surplus material, tools and equipment.

B. Concrete floor slab: reinforced concrete conforming to D.O.T. Section 602, thickness to match existing, cross slope of 1/4" per foot, scored into squares approximately equal to width.

3.06 CONCRETE WORK

A. Provide all layout drawings, anchor bolts, metal shapes, and/or templates required to be cast into concrete or used to form concrete for support or installation of plumbing piping, fixtures, specialties and equipment. Coordinate locations of equipment, pipe penetrations in wet areas, etc. with the Lift Supplier.

B. Plumbing related cast-in-place concrete on the exterior of the building to be provided by this Contractor in conformance with requirements of Division 03. This includes piping thrust restraints, pipe supports, manholes, catch basins, cleanout cover pads, etc.

3.07 CUTTING AND PATCHING

A. Refer to Division 01, General Requirements, Cutting and Patching.

3.08 BUILDING ACCESS

A. Arrange for the necessary openings in the building to allow for admittance or removal of all apparatus. When the building access was not previously arranged and must be provided by this Contractor, restore any opening to its original condition after the apparatus has been brought into the building.

3.09 EQUIPMENT ACCESS

A. Install all piping, conduit, and accessories to permit access to equipment for maintenance. Coordinate the exact location of wall and ceiling access panels and doors, making sure that access is available for all equipment and specialties.

3.10 COORDINATION

A. Verify that all devices are compatible for the type of construction and surfaces on which they will be used.

3.11 IDENTIFICATION

A. Identify equipment in mechanical equipment rooms by stenciling equipment number and service with one coat of black enamel against a light background or white enamel against a dark background. Use a primer where necessary for proper paint adhesion.

B. Where stenciling is not appropriate for equipment identification, engraved name plates may be used.

C. Identify interior piping not less than once every 30 feet, not less than once in each room, adjacent to each access door or panel, and on both side of the partition where accessible piping passes through walls or floors. Place flow directional arrows at each pipe identification location. Use one coat of black enamel against a light background or white enamel against a dark background.

3.12 LUBRICATION

A. Lubricate all bearings with lubricant as recommended by the manufacturer before the equipment is operated for any reason. Once the equipment has been run, maintain lubrication in accordance with the manufacturer's instructions until the work is accepted by the Owner. Maintain a log of all lubricants used and frequency of lubrication; include this information in the Operating and Maintenance Manuals at the completion of the project.

3.13 SLEEVES

A. Provide galvanized sheet metal sleeves for pipe penetrations through interior and exterior walls to provide a backing for sealant or firestopping. Patch wall around sleeve to match adjacent wall construction and finish. Grout area around sleeve in masonry construction. In finished spaces where pipe penetration through wall is exposed to view, sheet metal sleeve shall be installed flush with face of wall. In existing poured concrete walls where penetration is core drilled, pipe sleeve is not required.

B. Pipe sleeves are not required in interior non-rated drywall, plaster or wood partitions and sleeves are not required in existing poured concrete walls where penetrations are core drilled.

C. Pipe sleeves in new poured concrete construction shall be Schedule 40 steel pipe (sized to allow insulated pipe to run through sleeve), cast in place.

D. In all piping floor penetrations, fire rated and non-fire rated, top of sleeve shall extend 1" above the adjacent finished floor. In existing floor penetrations, core drill sleeve opening large enough to insert Schedule 40 sleeve and grout area around sleeve with hydraulic setting, non-shrink grout. If the pipe penetrating the sleeve is supported by a pipe clamp resting on the sleeve, weld a collar or struts to the sleeve that will transfer weight to existing floor structure.

E. For floor penetrations through floors in mechanical and wet locations, core drill opening and provide 1-1/2" x 1-1/2" x 1/8" galvanized steel angles fastened to floor surrounding the penetration or group of penetrations to prevent water from entering the penetration. Provide urethane caulk between angles and floor and fasten angles to floor a minimum of 8" on center. Seal corners water tight with urethane caulk; or core drill sleeve openings large enough to insert Schedule 40 sleeve and grout area around sleeve with hydraulic setting non-shrink grout/cement.

3.14 STORAGE AND HANDLING

A. Promptly inspect shipments to ensure that the material is undamaged and complies with specifications.

B. Cover pipe to prevent corrosion or deterioration while allowing sufficient ventilation to avoid condensation. Do not store materials directly on grade. Protect pipe, tube, and fitting ends so they are not damaged. Where end caps are provided or specified, take precautions so the caps remain in place. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, above ground packaging.

C. Off-site storage agreements will not relieve the Contractor from using proper storage techniques.

D. Storage and protection methods must allow inspection to verify products.

3.15 PAINT

A. All interior non-prefinished equipment supports shall have prime coat of paint.

B. All new metal exposed to the atmosphere on the exterior of the building and which is not prefinished, shall be painted. Items such as supports and piping shall be painted as a minimum. Materials to be painted shall have prime coat along with two coats of P&L Effecto Enamel. Color shall be flat gray or match exterior. Verify with Owner.

3.16 PROTECTION OF EXISTING EQUIPMENT

A. Contractor shall not perform any pipe cutting, grinding, assembly, etc. without proper protection of the Owner equipment.

B. Protection to consist of poly visqueen film, minimum thickness 4 mil. Secure from bottom of structure to floor.

C. Coordinate set-up staging area with the Owner.

D. Any equipment not protected by the Contractor during construction shall be cleaned and/or replaced by the Contractor.

***

SECTION 22 05 13

COMMON MOTOR REQUIREMENTS FOR PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SCOPE

A. This section includes requirements for single and three phase motors that are used with equipment specified in other sections. Included are the following topics:
PART 1 - GENERAL
Scope
Related Work
Reference Standards
Shop Drawings
Operating and Maintenance Instructions
Electrical Coordination
Product Criteria
PART 2 - PRODUCTS
Single Phase, Single Speed Motors
PART 3 - EXECUTION
Installation

1.02 RELATED WORK

A. Section 22 30 00 - Plumbing Equipment for equipment requiring motors

B. Division 26 - Electrical for power wiring, starters, and other electrical devices

1.03 REFERENCE STANDARDS

ANSI/IEEE 112	Test Procedure for Polyphase Induction Motors and Generators
ANSI/NEMA MG-1	Motors and Generators
ANSI/NFPA 70	National Electrical Code

1.04 SHOP DRAWINGS

A. Include with the equipment which the motor drives the following motor information: motor manufacturer, voltage, phase, hertz, rpm, full load efficiency, full load power factor, service factor, NEMA design designation, insulation class, and frame type.

1.05 OPERATING AND MAINTENANCE INSTRUCTIONS

A. Include manufacturer's instructions in the manuals with the specific equipment to which they apply.

1.06 ELECTRICAL COORDINATION

A. Should any discrepancy in size, horsepower rating, electrical characteristics or means of control be made to any motor or other electrical equipment after contracts are awarded, Contractor is to immediately notify the architect/engineer of such discrepancy. Costs involved in any changes required due to equipment substitutions initiated by this contractor will be the responsibility of this contractor.

1.07 PRODUCT CRITERIA

A. Motors to conform to all applicable requirements of NEMA, IEEE, ANSI, and NEC Standards and shall be listed by U.L. for the service specified.

B. Select motors for conditions in which they will be required to perform; i.e., general purpose, splashproof, explosion proof, standard duty, high torque or any other special type as required by the equipment or motor manufacturer's recommendations.

C. Furnish motors for starting in accordance with utility requirements and compatible with starters as specified.

PART 2 PRODUCTS

2.01 SINGLE PHASE, SINGLE SPEED MOTORS

A. Use NEMA rated 115 volt, single phase, 60 hertz motors for all motors 1/3 HP and smaller.

B. Use permanent split capacitor or capacitor start, induction run motors equipped with permanently lubricated and sealed ball or sleeve bearings and Class A insulation. Service factor to be not less than 1.35.

PART 3 EXECUTION

3.01 INSTALLATION

A. Mount motors on a rigid base designed to accept a motor, using shims if required under each mounting foot to get a secure installation.

B. When motor will be flexible coupled to the driven device, mount coupling to the shafts in accordance with the coupling manufacturer's recommendations. Using a dial indicator, check angular misalignment of the two shafts; adjust motor position as necessary so that the angular misalignment of the shafts does not exceed 0.002" per inch diameter of the coupling hub. Again using the dial indicator, check the shaft for run-out to assure concentricity of the shafts; adjust as necessary so that run-out does not exceed 0.002".

C. When motor will be connected to the driven device by means of a belt drive, mount sheaves on the appropriate shafts in accordance with the manufacturer's instructions. Use a straight edge to check alignment of the sheaves; reposition sheaves as necessary so that the straight edge contacts both sheave faces squarely. After sheaves are aligned, loosen the adjustable motor base so that the belt(s) can be added and tighten the base so that the belt tension is in accordance with the drive manufacturer's recommendations. Frequently recheck belt tension and adjust if necessary during the first day of operation and again after several days.

D. Verify the proper rotation of each three-phase motor as it is being wired or before the motor is energized for any reason.

E. Lubricate all motors requiring lubrication. Record lubrication material used and the frequency of use. Include this in the maintenance manuals.

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SECTION 22 05 14

PLUMBING SPECIALTIES

PART 1 GENERAL

1.01 SCOPE

A. This section includes specifications for trench drains, cleanouts, and other miscellaneous plumbing specialties.

1.02 RELATED WORK

A. Section 22 13 00 - Facility Sanitary Sewerage

1.04 REFERENCE STANDARDS

ANSI A112.21.1 - Floor Drains

1.05 QUALITY ASSURANCE

A. Substitution of Materials: Refer to Section GC - General Conditions of the Contract, Article 7.

B. Plumbing products requiring approval by the State of Wisconsin Dept. of Safety and Professional Services must be approved or have pending approval at the time of shop drawing submission.

1.06 SHOP DRAWINGS

A. Include data concerning dimensions, capacities, materials of construction, ratings, certifications, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

PART 2 PRODUCTS

2.01 TRENCH DRAINS

A. Manufacturers: TDS Hubbell POLYCAST or equal

B. TD-1: POLYCAST 600 series modular precast polymer concrete, cast iron 4'-0" long trench sections with frame, sections are presloped @ 0.65%, 6" wide radiused interior waterways, knockouts, endcaps, cast iron frame and slotted ductile iron grate-class E din load, extra heavy duty rated, stainless steel grate holdowns, bottom outlets.

2.02 FLOOR CLEANOUTS

A. Manufacturers: Smith, Wade, Josam, Zurn.

B. Interior Concrete Floor Areas: Enameled cast iron body with round or square adjustable scoriated polished nickel bronze cover, tapered threaded bronze closure plug. Zurn ZN-1400-BP / ZN-1400-T-BP.

2.03 EXISTING GARAGE CATCH BASIN

A. Existing garage catch basin to remain. Plumbing trade to clean out sediment from the basin and steam clean inside.

B. Reset basin rim if required to meet concrete elevation.

C. Seal existing pipe openings in the concrete basin if no longer required-from sanitary piping demolition.

D. Reconnect existing vent piping from the basin -as required

PART 3 EXECUTION

3.01 INSTALLATION

A. Coordinate location and setting of plumbing specialties with adjacent construction. Install in accordance with manufacturer's recommendations.

B. Set trench drains and cleanouts level and plumb adjusted to finished floor elevation, or finished wall location. Locate where serviceable. Allow minimum of 18" clearance around cleanouts for rodding. Lubricate threaded cleanout plugs with graphite and oil, teflon tape or waterproof grease.

C. Floor to be pitched to trench drains at minimum 1/8" per 1'-0. Trench drains to be located outside the perimeter of a normal transit bus – see floor plan.

***

SECTION 22 13 00

FACILITY SANITARY SEWERAGE

PART 1 GENERAL

1.01 SCOPE

A. This section contains specifications for plumbing pipe and pipe fittings for this project. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Reference Standards
- Shop Drawings
- Quality Assurance
- Delivery, Storage, and Handling
- Design Criteria
- Welder Qualifications

PART 2 - PRODUCTS
- Sanitary Waste and Vent
- Piping Restraints

PART 3 - EXECUTION
- General
- Preparation
- Erection
- Welded Pipe Joints
- Threaded Pipe Joints
- Mechanical Hubless Pipe Connections
- Push-On Gasketed Pipe Connections
- Mechanical Grooved Pipe Connections
- Sanitary Waste and Vent
- Piping System Leak Tests

1.02 RELATED WORK

A. Section 22 05 14 - Plumbing Specialties

1.03 REFERENCE STANDARDS

ANSI B16.3	Malleable Iron Threaded Fittings
ANSI B16.4	Cast Iron Threaded Fittings
ANSI B16.5	Pipe Flanges and Flanged Fittings
ASTM A53	Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless
ASTM A74	Cast Iron Soil Pipe and Fittings
ASTM A105	Forgings, Carbon Steel, for Piping Components
ASTM A126	Gray Cast Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM A234	Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures

ASTM A888	Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications
ASTM C564	Rubber Gaskets for Cast Iron Soil Pipe and Fittings
CISPI 310	Couplings for Use in Connection With Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications

1.04 SHOP DRAWINGS

A. Schedule from the Contractor indicating the ASTM or CISPI specification number of the pipe being proposed along with its type and grade if known at the time of submittal, and sufficient information to indicate the type and rating of fittings for each service.

B. Statement from manufacturer on his letterhead that pipe furnished meets the ASTM or CISPI specification contained in this section.

1.05 QUALITY ASSURANCE

A. Order all cast iron pipe with each length marked with the name or trademark of the manufacturer and type of pipe; with each shipping unit marked with the purchase order number, metal or alloy designation, temper, size, and name of supplier.

B. Any installed material not meeting the specification requirements must be replaced with material that meets these specifications without additional cost to the Owner.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Promptly inspect shipments to ensure that the material is undamaged and complies with specifications.

B. Cover pipe to prevent corrosion or deterioration while allowing sufficient ventilation to avoid condensation. Do not store materials directly on grade. Protect pipe, tube, and fitting ends so they are not damaged. Where end caps are provided or specified, take precautions so the caps remain in place. Protect fittings, flanges, and unions by storage inside or by durable, waterproof, above ground packaging.

C. Offsite storage agreements will not relieve the contractor from using proper storage techniques.

D. Storage and protection methods must allow inspection to verify products.

1.07 DESIGN CRITERIA

A. Use only new material, free of defects, rust and scale, and meeting the latest revision of ASTM or CISPI specifications as listed in this specification.

B. Construct all piping for the highest pressures and temperatures in the respective system.

C. Where weld fittings or mechanical grooved fittings are used, use only long radius elbows having a centerline radius of 1.5 pipe diameters.

D. Where ASTM A53 Type F pipe is specified, Grade A Type E or S, or Grade B Type E or S may be substituted at Contractor's option. Where the grade or type is not specified, Contractor may choose from those commercially available.

1.08 WELDER QUALIFICATIONS

A. Welding procedures, welders, and welding operators for all building service piping to be in accordance with certified welding procedures of the National Certified Pipe Welding Bureau and Section 927.5 of ASME B31.9 Building Services Piping or AWS 10.9 Qualification of Welding Procedures and Welders for Piping and Tubing. Before any metallic welding is performed, Contractor to submit his Standard Welding Procedure Specification together with the Procedure Qualification Record as required by Section 927.6 of ASME B31.9 Building Services Piping.

Welder certifications are required to be renewed every three years. If qualification papers are needed on a project, verify that they are current.

B. The Architect or Engineer reserves the right to test the work of any welder employed on the project, at the Owner's expense. If the work of the welder is found to be unsatisfactory, the welder shall be prevented from doing further welding on the project and all defective welds replaced.

PART 2 PRODUCTS

2.01 SANITARY WASTE AND VENT

A. Interior Above Ground:

1. Hubless cast iron soil pipe and fittings, ASTM A888; with no-hub couplings, CISPI 310. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and be listed by NSF International and shall be of AB&I Foundry, Charlotte Pipe and Foundry or Tyler Pipe manufacturers.

B. Pump Discharge- Interior Above/Below Ground:

1. Galvanized steel pipe, Schedule 40, Type F, Grade A, ASTM A53; with cast iron threaded drainage fittings, ASTM B16.12.

2. Provide 1-1/4" pump discharge piping in each pit, from the pump connection to the new sanitary sewer.
Note: Pneumatic pump is furnished by the equipment supplier -coordinate location in pit for piping layout.

3. Provide 3" piping from the large pit to the small pit where the pump is located. Piping to be located at the bottom of the pit to allow for drainage.

C. Interior Below Ground:

1. Cast iron soil pipe and fittings, hub and spigot, service weight, ASTM A74; with neoprene rubber compression gaskets, ASTM C564 and CISPI HSN 85. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and shall be of AB&I Foundry, Charlotte Pipe and Foundry, or Tyler Pipe manufacturers.

2. Hubless cast iron soil pipe and fittings, with no-hub heavy duty couplings. Pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and be listed by NSF International or receive prior approval from Architect/Engineer. Couplings to be covered weathertight with polyethylene encasement.

Standards: ASTM A888 - Cast Iron Soil Piping and Fittings
C1540 and FM1680 - Couplings
C564 - Rubber Gaskets
CISPI-310 - Couplings
CISPI-301 - Pipe and Fittings

2.02 PIPING RESTRAINTS

A. Provide piping restraints on all cast iron piping 6" and larger, or at connection to piping 6" and larger. Provide piping restraints at change of directions and when there are more than two (2) stories above connection point.

B. Provide piping restraints on all cast iron piping 6" and larger, at change of direction in piping systems that are subject to seismic earthquake applications and/or high head(pump) situations.

C. Provide piping restraints per International Plumbing Code; Section 308.7.1. Restraints to be equal to HoldRite no-hub fitting restraints.

D. Provide unistrut support(s) for the new vertical vent piping at the steel columns. Secure unistrut to the steel columns and bolt the unistrut support leg to the concrete floor with required bolts and concrete anchors.

PART 3 EXECUTION

3.01 GENERAL

A. Install pipe and fittings in accordance with reference standards, manufacturer's recommendations, and recognized industry practices.

3.02 PREPARATION

A. Cut pipe ends square. Ream ends of piping to remove burrs. Clean scale and dirt from interior and exterior of each section of pipe and fitting prior to assembly.

3.03 ERECTION

A. Install all piping parallel to building walls and ceilings and at heights which do not obstruct any portion of a window, doorway, stairway, or passageway. Where interferences develop in the field, offset or reroute piping as required to clear such interferences. Coordinate locations of plumbing piping with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. In all cases, consult drawings for exact location of pipe spaces, ceiling heights, door and window openings, or other architectural details before installing piping.

B. Where copper or steel piping is embedded in masonry or concrete, provide protective sleeve covering of elastomeric pipe insulation.

C. Maintain piping in clean condition internally during construction.

D. Provide clearance for installation of insulation, access to valves and piping specialties.

E. Provide anchors, expansion joints, swing joints, and/or expansion loops so that piping may expand and contract without damage to itself, equipment, or building.

F. Do not route piping through transformer vaults or above transformers, panelboards, or switchboards, including the required service space for this equipment, unless the piping is serving this equipment.

G. Install all valves and piping specialties, including items furnished by others, as specified and/or detailed. Provide access to valves and specialties for maintenance. Make connections to all equipment, fixtures, and systems installed by others where same requires the piping services indicated in this section.

3.04 WELDED PIPE JOINTS

A. Make all welded joints by fusion welding in accordance with ASME Codes, ANSI B31, and State Codes where applicable. "Weldolets" and "Threadolets" may be used for branch takeoffs up to one-half (1/2) the diameter of the main.

3.05 THREADED PIPE JOINTS

A. Use a thread lubricant or teflon tape when making joints; no hard setting pipe thread cement or caulking will be allowed.

3.06 MECHANICAL HUBLESS PIPE CONNECTIONS

A. Place the gasket on the end of one pipe or fitting and the clamp assembly on the end of the other pipe or fitting. Firmly seat the pipe or fitting ends against the integrally molded shoulder inside the neoprene gasket. Slide the clamp assembly into position over the gasket. Tighten fasteners to manufacturer's recommended torque.

3.07 PUSH-ON GASKETED PIPE CONNECTIONS

A. Clean pipe end, bell, gasket seat and gasket of dirt or debris. Coat end of pipe and gasket with gasket lubricant. Ensure pipe is supported off the ground so lubricant does not pick up dirt. Push spigot end into gasket bell with levered pipe joining tool recommended by pipe manufacturer. Large diameter exterior mains may be joined by pushing end of pipe section with backhoe against wood blocking over pipe end. Insert to fully seated position or to reference mark on pipe.

3.08 MECHANICAL GROOVED PIPE CONNECTIONS

A. Use pipe factory grooved in accordance with the coupling manufacturer's specifications or field grooved pipe in accordance with the same specifications using specially designed tools specially designed for the application. Lubricate pipe and coupling gasket, align pipe, and secure joint in accordance with the coupling manufacturer's specifications.

3.09 SANITARY WASTE AND VENT

A. Verify invert elevations and building elevations prior to installation. Camera/video of existing sanitary sewer to be included in Plumbing Contractor's work as needed.

B. Install interior piping pitched to drain at minimum slope of 1/4" per foot where possible and in no case less than 1/8" per foot for piping 3" and larger.

C. Flush piping inlets (floor drains, hub drains, mop basins, fixtures, etc.) with high flow of water at completion of project to demonstrate full flow capacity. Remove blockages and make necessary repairs where flow is found to be impeded.

3.10 PIPING SYSTEM LEAK TESTS

A. Isolate or remove components from system which are not rated for test pressure. Test piping in sections or entire system as required by sequence of construction. Do not insulate or conceal pipe until it has been successfully tested.

B. If required for the additional pressure load under test, provide temporary restraints at fittings or expansion joints. Backfill underground water mains prior to testing with the exception of thrust restrained valves which may be exposed to isolate potential leaks.

C. For hydrostatic tests, use clean water and remove all air from the piping being tested by means of air vents or loosening of flanges/unions. Measure and record test pressure at the high point in the system.

D. Inspect system for leaks. Where leaks occur, repair the area with new materials and repeat the test; caulking will not be acceptable.

E. Entire test must be witnessed by the Owner. All pressure tests are to be documented on Berners-Schober Associates forms to be provided to the Contractor.

System	Test Medium	Initial Test Pressure	Initial Test Duration	Final Test Pressure	Final Test Duration
Sanitary Waste and Vent	Water	N/A		10' water	2 hr
Pressurized Sanitary Waste and Vent	Water	N/A		100 psig	2 hr

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PIPING SYSTEM TEST REPORT

Berners-Schober Associates, Inc.
310 Pine Street
Green Bay, WI 54301 **Date Submitted:** _____

Project Name: _____

Location: _____ **Commission No:** _____

Contractor: _____

□ Plumbing □ Fire Sprinkler

Test Medium: □ Air □ Water □ Other _____

Test performed per specification section No. _____

Specified Test Duration _____ Hours Specified Test Pressure _____ PSIG

System Identification: _____

Describe Location: _____

_____

Test Date: _____

Start Test Time: _____ Initial Pressure: _____ PSIG

Stop Test Time: _____ Final Pressure: _____ PSIG

Tested By: _____ Witnessed By: _____

Title: _____ Title: _____

Signed: _____ Signed: _____

Date: _____ Date: _____

Comments: _____

_____

_____

_____

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SECTION 22 30 00

PLUMBING EQUIPMENT

PART 1 GENERAL

1.01 SCOPE

A. This section includes specifications for pumps and other equipment used for plumbing applications. Included are the following topics:
PART 1 - GENERAL
Scope
Related Work
Quality Assurance
Shop Drawings
PART 2 - PRODUCTS
Pump and Pits
PART 3 - EXECUTION
Installation

1.02 RELATED WORK

A. Section 22 05 13 - Common Motor Requirements for Plumbing Equipment.

B. Division 26 - Electrical

1.03 QUALITY ASSURANCE

A. Plumbing products requiring approval by the State of Wisconsin Dept. of Safety and Professional Services must be approved or have pending approval at the time of shop drawing submission.

1.04 SHOP DRAWINGS

A. Refer to Section 22 05 00, Submittals.

B. Include data concerning dimensions, capacities, materials of construction, ratings, certifications, weights, pump curves with net positive suction head requirements, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

PART 2 PRODUCTS

2.01 PUMP AND PITS

A. Pneumatic pump(s) in each pit to be provided by the equipment supplier.

B. Plumbing Trade to provide 1-1/4" pump discharge piping from the pump(s) to the new sanitary sewer location.

C. Plumbing Trade to provide 3" drainage piping from the larger pit to the smaller pit for drainage, install piping at the low point in each pit with min. 1/4" per 1'-0" pitch.

D. Plumbing Trade to provide (2) 4" electrical PVC conduit below the floor -from the control panel location and to each pit.

    1. 4" Gray conduit to be PVC 1120 type 1 grade 1, with large radius bends and belled ends. Coordinate location with the lift supplier for the equipment suppliers' installation of the pneumatic air tubing for the lifts and pumps.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install plumbing equipment where indicated in accordance with manufacturer's recommendations. Coordinate equipment location with piping, ductwork, conduit and equipment of other trades to allow sufficient clearances. Locate equipment and arrange plumbing piping to provide access space for servicing all components.

B. Verify and coordinate location of required conduit and piping with the lift equipment supplier before concrete floor is poured.

C. Connect equipment to water and drain piping using unions or flanges and isolation valves.

D. All control wiring, conduit and junction boxes to be provided by Plumbing Trade. Control wiring to include controls for equipment, etc. See Section 26 05 33 - Raceway and Boxes.

***

SECTION 26 05 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 WORK INCLUDED

A. The electrical work included in all other Divisions is the responsibility of the contractor performing the Division 26 work unless noted otherwise.

B. Basic electrical requirements which are applicable to all Division 26 sections. This section includes information common to two or more technical specification sections or items that are of a general nature, not conveniently fitting into other technical sections.

1.02 REFERENCE STANDARDS

A. Abbreviations of standard organizations referenced in this and other sections are as follows:

1. ANSI American National Standards Institute
2. ASTM American Society for Testing and Materials
3. EPA Environmental Protection Agency
4. ETL Electrical Testing Laboratories, Inc.
5. IEEE Institute of Electrical and Electronics Engineers
6. IES Illuminating Engineering Society
7. ISA Instrument Society of America
8. NBS National Bureau of Standards
9. NEC National Electric Code
10. NEMA National Electrical Manufacturers Association
11. NESC National Electrical Safety Code
12. NFPA National Fire Protection Association
13. UL Underwriters Laboratories Inc.

1.03 REGULATORY REQUIREMENTS

A. All work and materials are to conform in every detail to applicable rules and requirements of the Wisconsin State Electrical Code Volumes 1 and 2, the National Electrical Code (ANSI/NFPA 70 and 70E) 2017 Edition, other applicable National Fire Protection Association codes, the National Electrical Safety Code, and present manufacturing standards (including NEMA).

B. All Division 26 work shall be done under the direction of a currently certified State of Wisconsin Certified Master Electrician.

1.04 QUALITY ASSURANCE

A. Substitution of Materials: Refer to Instructions to Bidders.

B. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and the assigned space and for obtaining the performance from the system into which these items are placed.

C. All materials shall be listed by and shall bear the label of an approved electrical testing laboratory. If none of the approved electrical testing laboratories has published standards for a particular item, then other national independent testing standards, subject to approval of the Engineer, shall apply and such items shall bear those labels. Where one of the approved electrical testing laboratories has an applicable system listing and label, the entire system shall be so labeled.

1.05 CONTINUITY OF EXISTING SERVICES AND SYSTEMS

A. No outages shall be permitted on existing systems except at the time and during the interval specified by the Owner and the Architect/Engineer. The Architect/Engineer and/or Owner may require written approval. Any outage must be scheduled when the interruption causes the least interference with normal institutional schedules and business routines. No extra costs will be paid to the Contractor for such outages which must occur outside of regular weekly working hours.

B. Any circuit interrupted as a result of this work shall be restored to proper operation by This Contractor as soon as possible.

1.06 PROTECTION OF FINISHED SURFACES

A. Provide one can of touch-up paint for each different color factory finish furnished by the Contractor. Deliver touch-up paint with other "loose and detachable parts".

1.07 APPROVED ELECTRICAL TESTING LABORATORIES

A. The following laboratories are approved for providing electrical product safety testing and listing services as required in these specifications:

1. Underwriters Laboratories, Inc.

2. Electrical Testing Laboratories, Inc.

1.08 SEALING AND FIRESTOPPING

A. Provided by the trade installing the penetration.

1.09 SLEEVES

A. Sleeves for insulated penetrations of fire and/or smoke-rated wall and slab construction shall include rated system equivalent to rated construction. Firestopping the penetrating item is the responsibility of this Trade.

B. UL-listed fire rated sleeve assemblies shall be used as penetrants to all fire rated assemblies.

C. Sleeves for existing raceways where new wall or slab construction creates a penetration shall include splitting a standard wall sleeve and installing same as specified above.

D. Sleeves for existing wall or slab construction where new raceway creates a penetration shall be cored and sealed same as specified above. Do not pierce beams or columns without permission of the Architect/Engineer.

1.10 INTENT

A. The Contractor shall furnish and install all the necessary materials, apparatus, and devices to complete the electrical equipment and systems installation herein specified, except such parts as are specifically exempted herein.

B. If an item is either called for in the specifications or shown on the plans, it shall be considered sufficient for the inclusion of said item in this contract. If a conflict exists within the specifications or exists within the drawings, the Contractor shall furnish the item, system, or workmanship which is the highest quality, largest, or most closely fits the Engineer's intent (as determined by the Architect/Engineer Project Manager).

C. It must be understood that the details and drawings are diagrammatic. The Contractor shall verify all dimensions at the site and be responsible for their accuracy.

D. All sizes as given are minimum except as noted.

E. Materials and labor shall be new (unless noted or stated otherwise), first class, and workmanlike, and shall be subject at all times to the Architect/Engineer's inspections, tests and approval from the commencement until the acceptance of the completed work.

F. Whenever a particular manufacturer's product is named, it is the Contractor's responsibility to provide that product/manufacture or approved equal.

1.11 DATA AND DRAWINGS

A. See Instructions to Bidders regarding examination of site and special site conditions.

B. The information given herein and on the drawings is as exact as can be secured. Its accuracy is not guaranteed. Examination of site will be required to verify all existing conduits, measurements, distances, levels, elevations, and existing installation conditions before starting the work.

C. The location of conduit or equipment which is governed by architectural features shall be established by reference to dimensions on architectural-structural drawings. Consult complete drawings and details for dimensions of all partitions, their construction, and location.

D. The City reserves the right to change the location of any outlet (Power or Tele/Data) 5 feet in any direction without these changes being made subject of an extra charge, provided such changes are made before the rough-in.

E. Deviations in the routing of feeders/risers, from that drawn, to conform to the building as constructed or to fit the work of other trades shall be made without extra cost.

1.12 SUBMITTALS

A. The successful bidder shall furnish submittals to the City. See the list below and individual technical sections for items requiring submittals:

- Fused Disconnects and Fuses

B. Submit for all equipment and systems as indicated above and in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number, as indicated in the contract documents. Failure to do this may result in the submittal(s) being returned to the Contractor for correction and resubmission. Failing to follow these instructions does not relieve the Contractor from the requirement of meeting the project schedule.

C. On request from the City, the successful bidder shall furnish additional drawings, illustrations, catalog data, performance characteristics, etc.

D. Submittals shall be grouped to include complete submittals of related systems, products, and accessories in a single submittal. Mark dimensions and values in units to match those specified. Include wiring diagrams of electrically powered equipment.

E. The above submittals must be approved before fabrication is authorized.

1.13 WORK SEQUENCE AND SCHEDULING

A. Install work in phases to accommodate Owner's occupancy requirements. During the construction period, coordinate electrical schedule and operations with City's Construction Representatives.

1.14 PROJECT/SITE CONDITIONS

A. Install Work in locations shown on Drawings, unless prevented by project conditions.

B. Prepare drawings showing proposed rearrangement of Work to meet project conditions, including changes to Work specified in other Sections. Obtain permission from City before proceeding.

C. Tools, materials and equipment shall be confined to areas designated by City.

1.15 WORK BY OTHER TRADES

A. Every attempt has been made to indicate in this trade's specifications and drawings all work required of this Contractor. However, there may be additional specific paragraphs in other trade specifications and addenda, and additional notes on drawings for other trades which pertain to this Trade's work. Thus, those additional requirements are hereby made a part of these specifications and drawings.

B. Electrical details on drawings for equipment to be provided by others are based on preliminary design data only. The Contractor shall lay out the electrical work and shall be responsible for its correctness to match equipment actually provided by others.

1.16 SALVAGE MATERIALS

A. No materials removed from this project shall be reused except as specifically noted. All materials removed shall become the property of and shall be disposed of by the Contractor, except as specifically noted.

1.17 CERTIFICATES AND INSPECTIONS

A. Obtain and pay for all required State and Local installation inspections, permits, and certificates. Include copies of the certificates in the Operating and Maintenance Instructions.

1.18 OPERATING AND MAINTENANCE MANUAL

A. Assemble material in three-ring or post binders, using an index at the front of each volume and tabs for each system or type of equipment.

1. Copies of all approved submittals.
2. Manufacturer's wiring diagrams for electrically powered equipment
3. Records of tests performed to certify compliance with system requirements
4. Certificates of inspection by regulatory agencies
5. Parts lists for manufactured equipment
6. Preventive maintenance recommendations
7. Warranties
8. Additional information as indicated in the technical specification sections

1.19 RECORD DRAWINGS

A. The Contractor shall maintain at least one copy each of the specifications and drawings on the jobsite at all times.

B. The Contractor shall record changes and deviations from contract daily. Dimensions and elevations on the record drawings shall locate all buried or concealed piping, conduit or similar items.

C. The daily record of changes shall be the responsibility of the Contractor's field superintendent. No arbitrary mark-ups will be permitted.

D. At the completion of the project, the Contractor shall submit the mark-up record drawings to the City.

PART 2 PRODUCTS

2.01 IDENTIFICATION

A. See Electrical Section 26 05 53 - Identification for Electrical System.

2.02 SEALING AND FIRESTOPPING

A. Through-Penetration Firestopping of Fire Rated Construction

1. Systems of devices listed in the UL Fire Resistance Directory under categories XHCR and XHEZ may be used, providing that they conform to the construction type, penetrant type, annular space requirements and fire rating involved in each separate instance, and that the system be symmetrical for wall applications. Systems or devices must be asbestos-free.

2. System shall withstand the passage of cold smoke either as an inherent property of the system or by the use of a separate product included as part of the UL system or device and designed to perform this function.

3. All firestopping products must be from a single manufacturer. All trades shall use products from the same manufacturer.

B. Accessories

1. Fill, void or cavity materials shall be as classified under category XHHW in the UL Fire Resistance Directory.

2. Forming materials shall be as classified under category XHKU in the UL Fire Resistance Directory.

PART 3 EXECUTION

3.01 BUILDING ACCESS

A. Arrange for the necessary openings in the building to allow for admittance of all apparatus. When the building access was not previously arranged and must be provided by this Contractor, restore any opening to its original condition after the apparatus has been brought into the building.

3.02 EQUIPMENT ACCESS

A. Install all conduit and accessories to permit access to equipment for maintenance. Coordinate the exact location of wall and ceiling access panels and doors with the other trades, making sure that access is available for all equipment and specialties.

3.03 COORDINATION

A. The Contractor shall cooperate with other trades and City's personnel in locating work in a proper manner. Should it be necessary to raise or lower or move longitudinally any part of the electrical work to better fit the general installation, such work shall be done at no extra cost to the Owner, provided such decision is reached prior to actual installation. The Contractor shall check location of electrical outlets with respect to other installations before installing.

B. The Contractor shall verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to, light fixtures, panelboards, devices, etc. and recessed or semi-recessed heating units installed in/on architectural surfaces.

C. Coordinate all work with other contractors prior to installation.

3.04 SLEEVES

A. Pipe sleeves for conduits 6" in diameter and smaller, in new poured concrete construction, shall be Schedule 40 steel pipe, plastic removable sleeve or sheet metal sleeve, all cast in place.

B. In wet area floor penetrations, top of sleeve to be 2" above the adjacent floor. In existing wet area floor penetrations, core drill sleeve openings large enough to insert Schedule 40 sleeve and grout the area around the sleeve. If the pipe penetrating the sleeve is supported by a pipe clamp resting on the sleeve, weld a collar or struts to the sleeve that will transfer weight to the existing floor structure. Wet areas for this paragraph are rooms or spaces containing air handling unit coils, converters, pumps, chillers, boilers, and similar waterside equipment.

C. Pipe penetrations in existing concrete floors that are not in wet areas may omit the use of Schedule 40 sleeve and use the cored drilled opening as the sleeve.

3.05 HOUSEKEEPING AND CLEAN-UP

A. The Contractor shall clean up and remove from the premises, on a daily basis, all debris and rubbish resulting from its work and shall repair all damage to new and existing equipment resulting from its work. When job is complete, this Contractor shall remove all tools, excess material and equipment, etc., from the site.

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SECTION 26 05 02

ELECTRICAL DEMOLITION FOR REMODELING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Demolition, removal, abandonment, and revision to electrical systems to accommodate the project.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work as specified in the individual Sections.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on Drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Beginning of demolition means installer accepts existing conditions.

D. Demolition drawings are based on casual field observation and/or existing record documents. Report discrepancies to Owner and Architect/Engineer before disturbing existing installation.

3.02 PREPARATION

A. Disconnect electrical systems in walls, floors, and ceiling scheduled for removal.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Demolish and extend existing electrical work to meet all requirements of these specifications.

B. Remove, relocate, and extend existing installations to accommodate new construction.

C. Remove abandoned wiring to source of supply unless noted otherwise.

D. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

E. Repair adjacent construction and finishes damaged during demolition and extension work.

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

G. Extend existing installations using materials and methods compatible with existing electrical installations, or as specified. This includes the extension of the circuit from the last active device to the next device in the system to be activated.

3.04 CLEANING AND REPAIR

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

B. Panelboards and Motor Control Centers: Clean exposed surfaces and check tightness of electrical connections. Provide typed circuit directory showing revised circuiting arrangement.

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SECTION 26 05 19

ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Furnishing and installing required wiring and cable systems including pulling, terminating and splicing.

1.02 RELATED WORK

A. Section 26 05 33 - Raceway and Boxes for Electrical Systems

B. Section 26 05 53 - Identification for Electrical Systems

1.03 REFERENCES

A. NFPA 70 - National Electric Code

1.04 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum 3 years documented experience.

1.05 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Conductor sizes are based on copper.

C. Wire and cable routing shown on drawings is approximate unless dimensioned. Route wire and cable as required to meet project conditions.

D. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

PART 2 PRODUCTS

2.01 GENERAL

A. All wire shall be new, delivered to the site in unbroken cartons and shall be less than 1 year old out of manufacturer's stock.

B. All conductors shall be copper. Aluminum conductors are not permitted.

C. Insulation shall have a 600 volt rating.

D. In mechanical rooms, light fixtures, and other high temperature applications, the insulation shall be rated 90°C. Other areas shall use insulation rated 75°C unless stated otherwise in other parts of these specifications and drawings.

E. All conductors must be suitable for the application intended. Conductor #10 and larger must be stranded. Conductors #12 may be solid or stranded with the following requirements or exceptions:

1. Stranded conductors may only be terminated with UL or ETL Listed type terminations or methods: e.g. Stranded conductors may not be wrapped around a terminal screw but must be terminated with crimp type device or must be terminated in an approved back wire method.

2.02 BUILDING WIRE

A. Description: Single conductor insulated wire.

B. Insulation: Type THHN/THWN insulation for feeders and branch circuits.

2.03 WIRING CONNECTORS

A. Split Bolt Connectors: Not acceptable.

B. Solderless Pressure Connectors: High copper alloy terminal. May be used only for cable termination to equipment pads or terminals. Not approved for splicing.

C. Twist Type Wire Connectors: Solderless twist type spring connector (wire nut) with insulating cover for copper wire splices and taps. Use for conductor sizes 10 AWG and smaller. The manufacturer's wire fill capacity must be followed.

D. All wire connectors used in underground or exterior pull boxes shall be gel filled twist connectors or a connector designed for damp and wet locations. Gel filled twist type connectors can be used for conductor Sizes 6 AWG and smaller for site lighting applications. The manufacturer's wire fill capacity must be followed.

E. Mechanical Connectors: Bolted type tin-plated; high conductivity copper alloy; spacer between conductors; beveled cable entrances.

F. Compression (crimp) Connectors: Long barrel; seamless, tin-plated electrolytic copper tubing; internally beveled barrel ends. Connector shall be clearly marked with the wire size and type and proper number and location of crimps. Connector must be installed with a crimper tool listed for use with the manufacturer and type of compression connector.

G. Insulation Piercing Connectors: Molded insulated body, copper teeth, wrench tightened, UL 486B Listed. May be used only for connection of a tap conductor in run and tap type applications when main conductor is 8 AWG and larger.

PART 3 EXECUTION

3.01 GENERAL WIRING METHODS

A. All wire and cable shall be installed in conduit.

B. Do not use wire smaller than 12 AWG for power and lighting circuits.

C. All conductors shall be sized to prevent excessive voltage drop at rated circuit ampacity. As a minimum, use 10 AWG conductors for 20 ampere, 120 volt branch circuit home runs larger than 100 feet (30 m), and for 20 ampere, 277 volt branch circuit home runs longer than 200 feet (61 m).

D. Make conductor lengths for parallel conductors equal.

E. Splice only in junction or outlet boxes.

F. No conductor less than 8 AWG shall be installed in exterior underground conduit.

G. Identify ALL low voltage, 600v and lower, wire per Section 26 05 53.

H. Neatly train and lace wiring inside boxes, equipment, and panelboards.

3.02 WIRING INSTALLATION IN RACEWAYS

A. Pull all conductors into a raceway at the same time. Use Listed water or silicone-based wire pulling lubricant for pulling 4 AWG and larger wires and for other conditions when necessary. Wax based lubricants are not allowed. Pulling lubricant is not required for low friction type products where the cable manufacturer recommends that cables be pulled without lube.

B. Install wire in raceway after interior of building has been physically protected from the weather and all mechanical work likely to injure conductors has been completed.

C. Completely and thoroughly swab raceway system before installing conductors.

D. Place all conductors of a given circuit (this includes phase wires, neutral (if any), and ground conductor) in the same raceway. If parallel phase and/or neutral wires are used, then place an equal number of phase and neutral conductors in same raceway or cable.

3.03 WIRING CONNECTIONS AND TERMINATIONS

A. Splice only in accessible junction boxes.

B. Wire splices and taps shall be made firm and adequate to carry the full current rating of the respective wire without soldering and without perceptible temperature rise.

C. All splices shall be so made that they have an electrical resistance not in excess of two feet (600 mm) of the conductor.

D. Use solderless twist type spring connectors (wire nuts) with insulating covers for wire splices and taps, 10 AWG and smaller.

E. Use mechanical or compression connectors for wire splices and taps, 8 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of conductor.

F. Thoroughly clean wires before installing lugs and connectors.

G. At all splices and terminations, leave tails long enough to cut splice out and completely re-splice.

3.04 FIELD QUALITY CONTROL

A. Field inspection and testing shall be performed:

1. Conductors shall be closely checked for loose or poor connections and for signs of overheating or corrosion.

2. Test procedures shall meet NETA guidelines.

3. Contractor shall correct all deficiencies.

3.05 WIRE COLOR

A. General:

1. For wire sizes 10 AWG and smaller, wire shall be colored as indicated below.

2. For wire sizes 8 AWG and larger, identify wire with colored tape at all terminals, splices and boxes. Colors to be as indicated below.

3. In existing facilities, use existing color scheme.

B. Neutral Conductors: White. Where there are two or more neutrals in one conduit, each shall be individually identified with a different stripe.

C. Branch Circuit Conductors: Three or four wire home runs shall have each phase uniquely color coded.

D. Feeder Circuit Conductors: Each phase shall be uniquely color-coded.

E. Ground Conductors: Green for 6 AWG and smaller. For 4 AWG and larger, identify with green tape at both ends and at all access points, such as panelboards, motor starters, disconnects and junction boxes.

3.06 BRANCH CIRCUITS

A. The use of single-phase, multi-wire branch circuits with a common neutral is not permitted. All single-phase branch circuits shall be furnished and installed with an individual accompanying neutral, sized the same as the phase conductor.

***

SECTION 26 05 26

GROUNDING AND BONDING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Equipment grounding conductors and bonding.

1.02 REFERENCES

A. Provide all materials and equipment under this contract in accordance with the following applicable Technical Society, Organization or Body.

1. ANSI/NFPA 70 - National Electrical Code.

1.03 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. or testing firm acceptable to Authority Having Jurisdiction (AHJ) as suitable for the purpose specified and shown.

PART 2 PRODUCTS

2.01 MECHANICAL CONNECTORS

A. The mechanical connector bodies shall be manufactured from high strength, high conductivity cast copper alloy material. Bolts, nuts, washers, and lockwashers shall be made of silicon bronze and supplied as a part of the connector body and shall be of the two-bolt type.

B. Split bolt connector types are NOT allowed.

C. The connectors shall meet or exceed UL 467 and be clearly marked with the catalog number, conductor size, and manufacturer.

2.02 COMPRESSION CONNECTORS

A. The compression connectors shall be manufactured from pure wrought copper. The conductivity of this material shall be no less than 99% by IACS standards.

B. Each connector shall be factory filled with an oxide-inhibiting compound.

C. The connectors shall meet or exceed the performance requirements of IEEE 837, latest revision.

D. The connectors shall be clearly marked with the manufacturer, catalog number, conductor size, and the required compression tool settings.

E. The installation of the connectors shall be made with a compression, tool and die system, as recommended by the manufacturer of the connectors.

2.03 WIRE

A. Material: Stranded copper (aluminum not permitted).

B. Grounding Electrode Conductor: Size as shown on drawings, specifications or as required by NFPA 70, whichever is larger.

C. Feeder and Branch Circuit Equipment Ground: Size as shown on drawings, specifications, or as required by NFPA 70, whichever is larger. Differentiate between the normal ground and the isolated ground when both are used on the same facility.

PART 3 EXECUTION

3.01 GENERAL

A. Install products in accordance with manufacturer's instructions.

B. Mechanical connections shall be accessible for inspection and checking. No insulation shall be installed over mechanical ground connections.

C. Ground connection surfaces shall be cleaned and all connections shall be made so that it is impossible to move them.

D. Provide bonding to meet Regulatory Requirements.

3.02 LESS THAN 600-VOLT SYSTEM GROUNDING

A. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems.

B. Equipment Grounding Conductor: Provide separate, insulated green conductor within each raceway and cable tray, sized per NEC or as indicated in the contract documents, whichever is larger. Terminate each end on suitable lug, bus, enclosure or bushing, per NEC. Provide a ground wire from each device to the respective enclosure.

3.03 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

***

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL PIPING AND EQUIPMENT

PART 1 GENERAL

1.01 WORK INCLUDED

A. Conduit and equipment supports, straps, clamps, steel channel, etc. and fastening hardware for supporting electrical work.

1.02 RELATED WORK

A. Section 26 05 33 - Raceway and Boxes for Electrical Systems

1.03 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 PRODUCTS

2.01 MATERIAL

A. Support Channel: Steel, galvanized, enameled or other corrosion-resistant; sized to support the load.

B. Hardware: Corrosion-resistant.

C. Minimum sized threaded rod for supports shall be 3/8" for trapezes and single conduits 1-1/4" and larger, and 1/4" for single conduits 1" and smaller.

D. Conduit clamps, straps, supports, etc. shall be steel or malleable iron. One-hole straps shall be heavy duty type. All straps shall have steel or malleable iron backing plates where rigid steel conduit is installed on the interior or exterior surface of any exterior building wall.

PART 3 EXECUTION

3.01 INSTALLATION

A. Fasten hanger rods, conduit clamps, outlet, junction and pull boxes to building structure using pre-cast insert system, preset inserts, beam clamps, expansion anchors, or spring steel clips (interior metal stud walls only).

B. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction. If nail-in anchors are used, they must be removable type anchors.

C. Do not use powder-actuated or plastic anchors.

D. File and de-bur cut ends of support channel and spray paint with cold galvanized paint to prevent rusting.

E. Do not fasten supports to piping, ductwork, mechanical equipment, cable tray or conduit. Do not fasten to suspended ceiling grid system.

F. Do not drill structural steel members unless approved by Architect/Engineer.

G. Fabricate supports from galvanized structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

H. Furnish and install all supports as required to fasten all electrical components required for the project.

***

SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Conduits and boxes for electrical systems including wall outlet boxes and junction boxes.

1.02 RELATED WORK

A. Section 26 05 29 - Hangers and Supports for Electrical Piping and Equipment

PART 2 - PRODUCTS

2.01 RIGID METAL CONDUIT AND FITTINGS

A. Conduit: Heavy wall, galvanized steel, Schedule 40, threaded.

B. Fittings and Conduit Bodies: Use all steel threaded fittings and conduit bodies.

2.02 ELECTRICAL METALLIC TUBING (EMT) AND FITTINGS

A. Conduit: Steel, galvanized tubing.

B. Fittings: All steel, (set screw), (compression), (with insulated throat) water tight, concrete tight. No push-on or indenter types permitted.

C. Conduit Bodies: All steel threaded conduit bodies.

2.03 PVC CONDUIT AND FITTINGS

A. Conduit: Schedule 40.

B. Fittings and Conduit Bodies: Schedule 40.

2.04 LIQUIDTIGHT FLEXIBLE METAL CONDUIT AND FITTINGS

A. Conduit: Flexible, steel, galvanized, spiral strip with an outer Liquid-tight, non-metallic, sunlight-resistant jacket.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1, compression type. There shall be a metallic cover/insert on the end of the conduit inside the connector housing to seal the cut conduit end.

2.05 CONDUIT SUPPORTS

A. See Section 26 05 29.

2.06 PULL AND JUNCTION BOXES

A. Pull boxes and junction boxes shall be minimum 4" square (100 mm) by 2-1/8" (54 mm) deep for use with 1" (25 mm) conduit and smaller. On conduit systems using 1-1/4" (31.75 mm) conduit or larger, pull and junction boxes shall be sized per NEC but not less than 4-11/16" square (117 mm).

B. Sheet Metal Boxes: Code gauge galvanized steel, screw covers, flanged and spot-welded joints and corners.

C. Outdoor boxes shall be NEMA 3R type.

2.07 GENERAL

A. All steel fittings and conduit bodies shall be galvanized.

B. No cast metal, split or gland type fittings permitted.

C. Condulets larger than 2" (50 mm) not permitted except as approved or detailed.

D. All condulet covers must be fastened to the condulet body with screws and be of the same manufacture.

E. All boxes shall be of sufficient size to provide free space for all conductors enclosed in the box and shall comply with NEC requirements.

PART 3 - EXECUTION

3.01 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

A. EMT is permitted to be used in sizes 4" (50 mm) and smaller for power and telecommunication systems. See CONDUIT INSTALLATION SCHEDULE below for other limitations for EMT and other types of conduit.

B. Size power conductor raceways for conductor type installed. Conduit size shall be 3/4" minimum except as specified elsewhere. **Caution: Per the NEC, the allowable conductor ampacity is reduced when more than three current-carrying conductors are installed in a raceway. Contractor must take the NEC ampacity adjustment factors into account when sizing the raceway and wiring system.**

C. Arrange conduit to maintain headroom and present a neat appearance.

D. Route exposed conduit parallel and perpendicular to walls and adjacent piping.

E. Maintain minimum 6" (150 mm) clearance between conduit and piping. Maintain 12" (300 mm) clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

F. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized pipe straps, conduit racks (lay-in adjustable hangers), clevis hangers, or bolted split stamped galvanized hangers.

G. Group conduit in parallel runs where practical and use conduit rack (lay-in adjustable hangers) constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

H. Do not fasten conduit with wire or perforated pipe straps. Before conductors are pulled, remove all wire used for temporary conduit support during construction.

I. Support and fasten metal conduit at a maximum of 8 feet (2.4 m) on center.

J. Supports shall be independent of the installations of other trades, e.g. ceiling support wires, HVAC pipes, etc., unless so approved or detailed.

K. Changes in direction shall be made with symmetrical bends, cast steel boxes, stamped metal boxes or cast steel conduit bodies.

L. No continuous conduit run shall exceed 100 feet (30 meters) without a junction box.

M. All conduits installed in exposed areas shall be installed with a box offset before entering the box.

3.02 CONDUIT INSTALLATION

A. Cut conduit square using a saw or pipecutter; de-burr cut ends.

B. Conduit shall not be fastened to the corrugated metal roof deck.

C. Bring conduit to the shoulder of fittings and couplings and fasten securely.

D. Use conduit hubs for fastening conduit to cast boxes. Use sealing locknuts or conduit hubs for fastening conduit to sheet metal boxes in damp or wet locations.

E. All conduit terminations (except for terminations into conduit bodies) shall use connectors or conduit hubs with one locknut or shall use double locknuts (one each side of box wall) and insulating bushing. Provide bushings for the ends of all conduit not terminated in box walls.

F. Install no more than the equivalent of three 90 degree bends between boxes.

G. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2" (50 mm) size unless sweep elbows are required.

H. Conduit shall be bent according to manufacturer's recommendations.

I. Use suitable conduit caps or other approved seals to protect installed conduit against entrance of dirt and moisture.

J. Provide 1/8" (3 mm) nylon pull string in empty conduit, except sleeves and nipples.

K. Install expansion-deflection joints where conduit crosses building expansion joints. Note: Expansion-deflection joints are not required where conduit crosses building control joints if the control joint does not act as an expansion joint.

L. Avoid moisture traps where possible. Where moisture traps are unavoidable, provide junction boxes with drain fittings at conduit low points.

M. Where conduit passes between areas of differing temperatures such as into or out of cool rooms, freezers, unheated and heated spaces, buildings, etc., provide Listed conduit seals to prevent the passage of moisture and water vapor through the conduit.

N. Route conduit through roof openings for piping and ductwork where possible.

O. Ground and bond conduit under provisions of Section 26 05 26.

P. Identify conduit under provisions of Section 26 05 53.

3.03 CONDUIT INSTALLATION SCHEDULE

A. Conduit other than that specified below for specific applications shall not be used.

B. Concealed in Concrete and Block Walls: Rigid steel conduit.

C. Wet Interior or Exposed Exterior Locations: Rigid steel conduit.

D. Concealed Dry Interior Locations: Electrical metallic tubing.

E. Exposed Dry Interior Locations: Electrical metallic tubing.

F. Motor and Equipment Connections: Flexible PVC coated metal conduit (all locations). Minimum length shall be one foot (300 mm), maximum length shall be three feet (900 mm). Conduit must be installed perpendicular to direction of equipment vibration to allow conduit to freely flex.

3.04 COORDINATION OF BOX LOCATIONS

A. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.

B. Electrical box locations shown on Contract Drawings are approximate unless dimensioned.

C. No outlet, junction or pull boxes shall be located where it will be obstructed by other equipment, piping, etc.

D. Boxes shall not be fastened to the metal roof deck.

E. It shall be the Contractor's responsibility to study drawings pertaining to other trades, to discuss location of outlets with workmen installing other piping and equipment and to fit all electrical outlets to job conditions.

F. In case of any question or argument over the location of an outlet, the Contractor shall refer the matter to the Architect/Engineer and install outlet as instructed by the Architect/Engineer.

G. Locate and install boxes to allow access to them. Where installation is inaccessible, coordinate locations and provide 18" (450 mm) by 24" (600 mm) access doors.

H. Locate and install to maintain headroom and to present a neat appearance.

3.05 OUTLET BOX INSTALLATION

A. Power: Recessed (1/4" maximum) outlet boxes in masonry, concrete or tile construction shall be masonry type, minimum 4" square with device rings. Device covers shall be square-cut, except rounded corner plaster rings are allowed in drywall applications. Angle cut plaster rings are not permitted. Coordinate masonry cutting to achieve neat openings for boxes.

B. Provide knockout closures for unused openings.

C. Support boxes independently of conduit except for cast boxes that are connected to two rigid metal conduits, both supported within 12" (300 mm) of box.

D. Surface wall outlets shall be 4" (100 mm) square with raised covers for one and two gang requirements. For three gang or larger requirements, use gang boxes with non-overlapping covers.

3.06 PULL AND JUNCTION BOX INSTALLATION

A. Locate pull boxes and junction boxes above accessible ceilings, in unfinished areas or furnish and install access panels in non-accessible ceilings where boxes are installed. All boxes to be readily accessible.

B. Support pull and junction boxes independent of conduit.

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SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 WORK INCLUDED

A. This section describes the products and execution requirements relating to labeling of power wire and cabling. Further, this section includes labeling of all terminations and related sub-systems, including, but not limited to, nameplates, stenciling, wire and cable marker.

1.02 RELATED WORK

A. Section 26 05 19 - Electrical Power Conductors and Cables

PART 2 PRODUCTS

2.01 MATERIAL

A. Labels: All labels shall be permanent, and be machine generated. NO HANDWRITTEN OR NON-PERMANENT LABELS SHALL BE ALLOWED. Exception: Back side of device plates and junction boxes may use handwritten, legible labeling on box covers, unless specifically prohibited by other specification sections.

B. Cable label size shall be appropriate for the conductor or cable size(s), outlet faceplate layout. All labels to be used shall be self-laminating, white/transparent vinyl and be wrapped around the cable. Flag type labels are not allowed. The labels shall be of adequate size to accommodate the circumference of the cable being labeled and properly self-laminate over the full extent of the printed area of the label.

C. Nameplates: Engraved three-layer laminated plastic, black letters on a white background.

D. Stenciling: Black paint.

E. Tape (phase identification only): Vinyl electrical tape in appropriate colors for system voltage and phase.

F. Adhesive type labels not permitted except for phase and wire identification. Machine generated adhesive labels shall be permitted for device plates, fire alarm, and control devices.

PART 3 EXECUTION

3.01 GENERAL

A. Where mixed voltages are used in one building (e.g. 480 volt, 208 volt) each switch, panel, junction box, equipment, etc., on each system must be labeled for voltage addition to other requirements listed herein.

B. All branch circuit and power panels must be identified with the same symbol used in circuit directory in main distribution center.

C. Clean all surfaces before attaching labels with the label manufacturer's recommended cleaning agent.

D. Install all labels firmly as recommended by the label manufacturer.

E. Labels shall be installed plumb and neatly on all equipment.

F. Install nameplates parallel to equipment lines.

G. Secure nameplates to equipment fronts using screws, rivets, or manufacturer approved adhesive or cement. Secure nameplate to inside of recessed panelboards in finished locations.

H. Embossed tape will not be permitted for any application.

3.02 JUNCTION AND PULLBOX IDENTIFICATION

A. Junction and pull boxes shall be identified utilizing spray-painted covers. Utilize existing color scheme established within the facility.

B. Provide circuit numbers and source panel designation for power wiring. Other systems shall be identified as shown on details or approved shop drawings.

3.03 POWER AND CONTROL WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on equipment manufacturer's shop drawings for control wiring.

B. All wiring shall be labeled within 2" - 4" of terminations. Each end of a wire or cable shall be labeled as soon as it is terminated, including wiring used for temporary purposes.

3.04 NAMEPLATE ENGRAVING

A. Provide nameplates as follows:

1. Equipment Enclosures: 1" (25 mm); identify equipment designation.
2. Motor Control Center Buckets: 1/2" (13 mm); identify source and load served.
3. Junction Boxes: 1" (25 mm); identify system source(s) and load(s) served. Junction boxes may be neatly identified using permanent marker.

3.05 PANELBOARD DIRECTORIES

A. Update existing panel and/or MCC directories utilized during the project.

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SECTION 26 27 26

WIRING DEVICES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Receptacles, device plates and box covers.

1.02 OPERATION AND MAINTENANCE DATA

A. All operation and maintenance data shall comply with the submission and content requirements specified under Section GENERAL REQUIREMENTS.

PART 2 PRODUCTS

2.01 RECEPTACLES

A. Convenience and Straight-blade Receptacles: NEMA Type 5- 20R, nylon or high impact resistant face. Receptacles shall be UL 498 Listed and meet Federal Specification WC-596. All receptacles shall be back and side wired, screw clamp type, suitable for solid or stranded wire up to 10 AWG, with a separate green ground screw.

B. Generally, all receptacles shall be duplex convenience type unless otherwise noted.

C. Face Color:

1. Normal Circuit: Ivory

D. All receptacles installed in outdoor locations, in garages, within 6 feet of the outside edge of sinks, and in other damp or wet locations shall be GFCI type.

E. Duplex Convenience Receptacle Acceptable Manufacturers:

1.	Pass & Seymour	Model 5362
2.	Hubbell	Model 5352A
3.	Leviton	Model 5362S
4.	Cooper	Model 5362C

F. GFCI Duplex Receptacle: Hospital grade, convenience receptacle with integral ground fault circuit interrupter meeting UL 498 and 943 (Class A):

1.	Pass & Seymour	Model 2095-HG
2.	Hubbell	Model GF8300H
3.	Leviton	Model 7899-HG
4.	Cooper	Model VGFH20

2.02 DEVICE PLATES AND BOX COVERS

A. Decorative Cover Plate: Ivory, smooth thermoplastic nylon.

B. Weatherproof Cover Plate: UV stabilized polycarbonate hinged, gasketed device covers designed such that the weather protective rating is maintained when device is in use.

C. Surface Cover Plate: Raised galvanized steel.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install convenience receptacles grounding pole on bottom or as to match existing receptacles as applicable.

B. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

C. Install devices and wall plates flush and level.

D. Wiring devices shall have a bonding conductor from grounding terminal to both the equipment grounding conductor and the metal conduit system. Self-grounding receptacles using mounting screws as bonding means are not approved.

3.02 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Verify that each receptacle device is energized.

C. Test each receptacle device for proper polarity.

D. Test each GFCI receptacle device for proper operation.

3.03 GROUND FAULT CIRCUIT INTERRUPTING RECEPTACLES

A. Receptacles shown on plans with "GF" designation shall be a ground fault circuit interrupting type device. Daisy chain and series type installations are not acceptable.

B. Ground fault circuit interrupting receptacles shall be wired to terminals labeled "line side" such that no single "GF" device will affect or open the circuit to another "GF" device or equipment on a common circuit. Do not connect to terminals labeled "load side".

1. "Line Side" terminals of "GF" device must be labeled as approved for more than one conductor termination, if not so labeled, then conductors will require to be spliced in device box.

3.04 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

B. Mark all conductors with the panel and circuit number serving the device with a machine generated label, at the device and on the back of the device cover. Reference Specification Section 26 05 53.

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SECTION 26 27 28

DISCONNECT SWITCHES

PART 1 GENERAL

1.01 WORK INCLUDED

A. Disconnect switches, fuses and enclosures.

1.02 RELATED WORK

A. Section 26 05 53 - Identification of Electrical Systems

B. Section 26 28 13 - Fuses

1.03 SUBMITTALS

A. Include outline drawings with dimensions, and equipment ratings for voltage, ampacity, horsepower, and short circuit.

1.04 OPERATION AND MAINTENANCE DATA

A. All operation and maintenance data shall comply with the submission and content requirements specified under Section GENERAL REQUIREMENTS.

PART 2 PRODUCTS

2.01 DISCONNECT SWITCHES

A. Fusible Switch Assemblies: NEMA Type HD; quick-make, quick-break, load interrupter, enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse Clips: Designed to accommodate Class R cartridge type fuses.

B. Non-fusible Switch Assemblies: NEMA Type HD; quick-make, quick-break, load interrupter, enclosed knife switch with externally operable handle interlocked to prevent opening front cover with switch in ON position. Handle lockable in OFF position.

C. Enclosures: NEMA Type 1 or as indicated on drawings.

D. Provide manufacturer's equipment ground kit in all disconnect switches.

2.02 FUSES

A. Provide fuses per Section 26 28 13.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install disconnect switches where indicated on drawings.

B. Provide identification as specified in Section 26 05 53.

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SECTION 26 28 13

FUSES

PART 1 GENERAL

1.01 WORK INCLUDED

A. 250 volt and 600V fuses

1.02 RELATED WORK

A. Section 26 27 28 - Disconnect Switches

1.03 SUBMITTALS

A. Provide device dimensions, nameplate nomenclature, and electrical ratings.

B. Submit manufacturer's product data sheets with installation instructions.

C. Provide time current characteristics curves for each size and type.

1.04 REGULATORY REQUIREMENTS

A. Use fuses listed by Underwriter's Laboratories, Inc., and suitable for specific application.

PART 2 PRODUCTS

2.01 250- 600 VOLT FUSES

A. Fuses 600 Amperes and Less: Dual element, time delay, 250 volt, UL Class RK-1. Interrupting Rating: 200,000 rms amperes.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine fusible equipment for size and type of fuse to ensure selective coordination.

3.02 INSTALLATION

A. Fuses shall not be installed until equipment is ready to be energized and selective coordination has been made.

3.03 AS-BUILT INFORMATION

A. Record the equipment nameplate rating and actual fuse rating on the as-built drawings.

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SECTION 31 00 00

EARTHWORK

PART 1 GENERAL

1.01 WORK INCLUDED

A. Excavating

B. Backfilling and Grading

1.02 RELATED WORK

A. Section 02 41 19 - Selective Structure Demolition

B. Section 03 30 00 - Cast-In-Place Concrete

C. Division 22 - Plumbing Work

D. Section 31 50 00 - Excavation Support and Protection

1.03 SITE CONDITIONS

A. Notify utilities and others owning conduit wires and piping running to or through the property or encountered during excavating. Cap or remove services in accordance with instructions of the utility.

B. Excavated fill and topsoil required for backfill and grading may be stockpiled on the site.

1. Materials shall not be stockpiled where trenches for sewers, water lines and other services will be located until services are installed.

C. Test borings to determine the nature of the soil and water conditions below the natural grade have not been performed for this Project.

1. At the Contractor's option, such test borings and other exploratory operations may be performed; however, no change in the contract sum will be authorized for such additional exploration.

D. Keep tracking of soil onto street and paved areas to a minimum. Any such tracking shall be removed on a daily basis.

1. Provide gravel drives and parking areas as required to control tracking.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill for compacted backfill shall be well graded granular material having 100% passing the 1" sieve, not less than 15% retained on the 3/8" sieve, and less than 15% passing the No. 200 sieve.

B. Fill for engineered backfill shall be well graded granular material having 100% passing the 4" sieve, not less than 15% retained on the 3/8" sieve, and less than 15% passing the No. 200 sieve.

C. Drainage Fill: A well graded, relatively clean sand and gravel mix with less than 5% passing the No. 200 sieve and a maximum size of 1".

D. Pea gravel shall be clean naturally rounded aggregate meeting the requirements of ASTM Specification C-33. Size shall be No. 7.

E. Crushed aggregate shall meet the requirements contained in Part 3 of the State of Wisconsin, Department of Transportation: Standard Specifications, Gradation No. 2.

PART 3 EXECUTION

3.01 PROTECTION

A. Provide adequate shoring, sheet piling, and bracing to prevent earth from caving or washing into excavation. Provide shoring and underpinning necessary to properly support adjacent or adjoining structures. All shoring and sheet piling shall be maintained until permanent support is provided.

B. Provide adequate shoring, bracing, and underpinning to properly support existing utility lines, sewer lines, etc., encountered during the excavation work. Protect lines from damage until they are incorporated into the work of the new building, removed, or properly backfilled upon completion of new building work.

3.02 DEWATERING

A. Provide and maintain pumps and other equipment necessary to drain and keep excavation pits, trenches, and the entire subgrade free of water under all circumstances that may arise. Maintain pumps as required until backfilling is complete.

3.03 EXCAVATING

A. Excavate whatever materials are encountered as required to place all work shown on the drawings at finished elevations, plus sufficient space to permit erection of forms, shoring, and inspection.

B. Excavated material unsuitable for fill and excess material shall be removed from the site.

3.04 BACKFILLING

A. Fill under interior slabs on grade, under exterior non-structural stoop platforms, under sidewalks and paving where they adjoin building shall be engineered backfill.

1. Place material in lifts not to exceed 6" to 9" in loose thickness, depending on size and type of compactor. Compact to minimum 95% modified proctor, ASTM D-1557.

2. Provide vibratory compaction or rolling equipment or both in order to obtain specified compaction. Travel of grading equipment will not be considered adequate for uniform compaction. Use small vibratory or hand tamping compactors where fill is placed adjacent to walls or around footings and columns.

3. Trenches dug in compacted fill shall be backfilled firmly around pipes and filled in uniform layers not exceeding 6" in depth. Each layer shall be compacted with a small vibratory or hand tamping compactor to the density specified. The contractor digging the trenches shall be responsible for backfilling.

4. Compacted backfill shall be a minimum of 4" thick under slabs.

B. Frozen material shall not be used for backfilling.

C. The Owner's Representative will inspect all work in place prior to proceeding with backfilling. Contractor shall coordinate.

3.05 ROUGH GRADING

A. Rough grading shall be done to maintain existing contours.

B. Fill, where required, shall be placed in 12" layers and compacted sufficiently to avoid settlement.

1. Fill under concrete or bituminous sidewalks and paving shall be compacted in accordance with the requirements for compacted backfill. Fill excavated from the site may be used if it is free of organic material and compactable in accordance with this specification.

C. Requirements for Compacted Fill:

1. Place material in lifts not to exceed 6" to 9" in loose thickness, depending on size and type of compactor. Compact to minimum 93% modified proctor maximum density as determined by ASTM Test Method D1557.

2. Provide vibratory compaction or rolling equipment or both in order to obtain specified compaction. Travel of grading equipment will not be considered adequate for uniform compaction. Use small vibratory or hand tamping compactors where fill is placed adjacent to walls or around footings and columns.

D. Grades indicated on the drawings are finished grades. Undercut grades as follows for finish:

Bituminous paved areas.....11"
Concrete sidewalks.....9"
All other areas .....6"

E. Excess excavated material shall be removed from site.

3.06 BASE COURSE FOR ASPHALT PAVEMENT

A. Before depositing crushed aggregate, shape the subgrade and roll it with a power roller weighing not less than 5 tons or with an approved type of pneumatic tired roller in such a manner that the subgrade will be compacted uniformly over its entire length and width and be at the proper elevation. Any area where the displacement in the subgrade is more than 1/2" in front of the rollers shall be removed and replaced with suitable material as directed by the Architect.

B. Just prior to laying crushed aggregate base course, install geotextile fabric under pavement. Lap side joints 30" and end joints not less than 36".

1. Extend fabric beyond edge of pavement and turn up at side of excavation to within 4" of finished grade.

2. Take precautions during placement and compaction of base course so that fabric is not damaged. Any areas of fabric that are damaged shall be repaired immediately by placing an additional layer of Geotextile over the damaged area. The overlaid material shall extend at least 2 feet beyond the damaged areas.

B. Crushed aggregate base course shall be deposited and compacted to a minimum 95% modified proctor maximum density as determined by ASTM Test Method D1557.

1. Crushed aggregate base course shall be Gradation No. 2 stone placed in one 4" layer.

2. Provide vibratory compaction or rolling equipment or both in order to obtain specified compaction. Travel of grading equipment will not be considered adequate for uniform compaction. Use small vibratory or hand tamping compactors where fill is placed adjacent to buildings or other obstacles.

3.07 FIELD QUALITY CONTROL

A. Engage the services of an independent testing laboratory to analyze a fifty (50) pound representative sample of proposed fill material prior to the start of any filling operation.

1. Test shall determine compliance with specification, optimum moisture, and maximum density.

2. Test shall be paid for by the Contractor.

B. Engage the services of an independent testing laboratory to perform tests on compacted fill to confirm compliance with the specification.

1. A minimum of one test per 3,000 square feet of area, but not less than five tests, shall be made in each lift.

2. The location of the tests shall be determined by the Owner's Representative.

3. Tests shall be paid for by the Contractor.

C. The testing laboratory used shall be approved by the Owner.

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SECTION 31 50 00

EXCAVATION SUPPORT AND PROTECTION

PART 1 GENERAL

1.01 WORK INCLUDED

A. This Section includes temporary excavation support and protection systems.

1.02 RELATED WORK

A. Section 03 30 00 - Cast-In-Place Concrete

B. Section 31 00 00 - Earthwork

1.03 PERFORMANCE REQUIREMENTS

A. Design, furnish, install, monitor, and maintain excavation support and protection system capable of supporting excavation sidewalls and of resisting soil and hydrostatic pressure and superimposed and construction loads.

1. Provide professional engineering services needed to assume engineering responsibility, including preparation of Shop Drawings and a comprehensive engineering analysis by a qualified professional engineer.

2. Prevent surface water from entering excavations by grading, dikes, or other means.

3. Install excavation support and protection systems without damaging existing buildings, pavements, and other improvements adjacent to excavation.

1.04 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct conference at Project site.

1. Review geotechnical report, if available.
2. Review existing utilities and subsurface conditions.
3. Review coordination for interruption, shutoff, capping and continuation of utility services.
4. Review proposed excavations.
5. Review proposed equipment.
6. Review monitoring of excavation support and protection system.
7. Review coordination with waterproofing.
8. Review abandonment or removal of excavation support and protection system.

1.05 SUBMITTALS

A. Shop Drawings for Information: Prepared by or under the supervision of a qualified professional engineer for excavation support and protection systems.

1. Include Shop Drawings signed and sealed by the qualified professional engineer responsible for their preparation.

a. Include plans, elevations, sections, and details.
b. Show arrangement, locations, and details of soldier piles, piling, lagging, tiebacks, bracing, and other components of excavation support and protection system according to engineering design.
c. Indicate type and location of waterproofing.
d. Include a written plan for excavation support and protection, including sequence of construction of support and protection coordinated with progress of excavation.

B. Qualification Data: For Installer and professional engineer.

C. Photographs or videotape, sufficiently detailed, of existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by the absence of, the installation of, or the performance of excavation support and protection systems.

1.06 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

B. Survey adjacent structures and improvements, employing a qualified professional engineer or land surveyor; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

1. During installation of excavation support and protection systems, regularly resurvey benchmarks, maintaining an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Engineer if changes in elevations or positions occur or if cracks, sags, or other damage is evident in adjacent construction.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Provide materials that are either new or in serviceable condition.

B. Structural Steel: ASTM A 36/A 36M, ASTM A 690/A 690M, or ASTM A 992/A 992M.

C. Steel Sheet Piling: ASTM A 328/A 328M, ASTM A 572/A 572M, or ASTM A 690/A 690M; with continuous interlocks.

D. Wood Lagging: Lumber, mixed hardwood, nominal rough thickness of 3".

E. Shotcrete: Comply with "ACI 506R - Guide to Shotcrete" and "ACI 506.2 - Specifications for Shotcrete" for shotcrete materials and mixes, reinforcing, and shotcrete application.

F. Cast-in-Place Concrete: ACI 301, of compressive strength required for application.

G. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.

1. Shore, support, and protect utilities encountered.

B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.

2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

C. Locate excavation support and protection systems clear of permanent construction so that forming and finishing of concrete surfaces is not impeded.

D. Monitor excavation support and protection systems daily during excavation progress and for as long as excavation remains open. Promptly correct bulges, breakage, or other evidence of movement to ensure that excavation support and protection systems remain stable.

1. Promptly repair damages to adjacent facilities caused by installing excavation support and protection systems.

3.02 SOLDIER BEAMS AND LAGGING

A. Install steel soldier beams before starting excavation. Space soldier beams at regular intervals not to exceed allowable flexural strength of wood lagging. Accurately align exposed faces of flanges to vary not more than 2" from a horizontal line and not more than 1:120 out of vertical alignment.

B. Install wood lagging within flanges of soldier beams as excavation proceeds. Trim excavation as required to install lagging. Fill voids behind lagging with soil, and compact.

C. Install wales horizontally at centers indicated and secure to soldier beams.

3.03 SHEET PILING

A. Before starting excavation, install one-piece sheet piling lengths and tightly interlock to form a continuous barrier. Limit vertical offset of adjacent sheet piling to 60". Accurately align exposed faces of sheet piling to vary not more than 2" from a horizontal line and not more than 1:120 out of vertical alignment. Cut tops of sheet piling to uniform elevation at top of excavation.

3.04 TIEBACKS

A. Tiebacks: Drill for, install, grout, and tension tiebacks into position. Test load-carrying capacity of each tieback and replace and retest deficient tiebacks.

1. Test loading shall be observed by a qualified professional engineer responsible for design of excavation support and protection system.

B. Maintain tiebacks in place until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.05 BRACING

A. Bracing: Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move brace, install new bracing before removing original brace.

1. Do not place bracing where it will be cast into or included in permanent concrete work, unless otherwise approved by Engineer.

2. Install internal bracing, if required, to prevent spreading or distortion of braced frames.

3. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

3.06 REMOVAL AND REPAIRS

A. Remove excavation support and protection systems when construction has progressed sufficiently to support excavation and bear soil and hydrostatic pressures. Remove in stages to avoid disturbing underlying soils or damaging structures, pavements, facilities, and utilities.

B. Remove excavation support and protection systems to a minimum depth of 48" below overlying construction and abandon remainder.

C. Repair or replace, as approved by Engineer, adjacent work damaged or displaced by removing excavation support and protection systems.

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