



CONSTRUCTION DOCUMENTS PROJECT MANUAL

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY AND TRANSPORTATION

PUBLIC WORKS ENGINEERING DIVISION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

REQUEST FOR BIDS NO. 313094 LAKE FARM STORAGE FACILITY LAKE FARM COUNTY PARK 4401 LIBBY ROAD MADISON, WISCONSIN

DORSCHNER|ASSOCIATES, INC.
849 EAST WASHINGTON AVENUE SUITE 112
MADISON WISCONSIN 53703
608.204.0777

ENGINEERING 370, LLC
370 ORCHARD DRIVE
OREGON WISCONSIN 53575

PIERCE ENGINEERS, INC.
10 WEST MIFFLIN SUITE 205
MADISON, WISCONSIN

Due Date / Time: **THURSDAY, OCTOBER 23, 2014, 2:00 P.M.**

Location: **PUBLIC WORKS OFFICE**

Performance / Payment Bond: **100% OF CONTRACT AMOUNT**

Bid Deposit: **5% OF BID AMOUNT**

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

ROB NEBEL ASSISTANT PUBLIC WORKS DIRECTOR
TELEPHONE NO.: 608/267-0119
FAX NO.: 608/267-1533
E-MAIL: NEBEL@COUNTYOFDANE.COM

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DOCUMENT INDEX FOR RFB NO. 313094

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

- Project Manual Cover Page
- Documents Index
- Advertisement for Bids (Legal Notice)
- Best Value Contracting Application
- Instructions to Bidders
- Bid Form
- Fair Labor Practices Certification
- Sample Public Works Contract
- Sample Bid Bond
- Sample Performance Bond
- Sample Payment Bond
- Equal Benefits Compliance Payment Certification
- General Conditions of Contract
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DIVISION 01 - GENERAL REQUIREMENTS

- 01 00 00 - Basic Requirements
- 01 74 19 - Recycling

DIVISION 02 - EXISTING CONDITIONS

- 02 05 00 – Common Work Results for Existing Conditions

DIVISION 03 - CONCRETE

- 03 30 00 – Cast-in-place Concrete

DIVISION 04 – 12

- Not Used

DIVISION 13 -SPECIAL CONSTRUCTION

- 13 40 00 – Pre-Engineered Buildings

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- Not Used

DIVISION 23 - HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

- 23 05 00 – Common Work Results for HVAC
- 23 15 13 – Common Motor Requirements for HVAC Equipment
- 23 05 23 – Valve and Piping for Fuel Gas
- 23 05 93 – Testing, Adjusting and Balancing for HVAC
- 23 07 00 – HVAC Insulation
- 23 09 26 – Gas Detection System
- 23 09 93 – Sequence of Operations for HVAC Controls
- 23 21 13 – Hydronic Piping
- 23 25 25 – Heat Transfer Fluids
- 23 31 00 – HVAC Ducts
- 23 33 00 – Air Duct Accessories
- 23 34 00 – HVAC Fans
- 23 37 13 – Diffusers, Registers and Grilles
- 23 55 00 – Fuel Fired Heaters (Makeup Air Unit)

DIVISION 25 - 48

Not Used. Refer to specifications on drawings.

DRAWINGS

Plot sheets on 24" x 36" (ARCH D) paper for correct scale or size.

G100	Cover Sheet
C100	Site and Grading Plan
C101	Fire Access
A101	Exterior Elevations
A201	First Floor Plans and Building Sections
A500	Wall Sections, Enlarged Plans and Door Schedule
S001	Structural Notes & Schedules
S201	Foundation Plan
PME 100	MEP Floor Plans, Plumbing Isometrics & Radiant Heating Zone Schedule
PME 101	Electrical Site Plans, Details and One Line Diagram and Schedule
PME 102	Mechanical, Electrical and Plumbing Specifications
	Ventilation Calculation Sheet
V 100	Ventilation New Work Plan

LEGAL NOTICE

INVITATION TO BID

Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Bids until:

2:00 P.M., THURSDAY, OCTOBER 23, 2014

REQUEST FOR BIDS NO. 313094
LAKE FARM STORAGE FACILITY
LAKE FARM COUNTY PARK
4401 LIBBY ROAD
MADISON, WISCONSIN

Dane County is inviting Bids for construction services to provide a new 60' by 200' pole storage building as outlined in the project drawings and construction documents.

Request for Bids package may be obtained after **2:00 p.m. on Friday, October 3, 2014** by downloading it from www.countyofdane.com/pwht/bid/logon.aspx. Please call Rob Nebel, Assistant Public Works Director, at 608/267-0119 or 608/575-0890, for any questions or additional information.

All Bidders must be a registered vendor with Dane County & pay an annual registration fee & must be pre-qualified as a Best Value Contractor before award of Agreement. Complete Vendor Registration Form at www.danepurchasing.com/registration or obtain one by calling 608/266-4131. Complete Pre-qualification Application for contractors at: http://www.countyofdane.com/pwht/BVC_Application.aspx

A facility/site tour for Bidders will be held Tuesday, October 14, 2014 at 10a.m. at The Lake Farm Site, Located at 4401 Libby Road. Proposers are strongly encouraged to attend this optional tour in order to bid on the Work.

PUBLISH: 10/3/2014 & 10/10/14 - WISCONSIN STATE JOURNAL
10/3/2014 & 10/10/14 - THE DAILY REPORTER

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DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Joseph T. Parisi

1919 Alliant Energy Center Way ♦ Madison, Wisconsin 53713
Phone: (608) 266-4018 ♦ FAX: (608) 267-1533

Commissioner / Director
Gerald J. Mandli

BEST VALUE CONTRACTING APPLICATION

CONTRACTORS / LICENSURE APPLICANTS

The Dane County Department of Public Works requires all contractors to be pre-qualified as a best value contractor with the County prior to being awarded a contract. In addition, the County pre-qualifies potential contractors and sub-contractors who wish to work on County contracts. Subcontractors must become pre-qualified ten (10) days prior to commencing work under any Dane County Public Works Contract. Potential subcontractors are urged to become pre-qualified as early as possible. This document shall be completed, properly executed, along with the necessary attachments and additional information that the County requires for the protection and welfare of the public in the performance of a County contract.

Contractors or subcontractors of any tier who attain pre-qualification status will retain that status for a period of two (2) years from the date of qualification. Contractors shall notify the Dane County Department of Public Works, Highway & Transportation within fifteen (15) days of any changes to its business or operations that are relevant to the pre-qualification application. Failure to do so could result in suspension, revocation of the contractor's pre-qualification, debarment from County contracts for up to three (3) years and / or other sanctions available under the law.

No contracts will be awarded for construction work performed on Dane County projects unless the contractor is currently approved as a Wisconsin Trade Trainer or has applied for approval as an Apprenticeship Trade Trainer to the Wisconsin Department of Workforce Development and agrees to an acceptable apprenticeship program. If you are not currently approved as a Wisconsin Trade Trainer, or have not applied for approval as an Apprenticeship Trade Trainer, please contact the Department of Workforce Development - Bureau of Apprenticeship Standards at 608/266-3133 or visit their web site at: dwd.wisconsin.gov/apprenticeship/.

EXEMPTIONS

- Contractors who employ less than five (5) apprenticeable trade workers are not required to pre-qualify.
- Contractors performing work that does not apply to an apprenticeable trade, as outlined in Appendix A.
- The contractor / subcontractor provides sufficient documentation to demonstrate one or more of the following:
 - apprentices are not available in a specific geographic area;
 - the applicable apprenticeship program is unsuitable or unavailable; or
 - there is a documented depression of the local construction market which prevents compliance.

SEC.	PROOF OF RESPONSIBILITY	CHECK IF APPLICABLE
1	Does your firm possess all technical qualifications and resources, including equipment, personnel and financial resources, necessary to perform the work required for any project or obtain the same through the use of responsible, pre-qualified subcontractors?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
2	Will your firm possess all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, which are necessary for the type of work to be performed including, but not limited to, those for any type of trade work or specialty work?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
3	Will your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
4	Will your firm meet all insurance requirements as required by applicable law or specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
5	Will your firm maintain a substance abuse policy for employees hired for public works contracts that comply with Wis. Stats. Sec. 103.503?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
6	Does your firm acknowledge that it must pay all craft employees on public works projects the wage rates and benefits required under Section 66.0903 of the Wisconsin Statutes?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
7	Will your firm fully abide by the equal opportunity and affirmative action requirements of all applicable laws, including County ordinances?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
8	In the past three (3) years, has your firm had control or has another corporation, partnership or other business entity operating in the construction industry controlled it? If so, please attach a statement explaining the nature of the firm relationship?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
9	In the past three (3) years, has your firm had any type of business, contracting or trade license, certification or registration revoked or suspended?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
10	In the past three (3) years, has your firm been debarred by any federal, state or local government agency?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
11	In the past three (3) years, has your firm defaulted or failed to complete any contract?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
12	In the past three (3) years, has your firm committed a willful violation of federal, state or local government safety laws as determined by a final decision of a court or government agency authority.	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
13	In the past three (3) years, has your firm been in violation of any law relating to your contracting business where the penalty for such violation resulted in the imposition of a penalty greater than \$10,000?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach details.
14	Is your firm Executive Order 108 precertified with the State of Wisconsin?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
15	Is your firm an active Wisconsin Trade Trainer as determined by the Wisconsin Bureau of Apprenticeship Standards?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
16	Is your firm exempt from being pre-qualified with Dane County?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach reason for exemption.
17	Does your firm acknowledge that in doing work under any County Public Works Contract, it will be required to use as subcontractors only those contractors that are also pre-qualified with the County or become so ten days prior to commencing work?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
18	Contractor has been in business less than one year?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
19	Is your firm a first time Contractor requesting a one time exemption, but, intend to comply on all future contracts and are taking steps typical of a "good faith" effort?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
20	Not applicable. My firm does not intend to work on Best Value Contracts. Note: Best Value Contracting is required to bid on most Public Works Contracts (if unclear, please call Jan Neitzel Knox 608-266-4029).	Yes: <input type="checkbox"/> No: <input type="checkbox"/>

SIGNATURE SECTION

Your firm's Officer, or the individual who would sign a bid and / or contract documents must sign this document.

I do hereby certify that all statements herein contained are true and correct to the best of my knowledge:

Signature

Date

Printed or Typed Name and Title

NAME AND ADDRESS OF CONTRACTOR	
Name of Firm:	
Address:	
City, State, Zip:	
Telephone Number:	
Fax Number:	
E-mail Address:	

REMEMBER!

Return all to forms and attachments, or questions to:

JAN NEITZEL KNOX
EMAIL: NEITZEL-KNOX@COUNTYOFDANE.COM
OFFICE: (608)266-4029, FAX: (608)267-1533

**DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY & TRANSPORTATION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WI 53713**

APPENDIX A

APPRENTICEABLE TRADES

Bricklayer
Carpenter
Cement Mason (Concrete Finisher)
Cement Mason (Heavy Highway)
Construction Craft Laborer
Data Communications Installer
Electrician
Elevator Mechanic / Technician
Environmental Systems Technician / HVAC Service Technician / HVAC Install & Service
Glazier
Heavy Equipment Operator / Operating Engineer
Insulation Worker (Heat & Frost)
Iron Worker (Assembler, Metal Buildings)
Painter / Decorator
Plasterer
Plumber
Roofer / Waterproofer
Sheet Metal Worker
Sprinkler Fitter
Steamfitter (Service & Refrigeration)
Taper & Finisher
Telecommunications (Voice, Data & Video) Installer / Technician
Tile Setter

INSTRUCTIONS TO BIDDERS

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1. GENERAL

- A. Before submitting Bid, bidder shall thoroughly examine all Construction Documents. Successful Bidder shall be required to provide all the Work that is shown on Drawings, set forth in Specifications, or reasonably implied as necessary to complete Contract for this project.
- B. Bidder shall visit site to become acquainted with adjacent areas, means of approach to site, conditions of actual site and facilities for delivering, storing, placing, and handling of materials and equipment.
- C. Pre-bid meeting is scheduled on Tuesday, October 14, 2014 at 10:00 a.m. at the Lake Farm County Park 4401 Libby Road, Madison, Wisconsin. Attendance by all bidders is optional, however bidders and subcontractors are strongly encouraged to attend.
- D. Failure to visit site or failure to examine any and all Construction Documents will in no way relieve successful Bidder from necessity of furnishing any necessary materials or equipment, or performing any work, that may be required to complete the Work in accordance with Drawings and Specifications. Neglect of above requirements will not be accepted as reason for delay in the Work or additional compensation.

2. DRAWINGS AND SPECIFICATIONS

- A. Drawings and Specifications that form part of this Contract, as stated in Article 1 of General Conditions of Contract, are enumerated in Document Index of these Construction Documents.
- B. Complete sets of Drawings and Specifications for all trades will be issued to all Bidders, irrespective of category of work to be bid on, in order that all Bidders may be familiar with work of other trades as they affect their bid.

3. INTERPRETATION

- A. No verbal explanation or instructions will be given in regard to meaning of Drawings or Specifications before Bid Due Date. Bidders shall bring inadequacies, omissions or conflicts to Architect / Engineer's attention at least ten (10) days before Bid Due Date. Prompt clarification will be available to all bidders by Addendum.
- B. Failure to so request clarification or interpretation of Drawings and Specifications will not relieve successful Bidder of responsibility. Signing of Contract will be considered as implicitly denoting that Contractor has thorough understanding of scope of the Work and comprehension of Construction Documents.
- C. Owner or Architect / Engineer will not be responsible for verbal instructions.

4. QUALIFICATIONS OF BIDDER (CONTRACTOR AND SUBCONTRACTOR)

- A. Before award of Contract can be approved, Owner shall be satisfied that Bidder involved meets following requirements:
 - 1. Has completed at least one (1) project of at least fifty percent (50%) of size or value of Division of work being bid and type of work completed is similar to that being bid. If greater magnitude of experience is deemed necessary, other than size or value of work, such requirements will be described in appropriate section of Specifications.
 - 2. Maintains permanent place of business.
 - 3. Can be bonded for terms of proposed Contract.
 - 4. Has record of satisfactorily completing past projects and supplies list of five (5) most recent, similar projects, with architect or engineer's and owner's names, addresses and telephone numbers for each project. Submit to Public Works Project Engineer within three (3) days after Bid Opening]. Criteria which will be considered in determining satisfactory completion of projects by bidder will include:
 - a. Completed contracts in accordance with drawings and specifications.
 - b. Diligently pursued execution of work and completed contracts according to established time schedule unless Owner grants extensions.
 - c. Fulfilled guarantee requirements of construction documents.
 - d. Is not presently on ineligible list maintained by County's Department of Administration for noncompliance with equal employment opportunities and affirmative action requirements.
 - e. Authorized to conduct business in Wisconsin. By submitting Bid, bidder warrants that it has: complied with all necessary requirements to do business in State of Wisconsin; that persons executing contract on its behalf are authorized to do so; and, if corporation, that name and address of bidder's registered agent are as set forth in Contract. Bidder shall notify Owner immediately, in writing, of any change in its

registered agent, their address, and bidder's legal status. For partnership, term "registered agent" shall mean general partner.

- B. County's Public Works Project Engineer will make such investigations as are deemed necessary to determine ability of bidder to perform the Work, and bidder shall furnish to County's Public Works Project Engineer or designee all such information and data for this purpose as County's Public Works Project Engineer may request. Owner reserves right to reject Bid if evidence submitted by, or investigation of, bidder fails to satisfy Owner that bidder is responsible and qualified to carry out obligations of Contract and to complete the Work contemplated therein.

5. BID GUARANTEE

- A. Bank certified check, cashier's check or Bid Bond, payable to County in amount not less than five percent (5%) of maximum bid, shall accompany each Bid as guarantee that if Bid is accepted, Bidder will execute and return proposed Contract and Performance and Payment Bonds within ten (10) days after being notified of acceptance of Bid. Company issuing bonds must be licensed to do business in Wisconsin.
- B. Any bid, which is not accompanied by bid guarantee, will be considered "No Bid" and will not be read at Bid Due Date.
- C. If successful Bidder so delivers Contract, Certificate of Insurance, and Performance and Payment Bonds, check will be returned to Bidder. In case Bidder fails to deliver such Contract, insurance, and bond, amount of bid guarantee will be forfeited to County as liquidated damages.
- D. All checks tendered as bid guarantee, except those of three (3) lowest qualified, responsible bidders, will be returned to their makers within three (3) days after Bid Due Date. All such retained checks will be returned immediately upon signing of Contract and Performance and Payment Bonds by successful Bidder.

6. WITHDRAWAL OF BIDS

- A. Bids may be withdrawn by written request received from bidder or authorized representative thereof prior to time fixed for Bid Due Date, without prejudice to right of bidder to file new Bid. Withdrawn Bids will be returned unopened. Negligence on part of bidder in preparing their Bid confers no right for withdrawal of Bid after it has been opened.
- B. No Bid may be withdrawn for period of sixty (60) days after Bid Due Date.
- C. If Bid contains error, omission or mistake, bidder may limit liability to amount of bidder's guarantee by giving written Notice of Intent not to execute Contract to Owner within seventy-two (72) hours of Bid Due Date.

7. CONTRACT FORM

- A. Sample copy of contract that successful Bidder will be required to enter into is included in these Construction Documents and bidders are required to familiarize themselves with all conditions contained therein.

8. CONTRACT INTERESTS BY COUNTY PUBLIC OFFICIALS

- A. In accordance with Wisconsin Statute 946.13, county official may not bid for or enter into any contract involving receipts or disbursements of more than \$15,000.00 in a year, in which they have private pecuniary interest, direct or indirect if at same time they are authorized to take official action with respect to making of this Contract. Any contract entered into in violation of this Statute is void and County incurs no liability thereon. This subsection does not affect application and enforcement of Wisconsin Statute 946.13 by state prosecutors in criminal courts of this state.

9. EMERGING SMALL BUSINESS PROVISIONS

- A. **Emerging Small Business Definition.** For purposes of this provision, ESB is defined as:
1. Independent business concern that has been in business minimum of one year;
 2. Business located in State of Wisconsin;
 3. Business comprised of less than twenty-five (25) employees;
 4. Business must not have gross sales in excess of three million dollars (\$3,000,000.00) over past three years; and
 5. Business does not have history of failing to complete projects.
- B. **Emerging Small Business (ESB) Involvement.** Bidder shall make good faith effort to award minimum of ten percent (10%) of the Work to ESBs. Bidder shall submit report to Dane County Contract Compliance Officer within twenty-four (24) hours after Bid Due Date demonstrating such efforts. Good faith efforts means significant contact with ESBs for purposes of soliciting bids from them. Failure to make or demonstrate good faith efforts will be grounds for disqualification.
- C. **Emerging Small Business Report.** Emerging Small Business Enterprise Report is to be submitted by Bidder in separate envelope marked "Emerging Small Business Report". This report is due by 2:00 p.m. following specified twenty-four (24) hours after Bid Due Date. Bidder who fails to submit Emerging Small Business Report shall be deemed not responsive.
- D. **ESB Goal.** Goal of this project is ten percent (10%) ESB participation. ESB utilizations are shown as percentage of total Bid. If Bidder meets or exceeds specified goal, Bidder is only required to submit Form A - Certification, and Form B - Involvement. Goal shall be met if Bidder qualifies as ESB.
- E. **Report Contents.** Following award of Contract, Bidder shall submit copies of executed contracts for all Emerging Small Businesses. Emerging Small Business Report shall consist of these:
1. Form A - Certification;
 2. Form B - Involvement;
 3. Form C - Contacts;
 4. Form D - Certification Statement (if appropriate); and
 5. Supportive documentation (i.e., copies of correspondence, telephone logs, copies of advertisements).

- F. **ESB Listing.** Bidders will solicit bids from ESB listing provided by Dane County.
- G. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Certification Application to Dane County Contract Compliance Program.
- H. **Certification Statement.** If ESB firm has not been certified by County as ESB prior to submittal of this Bid, ESB Report cannot be used to fulfill ESB goal for this project unless firm provides "Form D - Certification Statement". Certification statement must be completed and signed by ESB firm.
- I. **Questions.** Questions concerning Emerging Small Business provisions shall be directed to:
- Dane County Contract Compliance Officer
City-County Building, Room 421
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-5623
- J. **Substituting ESBs.** In event of any significant changes in subcontract arrangements or if need arises to substitute ESBs, Bidder shall report such proposed changes to Contract Compliance Officer to making any official changes and request authorization to substitute ESB firm. Bidder further agrees to make every possible effort to replace ESB firm with another qualified ESB firm.
- K. **Good Faith Efforts.** Good faith efforts can be demonstrated by meeting all of these obligations:
1. Selecting portions of the Work to be performed by ESBs in order to increase likelihood of meeting ESB goal including, where appropriate, breaking down Contract into smaller units to facilitate ESB participation.
 2. Advertising in general circulation, trade associations and women / minority focus media concerning subcontracting opportunities.
 3. Providing written notices to reasonable number of specific ESBs that their interest in Contract was being solicited in sufficient time to allow ESBs to participate effectively.
 4. Following up on initial solicitations of interest by contacting ESBs within five (5) working days prior to Bid Due Date to determine with certainty whether ESB were interested, to allow ESBs to prepare bids.
 5. Providing interested ESB with adequate information about Drawings, Specifications and requirements of Contract.
 6. Using services of available minority, women and small business organizations and other organizations that provide assistance in recruitment of MBEs / WBEs / ESBs.
 7. Negotiating in good faith with interested ESBs, not rejecting ESBs as unqualified without sound reason based on thorough investigation of their capabilities.
 8. Submitting required project reports and accompanying documents to County's Contract Compliance Officer within twenty-four (24) hours after Bid Due Date.

- L. **Appeals Disqualification of Bid.** Bidder who is disqualified may appeal to Public Works & Transportation Committee and Equal Opportunity Commission.

10. METHOD OF AWARD - RESERVATIONS

- A. Following will be basis of award of Contract, providing cost does not exceed amount of funds then estimated by County as available to finance Contract(s):
 - 1. Lowest dollar amount submitted by qualified responsible bidder on Base Bid for all work comprising project, combined with such additive Owner accepted alternates.
 - 2. Owner reserves right to reject all bids or any bid, to waive any informality in any bid, and to accept any bid that will best serve interests of County.
 - 3. Unit Prices and Informational Bids will not be considered in establishing low bidder.

11. SECURITY FOR PERFORMANCE AND PAYMENTS

- A. Simultaneous with delivery of signed Contract, Bidder shall be required to furnish Performance and Payment Bonds as specified in Article 29 of General Conditions of Contract, "Contract Security. Surety Company shall be licensed to do business in Wisconsin. Performance and Payment Bonds must be dated same date or subsequent to date of Contract. Performance and Payment Bonds must emulate information in Sample Performance and Payment Bonds in Construction Documents.
- B. Provide certified copy of power of attorney from Surety Company showing that agent who signs Bond has power of attorney to sign for Surety Company. Secretary or Assistant Secretary of company must sign this certification, not attorney-in-fact. Certification must bear same or later date as Bond. Power of Attorney must emulate model power of attorney information detailed in Sample Performance and Payment Bonds.
- C. If Bidder is partnership or joint venture, State certified list, providing names of individuals constituting partnership or joint venture must be furnished. Contract itself may be signed by one partner of partnership, or one partner of each firm comprising joint venture, but Performance and Payment Bonds must be signed by all partners.
- D. If Bidder is a corporation, it is necessary that current certified copy of resolution or other official act of directors of corporation be submitted showing that person who signs Contract is authorized to sign contracts for corporation. It is also necessary that corporate seal be affixed to resolution, contract, and performance and payment bonds. If your corporation has no seal, it is required that above documents include statement or notation to effect that corporation has no seal.

12. TAXES

- A. Bidder shall include in Bid, all Sales, Consumer, Use and other similar taxes required by law.
- B. In accordance with Wisconsin Statute 71.80(16)(a), successful nonresident bidder, whether incorporated or not, and not otherwise regularly engaged in business in this state, shall file surety bond with State of Wisconsin Department of Revenue payable to Department of Revenue, to guarantee payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld from wages of employees,

together with any penalties and interest thereon. Amount of bond shall be three percent (3%) of Contract or subcontract price on all contracts of \$50,000 or more.

13. SUBMISSION OF BIDS

- A. All Bids shall be submitted on standard Bid Form bound herein and only Bids that are made on this Bid Form will be considered. Entire Bid Form and other supporting documents, if any, shall be removed or copied from Construction Documents, filled out, and submitted in manner specified hereinafter. Submit completed Bid Bond with Bid as well.
- B. No bids for any subdivision or any sub-classification of this Work, except as indicated, will be accepted. Any conditional Bid, amendment to Bid Form or appended item thereto, or inclusion of any correspondence, written or printed matter, or details of any nature other than that specifically called for, which would alter any essential provision of Construction Documents, or require consideration of unsolicited material or data in determining award of Contract, will disqualify Bid. Telecommunication alterations to Bid will not be accepted.
- C. Bidders must submit single Bid for all the Work.
- D. Bid amounts shall be inserted in words and in figures in spaces provided on Bid Form; in case of conflict, written word amounts will govern.
- E. Addenda issued after Bid Letting shall become part of Construction Documents. Bidders shall acknowledge receipt of such addenda in appropriate space provided on Bid Form. Bid may be rejected if receipt of any particular addendum applicable to award of Contract has not been acknowledged on Bid Form.
- F. Bids shall be signed, placed in envelope, sealed and delivered before due time to place designated in Invitation to Bid, and identified with project name, bid number, location, category of work being bid upon, Bid Due Date, name and address of bidder.
- G. Bidder shall be responsible for sealed Bid being delivered to place designated for Bid Due Date on or before date and time specified. Bids received after time of closing will be rejected and returned to bidder unopened.
- H. Bid will be considered invalid and will be rejected if bidder has not signed it.
- I. Faxed Bids will not be accepted.
- J. Bidder's organization shall submit completed with Bid, Fair Labor Practices Certification form, included in these Construction Documents.

14. SUBCONTRACTOR LISTING

- A. Bidders shall be required to submit list of major subcontractors for General Construction, Plumbing, HVAC, and Electrical work proposed for this project to include committed prices for each subcontractor. List shall be placed in separate sealed envelope that must be clearly identified as "Major Subcontractor List", for named project and name of Bidder submitting it. County must receive envelope no later than date by which successful Bidder is required to submit his or her signed Contract, as established in Construction Documents.

15. ALTERNATE BIDS

A. Not applicable.

16. INFORMATIONAL BIDS

A. Not applicable.

17. UNIT PRICES

A. Not applicable.

18. COMMENCEMENT AND COMPLETION

- A. Successful Bidder shall commence work when schedule and weather permit, but no later than stated in Bid Form. Contractor shall pursue the Work regularly and continuously at reasonable rate to insure completion of the Work within time stated in Bid.
- B. Should it be found impossible to complete the Work on or before time specified for completion, written request may be submitted for extension of time setting forth reasons believed to justify granting of such request. Refer to Article 20 of General Conditions of Contract, titled "Time for Completion".

19. WORK BY OWNER

- A. This work will be accomplished by Owner or will be let under separate contracts and will not be included under this Contract:
 - 1. Refer to Construction Documents for scope indicated by Owner.

20. FOCUS ON ENERGY & STATE/FEDERAL ENERGY INCENTIVES

- A. Successful bidder shall be required to work with County to pursue financial incentives available from, but not limited to, the Focus on Energy program. Contract shall work with their suppliers to determine advantageous material that meet the specifications that will qualify for Focus on Energy rebates. Contract will supply the County with lists of materials for submission by the County to the Focus on Energy program.
- B. Other additional State and Federal incentive programs may be pursued by the County. The Contractor shall be responsible for providing lists of materials used on the project (with details of energy efficiency) that the County may need to complete grant applications.

21. COUNTY DIRECT PURCHASE MATERIALS & EQUIPMENT

- A. The County will use its tax-exempt status to purchase materials that will become part of this construction project. In preparing your bid, include all labor, materials and tax in your Bid totals. If the County elects to exercise its tax exempt status to purchase materials and equipment, the contract (when issued) will deduct the cost of materials selected for direct purchase and the related sales tax from your bid total.

- B. Products excluded from purchase by County include products manufactured or fabricated by Contractor, products which Contractor would be the vendor, products which would be furnished and installed by the same entity.
- C. Do not include miscellaneous material such as, but not limited to: mortar, sealants, anchors, connectors, glue, accessories, etc. Items such as these are to be furnished and purchased by the installing contractors as required for their respective work.
- D. For materials where the quantities are not easily identifiable from the Construction Documents, such as, but not limited to, concrete and piping, the Contractor will be responsible for quantities and costs exceeding the quantity and cost stated on the purchase order.
- E. The Contractor shall provide all services necessary to facilitate the purchase of these materials and equipment including, but not limited to, preparation of proposed purchase orders, recommendations of suppliers and vendors, receipt, unloading, storage, and protection of materials and equipment. All purchases by the County shall be used for the sole benefit of the County.
- F. The County shall cause all materials and equipment purchased directly to be delivered to the Contractor who shall accept delivery as the County's agent and promptly notify the Architect / Engineer thereof. When the materials and/or equipment are delivered to the jobsite, the Contractor shall promptly inspect them and bring to the attention of the County and Architect / Engineer any defects therein. The Contractor shall assist in contacting the Supplier in an effort to correct and adjust any defect.
- G. The Contractor shall have the same responsibilities for installation of materials and equipment provided by the County as he would have if purchased by the Contractor. The Contractor shall be responsible for any damage to such materials and equipment after delivery and installation and prior to turning the project over to the County. The Contractor is responsible for obtaining product warranties with regard to those materials and equipment purchased by the County.

FORM A

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION**

In accordance with General Conditions of Contract, submit this Emerging Small Business Report within 24 hours after Bid Due Date.

PROJECT NAME: _____

BID NO.: _____ BID DUE DATE: _____

BIDDER INFORMATION

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE NO.: _____

CONTACT PERSON: _____

FORM B

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - INVOLVEMENT**

Page ___ of ___
(Copy this Form as necessary to provide complete information)

COMPANY NAME: _____

PROJECT NAME: _____ BID NO.: _____

ESB NAME: _____ CONTACT PERSON: _____

ADDRESS: _____ PHONE NO.: _____

CITY: _____ STATE: _____ ZIP: _____

Indicate percentage of financial commitment to this ESB: _____ % Amount: \$ _____

ESB NAME: _____ CONTACT PERSON: _____

ADDRESS: _____ PHONE NO.: _____

CITY: _____ STATE: _____ ZIP: _____

Indicate percentage of financial commitment to this ESB: _____ % Amount: \$ _____

ESB NAME: _____ CONTACT PERSON: _____

ADDRESS: _____ PHONE NO.: _____

CITY: _____ STATE: _____ ZIP: _____

Indicate percentage of financial commitment to this ESB: _____ % Amount: \$ _____

FORM C

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CONTACTS**

Page ___ of ___
(Copy this Form as necessary to provide complete information)

COMPANY NAME: _____

PROJECT NAME: _____ BID NO.: _____

	<u>ESB FIRM NAME CONTACTED</u>	<u>DATE</u>	<u>PERSON CONTACTED</u>	<u>DID ESB BID?</u>	<u>DID YOU ACCEPT BID?</u>	<u>REASON FOR REJECTION</u>
1)	_____	_____	_____	_____	_____	_____
2)	_____	_____	_____	_____	_____	_____
3)	_____	_____	_____	_____	_____	_____
4)	_____	_____	_____	_____	_____	_____
5)	_____	_____	_____	_____	_____	_____
6)	_____	_____	_____	_____	_____	_____
7)	_____	_____	_____	_____	_____	_____

FORM D

**DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION STATEMENT**

I, _____, _____ of
Name Title

_____ certify to best of my knowledge and
Company

belief that this business meets Emerging Small Business definition as indicated in Article 9 and
that information contained in this Emerging Small Business Report is true and correct.

Bidder's Signature

Date

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Name of Bidding Firm: _____

BID FORM

BID NO. 313094

**PROJECT: LAKE FARM STORAGE FACILITY
LAKE FARM COUNTY PARK
4401 LIBBY ROAD
MADISON, WISCONSIN**

**TO: DANE COUNTY DEPARTMENT OF PUBLIC WORKS, HIGHWAY &
TRANSPORTATION PROJECT ENGINEER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713**

BASE BID - LUMP SUM:

Work includes construction services to provide an approximate 60' by 200' pole storage building as outlined in the construction documents. The undersigned, having examined the site where the Work is to be executed and having become familiar with local conditions affecting the cost of the Work and having carefully examined the Drawings and Specifications, all other Construction Documents and Addenda thereto prepared by Dane County Department of Public Works, Highway & Transportation hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the entire Work, as specified in the Construction Documents, for the Base Bid stipulated sum of:

_____ and _____ /100 Dollars
Written Price

\$ _____
Numeric Price

Receipt of the following addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No(s). _____ through _____

Dated _____

Dane County Department of Public Works, Highway & Transportation must have this project completed by September 1, 2015. Assuming this Work can be started by November 20, 2014, what dates can you commence and complete this job?

Commencement Date: _____ Completion Date: _____
(final, not substantial)

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

(Name of Corporation, Partnership or Person submitting Bid)

Select one of the following:

1. A corporation organized and existing under the laws of the State of _____, or
2. A partnership consisting of _____, or
3. A person conducting business as _____;

Of the City, Village, or Town of _____ of the State of _____.

I have examined and carefully prepared this Bid from the associated Construction Documents and have checked the same in detail before submitting this Bid; that I have full authority to make such statements and submit this Bid in (its) (their) (my) behalf; and that the said statements are true and correct. In signing this Bid, we also certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a Bid; that this Bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; that this Bid has not been knowingly disclosed prior to the Bids Due Date to another bidder or competitor; that the above statement is accurate under penalty of perjury.

The undersigned further agrees to honor the Base Bid and the Alternate Bid(s) for 60 days from date of Award of Contract.

SIGNATURE: _____
(Bid is invalid without signature)

Print Name: _____ Date: _____

Title: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

Contact Person: _____

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THIS PAGE IS FOR BIDDERS' REFERENCE AND NEED NOT BE SUBMITTED WITH BID FORM.

BID CHECK LIST:

These items **must** be included with Bid:

Bid Form

Bid Bond

Fair Labor Practices Certification

BIDDERS SHOULD BE AWARE OF THE FOLLOWING:

DANE COUNTY VENDOR REGISTRATION PROGRAM

Any person bidding on any County contract must be registered with the Dane County Purchasing Division & pay an annual registration fee. A contract will not be awarded to an unregistered vendor. Obtain a *Vendor Registration Form* by calling 608/266-4131 or complete a new form or renewal online at:

www.danepurchasing.com/registration

DANE COUNTY BEST VALUE CONTRACTING PRE-QUALIFICATION

Contractors must be pre-qualified as a Best Value Contractor with the Dane County Public Works Engineering Division before the award of contract. Obtain a *Best Value Contracting Application* by calling 608/266-4018 or complete one online at:

www.countyofdane.com/pwht/BVC_Application.aspx

EQUAL BENEFITS REQUIREMENT

By submitting a Bid, the contractor acknowledges that a condition of this contract is to provide equal benefits as required by Dane County Code of Ordinances Chapter 25.016. Contractor shall provide equal benefits as required by that Ordinance to all required employees during the term of the contract. Equal Benefits Compliance Payment Certification shall be submitted with final pay request. For more information:

www.danepurchasing.com/partner_benefit.aspx

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FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has submitted a proposal, bid or application for a contract with the county of Dane.

B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board (“NLRB”) or the Wisconsin Employment Relations Commission (“WERC”) to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

Officer or Authorized Agent Signature

Date

Printed or Typed Name and Title

Printed or Typed Business Name

NOTE: You can find information regarding the violations described above at: www.nlr.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.11(28)(a) is as follows:

(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder’s responsibility to perform the contract.

If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.

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COUNTY OF DANE

PUBLIC WORKS CONSTRUCTION CONTRACT

Contract No. _____ Bid No. 313094

Authority: 2014 RES - _____

THIS CONTRACT, made and entered into as of the date by which authorized representatives of both parties have affixed their signatures, by and between the County of Dane (hereafter referred to as "COUNTY") and _____ (hereafter, "CONTRACTOR"), and

WITNESSETH:

WHEREAS, COUNTY, whose address is c/o Assistant Public Works Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR [furnish][install][provide] Lake Farm Storage Facility ("the Project"); and

WHEREAS, CONTRACTOR, whose address is _____ is able and willing to construct the Project, in accordance with the [Construction Documents, Scope of Work document, site meeting, etc.];

NOW, THEREFORE, in consideration of the above premises and the mutual covenants of the parties hereinafter set forth, the receipt and sufficiency of which is acknowledged by each party for itself, COUNTY and CONTRACTOR do agree as follows:

1. CONTRACTOR agrees to construct, for the price of \$_____ the Project and at the CONTRACTOR'S own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence labor, insurance, and other accessories and services necessary to complete the Project in accordance with the conditions and prices stated in the [Bid Form, Quote], [General Conditions of Contract, Conditions of Contract], the drawings which include all maps, plats, plans, and other drawings and printed or written explanatory matter thereof, and the specifications therefore as prepared by _____ (hereinafter referred to as "the Architect / Engineer"), and as enumerated in the Project Manual Document Index, all of which are made a part hereof and collectively evidence and constitute the Contract.
2. COUNTY agrees to pay the CONTRACTOR in current funds for the performance of the Contract subject to additions and deductions, as provided in the [General Conditions of Contract, Conditions of Contract], and to make payments on account thereof as provided in Article entitled, "Payments to Contractor" of the [General Conditions of Contract, Conditions of Contract].
3. During the term of this Contract, CONTRACTOR agrees to take affirmative action to ensure equal employment opportunities. The CONTRACTOR agrees in accordance with Wisconsin Statute 111.321 and Chapter 19 of the Dane County Code of Ordinances not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force

or any other reserve component of the military forces of the United States, or political beliefs. Such equal opportunity shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation. CONTRACTOR agrees to post in conspicuous places, available to all employees and applicants for employment, notices setting forth the provisions of this paragraph.

4. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Officer in accord with Chapter 19 of the Dane County Code of Ordinances. CONTRACTOR must file such plan within fifteen (15) days of the effective date of this Contract. During the term of this Contract CONTRACTOR shall also provide copies of all announcements of employment opportunities to COUNTY'S Contract Compliance Office, and shall report annually the number of persons, by race, ethnicity, gender, and disability status, which apply for employment and, similarly classified, the number hired and number rejected.

5. During the term of this Contract, all solicitations for employment placed on CONTRACTOR'S behalf shall include a statement to the effect that CONTRACTOR is an "Equal Opportunity Employer."

6. CONTRACTOR agrees to comply with provisions of Chapter 25.016 of the Dane County Code of Ordinances, which pertains to domestic partnership benefits.

7. CONTRACTOR agrees to furnish all information and reports required by COUNTY'S Contract Compliance Officer as the same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and the provisions of this Contract.

8. CONTRACTOR agrees that all persons employed by CONTRACTOR or any subcontractor shall be paid no less than the minimum wage established under Chapter 40, Subchapter II, Dane County Code of Ordinances. CONTRACTOR agrees to abide by and comply with the provisions of Chapter 40, Subchapter II of the Dane County Code of Ordinances, and said Subchapter is fully incorporated herein by reference.

9. This Contract is intended to be a Contract solely between the parties hereto and for their benefit only. No part of this Contract shall be construed to add to, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties including, but not limited to, employees of either of the parties.

10. The entire agreement of the parties is contained herein and this Contract supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof. The parties expressly agree that the express terms of this Contract shall not be amended in any fashion except in writing, executed by both parties.

11. CONTRACTOR must be pre-qualified as a Best Value Contractor with Dane County Public Works Engineering Division before award of Contract. Subcontractors must be pre-qualified ten (10) days prior to commencing Work under this Contract.

12. Attachment A is the Contractor's [proposal, quote, other] and is made a part of this Contract.

IN WITNESS WHEREOF, COUNTY and CONTRACTOR, by their respective authorized agents, have caused this Contract and its Schedules to be executed, effective as of the date by which all parties hereto have affixed their respective signatures, as indicated below.

* * * * *

FOR CONTRACTOR:

Signature _____
Date

Printed or Typed Name and Title

Signature _____
Date

Printed or Typed Name and Title

NOTE: If CONTRACTOR is a corporation, Secretary should attest. In accordance with IRS Regulations, unincorporated entities are required to provide either their Social Security or Employer Number in order to receive payment for services rendered.

* * * * *

This Contract is not valid or effectual for any purpose until approved by the appropriate authority designated below, and no work is authorized until the CONTRACTOR has been given notice to proceed by COUNTY'S Assistant Public Works Director.

FOR COUNTY:

Joseph T. Parisi, County Executive _____
Date

Scott McDonell, County Clerk _____
Date

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THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

Bond No.

KNOW ALL MEN BY THESE PRESENTS, that we (Here insert full name and address or legal title of Contractor)

as Principal, hereinafter called the Principal, and (Here insert full name and address or legal title of Surety)

a corporation duly organized under the laws of the State of WI as Surety, hereinafter called the Surety, are held and firmly bound unto (Here insert full name and address or legal title of Owner)

as Obligee, hereinafter called Obligee, in the sum of () Percent of total amount bid Dollars (\$) Percent of attached bid.

For the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for Project No.: (Here insert full name, address, and description of project)

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this day of , 20 .

(Witness) (Principal) (Seal) (Title) (Surety) (Seal) (Witness) ATTORNEY-IN-FACT

THE AMERICAN INSTITUTE OF ARCHITECTS



Bond No. _____

AIA Document A312

Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address): _____

SURETY (Name and Principal Place of Business): _____

OWNER (Name and Address): _____

CONSTRUCTION CONTRACT
Date: _____
Amount: \$ _____
Description (Name and Location): _____

BOND
Date (Not earlier than Construction Contract Date): _____
Amount: \$ _____
Modifications to this Bond: _____

None

See Page 3

CONTRACTOR AS PRINCIPAL
COMPANY: _____
(Corporate Seal)

SURETY COMPANY: _____
(Corporate Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

Attorney-in-Fact

(Any additional signatures appear on page 3)

FOR INFORMATION ONLY-Name, Address and Telephone
AGENT OR BROKER: _____

OWNER'S REPRESENTATIVE (Architect,
Engineer or other party): _____

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

3.1 The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and

3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and

3.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or

4.4 Waive its rights to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

1. After investigation, determine the amount for

which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefor to the Owner; or

2. Deny liability in whole or in part and notify the Owner citing reasons therefor.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

6.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

6.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12 DEFINITIONS

12.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other

claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

SAMPLE

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL
Company: (Corporate Seal)

SURETY
Company: (Corporate Seal)

Signature: _____
Name and Title:
Address:

Signature: _____
Name and Title:
Address:

THE AMERICAN INSTITUTE OF ARCHITECTS



Bond No. _____

AIA Document A312

Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address): _____

SURETY (Name and Principal Place of Business): _____

OWNER (Name and Address): _____

CONSTRUCTION CONTRACT
Date: _____
Amount: \$ _____
Description (Name and Location): _____

BOND

Date (Not earlier than Construction Contract Date): _____

Amount: \$ _____

Modifications to this Bond: _____

None

See Page 6

CONTRACTOR AS PRINCIPAL
COMPANY: _____
(Corporate Seal)

SURETY COMPANY: _____
(Corporate Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title: _____
Attorney-in-Fact

(Any additional signatures appear on page 6)

FOR INFORMATION ONLY-Name, Address and Telephone
AGENT OR BROKER: _____

OWNER'S REPRESENTATIVE (Architect,
Engineer or other party): _____

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.
2. With respect to the Owner, this obligation shall be null and void if the Contractor:
 - 2.1 Promptly makes payment, directly, or indirectly, for all sums due Claimants, and
 - 2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for the payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligation to Claimants under this Bond until:
 - 4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2 Claimants who do not have a direct contract with the Contractor:
 1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
 2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.
5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
 - 6.2 Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor

shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's

subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

SAMPLE

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL
Company: (Corporate Seal)

SURETY
Company: (Corporate Seal)

Signature: _____
Name and Title:
Address:

Signature: _____
Name and Title:
Address:

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EQUAL BENEFITS COMPLIANCE PAYMENT CERTIFICATION

PURPOSE

25.016(8) of the Dane County Ordinance requires that each contractor receiving payment for contracted services must certify that he or she has complied fully with the requirements of Chapter 25.016 "Equal Benefits Requirement" of the Dane County Ordinances. Such certification must be submitted prior to the final payment on the contract.

This form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

CERTIFICATION

I, _____ certify that
Printed or Typed Name and Title

Printed or Typed Name of Contractor

has complied fully with the requirements of Chapter 25.016 of the Dane County Ordinances "Equal Benefits Requirements".

Signed _____

Date _____

For questions on this form, please contact Chuck Hicklin at 608-266-4109 or your contract representative at Dane County.

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GENERAL CONDITIONS OF CONTRACT

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1. CONSTRUCTION DOCUMENTS

- A. Construction Documents, listed in Table of Contents of this Specification volume shall form part of this Contract and provisions of Construction Documents shall be as binding upon parties as if they were fully set forth in Contract itself.
- B. These shall also be considered as part of Construction Documents: Addenda, including additions and modifications incorporated in such addenda before execution of Contract; requests for information; construction bulletins; change orders; and written interpretations by Architect / Engineer or Public Works Project Engineer that are made after execution of Contract.
- C. Construction Documents are complementary, and what is required by one shall be as binding as if required by all. Intent of Construction Documents is to include all labor, materials and equipment necessary for proper execution of the Work.

2. DEFINITIONS

- A. These terms as used in this Contract are respectively defined as follows:
 - 1. All uses of term “County” in Construction Documents shall mean Dane County.
 - 2. All uses of term “Department” in Construction Documents shall mean Department of Public Works, Highway & Transportation, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
 - 3. Public Works Project Engineer is appointed by and responsible to Department. Public Works Project Engineer has authority to act on behalf of Department and will sign change orders, payment requests and other administrative matters related to projects.
 - 4. Public Works Project Engineer is responsible for supervision, administration and management of field operations involved in construction phase of this Work.
 - 5. Term “Work” includes all labor, equipment and materials necessary to produce project required by Construction Documents.
 - 6. Term “Substantial Completion” is date when project or specified area of project is certified by Architect / Engineer that construction is sufficiently completed, in accordance with Construction Documents, and as modified by any subsequent changes agreed to by parties, so that County may occupy project or specified area of project for use for which it was intended subject to permit approval for occupancy.
 - 7. Contractor is person, firm, or corporation with whom County makes Contract. Though multiple contracts may be involved, Construction Documents treat them throughout as if each were of singular number.

3. ADDITIONAL INSTRUCTIONS AND DRAWINGS

- A. Contractor may be furnished additional instructions and detail drawings as necessary to carry out the Work included in Contract. Additional drawings and instructions thus supplied to Contractor will coordinate with Construction Documents and will be so prepared that they can be reasonably interpreted as part thereof. Contractor shall carry out the Work in accordance with additional detail drawings and instructions.

4. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Unless otherwise specified, Contractor shall electronically submit Shop Drawings for each submission, until receiving final approval. After final approval, provide five (5) additional copies for distribution as may be required.

- B. Contractor shall submit, on an on-going basis and as directed, Product Data such as brochures that shall contain catalog cuts and specifications of all furnished mechanical and electrical equipment. After Architect / Engineer's approval, one (1) copy shall remain in Architect / Engineer's file, one (1) kept at Department's office and one (1) kept at job site by Contractor for reference purposes.
- C. Samples shall consist of physical examples furnished by Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards to compare the Work.
 - 1. Submit Samples in sufficient quantity (minimum of two (2)) to permit Architect / Engineer to make all necessary tests and of adequate size showing quality, type, color range, finish, and texture. Label each Sample stating material, type, color, thickness, size, project name, and Contractor's name.
 - 2. Submit transmittal letter requesting approval, and prepay transportation charges to Architect / Engineer's office on samples forwarded.
 - 3. Materials installed shall match approved Samples.
- D. Contractor shall review Shop Drawings and place their dated stamp thereon to evidence their review and approval and shall submit with reasonable promptness and in orderly sequence to cause no delay in the Work or in work of any other contractor. At time of submission, Contractor shall inform Architect / Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Architect / Engineer will not consider partial lists.
- E. Architect / Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Architect / Engineer's approval shall not relieve Contractor from responsibility for errors or omission in Shop Drawings.
- F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until Architect / Engineer has approved submission. All such work shall be in accordance with approved Shop Drawings, Product Data and Samples.
- G. Contractor shall keep on site of the Work, approved or conformed copy of Shop Drawings and shall at all time give Department access thereto.
- H. By stamping and submitting Shop Drawings, Product Data and Samples, Contractor thereby represents that he or she has or will determine and verify all field measurements, field construction criteria, materials, catalog numbers, and similar data and that he or she has checked and coordinated each Shop Drawing, Product Data and Sample with requirements of the Work and of Construction Documents. Architect / Engineer shall return without examination, Shop Drawings, Product Data and Samples not so noted.
- I. All Shop Drawings from any one Contractor should be numbered consecutively and on cover sheet shall bear name and location of project, name of Contractor, date of submittal and date of each correction or revision and associated Specification section and page number.

5. CUTTING AND PATCHING

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

- B. Contractor shall not damage or endanger portion of the Work or fully or partially completed construction of County or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. Contractor shall not cut or otherwise alter such construction by County or separate contractor except with written consent of County and of such separate contractor; such consent shall not be unreasonably withheld. Contractor shall not withhold unreasonably from County or separate contractor, Contractor's consent to cutting or otherwise altering the Work.

6. CLEANING UP

- A. Contractor shall keep premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under Contract. Contractor shall remove from and about the Work waste materials, rubbish, Contractor's tools, construction equipment, machinery, and surplus materials at completion of the Work. Contractor shall maintain streets and sidewalks around the Work site in clean condition. Contractor shall remove all spillage and prevent tracking of spillage arising from performance of the Work, into, out of, and within the Work site. Contractor shall establish regular maintenance program of sweeping, vacuuming and / or hosing to minimize accumulation of dirt and dust upon such areas.
- B. If Contractor fails to clean up as directed in Construction Documents, County may do so and shall charge Contractor cost thereof.
- C. Contractor shall be responsible for broken windows and glass, and at completion of the Work shall replace such damaged or broken windows and glass. After replacing damaged or broken windows and glass, Contractor shall remove all labels, wash and polish both sides of all windows and glass.
- D. In addition to general cleaning (sweeping, vacuuming and / or hosing, as is appropriate to work surface), Contractor shall perform following final cleaning for all trades at completion of the Work:
 - 1. Remove temporary protections;
 - 2. Remove marks, stains, fingerprints and other soil or dirt from painted, decorated and finished woodwork and wall surfaces;
 - 3. Remove spots, plaster, soil and paint from ceramic tile, marble and other finished materials, and wash or wipe clean;
 - 4. Clean fixtures, cabinet work and equipment, removing stains, paint, dirt and dust, and leave same in undamaged, new condition;
 - 5. Clean aluminum in accordance with recommendations of manufacturer; and
 - 6. Clean resilient floors thoroughly with well-rinsed mop containing only enough moisture to clean off any surface dirt or dust and buff dry by machine to bring surfaces to sheen.

7. USE OF SITE

- A. Contractor shall provide County and Architect / Engineer access to the Work under all circumstances.
- B. Contractor shall confine operations at site to areas permitted by County, law, ordinance, permits and Construction Documents and shall not unreasonably encumber site with materials or equipment. Contractor shall assure free, convenient, unencumbered, direct and safe access to all properties adjacent to the Work for County, its employees, invitees and guests.

8. MATERIALS AND WORKMANSHIP

- A. Contractor shall perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary to complete the Work required by this Contract, within time specified, in accordance with provisions of Construction Documents.
- B. All equipment and materials incorporated in the Work covered by this Contract are to be new; use recycled and / or recovered materials to extent that such use is technically and economically feasible. Recovered materials are products recovered from solid waste in form identical to original form for use that is same as, or similar to original use. Recycled materials are products manufactured from solid waste.
- C. If requested, Contractor shall furnish satisfactory evidence as to kind and quality of construction materials proposed or used. Contractor shall furnish to Architect / Engineer, for approval, manufacturer name and model, performance capacities and other pertinent information of machinery, mechanical, electrical or other types of equipment, which Contractor plans to install.
- D. If not otherwise provided, materials and labor called for in this Contract shall be provided and performed in accordance with established practice and standards recognized by Architects, Engineers, Department, and construction industry.
- E. Reference to “Standard” specifications of any association or manufacturer, or codes of County authorities, intends most recent printed edition or catalog in effect on date that corresponds with date of Construction Documents.
- F. Whenever reference is made in Specifications that work shall be “performed”, “applied”, in accordance with “manufacturer’s directions or instructions”, Contractor to whom those instructions are directed shall furnish three (3) printed copies of such instructions to Architect / Engineer before execution of the Work.

9. CONTRACTOR’S TITLE TO MATERIALS

- A. Contractor or any subcontractor shall not purchase materials or supplies for the Work subject to any chattel mortgage or under conditional sale contract or other agreement by which seller retains interest. Contractor warrants that all materials and supplies used in the Work are free from all liens, claims or encumbrances and Contractor has good title to them.

10. “OR EQUAL” CLAUSE

- A. Whenever equipment or materials are identified on Drawings or in Specifications by reference to manufacturer’s or vendor’s name, trade name, catalog number, and other identifying information, it is intended to establish standards; and any equipment or material of other manufacturers and vendors which will perform adequately duties imposed by general design will be considered equally accepted provided equipment or material so proposed is, in opinion of Architect / Engineer, of equal substance and function. Architect / Engineer and Department shall provide written approval before Contractor may purchase or install it.
- B. Equipment or materials of manufacturers, other than those named, may be used only upon following conditions:
 - 1. That, in opinion of Architect / Engineer and Department, proposed material or equipment item is fully equal or superior (in design, materials, construction, workmanship,

- performance, finish, etc.) to named item. No compromise in quality level, however small, is acceptable.
2. That, in substituting materials or equipment, Contractor assumes responsibility for any changes in system or for modifications required in adjacent or related work to accommodate such substitution despite Architect / Engineer's and Department's approval, and all costs growing out of approval of "or equal" items shall be responsibility of Contractor. No extra costs resulting from such approval shall become responsibility of Department, Architect / Engineer or any other separate Contractor.
 3. It shall be understood that use of materials or equipment other than those specified, or approved equal by Architect / Engineer and Department, shall constitute violation of Contract, and that Architect / Engineer and Department shall have right to require removal of such materials or equipment and their replacement with specified materials or equipment at Contractor's expense.
 4. Product and manufacturer named first in Specifications or on information shown on Drawings is basis of selection of manufactured items and equipment, particularly mechanical equipment. In using other than first named products or manufacturers, including those specified as additionally approved or acceptable, Contractor assumes responsibility for any changes in system and for modifications in any work required to accommodate them. Architect / Engineer's approval of such additionally acceptable products or manufacturers, either in Specifications or in Addendum, does not relieve Contractor from obligation to coordinate such optional products with other Contractors, whose work may be affected by them, and to pay all additional costs resulting from their inclusion into the Work. Contractor's liability shall include payment of Architect / Engineer's fees for any additional services made necessary by or directly connected to such product changes. No extra costs resulting from such changes shall become responsibility of Department, Architect / Engineer or any other separate Contractor.
- C. No request for approval of "or equal" materials will be entertained except from Contractor. Identify any request for substitution as substitution on Contractor's letter of transmittal and give reasons for substitution. Department may in its sole discretion allow substitutions of materials.

11. PATENTS AND ROYALTIES

- A. If Contractor uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood, that, without exception, contract prices shall include all royalties or costs arising from use of such design, device or materials, in any way involved in the Work.
- B. Contractor shall indemnify and save harmless County from any and all claims for infringement by reason of use of such patent or copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify County for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during prosecution of the Work or after completion of the Work.

12. SURVEYS, PERMITS, REGULATIONS AND TAXES

- A. Department will furnish to Contractor all site, topography and property surveys necessary for execution of the Work.
- B. Contractor shall procure all permits, licenses and approvals necessary for execution of this Contract.

- C. Contractor shall give all notices and comply with all State of Wisconsin, Federal and local laws, codes, rules and regulations relating to performance of the Work, protection of adjacent property, and maintenance of passageways, guard fences or other protective facilities.
- D. Contractor shall pay all Sales, Consumer, Use and other similar taxes required by law.
- E. Contractor shall promptly notify Architect / Engineer of any variances of Drawings or Specifications with that of any State of Wisconsin, federal or local law, code, rule or regulation. Upon such notification, Architect / Engineer will require correction of variance to comply with applicable law, code, rule or regulation at no additional cost to Contractor.
- F. Work under this Contract shall comply with all applicable State of Wisconsin, Federal and local laws, codes and regulations.
- G. Contractor shall pay charges for water, sewer and other utility connections made by municipalities where required by Specifications.

13. CONTRACTOR'S OBLIGATIONS AND SUPERINTENDENCE

- A. Contractor shall provide and pay for all materials, labor, tools, equipment, transportation and superintendence necessary to execute, complete and deliver the Work within specified time. Contractor agrees to secure at their own expense all personnel necessary to carry out the Work. Such personnel shall not be deemed County employees nor shall they have or be deemed to have any direct contractual relationship with County.
- B. Performance of any work necessary after regular working hours, on Sundays or Legal Holidays shall be without additional expense to County. Performance of any work at site at other than normal working hours must be coordinated with Public Works Project Engineer.
- C. Contractor shall furnish, erect, maintain and remove such temporary works as may be required.
- D. Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of Construction Documents.
- E. At the Work site, Contractor shall give personal superintendence to the Work or shall employ construction superintendent or foreman, experienced in character of work covered by Contract, who shall have full authority to act for Contractor. Understand that such superintendent or foreman shall be acceptable to Architect / Engineer and Department.
- F. Remove from project or take other corrective action upon notice from Architect / Engineer or Department for Contractor's employees whose work is considered by Architect / Engineer or Department to be unsatisfactory, careless, incompetent, unskilled or otherwise objectionable.
- G. Contractor and subcontractors shall be required to conform to Labor Laws of State of Wisconsin and various acts amendatory and supplementary thereto and to other laws, ordinances and legal requirements applicable to the Work.
- H. Presence and observation of the Work by Architect / Engineer or Public Works Project Engineer shall not relieve Contractor of any obligations.

14. WEATHER CONDITIONS

- A. In event of temporary suspension of work, or during inclement weather, or whenever Architect / Engineer shall direct, Contractor shall, and shall cause subcontractors to protect carefully all work and materials against damage or injury from weather. If, in opinion of Architect / Engineer or Department, any work or materials that have been damaged or injured due to failure on part of Contractor or any subcontractors so to protect the Work, such materials shall be removed and replaced at expense of Contractor.

15. PROTECTION OF WORK AND PROPERTY

- A. Contractor shall at all times safely guard County's property from injury or loss in connection with this Contract. Contractor shall at all times safely guard and protect the Work, and adjacent property, from damage. Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in Contract, or by County, or County's duly authorized representative.
- B. Contractor may act diligently, without previous instructions from Architect / Engineer and / or Department, in emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Architect / Engineer and / or Department immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to Architect / Engineer and / or Department for approval as provided for in Article 18 herein.

16. INSPECTION AND TESTING OF MATERIALS

- A. Authorized representatives and agents of County government shall have access at all times to the Work wherever it is in preparation or progress and Contractor shall provide facilities for such access and for inspection.
- B. Should it be considered necessary or advisable at any time before final acceptance of the Work to make examination of work already completed, by removing or tearing out same, Contractor shall upon request, promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any aspect, due to fault of Contractor or subcontractors thereof, Contractor shall assume all expenses of such examination and of satisfactory reconstruction. Contractor will be reimbursed for such examination and replacement in accordance with Article 18 - A.3., of these General Conditions of Contract if such work is found to meet requirements of Contract.
- C. If Specifications, Architect / Engineer's, or Public Works Project Engineer's instructions require any work to be specially tested or approved, Contractor shall give Architect / Engineer and Public Works Project Engineer timely notice of its readiness for testing or inspection. Test all materials and equipment requiring testing in accordance with accepted or specified standards, as applicable. Architect / Engineer shall recommend laboratory or inspection agency and Department will select and pay for all initial laboratory inspection services. Should retesting be required, due to failure of initial testing, cost of such retesting shall be borne by Contractor.
- D. Cost of any testing performed by manufacturers or Contractor for substantiating acceptability of proposed substitution of materials and equipment, or necessary conformance testing in conjunction with manufacturing processes or factory assemblage, shall be borne by Contractor or manufacturer responsible.

17. REPORTS, RECORDS AND DATA

- A. Contractor shall submit to Architect / Engineer and Public Works Project Engineer such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, invoices, records and other data as either may request concerning work performed or to be performed under this Contract.

18. CHANGES IN THE WORK

- A. Make no changes, except in cases of emergency, in the Work covered by approved Construction Documents without having prior written approval of Department. Charges or credits for the Work covered by approved change shall be determined by one of these methods:
1. Unit bid prices previously approved.
 2. Agreed lump sum based on actual cost of:
 - a) Labor, including foremen, and all fringe benefits that are associated with their wages.
 - b) Materials entering permanently into the Work.
 - c) Ownership or rental cost of construction tools and equipment during time of use on extra work.
 - d) Power and consumable supplies for operation of power equipment.
 - e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
 - f) Social Security and old age and unemployment contributions.
 - g) Add to cost under (2), fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit and any other general expense.
 - h) On that portion of the Work under (2) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit and any other general expense.
 - i) Department may require correct amount of costs with supporting vouchers; Contractor shall keep and present in such form as directed.
 3. Cost-plus work, with not-to-exceed dollar limit, based on actual cost of:
 - a) Labor, including foremen, and all fringe benefits that are associated with their wages.
 - b) Materials entering permanently into the Work.
 - c) Ownership or rental cost of construction tools and equipment during time of use on extra work. Rental cost cannot exceed fifty percent (50%) replacement value of rented equipment.
 - d) Power and consumable supplies for operation of power equipment.
 - e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
 - f) Social Security and old age and unemployment contributions.
 - g) To cost under (3), there shall be added fixed fee to be agreed upon but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit, and any other general expense.
 - h) On that portion of the Work under (3) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit, and any other general expense.
 - i) Contractor shall keep and present, in such form as directed, correct amount of cost together with such supporting vouchers as may be required by Department.

- B. If Contractor claims that by any instructions given by Architect / Engineer, Department, by drawings or otherwise, regarding performance of the Work or furnishing of material under Contract, involves extra cost, Contractor shall give Department written notice of cost thereof within two (2) weeks after receipt of such instructions and in any event before proceeding to execute work, unless delay in executing work would endanger life or property.
- C. No claim for extra work or cost shall be allowed unless it was done in pursuance of written Change Order from Architect / Engineer and approved by Department, as previously mentioned, and claim presented with payment request submitted after changed or extra work is completed.
- D. Negotiation of cost for change in the Work shall not be cause for Contractor to delay prosecution of the Work if Contractor has been authorized in writing by Public Works Project Engineer to proceed.

19. EXTRAS

- A. Without invalidating Contract, Department may order extra work or make changes by altering, adding to or deducting from the Work, contract sum being adjusted in accordance with Article 18 herein.

20. TIME FOR COMPLETION

- A. Contractor agrees that the Work shall be prosecuted regularly and diligently and complete the Work as stated in Construction Documents.

21. CORRECTION OF WORK

- A. All work, all materials whether incorporated in the Work or not, and all processes of manufacture shall at all times and places be subject to inspection of Architect / Engineer and Public Works Project Engineer who shall be judge of quality and suitability of the Work, materials, and processes of manufacture for purposes for which they are used. Should they fail to meet Architect / Engineer's and Public Works Project Engineer's approval they shall be reconstructed, made good, replaced or corrected, by Contractor at Contractor's expense. Immediately remove all rejected material from site.
- B. If Contractor defaults or neglects to carry out the Work in accordance with Construction Documents or fails to perform any provision of Contract, Department may, after ten (10) days' written notice to Contractor and without prejudice to any other remedy County may have, make good such deficiencies. In such case, appropriate Change Order shall be issued deducting from Contractor's payments then or thereafter, cost of correcting such deficiencies, including cost of Architect / Engineer's additional services made necessary by such default, neglect or failure.

22. SUBSURFACE CONDITIONS FOUND DIFFERENT

- A. If Contractor encounters subsurface or latent conditions at site materially differing from those shown on Drawings or indicated in Specifications, Contractor shall immediately give notice to Architect / Engineer and Public Works Project Engineer of such conditions before they are disturbed. Architect / Engineer will thereupon promptly investigate conditions, and if Architect / Engineer finds that they materially differ from those shown on Drawings or

indicated in Specifications, Architect / Engineer will at once make such changes as necessary, any increase or decrease of cost resulting from such changes to be adjusted in manner provided in above Article 18 entitled "Changes in the Work".

23. RIGHT OF DEPARTMENT TO TERMINATE CONTRACT

- A. In event that any provisions of this Contract are violated by Contractor or by any subcontractors, County may serve written notice upon Contractor and Surety of its intention to terminate Contract, such notice to contain reasons for such intention to terminate Contract, and unless within ten (10) days after serving of such notice upon Contractor, such violation or delay shall cease and satisfactory arrangement or correction be made, Contract shall, upon expiration of said ten (10) days, cease and terminate.
- B. In event of any such termination, County shall immediately serve notice thereof upon Surety and Contractor, and Surety shall have right to take over and perform Contract subject to County's approval; provided, however, that if Surety does not commence performance thereof within ten (10) days from date of mailing to such Surety of notice of termination, County may take over the Work and prosecute same to completion by contract, or by force account, at expense of Contractor; Contractor and Surety shall be liable to County for any excess cost occasioned County thereby, and in such event County may take possession of and utilize in completing the Work, such materials and equipment as may be on the Work site and therefore necessary.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

- A. Contractor shall be responsible for Construction Schedule and coordination. Immediately after execution and delivery of Contract and before making first payment, Contractor shall notify all subcontractors to furnish all required information to develop Construction Schedule. Contractor and all subcontractors associated with the Work shall furnish following information from each Division of Specifications:
 - 1. List of construction activities;
 - 2. Start, finish and time required for completion of each activity;
 - 3. Sequential relationships between activities;
 - 4. Identify all long lead-time items, key events, meetings or activities such as required submittals, fabrication and delivery, procurement of materials, installation and testing;
 - 5. Weekly definition of extent of work and areas of activity for each trade or Subcontract; and
 - 6. Other information as determined by Public Works Project Engineer.
- B. In addition to above requested items, Contractor shall request delivery dates for all County-furnished equipment, materials or labor. This shall include any work handled by Department under separate contracts such as asbestos abatement, air and water balancing, etc. Indicate on Construction Schedule these associated delivery and installation dates.
- C. Progress Reporting:
 - 1. Contractor shall update and publish Construction Schedule on monthly basis. Revisions to Schedule shall be by Contractor and made in same detail as original Schedule and accompanied by explanation of reasons for revision; and shall be subject to approval by Department.
 - 2. Failure of Contractor to keep Schedule in updated format shall result in County hiring firm specializing in construction schedule development and deducting those costs associated with updating process from payments due Contractor.

3. Contractor shall submit show actual percentage of each activity completed, estimated future progress, and anticipated completion time.
- D. Responsibility for timely completion requires:
1. Contractor and subcontractors understand that performance of each is interdependent upon performance of others.
 2. Whenever it becomes apparent from current schedule, that phasing or progress completion dates will not be met, Contractor must take some or all following actions at no additional cost to County:
 - a) Increase construction manpower in such quantities and crafts as will eliminate backlog of work.
 - b) Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination of foregoing to eliminate backlog of work.
 - c) Reschedule work (yet remain in conformance with Drawings and Specifications).
 3. Prior to proceeding with any of above actions, Contractor shall notify Public Works Project Engineer.
- E. Maintain current Construction Schedule at all times. Revise Construction Schedule in same detail as original and accompany with explanation of reasons for revision. Schedule shall be subject to approval by Architect / Engineer and Public Works Project Engineer.

25. PAYMENTS TO CONTRACTOR

- A. Contractor shall provide:
1. Detailed estimate giving complete breakdown of contract price by Specification Division; and
 2. Periodic itemized estimates of work done for purpose of making partial payments thereon.
- Submit these estimates for approval first to Architect / Engineer, then to Public Works Project Engineer. Costs employed in making up any of these schedules are for determining basis of partial payments and not considered as fixing basis for additions to or deductions from Contract price.
- B. County will make partial payments to Contractor for value, proportionate to amount of Contract, of all labor and material incorporated in the Work during preceding calendar month upon receipt of Application and Certificate for Payment form from Architect / Engineer and approval of Department.
- C. Contractor shall submit for approval first to Architect / Engineer, and then to Public Works Project Engineer all Application and Certificate for Payment forms. If requested, Application and Certificate for Payment shall be supported by such additional evidence as may be required, showing Contractor's right to payment claimed.
- D. Application and Certificate for Payment for preparatory work and materials delivered and suitably stored at site to be incorporated into the Work at some future period, will be given due consideration. Requesting payment for materials stored off site, may be rejected, however, if deemed essential for reasons of job progress, protection, or other sufficient cause, requests will be considered, conditional upon submission by Contractor of bills of sale, photographs and such other procedures as will adequately protect County's interest such as storage in bonded warehouse with adequate coverage. If there is any error in payment, Contractor is obligated to notify Department immediately, but no longer than ten (10) days from receipt of payment.

- E. Payments by County will be due within forty-five (45) days after receipt by Department of Application and Certificate for Payment.
- F. County will retain five percent (5%) of each Application and Certificate for Payment until final completion and acceptance of all the Work covered by Contract. However, anytime after fifty percent (50%) of the Work has been furnished and installed at site, County will make remaining payments in full if Architect / Engineer and Public Works Project Engineer find that progress of the Work corresponds with Construction Schedule. If Architect / Engineer and Public Works Project Engineer find that progress of the Work does not correspond with Construction Schedule, County may retain up to ten percent (10%) of each Application and Certificate for Payment for the Work completed.
- G. All material and work covered by partial payments made shall become sole property of County, but this provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made, or restoration of any damaged work, or as waiver of right of County to require fulfillment of all of terms of Contract.
- H. County will make final payment within sixty (60) days after final completion of the Work, and will constitute acceptance thereof. Submit Equal Benefits Compliance Payment Certification with final pay request. Payment may be denied if Certification is not included.
- I. County may make payment in full, including retained percentages and less authorized deductions, upon completion and acceptance of each Division where price is stated separately in Contract.
- J. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit(s) as required to prove that all debts and claims against this Work are paid in full or otherwise satisfied, and give final evidence of release of all liens against the Work and County. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

26. WITHHOLDING OF PAYMENTS

- A. County, after having served written notice on said Contractor, may either pay directly any unpaid bills of which Department has written notice, or withhold from Contractor's unpaid compensation sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged; whereupon, payment to Contractor shall be resumed in accordance with terms of this Contract, but in no event shall these provisions be construed to impose any obligations upon County to either Contractor or Contractor's Surety.
- B. In paying any unpaid bills of Contractor, County shall be deemed agent of Contractor, and any payment so made by County, shall be considered as payment made under Contract by County to Contractor and County shall not be liable to Contractor for any such payment made in good faith.

- C. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from all claims growing out of lawful demands of subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in performance of this Contract.
- D. At Department's request, Contractor shall furnish satisfactory evidence that all obligations of nature designated above have been paid, discharged or waived.

27. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

- A. Making of final payment shall constitute waiver of all claims by County except those arising from:
 - 1. Unsettled lien;
 - 2. Faulty or defective work appearing after substantial completion;
 - 3. Failure of the Work to comply with requirements of Construction Documents; or
 - 4. Terms of any special guarantees required by Construction Documents.
- B. Acceptance of final payment shall constitute waiver of all claims by Contractor.

28. PAYMENTS BY CONTRACTOR

- A. Contractor shall pay following not later than fifth (5th) day following each payment received from County:
 - 1. All transportation and utility services rendered;
 - 2. All materials, tools, and other expendable equipment that have been delivered at site of the Work to extent of ninety percent (90%) of cost thereof, and balance of cost thereof when said balance is paid to Contractor; and
 - 3. Each subcontractor, respective amount allowed Contractor because of work performed by subcontractor to extent of subcontractor's interest therein.

29. CONTRACT SECURITY

- A. Contractor shall furnish Performance and Payment Bonds in amount at least equal to one hundred percent (100%) of Contract price as security for faithful performance of this Contract and payment of all persons performing labor on project under this Contract and furnishing materials in connection with this Contract.
- B. Sample Performance and Payment Bonds that Contractor will be required to execute is bound into these Construction Documents. Before construction Contract is consummated, completed Performance and Payment Bonds must be approved by Department.

30. ASSIGNMENTS

- A. Contractor shall not assign whole or any part of this Contract or any moneys due or to become due hereunder without written consent of Department. In case Contractor assigns all or any part of any moneys due or to become due under this Contract, instrument of assignment shall contain clause substantially to effect that it is agreed that right of assignee in and to any moneys due or to become due to Contractor shall be subject to prior claims of all

persons, firms and corporations for services rendered or materials supplied for performance of the Work called for in this Contract.

31. MUTUAL RESPONSIBILITY OF CONTRACTORS

- A. If, through acts of neglect on part of Contractor or any subcontractor shall suffer loss or damage on the Work, Contractor agrees to settle with such subcontractor by agreement or arbitration if such other subcontractor will so settle. If such subcontractor shall assert any claim against County on account of any damage alleged to have been sustained, Department shall notify Contractor, who shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives against any such claim.

32. SEPARATE CONTRACTS

- A. Department may award other contracts for the Work and all Contractors shall fully cooperate with each other and carefully adjust their work to that provided under other contracts as may be directed by Department. No Contractor shall commit or permit any act that will interfere with performance of the Work by any other Contractor.
- B. Contractor shall coordinate the Work with those of other Contractors. Cooperation will be required in arrangement for storage of materials and in detailed execution of the Work. Contractor, including subcontractors, shall keep informed of progress and detail work of others and shall notify Architect / Engineer or Department immediately of lack of progress or defective workmanship on part of others. Failure of Contractor to keep informed of the Work progressing on site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by Contractor of status of the Work as being satisfactory for proper coordination with Contractor's own work.

33. SUBCONTRACTS

- A. Contractor may use services of specialty subcontractors on those parts of the Work that, under normal contracting practices, are performed by specialty subcontractors.
- B. Contractor shall not award any work to any subcontractor without prior approval of Department. Qualifications of subcontractors shall be same as qualifications of Contractor. Request for subcontractor approval shall be submitted to Department fifteen (15) days before start of subcontractor's work. If subcontractors are changed or added, Contractor shall notify Department in writing.
- C. Contractor shall be as fully responsible to County for acts and omissions of subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for acts and omissions of persons directly employed by Contractor.
- D. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by terms of General Conditions of Contract and other Construction Documents insofar as applicable to work of subcontractors and to give Contractor same power as regards terminating any subcontract that Department may exercise over Contractor under any provision of Construction Documents.
- E. Nothing contained in this Contract shall create any contractual relation between any subcontractor and County.

- F. Contractor shall insert in all subcontracts, Articles 26, 33, 43 and 45, respectively entitled: “Withholding of Payments”, “Subcontracts”, “Affirmative Action Provision and Minority / Women / Disadvantaged Business Enterprises”, and “Minimum Wages”, and shall further require all subcontractors to incorporate physically these same Articles in all subcontracts.

34. PUBLIC WORKS PROJECT ENGINEER’S AUTHORITY

- A. Public Works Project Engineer shall:
1. Administer and ensure compliance with Construction Documents;
 2. Provide responsible on-site observations of construction and have authority to request work and to stop work whenever necessary to insure proper enforcement of Construction Documents;
 3. Convene and chair project meetings and foreman’s coordination meetings when necessary to coordinate resolution of conflicts between Contractors, Architects, Engineers, Consultants, and Department; and
 4. Check and inspect material, equipment and installation procedures of all trades for proper workmanship and for compliance with Drawings, Specifications and Shop Drawings, permit no material on project site that is not satisfactory and reject work not in compliance with Construction Documents.

35. ARCHITECT / ENGINEER’S AUTHORITY

- A. Architect / Engineer is retained by, and is responsible to Department acting for County.
- B. Architect / Engineer shall determine amount, quality, acceptability, and fitness of several kinds of work and materials that are provided under this Contract and shall decide all questions that may arise in relation to said work and construction thereof.
- C. Architect / Engineer shall decide meaning and intent of any portion of Specifications and of any Drawings where they may be found obscure or be in dispute.
- D. Architect / Engineer shall provide responsible observation of construction. Architect / Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of Construction Documents.
- E. Architect / Engineer shall be interpreter of conditions of Construction Documents and judge of its performance.
- F. Within reasonable time, Architect / Engineer shall make decisions on all matters relating to progress of the Work or interpretation of Construction Documents.
- G. Architect / Engineer’s decisions are subject to review by Public Works Project Engineer.

36. STATED ALLOWANCES

- A. Stated allowances enumerated in Instructions to Bidders shall cover net cost of materials or equipment, and all applicable taxes. Contractor’s cost of delivery and unloading at site, handling costs on site, labor, installation costs, overhead, profit and any other incidental costs shall be included in Contractor’s bid, but not as part of cash allowance.

- B. Department will solicit at least two (2) bids on materials or equipment for which allowance is stated and select on basis of lowest qualified responsible bid. Contractor will then be instructed to purchase "Allowed Materials". If actual price for purchasing "Allowed Materials", including taxes, is more or less than "Cash Allowance", Contract price shall be adjusted accordingly. Adjustment in Contract price shall not contain any cost items excluded from cash allowance.

37. ESTIMATES OF QUANTITIES

- A. Whenever estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of Construction Documents, they are given for use in comparing bids and right is especially reserved to increase or diminish them as they may be deemed reasonably necessary or desirable by Department to complete the Work included in this Contract, and cost for such increase or diminution shall be adjusted in manner provided for in General Conditions of Contract Article 18 entitled "Changes in the Work".

38. LANDS AND RIGHTS-OF-WAY

- A. Prior to start of construction, County shall furnish all land and rights-of-way necessary for carrying out and completion of the Work to be performed under this Contract.

39. GENERAL GUARANTEE

- A. Neither final certificate of payment nor any provision in Construction Documents nor partial or entire occupancy of premises by County shall constitute acceptance of work not done in accordance with Construction Documents or relieve Contractor of liability in respect to any expressed warranties or responsibility for faulty materials or workmanship.
 - 1. In no event shall making of any payment required by Contract constitute or be construed as waiver by County of any breach of covenants of Contract or waiver of any default of Contractor and making of any such payment by County while any such default or breach shall exist shall in no way impair or prejudice right of County with respect to recovery of damages or other remedy as result of such breach or default.
- B. Contractor shall remedy and make good all defective workmanship and materials and pay for any damage to other work resulting there from, which appear within period of one (1) year from date of substantial completion, providing such defects are not clearly due to abuse or misuse by County. Department will give notice of observed defects with reasonable promptness.
- C. Guarantee on work executed after certified date of substantial completion will begin on date when such work is inspected and approved by Architect / Engineer and Public Works Project Engineer.
- D. Where guarantees or warranties are required in sections of Specifications for periods in excess of one (1) year, such longer terms shall apply; however, Contractor's Performance and Payment Bonds shall not apply to any guarantee or warranty period in excess of one (1) year.

40. CONFLICTING CONDITIONS

- A. Any provision in any of Construction Documents which may be in conflict or inconsistent with any Articles in these General Conditions of Contract or Supplementary Conditions shall be void to extent of such conflict or inconsistency.
- B. In case of ambiguity or conflict between Drawings and Specifications, Specifications shall govern.
- C. Printed dimensions shall be followed in preference to measurements by scale. Large-scale drawings take precedence over small-scale drawings. Dimensions on Drawings and details are subject to field measurements of adjacent work.
- D. Amendments and addenda take precedence over specifications.

41. NOTICE AND SERVICE THEREOF

- A. Any notice to Contractor from Department relative to any part of this Contract shall be in writing and considered delivered and service thereof completed, when said notice is posted, by certified or registered mail, to Contractor at Contractor's last given address, or delivered in person to said Contractor, or Contractor's authorized representative on the Work.

42. PROTECTION OF LIVES AND HEALTH

- A. In order to protect lives and health of Contractor's employees under Contract, Contractor shall comply with all pertinent provisions of Wisconsin Administrative Code, Rules of Department of Commerce, relating to Safety and Health.
- B. Contractor alone shall be responsible for safety, efficiency and adequacy of Contractor's tools, equipment and methods, and for any damage that may result from their failure or their improper construction, maintenance or operation.

43. AFFIRMATIVE ACTION PROVISION AND MINORITY / WOMEN / DISADVANTAGED BUSINESS ENTERPRISES

- A. Affirmative Action Provisions.
 - 1. During term of their Contract, Contractor agrees not to discriminate on basis of race, religion, color, sex, handicap, age, sexual preference, marital status, physical appearance, or national origin against any person, whether recipient of services (actual or potential), employee, or applicant for employment. Such equal opportunity shall include but not be limited to following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). Contractor agrees to post in conspicuous places, these affirmative action standards so as to be visible to all employees, service recipients and applicants for this paragraph. Listing of prohibited bases for discrimination shall not be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to extent allowable in state or federal law.
 - 2. Contractor is subject to this Article only if Contractor has ten (10) or more employees and receives \$10,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Officer in accord with Chapter 19 of Dane County Code of Ordinances. Such plan must be filed within fifteen (15) days of effective date of this Contract and failure to do so by said date shall constitute ground for immediate termination of Contract by County. Contractor shall also, during term of this Contract, provide copies of all announcements of

- employment opportunities to County's Contract Compliance Office, and shall report annually number of persons, by race, sex and handicap status, who apply for employment and, similarly classified, number hired and number rejected.
3. Contact Dane County Contract Compliance Officer at Dane County Contract Compliance Office, 210 Martin Luther King, Jr. Blvd., Room 421, Madison, WI 53703, 608/266-4114.
 4. In all solicitations for employment placed on Contractor's behalf during term of this Contract, Contractor shall include statement to effect Contractor is "Equal Opportunity Employer". Contractor agrees to furnish all information and reports required by County's Contract Compliance Officer as same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and provision of this Contract.
- B. Minority / Women / Disadvantaged / Emerging Small Business Enterprises.
1. Chapter 19.508 of Dane County Code of Ordinances is official policy of Dane County regarding utilization of, to fullest extent of, Minority Business Enterprises (MBEs), Women Business Enterprises (WBEs) Disadvantage Business Enterprises (DBEs) and Emerging Small Business Enterprises (ESBEs).
 2. Contractor may utilize MBEs / WBEs / DBEs / ESBEs as subcontractors or suppliers. List of subcontractors will be required of low bidder as stated in this Contract. List shall indicate which are MBEs / WBEs / DBEs / ESBEs and percentage of subcontract awarded, shown as percentage of total dollar amount of bid.

44. COMPLIANCE WITH FAIR LABOR STANDARDS

- A. During term of this Contract, Contractor shall report to County Contract Compliance Officer, within ten (10) days, any allegations to, or findings by National Labor Relations Board (NLRB) or Wisconsin Employment Relations Commission (WERC) that Contractor has violated statute or regulation regarding labor standards or relations. If investigation by Contract Compliance Officer results in final determination that matter adversely affects Contractor's responsibilities under this Contract, and which recommends termination, suspension or cancellation of this Contract, County may take such action.
- B. Contractor may appeal any adverse finding by Contract Compliance Officer as set forth in Dane County Ordinance 25.015(11)(c) through (e).
- C. Contractor shall post this statement in prominent place visible to employees: "As condition of receiving and maintaining contract with Dane County, this employer shall comply with federal, state and all other applicable laws prohibiting retaliation or union organizing."

45. DOMESTIC PARTNERSHIP BENEFITS

- A. Contractor agrees to provide same economic benefits to all of its employees with domestic partners as it does to employees with spouses, or cash equivalent if such benefit cannot reasonably be provided. Contractor agrees to make available for County inspection Contractor's payroll records relating to employees providing services on or under this Contract or subcontract. If any payroll records of Contractor contain any false, misleading or fraudulent information, or if Contractor fails to comply with provisions of Chapter 25.016, Dane County Ordinances, contract compliance officer may withhold payments on Contract; terminate, cancel or suspend Contract in whole or in part; or, after due process hearing, deny Contractor right to participate in bidding on future County contracts for period of one year

after first violation is found and for period of three years after second or subsequent violation is found.

46. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

- A. Contractor agrees to use and occupancy of portion or unit of the Work before formal acceptance by Department, provided Department:
 - 1. Secures written consent of Contractor; except when in opinion of Public Works Project Engineer, Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
 - 2. Secures endorsement from insurance carrier and consent of Surety permitting occupancy of building or use of the Work during remaining period of construction, or, secures consent of Surety.
 - 3. Assumes all costs and maintenance of heat, electricity and water.
 - 4. Accepts all work completed within that portion or unit of the Work to be occupied, at time of occupancy.

47. MINIMUM WAGES

- A. Contractor shall post, at appropriate conspicuous point on site of project, schedule showing all determined minimum wage rates for various classes of laborers and mechanics to be engaged in the Work under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by laborers and mechanics so engaged.
- B. Supplementary Conditions section in Construction Documents lists wage determinations required by State Law.
- C. If, after award of Contract, it becomes necessary to employ any person in trade or occupation not classified in wage determinations, such person shall be paid at not less than such rate as shall be determined by Wisconsin Department of Workforce Development. Such approved minimum rate shall be retroactive to time of initial employment of such person in such trade or occupation. Contractor shall notify Department of Contractor's intention to employ persons in trades or occupations not so classified in sufficient time for Department to obtain approved rates for such trades or occupations.
- D. Specified wage rates are minimum rates only, and Department will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of applicable rate contained in this Contract. Contractor shall adjust any disputes in regard to payment of wages in excess of those specified in this Contract.
- E. Submit required affidavit(s) to Department of Public Works, Highway & Transportation, as requested and with final application for payment for work under said contract. Affidavit(s) shall clearly indicate name, trade or occupation, and paid wages of every laborer, workman or mechanic employed by Contractor and all subcontractors during billing period including accurate record of number of hours worked by each employee and actual wages paid as stipulated in Wisconsin Statue 66.0903. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

48. CLAIMS

- A. No claim may be made until Department's Associate Public Works Director has reviewed Architect / Engineer's decision as provided for in Article 35 of General Conditions of Contract. If any claim remains unresolved after such review by Department's Associate Public Works Director, claim may be filed under Wisconsin Statute 893.80. Work shall progress during period of any dispute or claim. Unless specifically agreed between parties, venue will be in Dane County, Wisconsin.

49. ANTITRUST AGREEMENT

- A. Contractor and County recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by County. Therefore, Contractor hereby assigns to County any and all claims for such overcharges as to goods and materials purchased in connection with this Contract, except as to overcharges which result from antitrust violations commencing after price is established under this Contract and any change order thereto.

50. INSURANCE

- A. Contractor Carried Insurance:
1. Contractor shall not commence work under this Contract until Contractor has obtained all insurance required under this Article and has provided evidence of such insurance to Risk Manager, 425 City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53703. Contractor shall not allow any subcontractor to commence work until insurance required of subcontractor has been so obtained and approved. Company providing insurance must be licensed to do business in Wisconsin.
 2. Worker's Compensation Insurance:
 - a) Contractor shall procure and shall maintain during life of this Contract, Worker's Compensation Insurance as required by statute for all of Contractor's employees engaged in work at site of project under this Contract and, in case of any such work sublet, Contractor shall require subcontractor similarly to provide Worker's Compensation Insurance for all of latter's employees to be engaged in such work unless such employees are covered by protection afforded by Contractor's Worker's Compensation Insurance.
 - b) If any claim of employees engaged in hazardous work on project under this Contract is not protected under Worker's Compensation Statute, Contractor shall provide and shall cause each subcontractor to provide adequate Employer's Liability Insurance for protection of such of Contractor's employees as are not otherwise protected.
 3. Contractor's Public Liability and Property Damage Insurance:
 - a) Contractor shall procure and maintain during life of this Contract, Contractor's Public Liability Insurance and Contractor's Property Damage Insurance in amount not less than \$1,000,000 bodily injury, including accidental death, to any one person, and subject to same limit for each person, in amount not less than \$1,000,000 on account of one accident, and Contractor's Property Damage Insurance in amount not less than \$1,000,000 or combined single limit of at least \$1,000,000 with excess coverage over and above general liability in amount not less than \$5,000,000. Contractor shall add "Dane County" as additional insured for each project.
 - b) Contractor's Public Liability and Property Damage Insurance shall include Products, Completed Operation, and Contractual Liability under Insurance Contract. "Contractor shall in all instances save, defend, indemnify and hold harmless County and Architect / Engineer against all claims, demands, liabilities, damages or any other costs which may accrue in prosecution of the Work and that Contractor will save,

defend, indemnify and hold harmless County and Architect / Engineer from all damages caused by or as result of Contractor's operations" and each shall be listed as additional insured on Contractor's and sub-contractors' insurance policies.

- c) Obligations of Contractor under Article 48.A.2)b) shall not extend to liability of Architect / Engineer, agents or employees thereof, arising out of:
 - 1) Preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications; or
 - 2) giving of or failure to give directions or instructions by Architect / Engineer, agents or employees thereof provided such giving or failure to give is primary cause of injury or damage.
- d) Contractor shall procure and shall maintain during life of this Contract, Comprehensive Automobile Liability Insurance covering owned, non-owned and hired automobiles for limits of not less than \$1,000,000 each accident single limit, bodily injury and property damage combined with excess coverage over and above general liability in amount not less than \$5,000,000.
- e) Contractor shall either:
 - 1) Require each subcontractor to procure and to maintain during life of subcontract, subcontractor's Public Liability Property Damage Insurance, and Comprehensive Automobile Liability Insurance of type and in same amount specified in preceding paragraphs; or
 - 2) Insure activities of subcontractors in Contractor's own policy.
- 4. Scope of Insurance and Special Hazards: Insurance required under Article 48.A.2 hereof shall provide adequate protection for Contractor and subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operation be by insured or by anyone directly or indirectly employed by insured and also against any of special hazards which may be encountered in performance of this Contract as enumerated in Supplementary Conditions.
- 5. Proof of Carriage of Insurance: Contractor shall furnish Risk Manager with certificates showing type, amount, class of operations covered, effective dates, dates of expiration of policies and "Dane County" listed as additional insured. Such certificates shall also contain (substantially) following statement: "Insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by Risk Manager."

B. Builder's Risk:

- 1. County shall provide Builder's Risk policy. Terms of this policy will be made available by County's Risk Manager, upon Contractor's request. By executing this Contract, Contractor warrants it is familiar with terms of said policy.

C. Indemnification / Hold Harmless:

- 1. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from performance of the Work, provided that any 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) including loss of use resulting therefrom, and is caused in whole or in part by any act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by part indemnified hereunder.
- 2. In any and all claims against Dane County, its boards, commissions, agencies, officers, employees and representatives or by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of

- them may be liable, indemnification obligation under this Contract shall not be limited in any way by any limitation on amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts.
3. Obligations of Contractor under this Contract shall not extend to liability of Architect / Engineer, its agents or employees arising out of:
 - a) Preparation or approval of maps, drawings, opinion, reports, surveys, change orders, designs or specifications; or
 - b) Giving of or failure to give directions or instruction by Architect / Engineer, its agents or employees provided such giving or failure to give is primary cause of injury or damage.
 4. Dane County shall not be liable to Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.

51. WISCONSIN LAW CONTROLLING

- A. It is expressly understood and agreed to by parties hereto that in event of any disagreement or controversy between parties, Wisconsin law shall be controlling.

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SUPPLEMENTARY CONDITIONS

1. APPLICATION & CERTIFICATE FOR PAYMENT

- A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit partial and final Application & Certificate for Payment for work under said contract. Form shall provide similar information as shown on AIA G702™ and G703™ forms (samples shown below). Forms shall be submitted to Public Works Project Manager for approval.


AIA Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:	PROJECT:	APPLICATION NO.:	Distribution to:
		PERIOD TO:	OWNER <input type="checkbox"/>
FROM CONTRACTOR:	VIA ARCHITECT:	CONTRACT FOR:	ARCHITECT <input type="checkbox"/>
		CONTRACT DATE:	CONTRACTOR <input type="checkbox"/>
		PROJECT NOS.:	FIELD <input type="checkbox"/>
			OTHER <input type="checkbox"/>

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is law due.

1. ORIGINAL CONTRACT SUM \$ _____

2. Net change by Change Orders \$ _____

3. CONTRACT SUM TO DATE (Line 1 + 2) \$ _____

4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$ _____

5. RETAINAGE

a. % of Completed Work (Column D + E on G703) \$ _____

b. % of Stored Material (Column F on G703) \$ _____

Total Retainage (Lines 5a or 5b or Total in Column I of G703) \$ _____

6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total) \$ _____

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificates) \$ _____

8. CURRENT PAYMENT DUE \$ _____

9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 7 less Line 8) \$ _____

CONTRACTOR: _____ Date: _____

By: _____ Date: _____

State of _____

County of _____

Subscribed and sworn to before me this _____ day of _____

Notary Public
My Commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ _____

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT: _____

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$	\$
Total approved this Month	\$	\$
TOTALS	\$	\$
NET CHANGES by Change Order	\$	\$

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AIA Document G703™ – 1992

Continuation Sheet

AIA Document G703, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.
 In tabulations below, amounts are stated in the nearest dollar.
 Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
 APPLICATION DATE:
 PERIOD TO:
 ARCHITECT'S PROJECT NO:

A ITEM NO.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED		F MATERIALS PRESENTLY STORED (SHELF, IN-SHED, OR E.)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)	H % (G ÷ C)	I BALANCE TO FINISH (C - G)	J RETAINAGE (OR VARIABLE RATE)
			D FROM PREVIOUS APPLICATION (D + E)	E THIS PERIOD					

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.
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2. PREVAILING WAGE RATE DETERMINATION

- A. These supplements shall modify, delete, and / or add to General Conditions of Contract. Where any article, paragraph, or subparagraph in General Conditions of Contract is supplemented by one of these paragraphs, provisions of such article, paragraph, or subparagraph shall remain in effect and supplementary provisions shall be considered as added thereto. Where any article, paragraph, or subparagraph in General Conditions of Contract is amended, voided, or superseded by any of these paragraphs, provisions of such article, paragraph, or subparagraph not so amended, voided, or superseded shall remain in effect.
 - 1. General Conditions of Contract Article 47, "Minimum Wages", paragraph B. Following Prevailing Wage Rate Determination No. 201302599 is added to General Conditions of Contract.
- B. These State of Wisconsin forms, hereinafter set forth in this section, shall be filled out and submitted to Department of Public Works, Highway & Transportation:
 - 1. Disclosure of Ownership (ERD-7777)
 - 2. Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-5724)
 - 3. List of Agents and Subcontractors (Page 2 - ERD-5724)
 - 4. Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-10584)
 - 5. List of Agents and Subcontractors (Page 2 - ERD-10584)
 - 6. Request To Employ Subjourneyperson (ERD-10880)

PREVAILING WAGE RATE DETERMINATION

Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 10/6/2014

DETERMINATION NUMBER: 201402529

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 4/4/2015. If NOT, You MUST Reapply.

PROJECT NAME: LAKE FARM STORAGE FACILITY
PROJECT NO: RFB 313094

PROJECT LOCATION: MADISON CITY, DANE COUNTY, WI

CONTRACTING AGENCY: DANE COUNTY PUBLIC WORKS

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm .
OVERTIME:	<p>Time and one-half must be paid for all hours worked:</p> <ul style="list-style-type: none">- over 10 hours per day on prevailing wage projects- over 40 hours per calendar week- Saturday and Sunday- on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25;- The day before if January 1, July 4 or December 25 falls on a Saturday;- The day following if January 1, July 4 or December 25 falls on a Sunday. <p>Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime.</p> <p>A DOT Premium (discussed below) may supersede this time and one-half requirement.</p>
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journey person's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document **MUST BE POSTED** by the **CONTRACTING AGENCY** in at least one conspicuous and easily accessible place **on the site of the project**. A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document **MUST** remain posted during the entire time any worker is employed on the project and **MUST** be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to local governmental unit projects of public works and are set forth below pursuant to the requirements of s. 66.0903(8), Stats.

s. 66.0903 (1) (f) & s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.

(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.

(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.

2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.

3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.

5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u>	<u>HOURLY FRINGE BENEFITS</u>	<u>TOTAL</u>
		\$	\$	\$
Fringe Benefits Must Be Paid On <u>All</u> Hours Worked				
101	Acoustic Ceiling Tile Installer	30.48	15.90	46.38
102	Boilermaker Future Increase(s): Add \$1.50/hr on 1/01/2015; Add \$1.50/hr. on 01/01/2016	32.05	28.04	60.09
103	Bricklayer, Blocklayer or Stonemason Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.01	17.35	49.36
104	Cabinet Installer	30.48	15.90	46.38
105	Carpenter	30.48	15.90	46.38
106	Carpet Layer or Soft Floor Coverer	30.48	15.90	46.38
107	Cement Finisher	31.58	16.13	47.71
108	Drywall Taper or Finisher	24.80	16.60	41.40
109	Electrician Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	34.07	19.25	53.32
110	Elevator Constructor	42.86	23.84	66.70
111	Fence Erector	24.72	0.00	24.72
112	Fire Sprinkler Fitter	36.07	18.73	54.80
113	Glazier	38.03	13.42	51.45
114	Heat or Frost Insulator	33.68	24.31	57.99
115	Insulator (Batt or Blown)	15.00	9.50	24.50
116	Ironworker	31.25	19.46	50.71
117	Lather	30.48	15.90	46.38

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
118	Line Constructor (Electrical)	38.25	17.31	55.56
119	Marble Finisher	26.89	19.18	46.07
120	Marble Mason	32.01	17.35	49.36
121	Metal Building Erector	22.00	10.00	32.00
122	Millwright	32.11	15.95	48.06
123	Overhead Door Installer	20.95	4.94	25.89
124	Painter	24.50	16.60	41.10
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver	30.98	15.90	46.88
127	Pipeline Fuser or Welder (Gas or Utility)	30.79	19.74	50.53
129	Plasterer	31.03	17.71	48.74
130	Plumber Future Increase(s): Add \$1/hr on 6/1/2014.	36.42	16.87	53.29
132	Refrigeration Mechanic	41.60	16.71	58.31
133	Roofer or Waterproofor	29.40	6.25	35.65
134	Sheet Metal Worker	34.45	22.57	57.02
135	Steamfitter Future Increase(s): Add \$1.70/hr on 6/1/2014.	42.95	17.81	60.76
137	Teledata Technician or Installer Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	22.25	12.24	34.49
138	Temperature Control Installer	32.94	18.80	51.74
139	Terrazzo Finisher	26.89	19.18	46.07
140	Terrazzo Mechanic	30.20	18.42	48.62
141	Tile Finisher	23.85	17.18	41.03
142	Tile Setter	29.81	17.18	46.99
143	Tuckpointer, Caulker or Cleaner	35.25	13.15	48.40
144	Underwater Diver (Except on Great Lakes)	34.48	15.90	50.38
146	Well Driller or Pump Installer	25.32	15.65	40.97
147	Siding Installer	25.92	18.04	43.96

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	29.16	14.34	43.50
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.70	34.45

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	32.39	18.46	50.85
203	Three or More Axle	18.00	22.88	40.88
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	18.00	22.88	40.88
207	Truck Mechanic	18.00	22.88	40.88

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer Premium Increase(s): Add \$1.00/hr for certified welder; Add \$.25/hr for mason tender	24.21	14.63	38.84
302	Asbestos Abatement Worker	24.36	14.44	38.80
303	Landscaper	21.01	9.37	30.38
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	21.01	13.63	34.64
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased) Premium Increase(s): DOT PREMIUMS: Pay two times the hourly basic rate on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	18.33	13.65	31.98
314	Railroad Track Laborer	23.46	3.30	26.76
315	Final Construction Clean-Up Worker	16.00	0.00	16.00

**HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket).	33.42	18.96	52.38
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under).	32.89	18.96	51.85
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.82	18.96	49.78
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	38.80	20.17	58.97
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Premium Increase(s): Add \$.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	41.65	21.71	63.36
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	37.10	21.57	58.67

507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	34.50	20.04	54.54
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**HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK**

CODE	TRADE OR OCCUPATION	Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		
		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
		\$	\$	\$
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Premium Increase(s): Add \$.50/hr for >200 Ton / Add \$1/hr at 300 Ton / Add \$1.50/hr at 400 Ton / Add \$2/hr at 500 Ton & Over.	35.62	18.96	54.58
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over).	36.35	6.95	43.30
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type).	33.42	18.96	52.38
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket).	32.89	18.96	51.85

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	30.82	18.96	49.78
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	24.19	17.89	42.08
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment).	36.34	21.14	57.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment). Future Increase(s): Add \$1.60/hr on 06/01/2014; Add \$1.65/hr on 06/01/2015.	32.32	18.55	50.87
516	Fiber Optic Cable Equipment Future Increase(s): Add \$1.75/hr on 02/01/2014.	27.89	17.20	45.09

SEWER, WATER OR TUNNEL CONSTRUCTION
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Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
		\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.10	18.40	53.50
105	Carpenter Future Increase(s): Add \$1.25/hr on 6/2/2014. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.68	19.81	53.49
107	Cement Finisher Future Increase(s): Add \$1.87 on 6/1/14; Add \$1.87 on 6/1/15; Add \$1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	33.51	16.13	49.64
109	Electrician Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.82	22.61	55.43
111	Fence Erector	24.72	0.00	24.72
116	Ironworker	31.25	19.46	50.71
118	Line Constructor (Electrical)	38.25	17.31	55.56
125	Pavement Marking Operator	16.00	7.35	23.35
126	Piledriver	30.98	15.90	46.88
130	Plumber	33.75	14.07	47.82
135	Steamfitter	42.45	16.71	59.16
137	Teledata Technician or Installer	21.89	11.85	33.74

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
143	Tuckpointer, Caulker or Cleaner	35.25	13.15	48.40
144	Underwater Diver (Except on Great Lakes)	38.80	20.17	58.97
146	Well Driller or Pump Installer	25.32	15.65	40.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	29.16	14.34	43.50
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.70	34.45

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	30.00	15.00	45.00
203	Three or More Axle	16.00	7.35	23.35
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	16.00	7.35	23.35
207	Truck Mechanic	16.00	7.35	23.35

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer Premium Increase(s): Add \$.20 for blaster, bracer, manhole builder, caulker, bottomman and power tool; Add \$.55 for pipelayer; Add \$1.00 for tunnel work 0-15 lbs. compressed air; Add \$2.00 for over 15-30 lbs. compressed air; Add \$3.00 for over 30 lbs. compressed air.	25.60	14.62	40.22
303	Landscaper	25.28	11.46	36.74
304	Flagperson or Traffic Control Person	24.70	10.72	35.42
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	18.31	12.67	30.98
314	Railroad Track Laborer	23.46	3.30	26.76

**HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Premium Increase(s): Add \$.25/hr for all >45 Ton lifting capacity cranes	34.62	18.96	53.58
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type).	33.42	18.96	52.38
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket).	32.89	18.96	51.85

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Hoist (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames. Future Increase(s): Add \$1.05/hr on 6/2/2014; Add \$1.55/hr on 6/1/2015. Premium Increase(s): Add \$.25/hr for operating tower crane.	35.11	19.45	54.56
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.19	20.94	51.13
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	24.19	17.89	42.08
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	38.80	20.17	58.97
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	38.80	20.17	58.97
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	34.50	20.04	54.54
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	34.50	20.04	54.54

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION
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Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason	32.01	17.35	49.36
105	Carpenter	32.93	19.93	52.86
107	Cement Finisher	31.48	15.68	47.16
109	Electrician	31.27	22.81	54.08
111	Fence Erector	24.72	0.00	24.72
116	Ironworker	31.25	19.46	50.71
118	Line Constructor (Electrical)	38.25	17.31	55.56
124	Painter	24.50	16.60	41.10
125	Pavement Marking Operator	30.00	0.00	30.00
126	Piledriver	30.98	15.90	46.88
133	Rofer or Waterproofer	29.40	6.25	35.65
137	Teledata Technician or Installer	21.89	11.85	33.74
143	Tuckpointer, Caulker or Cleaner	35.25	13.15	48.40
144	Underwater Diver (Except on Great Lakes)	38.80	20.17	58.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	34.43	15.24	49.67
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	30.60	14.86	45.46
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.78	13.63	40.41
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	24.86	12.97	37.83
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.70	34.45

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	\$	\$	\$
201	Single Axle or Two Axle	30.00	15.00	45.00

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
203	Three or More Axle	17.00	0.00	17.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	32.89	18.96	51.85
205	Pavement Marking Vehicle	17.00	0.00	17.00
206	Shadow or Pilot Vehicle	30.00	15.00	45.00
207	Truck Mechanic	17.00	0.00	17.00

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer	28.07	13.25	41.32
303	Landscaper Future Increase(s): Add \$1.60/hr on 6/1/14. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	29.04	14.63	43.67
304	Flagperson or Traffic Control Person	24.70	10.72	35.42
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	18.31	12.67	30.98
314	Railroad Track Laborer	23.46	3.30	26.76

**HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
541	<p>Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.</p> <p>Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.</p>	36.72	20.40	57.12
542	<p>Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver.</p> <p>Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.</p>	36.22	20.40	56.62

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
543	<p>Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.</p> <p>Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm.</p>	35.72	20.40	56.12
544	<p>Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine.</p>	33.96	19.79	53.75
545	<p>Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.</p>	30.32	18.46	48.78
546	Fiber Optic Cable Equipment.	26.69	16.65	43.34

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	38.80	20.17	58.97
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	38.80	20.17	58.97
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	34.50	20.04	54.54
550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	34.50	20.04	54.54

**HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	35.12	18.46	53.58
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm .	36.22	20.40	56.62

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.	32.89	18.96	51.85
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler.	33.67	19.48	53.15
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.75/hr on 6/1/2014); Add \$1.25/hr on 6/1/2015); Add \$1.30/hr on 6/1/2016); Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://www.dot.wi.gov/business/civilrights/laborwages/pwc.htm .	35.17	20.40	55.57
556	Fiber Optic Cable Equipment.	26.69	16.65	43.34

***** END OF RATES *****

The documents following the Prevailing Wage Rate Determination consist of eighteen pages (including this one) of various forms/documents that will be used throughout the completion of the project. The chart below lists the form number, form/document name, the party who uses the document, and the document's number of pages. If you have any questions regarding these forms please call the Prevailing Wage Office at (608)266-6861.

ERD Form Number	Form Name	Party Who Uses the Form	Pages
	Prevailing Wage - Public Entity Project Owners	Explanation of project owner responsibilities	2
16056	Post the White Sheet	Contracting agency	1
10908	Consolidated List of Debarred Contractors	Any party contracting someone to complete work on a prevailing wage project	3
	Prevailing Wage – Contractors	Explanation of contractor responsibilities	2
7777	Disclosure of Ownership	Contractors that meet the criteria set out in (3)(A)&(B) of the form	1
5724	Prime Contractor Affidavit of Compliance	Prime contractor files with contracting agency upon completion of the work before receiving final payment	2
10584	Agent or Subcontractor Affidavit of Compliance	Subcontractors file with their awarding contractor upon completion of their work on the project before receiving final payment	2
10880	Request to Employ Subjourneyperson	Contractors wishing to employ a subjourneyperson(s)	1
	Additional General Prevailing Wage Law Information	General information for public entity or any other interested party	3

10/01/2014

Department of Workforce Development
Equal Rights Division
P.O. Box 8928
Madison, WI 53708-8928
Telephone: (608) 266-6860
Fax: (608) 267-4592
TTY: (608) 264-8752



Scott Walker, Governor
Reginald J. Newson, Secretary

PREVAILING WAGE – Public Entity Project Owners

Any public works project that has a total estimated project cost that equals or exceeds single-trade or multiple-trade project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage law that applies to local governmental units is §66.0903, Wis. Stats. The prevailing wage law that applies to state agencies is §103.49, Wis. Stats. The applicable administrative rules for all public entities are DWD 290 and DWD 294, Wis. Adm. Code.

Thresholds

A "single-trade project of public works" means a project in which a single trade accounts for 85% or more of the total labor cost of the project. The single trade threshold is \$48,000.

A "multiple-trade project of public works" means a project in which no single trade accounts for 85% or more of the total labor cost of the project.

(a) The multiple-trade threshold is \$100,000, unless a municipality falls under the description in (b).

(b) The multiple-trade threshold of \$234,000 applies to public works projects erected, constructed, repaired, remodeled, or demolished by a private contractor for •a city or village with a population less than 2500 or •a town.

A local governmental unit or state agency that has a public works project that equals or exceeds the prevailing wage thresholds must do all of the following:

- Request a prevailing wage rate determination for the project from DWD at least 30 days before soliciting bids or negotiating contracts. An Application for Prevailing Wage Rate Determination is available on the DWD website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm

To avoid waiting for a project determination use the on-line application system that permits the user to generate a determination immediately and save all documents in PDF form to the user's computer. Use this project determination on line application at the following address:

http://dwd.wisconsin.gov/er/prevailing_wage_rate/pw_online_determinations.htm

- Tell potential contractors the project is subject to state prevailing wage law when soliciting bids.
- Include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each prime contractor.
- Award contracts to contractors who do *not* appear on the “Consolidated List of Debarred Contractors.”
- Notify contractors that they are required to have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the prevailing wage project.
- Post the prevailing wage rate determination on the project site. (This document is often referred to as “the white sheet.”)
- Notify project contractors that if DWD finds that a contractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.
- Obtain an Affidavit of Compliance from each prime contractor before making final payment for the project.

If the total estimated cost of the project exceeds the prevailing wage thresholds, a local governmental unit or state agency also must obtain a prevailing wage rate determination under the following circumstances:

- when a completed facility is leased, purchased, lease-purchased or otherwise acquired by or dedicated to a public entity in lieu of the public entity contracting for the project,
- when one public entity does work for another public entity,
- when a *private* entity will construct a road, street, bridge, sanitary sewer or water main project and dedicate it to a local governmental unit or the state for its ownership or maintenance (except for some residential subdivisions).

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

POST THE WHITE SHEET

As the public entity receiving this prevailing wage rate determination, YOU ARE REQUIRED by law to post the prevailing wage rate determination (i.e., white sheet) in at least one conspicuous and easily accessible place on the project site that is available to all construction workers. The white sheet must remain posted from the onset of the project until all construction labor on the project has been completed.

[See, Wis. Admin. Code §DWD 290.12(1)]

Posting the white sheet inside the general contractor's trailer does not meet this requirement. That placement is not available/accessible to all workers and is not a location over which you have control.

If you have questions about posting, please call (608)266-6861 and ask for prevailing wage intake.

State of Wisconsin - Department of Workforce Development

This list has been prepared in accordance with the provisions of §§66.0903(12) and 103.49(7), Wis. Stats., and Chapter DWD 294 of the Wisconsin Administrative Code. All contractors on this list were found to have committed a "debarable offense" related to certain labor standard provisions determined or established for a state or local public works project. No state agency, local governmental unit or owner or developer may knowingly solicit bids from, negotiate with or award any contracts to or approve or allow any subcontracts with a debarred contractor, including all divisions, affiliates or other organizational elements of such contractor that are engaged in construction business activities, until the debarment is terminated. The name of each debarred contractor must remain on this list for a period of three (3) years from the termination date indicated below. The contractor is, however, only "debarred" from the "effective date" through the "termination date" indicated for that contractor. Questions regarding this list should be addressed to Julie Eckenwalder, Equal Rights Division, P. O. Box 8928, Madison, WI 53708 or call (608) 266-3148. Deaf, hearing or speech-impaired callers may contact the department by calling its TDD number (608) 264-8752.

<u>Name of Contractor</u>	<u>Address</u>	<u>Effective Date</u>	<u>Termination Date</u>	<u>Cause Code</u>	<u>Date of Violation(s)</u>	<u>Limitations/Deviations</u>
Abel, Mike	See, Abel Electric, Inc					
Abel Electric, Inc	3385 Belmar Rd Green Bay, WI 54313	9/1/12	8/31/15	1	2011	None
Arnie Christiansen Mason Contractors, LLC	2304 65 th Dr Franksville, WI 53126	9/1/14	8/31/2016	1, 2 and 4	2011	None
Atkins, Scott	See, Freedom Insulation, Inc					
Boecker, Roger	See, R-Way Pumping, Inc					
Brecht, Mark G	See, Ecodec, Inc					
Cargill Heating and Air Conditioning Company, Inc	3049 Edgewater La La Crosse, WI 54603	3/1/14	2/28/17	1 and 2	2011	None
Castlerock Commercial Construction, Inc	PO Box 11699 Milwaukee, WI 53211-0699	2/1/12	1/31/15	1, 2 and 4	2009 & 2010	None
Christiansen, Andy	See, Arnie Christiansen Mason Contractors, LLC					

<u>Name of Contractor</u>	<u>Address</u>	<u>Effective Date</u>	<u>Termination Date</u>	<u>Cause Code</u>	<u>Date of Violation(s)</u>	<u>Limitations/Deviations</u>
Christiansen, Arnold	See, Arnie Christiansen Mason Contractors, LLC	12/1/11	11/30/14	1 and 2	2010	None
Dem/Ex Group, Inc	805 S Adams St Manito, IL 61546	10/1/14	9/30/17	1	2011 & 2012	None
Ecodec, Inc	5106 Wintergreen Dr Madison, WI 53704					
Fisher, Ed &/or Fisher, Rhonda	See, Dem/Ex Group, Inc					
Freedom Insulation, Inc	117925 219th Ave Chippewa Falls, WI 54729	9/1/11	8/31/14	1	2008- 2010	None
Galstad, Michael E (aka Michael Earl Galstad)	See, Cargill Heating and Air Conditioning Company, Inc					
Gjolaj, Ded	See, Horizon Bros Painting Corp					
Horizon Bros Painting Corp	1053 Kendra La Howell, MI 48843	10/1/14	9/30/16	4	2012	None
JT Roofing, Inc	350 Tower Dr Saukville, WI 53080	6/1/12	5/31/15	1, 2 and 4	2007 & 2008	None
Jinkins, Richard	See, Castlerock Commercial Construction, Inc					
Ofstie, Darin	See, Precision Excavating and Grading, LLC					
Precision Excavating and Grading, LLC or Precision Excavating Enterprises, LLC	2104 Pierce Saint Croix Rd Baldwin, WI 54002	5/1/11	4/30/14	1, 2 and 4	2006- 2008	None

<u>Name of Contractor</u>	<u>Address</u>	<u>Effective Date</u>	<u>Termination Date</u>	<u>Cause Code</u>	<u>Date of Violation(s)</u>	<u>Limitations/Deviations</u>
R-Way Pumping, Inc	3023 Lake Maria Rd Freeport, MN 56331	3/1/12	2/28/15	1, 2 and 4	2008	None
Thull, Gerald T	See, JT Roofing, Inc					

Cause Code: 1 = Failure to Pay Straight Time 2 = Failure to Pay Overtime 3 = Kickback 4 = Payroll Records.

PREVAILING WAGE – Contractors

Any public works project that has a total estimated project cost that equals or exceeds prevailing wage project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage laws that apply to local governmental units and their contractors are §§66.0903 and 103.503, Wis. Stats. The prevailing wage laws that apply to state agencies and their contractors are §§103.49 and 103.503, Wis. Stats. The applicable administrative rules for all prevailing wage projects are DWD 290 and DWD 294, Wis. Adm. Code. These laws include provisions that apply to all contractors and subcontractors working on prevailing wage projects.

Any contractor or subcontractor working on a local governmental unit or state agency's public works project that equals or exceeds current prevailing wage project thresholds must do all of the following:

- Receive and review the project's prevailing wage rate determination (i.e., white sheet).
- Tell subcontractors the project is subject to state prevailing wage law and include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each subcontractor.
- Hire subcontractors who do *not* appear on the "Consolidated List of Debarred Contractors."
- Have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the project.

- Notify subcontractors that if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.
- Apply to DWD for subjourney wage rates prior to employing these individuals on the project.
- Receive and retain a completed Affidavit of Compliance from each subcontractor brought on to the project before providing final payment to those subcontractors.
- Submit a completed Affidavit of Compliance to the contractor who brought the subcontractor on to the project before receiving final payment for the project.
- Maintain payroll records for 3 years that comply with §§66.0903(10)(a) or 103.49(5)(a), Stats. and DWD 274.06.
- Respond to requests from DWD or the project owner to provide payroll records and/or respond to prevailing wage complaints filed by employees or third parties.

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.

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

Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(c), 66.0904(7)(c) and 103.49(4r)(c) 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].

This form must **ONLY** be filed with the **Awarding Agency** indicated below.

State Of)	Project Name		
	DWD Determination Number	Project Number (if applicable)	
)SS	Date Determination Issued	Date of Contract	
County Of)	Awarding Agency		
	Date Work Completed		

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below and have recently completed all of the work required under the terms and conditions of a contract with the above-named awarding agency and make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(c), 66.0904(7)(c) or 103.49(4r)(c), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding agency.
- **I have** fully complied with all the wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding agency indicated above.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address	City	State	Zip Code	Telephone Number
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number			Telephone Number		

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

Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

Authorization for this form is provided under Sections 66.0903(9)(b), 66.0904(7)(b) and 103.49(4r)(9b), 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, Section 15.04(1)(m), Wisconsin Statutes].

This form must **ONLY** be filed with the **Awarding Contractor** indicated below.

State Of _____))SS County Of _____)	Project Name	
	DWD Determination Number	Project Number (if applicable)
	Date Determination Issued	Date of Subcontract
	Awarding Contractor	
	Date Work Completed	

After being duly sworn, the person whose name and signature appears below hereby states under penalty of perjury that

- **I am** the duly authorized officer of the corporation, partnership, sole proprietorship or business indicated below. We have recently completed all of the work required under the terms and conditions of a subcontract with the above-named awarding contractor. We make this affidavit in accordance with the requirements set forth in Section 66.0903(9)(b), 66.0904(7)(b) or 103.49(4r)(b), Wisconsin Statutes and Chapter DWD 290 of the Wisconsin Administrative Code in order to obtain FINAL PAYMENT from such awarding contractor.
- **I have** fully complied with the entire wage and hour requirements applicable to this project, including all of the requirements set forth in the prevailing wage rate determination indicated above which was issued for such project by the Department of Workforce Development on the date indicated above.
- **I have** received the required affidavit of compliance from each of my agents and subcontractors that performed work on this project and have listed each of their names and addresses on page 2 of this affidavit.
- **I have** full and accurate records that clearly indicate the name and trade or occupation of every worker(s) that I employed on this project, including an accurate record of the hours worked and actual wages paid to such worker(s).
- **I will** retain the records and affidavit(s) described above and make them available for inspection for a period of at least three (3) years from the completion date indicated above at the address indicated below and shall not remove such records or affidavit(s) without prior notification to the awarding contractor.

Name of Corporation, Partnership, Sole Proprietorship, Business, State Agency or Local Governmental Unit				
Street Address or PO Box	City	State	Zip Code	Telephone Number ()
Print Name of Authorized Officer			Date Signed	
Authorized Officer Signature				

List of Agents and Subcontractors

Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ()			Telephone Number ()		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ()			Telephone Number ()		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ()			Telephone Number ()		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ()			Telephone Number ()		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ()			Telephone Number ()		
Name			Name		
Street Address			Street Address		
City	State	Zip Code	City	State	Zip Code
Telephone Number ()			Telephone Number ()		

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

Request to Employ Subjourneyperson

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).

The employer indicated below requests that the Department of Workforce Development (DWD) determine the prevailing wage rate(s) and related qualifications to enable such employer to use a subjourneyperson(s) on the following prevailing wage project, in accordance with the provisions of Section DWD 290.025, Wisconsin Administrative Code.

1. Name of Project Appearing on the Project Determination	
County	City, Village or Town
DWD Project Determination Number	Project Number (if applicable)
2. Job Classification(s) for which you request a subjourney rate (i.e., carpenter, electrician, plumber, etc.)	
a.	b.
c.	d.
3. Employer Name (Print)	
Address	City State Zip Code
Telephone Number ()	Requester Title
Email address (if you prefer to receive your response via email)	Fax Number (if you prefer to receive your response via fax) ()

READ CAREFULLY: I understand that this request is ONLY applicable to the project and job classification(s) listed above and that subjourney employees primarily work under the direction of and assist a skilled trade employee by frequently using the tools of a skilled trade and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the subjourney employee regularly performs the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeyperson prevailing wage rate. I agree to compensate subjourney employees in strict accordance with the directions received from the DWD.

Requester Signature	Date Signed
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MAIL the completed request to:
 EQUAL RIGHTS DIVISION, LABOR STANDARDS BUREAU
 PO BOX 8928, MADISON WI 53708
OR

FAX the completed request to: (608) 267-4592 / **DO NOT e-mail your request.**
 Call (608) 266-6861 for assistance in completing this form.

SECTION 01 00 00
BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SECTION SUMMARY

- A. Section Includes:
1. Section Summary
 2. Summary of the Work
 3. Contractor Use of Premises
 4. Applications for Payment
 5. Alternates
 6. Coordination
 7. Cutting and Patching
 8. Conferences
 9. Progress Meetings
 10. Submittal Procedures
 11. Proposed Products List
 12. Shop Drawings
 13. Product Data
 14. Samples
 15. Manufacturers' Instructions
 16. Manufacturers' Certificates
 17. Quality Assurance / Quality Control of Installation
 18. References
 19. Enclosure
 20. Protection of Installed Work
 21. Parking
 22. Progress Cleaning
 23. Products
 24. Transportation, Handling, Storage and Protection
 25. Product Options
 26. Substitutions
 27. Starting Systems
 28. Demonstration and Instructions
 29. Contract Closeout Procedures
 30. Final Cleaning
 31. Adjusting
 32. Operation and Maintenance Data
 33. Spare Parts and Maintenance Materials
 34. As-Built Drawings and Specifications

1.2 SUMMARY OF THE WORK

- A. Project Description: Perform the Work as specified and detailed in Construction Documents package. Contractor to provide construction services for construction of an approximately 60' by 200' pole storage building as outlined in the construction documents.
- B. Work by Owner: Refer to Construction Documents.

- C. Permits: Prior to commencement of the Work, Contractor to secure any and all necessary permits for completion of the Work and facility occupancy.

1.3 CONTRACTOR USE OF PREMISES

- A. Limit use of premises to allow work by Contractors or Subcontractors, work by Owner, and access by Owner.
- B. Construction activities with significant noise or temporary disruption of services will be required to be coordinated and scheduled with Owner.
- C. Contractor should arrange with Owner to use nearby existing water and electrical service.
- D. Contractor shall provide and maintain sanitary temporary toilets, located where directed by Public Works Project Manager, in sufficient number required for the force employed. The toilets shall comply with International Building Code Chapter 29 on Plumbing Systems. Toilets shall be self-contained chemical type.
- E. Contractor shall provide and maintain a temporary watertight office where directed by the Public Works Project Manager. The office shall be equipped with a table suitable for examination of plans. Provide and maintain artificial light, a minimum of 40 foot-candles and two duplex outlets where directed. Exterior office shall be of neat appearance as deemed by the Public Works Project Manager. If other offices are provided, they will be located as agreed to by the Contractor and approved by the Public Works Project Manager.
- F. Storage of materials on the site shall be in strict accordance with the instructions of the Public Works Project Manager.

1.4 APPLICATIONS FOR PAYMENT

- A. Submit two (2) copies of each application on AIA G702™ and G703™ forms or approved contractors invoice form.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly.

1.5 ALTERNATES

- A. Not Applicable.

1.6 COORDINATION

- A. Coordinate scheduling, submittals, and work of various sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.
- C. Coordinate space requirements and installation of mechanical and electrical work that are indicated diagrammatically on Drawings.
- D. Coordinate work by Owner.

- E. The Contractor shall immediately upon entering the site for purpose of beginning work, locate general reference points and take such action as necessary to prevent their destruction. Contractor shall lay out its work and be responsible for all lines, elevations and measurements of the building and other work executed under its Contract. Contractor must exercise proper precaution to verify dimensions on the drawings before laying out work and will be held responsible for any error resulting from failure to exercise such precaution.

As work progresses, the Contractor shall lay out on forms and the floor, the locations of all partitions, walls and fix column centerlines as a guide to all trades.

If property line stakes, benchmarks or datum point are lost, displaced or disturbed through neglect of the Contractor, the Contractor responsible shall pay the cost of restoration.

Contractor shall verify grades, lines, level, locations and dimensions as shown on drawings and report any errors or inconsistencies to the Public Works Project Manager and the Architect/Engineer before commencing work. Starting of work shall imply acceptance of existing conditions.

1.7 CUTTING AND PATCHING

- A. Employ a skilled and experienced installer to perform cutting and patching new work; restore work with new Products.
- B. Submit written request in advance of cutting or altering structural or building enclosure elements.
- C. Fit work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- D. Refinish surfaces to match adjacent finishes.

1.8 CONFERENCES

- A. Dane County Department Public Works, Highway & Transportation will schedule a preconstruction conference after Award of Contract for all affected parties.
- B. When required in individual Specification section, convene a pre-installation conference at project site prior to commencing work of the section.

1.9 PROGRESS MEETINGS

- A. Owner shall schedule and administer meetings throughout progress of the Work at minimum of two (2) per month.
- B. Owner shall preside at meetings, record minutes, and distribute copies within two (2) days to those affected by decisions made.

1.10 SUBMITTAL PROCEDURES

- A. Submittal form to identify Project, Contractor, Subcontractor or supplier; and pertinent Construction Documents references.

- B. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of the Work and Construction Documents.
- C. Identify variations from Construction Documents and Product or system limitations that may be detrimental to successful performance of completing the Work.
- D. Revise and resubmit submittals as required; identify all changes made since previous submittal.

1.11 PROPOSED PRODUCTS LIST

- A. Within fifteen (15) days after date of Award of Contract, submit complete list of major Products proposed for use, with name of manufacturer, trade name, and model number of each Product.

1.12 SHOP DRAWINGS

- A. Contractor shall electronically submit Shop Drawings for each submission, until receiving final approval. When copies for distribution are requested, submit the number of copies that Contractor requires, plus two (5) copies that shall be retained by Public Works Project Manager and the Architect/Engineer. Refer to General Conditions Article 4.

1.13 PRODUCT DATA

- A. Contractor shall electronically submit Product Data for each submission, until receiving final approval. When copies for distribution are requested, submit the number of copies that Contractor requires, plus two (5) copies that shall be retained by Public Works Project Manager and the Architect/Engineer. Refer to General Conditions Article 4.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this Project.

1.14 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for AE's selection. Refer to General Conditions Article 4.

1.15 MANUFACTURERS' INSTRUCTIONS

- A. When specified in individual Specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.16 MANUFACTURERS' CERTIFICATES

- A. When specified in individual Specification sections, submit manufacturers' certificate to Public Works Project Engineer for review, in quantities specified for Product Data.
- B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.17 QUALITY ASSURANCE / QUALITY CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce work of specified quality.
- B. Comply fully with manufacturers' instructions.
- C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.18 REFERENCES

- A. Conform to reference standard by date of issue current as of date for receiving bids.
- B. Should specified reference standard conflict with Construction Documents, request clarification from Architect/Engineer and Public Works Project Engineer before proceeding.

1.19 ENCLOSURE

- A. Before the building, or portion thereof, can be considered enclosed, the Contractor shall have advanced the construction of the building to conform with the following requirements.
- B. The exterior walls should be erected to full thickness and height shall extend to the top of the horizontal level which encloses the space intended to receive heat. If erection of full thick walls is not feasible, erection of back-up wall only will be accepted if approved weatherproofing of back up materials is provided to avoid damage to back-up materials. The entire overhead enclosure shall be made weatherproof.
- C. Provide approved translucent material for temporary enclosure of window openings if they have not been glazed. Plain or reinforced polyethylene film or other suitable translucent material will be acceptable, provided it is installed in or on a well-fitting rigid wood frame and kept in good repair. This means of temporary enclosure shall be used for other minor openings in walls.
- D. Construct temporary walls as required to protect contents and to separate interior enclosed sections from the interior open section of the building during construction. Temporary wall enclosure shall consist of plywood panels, at least 3/8" thick, fastened to wood framework, consisting of 2x4 studs spaces 24" o.c., securely spiked to wood plates, to and bottom. Temporary walls must provide protection from dirt, dust, and drafts. Make suitable provisions for passage of air to permit proper drying out of the building.
- E. Provide exterior doors with hinges, self-closing device and locks. At the end of day's work, securely close temporary enclosures. Padlock exterior doors.
- F. Temporary enclosure shall provide for an orderly expansion of areas of work which are advantageous to the progress of the work and approved by the Public Works Project Manager.

1.20 PROTECTION OF INSTALLED WORK

- A. Protect installed work and provide special protection where specified in individual Specification sections.

1.21 PARKING

- A. An area for the general contractor and sub-contractor parking will be designated on the site by the Public Works Project Manager.
- B. Arrange for any additional parking to accommodate construction personnel.
- C. An area will be designated for a dumpster location by the Public Works Project Manager.

1.22 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

1.23 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by Construction Documents.

1.24 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

- A. Transport, handle, store and protect Products in accordance with manufacturer's instructions.

1.25 PRODUCT OPTIONS

- A. Where definite material is specified, it is not intention to discriminate against "equal" product made by another manufacturer. Intention is to set definite standard of material quality. Should bidder choose to bid materials other than those specified, bidder shall submit said materials specifications to Project Engineer for approval at least seven (7) days prior to Bid Opening. Public Works Project Engineer shall consider requests for Substitutions up to seven (7) days prior to date of Bid Opening.
- B. Products and materials that are not specified, but have been approved for use by Public Works Project Engineer shall be identified in addenda to all bidding contractors.
- C. Requests for material or product substitutions submitted up to fifteen (15) days after Bid Opening may be considered, but Architect/Engineer or Project Manager is not required to consider them. Dane County reserves right to approve or reject substitutions based on Specification requirements and intended use.

1.26 REQUESTS FOR SUBSTITUTIONS

- A. Document each request with complete data substantiating compliance of proposed Substitution with Construction Documents.
- B. Electronically submit requests for Substitution for consideration. Limit each request to one (1) proposed Substitution. Provide three (3) copies of samples as required for Substitution consideration.

C. Substitutions shall not change contract price established at Bid Opening.

1.27 STARTING SYSTEMS

- A. Provide written notification prior to start-up of each equipment item or system.
- B. Ensure that each piece of equipment or system is ready for operation.
- C. Execute start-up under supervision of responsible persons in accordance with manufacturers' instructions.
- D. Submit written report that equipment or system has been properly installed and is functioning correctly.

1.28 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final inspection.
- B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.

1.29 CONTRACT CLOSEOUT PROCEDURES

- A. Submit written certification that Construction Documents have been reviewed, the Work has been inspected, and the Work is complete in accordance with Construction Documents and ready for Architect/Engineer and Public Works Project Manger inspection. Submit a list of any items that are not complete for Architect review prior to scheduling substantial and final completion site visits.
- B. Submit final Application for Payment identifying total adjusted Contract Sum / Price, previous payments, and amount remaining due.

1.30 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior surfaces exposed to view.
- C. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.31 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.32 OPERATION AND MAINTENANCE DATA

- A. Provide operation and maintenance data for all mechanical and electrical equipment supplied and installed in project.

1.33 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual Specification Sections.
- B. Deliver to the Work site and place in location as directed.

1.34 AS-BUILT DRAWINGS AND SPECIFICATIONS

- A. Contractor-produced Drawings and Specifications shall remain property of Contractor whether Project for which they are made is executed or not. Contractor shall furnish Public Works Project Engineer with original tracings of drawings and prints of specifications in reproducible format, one set of Drawings and Specifications and one set of as-builts drawings in AutoCAD 2010 (or lower) format on CD.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 74 19

RECYCLING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Waste Management Goals
 - 2. Waste Management Plan
 - 3. Reuse
 - 4. Recycling
 - 5. Materials Sorting and Storage On Site
 - 6. Lists of Recycling Facilities Processors and Haulers
 - 7. Waste Management Plan Form

- B. Related Sections:
 - 1. Section 01 00 00 - Basic Requirements

1.2 WASTE MANAGEMENT GOALS

- A. Dane County requires that as many waste materials as possible produced as result of this project be salvaged, reused or recycled in order to minimize impact of construction waste on landfills and to minimize expenditure of energy and cost in fabricating new materials. Additional information may be found in The Dane County Green Building Policy, Resolution 299, 1999-2000.

- B. Contractor shall develop, with assistance of Public Works Project Engineer and Architect / Engineer, Waste Management Plan (WMP) for this project. Outlined in RECYCLING section of this specification are examples of materials that can be recycled or reused as well as recommendations for waste sorting methods.

1.3 WASTE MANAGEMENT PLAN

- A. Contractor shall complete WMP and include cost of recycling / reuse in Bid. WMP will be submitted to Public Works Project Engineer within fifteen (15) days of Notice to Proceed date. Copy of blank WMP form is in this Section. Submittal shall include cover letter and WMP form with:
 - 1. Information on:
 - a. Types of waste materials produced as result of work performed on site;
 - b. Estimated quantities of waste produced;
 - c. Identification of materials with potential to be recycled or reused;
 - d. How materials will be recycled or reused;
 - e. On-site storage and separation requirements (on site containers);
 - f. Transportation methods; and
 - g. Destinations.

1.4 REUSE

- A. Contractors and subcontractors are encouraged to reuse as many waste materials as possible. Salvage should be investigated for materials not reusable on site.

1.5 RECYCLING

- A. These materials can be recycled in Dane County area:
 - 1. Wood.
 - 2. Wood Pallets.
 - 3. Fluorescent Lamps.
 - 4. Foam Insulation & Packaging (extruded and expanded).
 - 5. PVC Plastic (pipe, siding, etc.).
 - 6. Asphalt & Concrete.
 - 7. Bricks & Masonry
 - 8. Corrugated Cardboard.
 - 9. Metal.
 - 10. Carpet Padding.
 - 11. Gypsum Drywall.
 - 12. Shingles.
 - 13. Barrels & Drums.
 - 14. Solvents.

1.6 MATERIALS SORTING AND STORAGE ON SITE

- A. Contractor shall provide separate containers for recyclable materials. Number of containers will be dependent upon project and site conditions.
- B. Contractor shall provide on-site locations for subcontractors supplied recycling containers to help facilitate recycling.

1.7 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

- A. Web site www.countyofdane.com/pwht/recycle/categories.aspx lists current information for Dane County Recycling Markets. Contractors can also contact Dane County's Recycling Manager at 608/267-8815, or local city, village, town recycling staff listed at site www.countyofdane.com/pwht/recycle/contacts.aspx. Statewide listings of recycling / reuse markets are available from Wisconsin Department of Natural Resources, www.dnr.state.wi.us/org/aw/wm/markets.

1.8 WASTE MANAGEMENT PLAN FORM

A. Contractor Information:

Name: _____

Address: _____

Phone No.: _____ Recycling Coordinator: _____

MATERIAL	ESTIMATED QUANTITY	DISPOSAL METHOD (CHECK ONE)	RECYCLING / REUSE COMPANY OR DISPOSAL SITE
Salvaged & reused building materials	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Glass	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Wood	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Wood Pallets	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Fluorescent Lamps	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Foam Insulation	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Asphalt & Concrete	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Bricks & Masonry	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
PVC Plastic	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Corrugated Cardboard	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Metals	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Carpet Padding	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____
Gypsum / Drywall	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name: _____

Shingles	_____ cu. yds. _____ tons	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Barrels & Drums	_____ units	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Solvents	_____ gallons	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

1 SECTION 02 05 00
2 COMMON WORK RESULTS FOR EXISTING CONDITIONS
3

4 P A R T 1 - G E N E R A L
5

6 SCOPE

7 This section provides information common to two or more technical site work specification sections or
8 items that are of a general nature, and not included in other sections. This section applies to ALL site
9 work, as applicable. Included are the following topics:
10

11 PART 1 - GENERAL

12 Scope
13 Related Work
14 Referenced Organizations
15 Referenced Documents
16 Quality Assurance
17 Safety
18 Permits
19 Construction Limits
20 Equipment & Materials Furnished by Others
21 Provisions for Future Work
22 Work by Others
23 Submittals
24 Codes
25 Certificates and Inspections

26 PART 2 - MATERIALS

27 Barricades, Signs, and Warning Devices
28 Temporary Plastic Barrier Fencing

29 PART 3 - EXECUTION

30 Maintenance of Site and Building Access/Egress
31 Continuity of Existing Traffic/Parking and Traffic Control
32 Protection and Continuity of Existing Utilities
33 Protection of Existing Work and Facilities
34 Stormwater/Excavation Water Management
35

36 RELATED WORK

37 Applicable provisions of Division 1 govern work under this Section.

38
39 01 74 19 – Construction Waste Management and Disposal
40

41 REFERENCED ORGANIZATIONS

42 Applicable provisions of Division 1 shall govern all work under this section.
43

44 Abbreviations of organizations referenced in these specifications are as follows:
45

46 AASHTO American Association of State Highway and Transportation Officials
47 ACPA American Concrete Pipe Association
48 ANSI American National Standards Institute
49 ASCE American Society of Civil Engineers
50 ASME American Society of Mechanical Engineers
51 ASTM American Society for Testing and Materials
52 AWWA American Water Works Association
53 AWS American Welding Society
54 FHA Federal Highway Administration
55 EPA Environmental Protection Agency

1	NEC	National Electric Code
2	NEMA	National Electrical Manufacturers Association
3	NFPA	National Fire Protection Association
4	NSF	National Sanitation Foundation
5	OSHA	Occupational Safety and Health Administration
6	STI	Steel Tank Institute
7	UL	Underwriters Laboratories Inc.
8	WDNR	State of Wisconsin Department of Natural Resources
9	WISDOT	State of Wisconsin Department of Transportation

10

11 **REFERENCED DOCUMENTS**

12 Where reference is made to the "SSHSC", it shall mean the pertinent sections of the State of Wisconsin,
 13 Department of Transportation, Standard Specifications for Highway and Structure Construction, current
 14 edition, and all supplemental and interim supplemental specifications. Where reference is made to the
 15 "SSSWC", it shall mean pertinent sections of the Standard Specifications for Sewer and Water
 16 Construction in Wisconsin, current edition. Where reference is made to the "BMPH", it shall mean the
 17 Wisconsin Construction Site Best Management Practice Handbook, current edition as published by the
 18 WDNR. Method of measurement and basis of payment sections in referenced documents shall not apply.

19

20 **QUALITY ASSURANCE**

21 Provide materials and products as required by individual specification sections. Refer to the General
 22 Conditions of the Contract regarding substitutions.

23

24 Provide quality assurance testing and reporting as required by individual specification sections.

25

26 **SAFETY**

27 Contractor is solely responsible for worksite safety.

28

29 Perform all work in accordance with applicable OSHA, state and local safety standards.

30

31 Contact Diggers Hotline at 1-800-242-8511 in accordance with statutory requirements. Request that non-
 32 member utilities and private utilities be located by the appropriate parties.

33

34 **PERMITS**

35 Unless otherwise noted in the Contract Documents, Contractor shall be responsible for obtaining and
 36 paying for all permits necessary to complete the work.

37

38 **CONSTRUCTION LIMITS**

39 Construction Limits are indicated on the drawings. In the absence of such a designation on the drawings,
 40 confine work to the minimum area reasonably necessary to undertake the work. In no case shall
 41 construction activities extend beyond stated property lines or construction easements.

42

43 The Contractor shall restore all disturbed areas in accordance with the drawings and specifications. If
 44 plans and specifications do not address restoration of specific areas, these areas will be restored to pre-
 45 construction conditions.

46

47 **EQUIPMENT & MATERIALS FURNISHED BY OTHERS**

48 Refer to Construction Documents.

49

50 **PROVISIONS FOR FUTURE WORK**

51 Refer to Construction Documents.

52

53 **WORK BY OTHERS**

54 Refer to Construction Documents.

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Coordinate work under this project with work by Owner and other contractors on the site.

CODES

Comply with the requirements of all applicable, local, state and federal codes.

CERTIFICATIONS AND INSPECTIONS

Refer to the General Conditions of the Contract.

Obtain and pay for all required sampling, testing, inspections, and certifications except those expressly listed as provided by the A/E or other third party in the Contract Documents. Deliver originals of certificates and documents to the Owner's Representative within 3 days; provide copies to the A/E. Include copies of the certifications and documents in the O&M Manual.

PART 2 – PRODUCTS

BARRICADES, SIGNS, AND WARNING DEVICES

Traffic barricades, traffic signs, and warning devices shall meet the requirements of applicable OSHA standards and the FHA Manual of Uniform Traffic Control Devices (MUTCD).

TEMPORARY PLASTIC BARRIER FENCING

Contractor shall provide a neat appearing protective fence around the construction site, located where directed by Public Works Project Manager.

UV stabilized high-density polyethylene barrier fence free of holes tears and other defects. Provide 4' tall fence in diamond or rectangular pattern. Fencing shall be "safety orange" color, unless otherwise noted.

Posts for temporary plastic barrier fencing shall be 5' tall, minimum 12 gauge, painted metal posts.

In areas where existing trees or landscaping are to be protected, the area inside the protective fencing shall not be used for any purpose related to construction activities, such as material storage, vehicle parking, portable toilets, or other disruptive activities that would result in damage of any kind to the site inside the fence.

PART 3 – EXECUTION

CONTINUITY OF EXISTING TRAFFIC/PARKING AND TRAFFIC CONTROL

Do not interrupt or change existing traffic, delivery, or parking without prior written approval from the Owner's Representative. When interruption is required, coordinate schedule with the Owner's Representative to minimize disruptions. When working in public right-of-way, obtain all necessary approvals and permits from applicable municipalities and WISDOT.

When Contractor's activities impede or obstruct traffic flow, Contractor shall provide traffic control devices, signs and flaggers in accordance with other Contract Documents and the current version of the MUTCD, or as shown on the Drawings.

PROTECTION AND CONTINUITY OF EXISTING UTILITIES

Verify the locations of any water, drainage, drainage, gas, sewer, electric, telephone/communication, fuel, steam lines or other utilities and site features which may be encountered in any excavations or other sitework. All lines shall be properly underpinned and supported to avoid disruption of service.

Do not interrupt or change existing utilities without prior written approval from the Owner's Representative, affected utilities and users. Notify all users impacted by outages a minimum of 48 hours in

1 advance of outage. Notification shall be provided in writing and describe the nature and duration of
2 outages and provide the name and number of Contractor's foreman or other contact.
3

4 Any service connections encountered which are to be removed shall be cut off at the limits of the
5 excavation and capped in accordance with the requirements of applicable codes and any specifications
6 governing such removals.
7

8 PROTECTION OF EXISTING WORK AND FACILITIES

9 Verify the locations of, and protect, any signs, paved surfaces, buildings, structures, landscaping,
10 streetlights, utilities, and all other such facilities that may be encountered or interfered with during the
11 progress of the work. Take measures necessary to safeguard all existing work and facilities that are outside
12 the limits of the work or items that are within the construction limits but are intended to remain. Report
13 any damage to existing facilities to the Public Works Project Manager immediately. Correct and pay for all
14 damages.
15

16 STORMWATER/EXCAVATION WATER MANAGEMENT

17 Refer to Construction Documents.
18
19

20 END OF SECTION
21

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, accessories, mixture design, placement procedures, and finishes.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Field quality-control test reports.
- E. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Fiber reinforcement.
 - 6. Curing compounds.
 - 7. Floor and slab treatments.
 - 8. Vapor retarders.

1.03 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.02 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.
- C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."
 - 1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.03 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type I/II. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class C.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
 - 2. Normal-Weight Aggregates: ASTM C 33 Free of materials with deleterious reactivity to alkali in cement.
- B. Water: ASTM C 94/C 94M and potable.
- C. Air-Entraining Admixture: ASTM C 260.
- D. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.04 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class C, or polyethylene sheet, ASTM D 4397, not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.

2.05 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- F. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Waterborne, Membrane-Forming Curing and Sealing Compound: ASTM C 1315, Type 1, Class A.

2.06 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

2.07 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

Concrete Mix Design Schedule							
Type of construction	28 day strength (psi) (ASTM C39)	Max Slump +/- 1" (inches) (ASTM C143) (D)	Maximum aggregate size (inch)	Percent of air entraining +/- 1-1/2%	Maximum water/cementitious material ratio	Minimum Cementitious Materials per cubic yard	Additional Comments
Footings	3000	4	1-1/2	--	--	--	(A)
Foundation Walls	4000	3	1	4-1/2	--	--	(A)
Interior Slab on Grade	4000	3	1	--	--	520	(B) (E)
Exterior Slab on Grade	4500	3	1	6	0.45	520	(B) (E)

Miscellaneous	4000	3	1	(C)	--	--	(A) (E)
---------------	------	---	---	-----	----	----	---------

Comments:

- A) Maximum replacement of cementitious materials by weight flyash 25%, slag 50%, Limit total replacement of cementitious materials to 50%
- B) Maximum replacement of cementitious materials by weight flyash 15%, slag 30%, Limit total replacement of cementitious materials to 30%,
- C) Provide 4-1/2% Air Entrainment At Exposed Conditions
- D) Slump may be increased when chemical admixtures are used, provided that the admixture treated concrete has the same or lower water-cement ratio and does not exhibit segregation potential or excessive bleeding.
- E) Concrete supplier and finisher shall coordinate approximate set times of proposed mix design under various weather conditions and adjust mix design as necessary to assure set time is acceptable to complete placing and finishing of slab in a timely manner.

2.08 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.09 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork according to ACI 301 to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Chamfer exterior corners and edges of permanently exposed concrete.

3.02 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.03 VAPOR RETARDERS

- A. Plastic Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
 - 1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.04 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
 - 1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.05 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.06 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- C. Cold-Weather Placement: Comply with ACI 306.1.
- D. Hot-Weather Placement: Comply with ACI 301.

3.07 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

3.08 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in 1 direction.
 - 1. Apply scratch finish to surfaces indicated and to receive concrete floor toppings to receive mortar setting beds for bonded cementitious floor finishes
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Finish and measure surface so gap at any point between concrete surface and an unlevelled, freestanding, 10-foot- long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 1/4 inch
- E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.09 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, 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.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.010 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.011 FIELD QUALITY CONTROL

- A. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. but less than 25 cu. yd. plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
6. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi
8. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
9. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
10. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
11. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 03 30 00

SECTION 13 40 00

PRE-ENGINEERED BUILDINGS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes pre-engineered building systems, including but not limited to primary and secondary structural systems, roofing, siding, overhead doors, man doors, trim, and accessories.
- B. Related Documents: Conditions of the contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.

1.2 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. ASTM A153 – Standard Specifications for Zinc Coating (Hot-Dip) on Iron and Steel Hardware – Structural Welding Code.
 - 2. ASTM D4145 – Standard Test Method for Coating Flexibility of Prepainted Sheet
 - 3. ASTM E84 – Standard Test Method for Surface Burning Characteristics of Building Materials
- B. Americans with Disability Act (ADA).
 - 1. ADA - Standards for Accessible Design

1.3 SYSTEM DESCRIPTION

- A. Structural Frame Design:
 - 1. Type: Clear Span roof truss
 - 2. Columns / Post: Bolted to foundation or Embedded into soils at suppliers option
 - 3. Purlins: Recessed between in galvanized steel joist hangers
- B. Dimensions:
 - 1. Width: See Drawings.
 - 2. Length: See Drawings.
 - 3. Height: See Drawings.
 - 4. Roof Slope: See Drawings.
 - 5. Ceiling: See Drawings.
- C. Structural Requirements:
 - 1. Building Code: Wisconsin 2011 Administration Code (2009 IBC-Code)
 - 2. Design Loads:
 - a. Ground Snow Load: 35 psf
 - b. Ground Exposure Factor: 1.0
 - c. Roof Dead Load: Roof Assembly per manufacture's system including framing, sheathing, roofing, insulation, and lighting.
 - d. In addition to roof dead load above the roof trusses need to be designed for an additional bottom chord collateral dead load of 10 psf.
- D. Structural Design
 - 1. All work shall be prepared under the direction and sealed by a Registered Professional Engineer in the State of Wisconsin.

2. Perform calculations using diaphragm and/or frame analysis. Incorporate bracing as required.
3. Comply with National Design Specifications for Wood Construction (NDS)
4. Trusses:
 - a. Limit deflection for live load or snow loads to L/240.
 - b. Comply with appropriate NDS and Truss Plate Institute (TPI) standards
5. Metal Wall and Roof Panels:
 - a. Design in accordance with AISI "Specifications for the Design of Light-Gauge, Cold-Formed Steel Structural Members" and in accordance with sound engineering methods and practices
6. Plywood or Oriented Strand Board Sheathing: Comply with APA "Plywood Design Specifications"

1.4 QUALITY ASSURANCE

- A. Design Load Criteria:
 1. Comply with IBC and ADA requirements for accessibility.
 2. NFPA Standard: Comply with current requirements of NFPA 102.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in producing pre-engineered wood buildings of the type specified with a minimum of 10 years experience.
- B. Installer: Company specializing in erection of pre-engineered wood buildings of the type specified with a minimum of three years experience.
- C. Welding Standards: Comply with AWS D1.1 and AWS D1.3.

1.6 SUBMITTALS

- A. Shop Drawings: Showing roof framing, cross sections, roof and wall covering, trim details, accessory and component details clearly indicating proper assembly.
- B. Engineered Stamped Structural Calculations
- C. Product Data: Include manufacturer's descriptive literature and specifications, including.
 1. Manufacturer's specifications and installations for building components and accessories.
 2. Preparation instructions and recommendations

1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit Operation and Maintenance Data for pre-engineered building.

1.8 WARRANTY

- A. Installation Warranty: The manufacturer shall warranty all work performed under these specifications to be free of defects for a period of one (1) year and five (5) years against roof leaks.
- B. Roofing and Siding Finish: Warranted for 30 years.

- C. Any materials found to be defective within this period will be replaced at no cost to the Owner.

PART 2 PRODUCT

2.1 ACCEPTABLE MANUFACTURING

- A. Lester Building Systems; Lester Prairie, MN.
- B. Cleary Building Corporation; Verona, WI.
- C. Approved Equal

2.2 STRUCTURAL FRAMING

- A. Concrete Slab-on-Grade and Turned Down Edge
 - 1. See Section 03 30 00 for specification requirements for concrete work.
 - 2. Monolithic floating slab with turned down edge at the perimeter. Designed for loads noted in this specification.
 - 3. Assume 1500 psf for an allowable soil bearing pressure.
- B. Primary Framing:
 - 1. Columns/Posts
 - a. Treated Lumber Section (Use for any columns/post in direct contact with concrete):
 - 1) Lumber: Southern Yellow Pine, No. 1 or Better, pressure treated and kiln dried after treating to 19% maximum moisture content.
 - 2) Fabrication: Laminate individual pieces using ring shank or wire nails per manufacture's engineered nailing pattern. Fasteners shall be galvanized per ASM A153.
 - b. Untreated Lumber Section:
 - 1) Lumber: Southern Yellow Pine, No. 1 or Better or approved equivalent. Kiln dried after treating to 19% maximum moisture content.
 - 2) Fabrication: Laminate individual pieces using ring shank or wire nails per manufacture's engineered nailing pattern.
 - 3) Grade and size as required to support the imposed loads and deflection limits noted in this specification.
 - c. For Embedded Column Anchorage Applications:
 - 1) Anchor blocks factory adhered to column base.
 - 2) Concrete collar pinned to column base with steel reinforcing rods.
 - d. For Column on Concrete Foundation
 - 1) Provide galvanized steel base shoe as required for loads
 - 2) Anchor base shoe to concrete with mechanical expansion anchors as required for load.
 - 3) Anchor column to base shoe with galvanized bolts or screws as required for loads.
 - e. Trusses: Comply with TPI "Design Specifications for Metal Plate Connected Wood Trusses" and "Quality Standard for Metal Plate Connected Wood Trusses."
 - f. Trusses shall be reviewed and stamped by a registered professional engineer in the State of Wisconsin.

- C. Secondary Framing:
 - 1. Purlin, Girts and Studs:
 - a. Lumber: No. 2 or Better dimension lumber kiln dried to 19% maximum moisture content
 - b. Southern Yellow Pine (SYP) is not permitted for secondary framing members.
 - c. Configuration: 2x4 or 2x6 as required by Structural Design requirements specified herein.
 - 1) Girts: Precision cut to fit between columns
 - 2) Purlins: Precision cut to fit between trusses flush with tip of truss top chord. Provide galvanized joist hangers sized for required load.
 - d. Spacing as required by Structural Design requirements specified herein.
- D. Sill Plate:
 - 1. Lumber: No. 2 or Better Southern Yellow Pine, preservative treated, to a retention of 0.17 (B203) borate (0.25 pcf disodium octaborate tetrahydrate dOT) and kiln dried after treating to 19% maximum moisture content.
- E. Bracing, Wall, and Lateral Truss Type- Where required by Structural Design requirements specified herein.
 - 1. Lumber: No. 2 or Better dimensional lumber

2.3 METAL ROOFING

- A. Metal Roofing: Basis of Design: Fabral GrandRib 3 @ Plus or approved equal.
 - 1. Material and Finish: Minimum 26 Gauge, ASTM A 653, Structural Quality, Grade 80, galvanized steel with G90 zinc coating both sides, triple spot test.
 - a. Exterior Surface Finish:
 - 1) Bonderize and provide baked on primer and factory applied, baked-on 70% Kynar 500 or Hylar 5000 PVDF fluoropolymer resin based Fluoropon paint coating as manufactured by Valspar, 0.9 mil minimum dry film thickness or approved equal.
 - 2) Gloss (60 Degrees): ASTM D523, 20 to 80
 - 3) Pencil Hardness: ASTM D3363, F to 2H
 - 4) T-Bend: ASTM D4145: 2T to 4T
 - 5) Exterior Color: As indicated on drawings.
 - 2. Configuration:
 - a. Rolled-formed; 36 inch coverage width. Provide panels covering up to 35 foot lengths in single pieces.
 - b. Profile (corrugations): 7/8" high, spaced 12 inches on center with 3 minor corrugations or approve similar profile.
 - c. Form one outboard corrugation as overlapping corrugation.
 - d. Form opposite outboard corrugation as underneath corrugation with full return leg to support side lap and a continuous anti-siphon drain channel.
 - e. Factory cut to required length.
- B. Fasteners: Color coated No. 10 piercing screws with 1/4 inch hex head pre-assembled to 1/2 inch O.D. dome seal or bond seal galvanized steel and EPDM washers.
- C. Roofing Accessories:
 - 1. Ridge Cap: Solid steel, painted
 - 2. Vents: Ridge vent as shown on drawings.
 - 3. Eave Overhang Fascia Flashing:
 - a. Size: 12 inches nominal

- b. Fascia Flashing Color: Selected from manufacture's standard color chart.
 - c. Vented Soffit Color: Selected from manufacture's standard color chart.
4. Closure Strips: Closed Cell, 2 pcf density polyethylene foam, premolded to match configurations of panel. Install as required to ensure system closure.

2.4 METAL SIDING

- A. Metal Siding Basis of Design: Fabral GrandRib 3 @ Plus or approved equal.
- 1. Material and Finish: Minimum 26 Gauge, ASTM A 653, Structural Quality, Grade 80, galvanized steel with G90 zinc coating both sides, triple spot test.
 - a. Exterior Surface Finish:
 - 1) Bonderize and provide baked on primer and factory applied, baked-on 70% Kynar 500 or Hylar 5000 PVDF fluoropolymer resin based Fluropon paint coating as manufactured by Valspar, 0.9 mil minimum dry film thickness or approved equal.
 - 2) Gloss (60 Degrees): ASTM D523, 20 to 80
 - 3) Pencil Hardness: ASTM D3363, F to 2H
 - 4) T-Bend: ASTM D4145: 2T to 4T
 - 5) Exterior Color: To be chosen from manufacturer's standard color chart.
 - b. Interior Surface Finish:
 - 1) Bonderized and baked on primer and polyester finish coat, 0.5 mil minimum dry film thickness.
 - 2) Interior Color: To be chosen from manufacturer's standard color chart.
 - 2. Configuration:
 - a. Rolled-formed; 36 inch coverage width. Provide panels covering up to 35 foot lengths in single pieces.
 - b. Profile (corrugations): 7/8" high, spaced 12 inches on center with 3 minor corrugations or approve similar profile.
 - c. Form one outboard corrugation as overlapping corrugation.
 - d. Form opposite outboard corrugation as underneath corrugation with full return leg to support side lap and a continuous anti-siphon drain channel.
 - e. Factory cut to required length.
 - f. Factory miter cut gable ends.
- B. Fasteners: Color coated No. 10 piercing screws with 1/4 inch hex head pre-assembled to 1/2 inch O.D. dome seal or bond seal galvanized steel and EPDM washers.
- C. Siding Accessories:
- 1. Wall Trim and Flashings: Provide manufacturer's standard pre-engineered wall trim and flashings.
 - 2. Closure Strips: Closed Cell, 2 pcf density polyethylene foam, premolded to match configurations of panels. Install as required to ensure system closure.

2.5 INSULATION:

- A. Walls and Ceiling: Thermal insulation for Pre-engineered building to meet R-Value as indicated on drawings.
- 1) Manufacturers/Product:
 - a) Lamtec Corporation: WMP-10, Polypropylene/Scrim/Kraft

b) Or approved equal.

B. Meet all air barrier and vapor retarder requirements indicated in drawings.

2.6 INTERIOR FINISH – WALLS AND CEILINGS

- A. Interior Liner Panels: Walls and ceilings.
1. 28 gauge Steel panel Painted: White.
 2. Supply and install trim at door jambs, roof line, and base.
 3. Meet all air barrier and vapor retarder requirements indicated in drawings.

2.7 SECTIONAL OVERHEAD DOORS

- A. Product Description: Steel overhead sectional doors, manual operation, stock configuration and hardware.
1. Door Nominal Thickness: 2 inches thick.
 2. R-Value: 2
 3. Flush Steel Panel Construction: Outer steel sheet of minimum 0.058 inch thick, v-grooved profile; inner steel sheet of minimum 0.058 inch thick, flat profile; core reinforcement of sheet steel roll formed to channel or Z-shape, rabbeted weather joints at meeting rails; insulated.
- B. COMPONENTS
1. Sheet Steel: ASTM A653 galvanized to G90, pre-coated with manufacturer's standard thermosetting finish, stucco embossed surface.
 2. Insulation: Rigid polystyrene or polyurethane, nominal R-Value of 6, bonded to facing.
 3. Metal Primer Paint: Zinc chromate type.
 4. Glazing: Polycarbonate; set in place with security glazing stops.
- C. ACCESSORIES
1. Track: Rolled galvanized steel, 0.120 inch thick; 3 inch wide, continuous one piece for each side; galvanized steel mounting brackets minimum 1/4 inch
 2. Hinge and Roller Assemblies: Heavy duty hinges and adjustable roller holders of stainless steel; floating hardened steel bearing rollers, located at top and bottom of each panel, each side.
 3. Lift Mechanism: Torsion spring on cross head shaft, with braided stainless steel lifting cables. Manual operation to require maximum exertion of 25 lbs force.
 4. Sill Weather-stripping: Resilient neoprene strip, one piece; fitted to bottom of door panel, full length contact.
 5. Jamb Weather-stripping: Roll formed steel section full height of jamb, fitted with resilient weather-stripping, placed in moderate contact with door panels.
 6. Head Weather-stripping: EPDM rubber seal, one piece full length.
 7. Panel Joint Weather-stripping: Neoprene foam seal, one piece full length.
 8. Lock: Inside center mounted, adjustable keeper, spring activated latch bar with feature to retain in locked or retracted position; interior and exterior handle.

2.8 HOLLOW METAL DOORS

- A. HOLLOW METAL DOORS
1. Exterior Doors: SDI Level 3; Extra Heavy-duty, nominal 16 gage thick face sheets, full flush design.
 - a. Insulated to obtain a minimum R Value of 1.45.

2. Interior Doors SDI Level 3; Extra Heavy-duty, nominal 16 gage thick face sheets, full flush design.
- B. COMPONENTS
1. Face: Steel sheet in accordance with ANSI A250.
 2. End Closure: Channel, 0.04 inches thick, flush.
 3. Core: Polystyrene foam.
- C. ACCESSORIES
1. Removable Stops: Rolled steel, channel shape, mitered corners; prepared for countersink style tamper proof screws.
 2. Primer: ANSI A250.10 rust inhibitive type.
- D. FABRICATION
1. Fabricate doors with hardware reinforcement welded in place.
- E. Installation Accessories:
1. Steel J flashing at head, standard color
 2. Steel C flashing at jambs, standard color
 3. Sealant, Manus 75-A caulk or approved equal. Color to match siding.
- F. SHOP FINISHING
1. Steel Sheet: Galvanized to ASTM A653 A40.
 2. Primer: Baked.
 3. Finish Coat: Factory painted siliconized polyester. Color to be selected from manufacturer's standard color chart

2.9 HOLLOW METAL FRAMES

- A. Exterior Frames: 14 gage thick material; minimum four inches wide.
- B. ACCESSORIES
1. Removable Stops: Rolled steel channel shape, mitered corners; prepared for countersink style tamper proof screws.
 2. Primer: ANSI A250.10 rust inhibitive type.
 3. Weatherstripping: Specified in Section 08712.
 4. Jamb Anchors: Furnish jamb anchors as required to secure jamb to adjacent construction, formed of not less than 16 gage galvanized steel.
 - a. Stud Partitions: Insert type with notched clip to engage metal stud, welded to back of frames. Provide at least four (4) anchors per jamb.

2.10 DOOR HARDWARE

- A. Lever-Lever Lockset product line: Schlage, Lever Style, Stainless, ND53RH0626, Keyway: C. Storeroom function all doors, except privacy function at Toilet Room 102.
- B. Closer: LCN 4041 with "Hold Open" and integral stop.
- C. Hinges: Three 4x4 stainless steel ball-bearing hinges with tamperproof pins.
- D. Provide latchguard at exterior doors. Provide all weatherstripping and seals at doors between or to conditioned spaces. Provide all accessories for complete installation of doors indicated on drawings, including double doors.

2.11 JOINT SEALANT MATERIALS

- A. Sealant: Manus 75-A for applications that will not be painted, contains no solvents or isocyanates, non-yellowing or approved equal. Color to be selected from manufacturer's standard color chart
- B. Sealant: Manus 75-AM for applications that will be painted, contains no solvents or isocyanates, non-yellowing or approved equal. Color to be selected from manufacturer's standard color chart

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that areas to receive products are free of impediments interfering with installation.
- B. Verify site conditions and dimensions are as indicated on shop drawings.

3.2 ERECTION-STRUCTURAL FRAMING

- A. Erect in accordance with manufacturer's instructions and approved shop drawings.
- B. Provide temporary erection and wind load bracing to maintain structure plumb and in alignment until installation of permanent bracing and/or roofing and wall coverings are completed.
- C. Do not field cut or alter structural members without approval of Engineer/Architect and manufacturer.

3.3 INSTALLATION

- A. Erect building per manufacturer's instructions and sequencing
- B. Metal Roofing:
 - 1. General: Install in accordance with manufacturer's instructions. Secure to structural framing aligned, level and plumb. Space fasteners as shown on the Erection Drawings
 - 2. Sidelap: Minimum one full corrugation
 - 3. Endlap: 8 inches. Secure together over and to structural members.
 - 4. Accessories: Install as shown on Erection Drawings

3.4 CLEANING

- A. Clean doors and frames.
- B. Remove temporary labels and visible markings.
- C. Clean debris from site.

END OF SECTION

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SECTION 23 05 00
COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

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SCOPE

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.

DIVISION 23, HEATING AND VENTILATION WORK WILL NOT BE PART OF THE CONTRACTORS CONSTRUCTION CONTRACT.

ALL DIVISION 23, HEATING AND VENTILATION WORK WILL BE BY THE OWNER, INCLUDING EQUIPMENT AND MATERIAL PURCHASE AND INSTALLATION.

THE HYDRONIC HEATING EQUIPMENT, BOILERS, PUMPS, HYDRONIC ACCESSORIES AND PIPING WILL BE PROVIDED AND INSTALLED IN THE FUTURE BY THE OWNER.

THE GENERAL BUILDING CONTRACTOR SHALL COORDINATE WITH THE OWNER TO ACCOMMODATE FOR THE WORK TO BE INSTALLED BY THE OWNER.

ALL ELECTRICAL POWER CONNECTIONS AND CONTROL WIRING WILL BE PERFORMED BY THE OWNER.

REFERENCE STANDARDS

Abbreviations of standards organizations referenced in other sections are as follows:

AABC	Associated Air Balance Council
ADC	Air Diffusion Council
AGA	American Gas Association
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
GAMA	Gas Appliance Manufacturers Association
IEEE	Institute of Electrical and Electronics Engineers
ISA	Instrument Society of America
MCA	Mechanical Contractors Association
MICA	Midwest Insulation Contractors Association
NBS	National Bureau of Standards
NEBB	National Environmental Balancing Bureau
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
UL	Underwriters Laboratories Inc.
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
UL1479	Fire Tests of Through-Penetration Firestops
UL723	Surface Burning Characteristics of Building Materials

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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 performance from the system into which these items are placed. This may include changes found necessary during the testing, adjusting, and balancing phase of the project.

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CERTIFICATES AND INSPECTIONS

The Owner will obtain and pay for all required State installation inspections in accordance with local municipal requirements or Wis Adm Code.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

COORDINATION

Verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to, diffusers, register, grilles, roof curbs compatible with existing roofing system and wall terminal unit compatible with wall construction.

Coordinate all work with other contractors prior to installation. Any installed work that is not coordinated and that interferes with other contractor's work shall be removed or relocated at the installing contractor's expense.

Cooperate with the test and balance agency in ensuring Section 23 05 93 specification compliance. Verify system completion to the test and balance agency with controls adjusted and calibrated, controls cycled through their sequences, etc.), ready for testing, adjusting and balancing work. Demonstrate the starting, interlocking and control features of each system so the test and balance agency can perform its work.

LUBRICATION

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.

END OF SECTION

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SECTION 23 05 13
COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

PART 1 - GENERAL

SCOPE

This sections includes requirements for single and three phase motors that are used with equipment specified in other sections.

ALL ELECTRICAL POWER CONNECTIONS AND CONTROL WIRING WILL BE PERFORMED BY THE OWNER.

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

SHOP DRAWINGS

Include with the equipment which the motor drives the following motor information: motor manufacturer, horsepower, voltage, phase, hertz, rpm, full load efficiency. Include project wiring diagrams prepared by the contractor specifically for this work.

OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section Basic Requirements.

PRODUCT CRITERIA

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.

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.

Furnish motors for starting in accordance with utility requirements and compatible with starters as specified.

PART 2 - PRODUCTS

SINGLE PHASE, SINGLE SPEED MOTORS

Use NEMA rated 115 OR 230 volt, single phase, 60 hertz motors as scheduled.

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.

Use open drip-proof motors unless totally enclosed fan-cooled, totally enclosed non-ventilated, explosion-proof, or encapsulated motors are specified in the equipment sections.

PART 3 - EXECUTION

INSTALLATION

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 80 hours of operation.

- 1 Lubricate all motors requiring lubrication. Record lubrication material used and the frequency of use.
- 2 Include this information in the maintenance manuals.
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END OF SECTION

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**SECTION 23 05 23
VALVES AND PIPING FOR FUEL GAS**

PART 1 - GENERAL

SCOPE

LP GAS STORAGE TANK AND GAS PIPING TO THE MAKE UP AIR UNIT AND FUTURE BOILERS WILL BE PROVIDED BY THE OWNER AND THE OWNERS LP GAS STORAGE TANK SUPPLIER.

END OF SECTION

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SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

SCOPE

THE OWNER WILL CONTACT FOR TESTING AND BALANCING WORK NECESSARY TO BALANCE THE VENTILATION SYSTEMS

The scope of this project is to balance the air systems to design requirements.
This includes

- Air Systems:
 1. Make-up Air Units.
 2. Exhaust Fans.
 3. Exhaust Grilles.
 4. Supply Grilles.

Refer to project drawings equipment schedules for air flow requirements.

If problems are found, handle as specified in Part 3 under Deficiencies.

REFERENCE

Applicable provisions of the General Conditions, Supplementary General Conditions and General Requirements in Division 1 govern work under this section.

REFERENCE STANDARDS

AABC National Standards for Total System Balance, Sixth Edition, 2002.
ASHRAE ASHRAE Handbook, 2007 HVAC Applications, Chapter 37, Testing Adjusting and Balancing.
NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems, Seventh Edition, 2005.

QUALITY ASSURANCE

Qualifications

An independent Firm specializing in the Testing and Balancing of HVAC systems for a minimum of 3 years. A Firm not engaged in the commerce of furnishing or providing equipment or material generally related to HVAC work other than that specifically related to installing Testing and Balancing components necessary for work in this section such as, but not limited to sheaves, pulleys, and balancing dampers.

A certified member of AABC or certified by NEBB in the specific area of work performed. Maintain certification for the entire duration of the project.

SUBMITTALS

Submit testing, adjusting and balancing reports bearing the seal and signature of the NEBB or AABC Certified Test and Balance Supervisor. The reports certify that the systems have been tested, adjusted and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed and are operating; and are an accurate record of all final quantities measured to establish normal operating values of the systems.

Summary: Provide summary sheet describing mechanical system deficiencies. Describe objectionable noise or drafts found during testing, adjusting and balancing. Provide recommendations for correcting unsatisfactory performances and indicate whether modifications required are within the scope of the contract, are design related or installation related. List instrumentation used during testing, adjusting and balancing procedures.

The remainder of the report to contain the appropriate standard NEBB or AABC forms for each respective item and system. Fill out forms completely. Where information cannot be obtained or is not applicable indicate same.

1
2
3 **PART 2 - PRODUCTS**

4 **INSTRUMENTATION**

5 Provide all required instrumentation to obtain proper measurements. Application of instruments and
6 accuracy of instruments and measurements to be in accordance with the requirements of NEBB or AABC
7 Standards and instrument manufacturer's specifications.

8 All instruments used for measurements shall be accurate, and calibration histories for each instrument to be
9 available for examination by Owner or Engineer upon request. Calibration and maintenance of all
10 instruments to be in accordance with the requirements of NEBB or AABC Standards.

11
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13 **PART 3 - EXECUTION**

14
15 **PERFORMING TESTING, ADJUSTING AND BALANCING**

16 Perform testing, adjusting and balancing procedures on each system identified, in accordance with the
17 detailed procedures outlined in the referenced standards except as may be modified below.

18
19 Cut insulation, ductwork and piping for installation of test probes to the minimum extent necessary for
20 adequate performance of procedures. Patch using materials identical to those removed, maintaining vapor
21 barrier integrity and pressure rating of systems.

22
23 Measure and record system measurements at the fan to determine total flow. Adjust equipment as required
24 to yield specified total flow at terminals. Proceed taking measurements in mains and branches as required
25 for final terminal balancing. Perform terminal balancing to specified flows balancing branch dampers,
26 deflectors, extractors and valves prior to adjustment of terminals.

27
28 Measure and record static air pressure conditions across fans. Spot check static air pressure conditions
29 directly ahead of terminal units.

30
31 Provide fan and motor drive sheave adjustments necessary to obtain design performance. Provide drive
32 changes specifically noted on drawings, if any. If work of this section indicates that any drive or motor is
33 inadequate for the application, advise the owner's project representative by giving the representative
34 properly sized motor/drive information (in accordance with manufacturers original service factor and
35 installed motor horsepower requirements); Confirm any change will keep the duct system within its design
36 limitations with respect to speed of the device and pressure classification of the distribution system.
37 Required motor/drive changes not specifically noted on drawings or in specifications will be considered an
38 extra cost and will require an itemized cost breakdown submitted to owner's project representative. Prior
39 authorization is needed before this work is started.

40 Final air system measurements to be within the following range of specified cfm:

41 Fans	0% to +10%
42 Supply grilles,	0% to +10%
43 Return/exhaust grilles, registers	0% to -10%

44
45
46 Permanently mark equipment settings, including damper and valve positions, control settings, and similar
47 devices allowing settings to be restored. Set and lock memory stops.

48
49 Leave systems in proper working order, replacing belt guards, closing access doors and electrical boxes,
50 and restoring controls to normal operating settings.

51
52 **END OF SECTION**

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**SECTION 23 07 00
HVAC INSULATION**

PART 1 - GENERAL

SCOPE

This section includes insulation specifications for piping and ductwork.

REFERENCE STANDARDS

ASTM B209	Aluminum and Aluminum Alloy Sheet and Plate
ASTM C165	Test Method for Compressive Properties of Thermal Insulations
ASTM C177	Heat Flux and Thermal Transmission Properties
ASTM C195	Mineral Fiber Thermal Insulation Cement
ASTM C302	Density of Preformed Pipe Insulation
ASTM C355	Test Methods for Test for Water Vapor Transmission of Thick Materials
ASTM C449	Mineral Fiber Hydraulic Setting Thermal Insulation Cement
ASTM C518	Heat Flux and Thermal Transmission Properties
ASTM C534	Preformed Flexible Elastomeric Thermal Insulation
ASTM C547	Mineral Fiber Preformed Pipe Insulation
ASTM C612	Mineral Fiber Block and Board Thermal Insulation
ASTM C921	Properties of Jacketing Materials for Thermal Insulation
ASTM C1136	Flexible Low Permeance Vapor Retarders for Thermal Insulation
ASTM D412	Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
ASTM D1000	Methods for Pressure-Sensitive Adhesive-Coated Tapes Used for Electrical and Electronic Applications
ASTM D2240	Standard Test Method for Rubber Property—Durometer Hardness
ASTM E84	Surface Burning Characteristics of Building Materials
MICA	National Commercial & Industrial Insulation Standards
NFPA 225	Surface Burning Characteristics of Building Materials
UL 723	Surface Burning Characteristics of Building Materials

QUALITY ASSURANCE

Label all insulating products delivered to the construction site with the manufacturer's name and description of materials.

DESCRIPTION

Furnish and install all insulating materials and accessories as specified or as required for a complete installation. The following types of insulation are specified in this section:

- Duct Insulation
- Pipe Insulation

Install all insulation in accordance with the latest edition of MICA (Midwest Insulation Contractors Association) Standard and manufacturer's installation instructions. Exceptions to these standards will only be accepted where specifically modified in these specifications, or where prior written approval has been obtained from the Dane County Project Manager.

ENVIRONMENTAL REQUIREMENTS

Do not store insulation materials on grade or where they are at risk of becoming wet. Do not install insulation products that have been exposed to water.

Protect installed insulation work with plastic sheeting to prevent water damage.

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PART 2 - PRODUCTS

MATERIALS

Manufacturers: Certainteed, Johns Manville, Knauf, Owens-Corning, VentureTape or approved equal.

Materials or accessories containing asbestos will not be accepted.

Use composite insulation systems (insulation, jackets, sealants, mastics, and adhesives) that have a flame spread rating of 25 or less and smoke developed rating of 50 or less, with the following exceptions:

INSULATION TYPES

Insulating materials shall be fire retardant, moisture and mildew resistant, and vermin proof. Insulation shall be suitable to receive jackets, adhesives and coatings as indicated.

FLEXIBLE FIBERGLASS INSULATION:

Minimum nominal density of 0.75 lbs. per cu. ft., and thermal conductivity of not more than 0.3 at 75 degrees F, rated for service to 250 degrees F.

RIGID FIBERGLASS INSULATION:

Minimum nominal density of 3 lbs. per cu. ft., and thermal conductivity of not more than 0.23 at 75 degrees F, minimum compressive strength of 25 PSF at 10% deformation, rated for service to 450 degrees F.

SEMI-RIGID FIBERGLASS INSULATION:

Minimum nominal density of 3 lbs. per cu. ft., thermal conductivity of not more than 0.28 at 75 degrees F, minimum compressive strength of 125 PSF at 10% deformation, rated for service to 450 degrees F. Insulation fibers perpendicular to jacket and scored for wrapping cylindrical surfaces.

ELASTOMERIC INSULATION:

Flexible closed cell, minimum nominal density of 5.5 lbs. per cu. ft., thermal conductivity of not more than 0.27 at 75 degrees F, minimum compressive strength of 4.5 psi at 25% deformation, maximum water vapor permeability of 0.17 perm inch, maximum water absorption of 6% by weight, rated for service range of -20 degrees F to 220 degrees F on piping and 180 degrees F where adhered to equipment.

POLYOLEFIN INSULATION:

Flexible closed cell, minimum nominal density of 1.5 lbs. per cu. ft., thermal conductivity of not more than 0.24 at 75 degrees F, minimum compressive strength of 5 psi at 25% deformation, maximum water vapor permeability of 0.0 perm inch, maximum water absorption of 0% by weight and volume, rated for service range of -165 degrees F to 210 degrees F.

POLYISOCYANURATE INSULATION:

Rigid closed cell polyisocyanurate, minimum nominal density of 2.0 lbs. per cu. ft., thermal conductivity of not more than 0.19 at 75 degrees F aged 180 days, minimum compressive strength of 24 psi parallel and 13 psi perpendicular, maximum water vapor permeability of 4 perm inch, maximum water absorption of 2% by volume, rated for service range of -290 degrees F to 300 degrees F.

EXTRUDED POLYSTYRENE INSULATION:

Rigid closed cell, minimum nominal density of 1.6 lbs. per cu. ft., thermal conductivity of not more than 0.285 at 75 degrees F, minimum compressive strength of 20 psi, maximum water vapor permeability of 1.5 perm inch, maximum water absorption of .5 % by volume, rated for service range of -290 degrees F to 165 degrees F.

JACKETS

ALL SERVICE JACKETS (ASJ):

Heavy duty, fire retardant material with white kraft reinforced foil vapor barrier, factory applied to insulation with a self-sealing pressure sensitive adhesive lap, maximum permeance of .02 perms and minimum beach puncture resistance of 50 units.

FOIL SCRIM ALL SERVICE JACKETS (FSJ):

Glass fiber reinforced foil kraft laminate, factory applied to insulation. Maximum permeance of .02 perms and minimum beach puncture resistance of 25 units.

1 PROTECTIVE METAL JACKETS (PMJ):

2 .016 inch thick aluminum or .010 inch thick stainless steel with safety edge.

3
4 SELF-ADHERING JACKETS (SAJ):

5 5-ply, self-adhering multiple laminated waterproofing material with reflective aluminum foil, high density
6 polymer films and cold weather acrylic adhesive providing zero (0.0) permeability. Minimum 6 mils
7 material thickness, 35lb puncture resistance when tested in accordance with ASTM D1000 and flame
8 spread/smoke developed rating of 10/20 when tested in accordance with UL 723.

9
10 Vapor retarding tape shall be specifically designed and manufactured for use with the self-adhering jacket
11 specified above. Tape shall be provided by the same manufacturer that provides jacketing. Vapor retarding
12 tapes used with self-adhering jackets shall have a maximum permeance of 0.0 perms.

13
14 FABRIC REINFORCED MASTIC JACKETS (FMJ):

15 Glass fiber reinforcing fabric imbedded in weather barrier mastic as per manufacturer's recommended
16 procedure for 2 coat application.

17
18 VAPOR RETARDING JACKETS (VRJ):

19 Polyvinylidene chloride (PVDC) vapor retarding jacket material with minimum 6 mils material thickness
20 and maximum permeance of 0.01 perms. Material shall not support the growth of mold or mildew. Dow
21 Saran or equivalent.

22
23 Vapor retarding tape shall be specifically designed and manufactured for use with the vapor retarding
24 jacket specified above. Tape shall be provided by the same manufacturer that provides jacketing. Vapor
25 retarding tapes used with vapor retarding jackets shall have a maximum permeance of 0.01 perms.

26
27 **ACCESSORIES**

28 All products shall be compatible with surfaces and materials on which they are applied, and be suitable for
29 use at operating temperatures of the systems to which they are applied.

30
31 Adhesives, sealants, and protective finishes shall be as recommended by insulation manufacturer for
32 applications specified.

33
34
35 **PART 3 - EXECUTION**

36
37 **EXAMINATION**

38 Verify that all piping, equipment, and ductwork are tested and approved prior to installing insulation. Do
39 not insulate systems until testing and inspection procedures are completed.

40
41 Verify that all surfaces are clean, dry and without foreign material before applying insulation materials.

42
43 **INSTALLATION**

44 All materials shall be installed in strict accordance with manufacturer's recommendations, building codes,
45 and industry standards. Do not install products when the ambient temperature or conditions are not
46 consistent with the manufacturer's recommendations. Surfaces to be insulated must be clean and dry.

47
48 Locate insulation and cover seams in the least visible location. All surface finishes shall be extended in
49 such a manner as to protect all raw edges, ends and surfaces of insulation.

50
51 Install insulation with smooth and even surfaces. Poorly fitted joints or use of filler in voids will not be
52 accepted. Provide neatly beveled and coated terminations at all nameplates, uninsulated fittings, or at other
53 locations where insulation terminates.

54
55 Install fabric reinforcing without wrinkles. Overlap seams a minimum of 2 inches.

56
57 Use full length material (as delivered from manufacturer) wherever possible. Scrap piecing of insulation or
58 pieces cut undersize and stretched to fit will not be accepted.

59
60 All pipe and duct insulation shall be continuous through walls, ceiling or floor openings and through
61 sleeves except where firestop or firesafing materials are required. Vapor barriers shall be maintained
62 continuous through all penetrations.

1 Provide a continuous unbroken moisture vapor barrier on insulation applied to systems noted below.
2 Attachments to cold surfaces shall be insulated and vapor sealed to prevent condensation.

3
4 Provide a complete vapor barrier for insulation on the following systems:

- 5 • Cold Water Make-Up
- 6 • Glycol/Brine
- 7 • Insulated Duct
- 8 • Equipment, ductwork or piping with a surface temperature below 65 degrees F

9
10 **PROTECTIVE JACKET INSTALLATION**

11 **SELF-ADHERING JACKETS (SAJ):**

12 Install according to manufacturer's recommendations. Cut allowing minimum 4" overlap on ends and 6" on
13 longitudinal joints. Align parallel to surface. Remove release paper and press flat to surface to avoid
14 wrinkles. Rub entire surface for full adhesion and sealing at joint overlaps. On exterior applications,
15 provide a bead of compatible caulk along exposed edges.

16
17 Piping with self-adhering (SAJ) jackets shall have elbows, fittings, valves and butt joints wrapped with 2
18 layers of vapor retarding tape. Piping with a PVC jacket (PFJ) installed over the self-adhering (SAJ) jacket
19 may be provided with a single, lapped layer of vapor retarding tape for elbows, fittings and valves under
20 the PVC jacket. Vapor retarding tape shall be compatible with the jacket material used.

21
22 **VAPOR RETARDING JACKETS (VRJ):**

23 Piping with vapor retarding (VRJ) jackets shall have elbows, fittings, valves and butt joints wrapped with 2
24 layers of vapor retarding tape. Piping with a PVC jacket (PFJ) installed over the vapor retarding (VRJ)
25 jackets may be provided with a single, lapped layer of vapor retarding tape for elbows, fittings and valves
26 under the PVC jacket. Vapor retarding tape shall be compatible with the jacket material used.

27
28 **PVC FITTING COVERS AND JACKETS (PFJ):**

29 Lap seams and joints a minimum of 2 inches and continuously seal PVC with welding solvent
30 recommended by jacket manufacturer. Lap slip joint ends 4" without fasteners where required to absorb
31 expansion and contraction. For sections where vapor barrier is not required and jacket requires routine
32 removal, tack fasteners may be used. Secure PVC fitting covers with tack fasteners. For systems requiring a
33 vapor barrier, apply a 1-1/2" band of mastic over ends, throat, seams and penetrations.

34
35 **PROTECTIVE METAL JACKET (PMJ):**

36 Lap seams a minimum of 2 inches. Secure with metal bands for end to end joints, and rivets or sheet metal
37 screws for longitudinal joints. Rivets, screws, and bands to be constructed of the same material as the
38 jacket. Locate seams on bottom for exterior applications.

39
40 **FABRIC REINFORCED MASTIC JACKETS (FMJ):**

41 Glass fiber fabric shall be fitted without wrinkles. Glass fiber fabric shall be sized immediately upon
42 application with lagging adhesive and shall be capable of drying within 6 hrs. Apply adhesive and coating
43 in accordance with manufacturer's recommendations. All seams shall overlap not less than 2".

44
45 **PIPING, VALVE, AND FITTING INSULATION**

46 **GENERAL:**

47 Install insulation with butt joints and longitudinal seams closed tightly. Provide minimum 2" lap on jacket
48 seams and 2" tape on butt joints, firmly cemented with lap adhesive unless otherwise noted. Additionally
49 secure with staples along seams and butt joints. Coat staples, longitudinal and transverse seams with vapor
50 barrier mastic on systems requiring vapor barrier.

51
52 Install insulation continuous through pipe hangers and supports with hangers and supports on the exterior
53 of insulation. Where a vapor barrier is not required or where roller hangers are not being used, hangers and
54 supports may be attached directly to piping with insulation completely covering hanger or support and
55 jacket sealed at support rod penetration. Where riser clamps are required to be attached directly to piping
56 requiring vapor barrier, extend insulation and vapor barrier jacketing/coating around riser clamp.

57
58 Where insulated piping is installed on hangers and supports, the insulation shall be installed continuous
59 through the hangers and supports. High density inserts shall be provided as required to prevent the weight
60 of the piping from crushing the insulation. Pipe shields are required at all support locations. The insulation
61 shall not be notched or cut to accommodate the supporting channels.

1 Fully insulate all reheat coil piping, fittings and valves (with the exception of unions) up to coil connection
2 to prevent condensation when coil is inactive during cooling season. Provide a vapor proof seal between the
3 pipe insulation and the insulated coil casing.
4

5 **INSULATION INSERTS AND PIPE SHIELDS:**
6 Provide pipe shields at all hanger and support locations. Rigid insulation inserts shall be installed between
7 the pipe and the insulation shields. Quantity and placement of inserts shall be according to the
8 manufacturer's installation instructions, however the inserts shall be no less than 12" in length. Inserts shall
9 be of equal thickness to the adjacent insulation and shall be vapor sealed as required for system.
10

11 Provide insulation inserts and pipe shields at all hanger and support locations. Inserts may be omitted on
12 3/4" and smaller copper piping provided 12" long 22 gauge pipe shields are used.
13

14 **FITTINGS AND VALVES:**
15 Fittings, valves, unions, flanges, couplings and specialties may be insulated with factory molded or built up
16 insulation of the same thickness as adjoining insulation. Where the ambient temperature exceeds 150
17 degrees F, cover insulation with fabric reinforcing and mastic. Where the ambient temperatures do not
18 exceed 150 degrees, furnish and install PVC fitting covers.
19

20 **ELASTOMERIC AND POLYOLEFIN:**
21 Where practical, slip insulation on piping during pipe installation when pipe ends are open. Miter cut
22 fittings allowing sufficient length to prevent stretching. Completely seal seams and joints for vapor tight
23 installation. For elastomeric insulation, apply full bed of adhesive to both surfaces. For polyolefin, seal
24 factory preglued seams with roller and field seams and joints with full bed of hot melt polyolefin glue to
25 both surfaces. Cover elastomeric insulation on systems operating below 40 degrees F with vapor barrier
26 mastic.
27

28 **PIPE INSULATION SCHEDULE:**
29 Provide insulation on new and existing remodeled piping as indicated in the following schedule:
30

<u>Service</u>	<u>Insulation</u>	<u>Jacket</u>	<u>Insulation Thickness by Pipe Size</u>		
Hot Water > 130°F	Rigid Fiberglass	ASJ	≤ 1-1/4" 1.5"	1-1/2" 1.5"	2" to 4" 2"
Hot Water ≤ 130°F	Elast./Polyol	None	0.5"	1"	1.5"

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37
38 The following piping and fittings are not to be insulated:
39 • Piping unions for systems not requiring a vapor barrier
40

41 **DUCT INSULATION**
42 **GENERAL:**
43 Secure flexible duct insulation on sides and bottom of ductwork over 24" wide and all rigid duct insulation
44 with weld pins. Space fasteners 18" on center or less as required to prevent sagging.
45

46 Secure rigid board insulation to ductwork with weld pins. Apply insulation with joints firmly butted as
47 close as possible to the equipment surface. Pins shall be located a maximum of 3" from each edge and
48 spaced no greater than 12" on center.
49

50 Install weld pins without damage to the interior galvanized surface of the duct. Clip pins back to washer
51 and cover penetrations with tape of same material as jacket. Firmly butt seams and joints and cover with 4"
52 tape of same material as jacket. Seal tape with plastic applicator and secure with staples. All joints, seams,
53 edges and penetrations to be fully vapor sealed.
54

55 Stop and point insulation around access doors and damper operators to allow operation without disturbing
56 insulation or jacket material.
57

58 External supply duct insulation is not required where ductwork contains continuous 1" acoustical liner.
59 Provide 4" overlap of external insulation over ends of acoustically lined sections.
60

1 Where insulated ductwork is supported by trapeze hangers, the insulation shall be installed continuous
 2 through the hangers. Drop the supporting channels required to facilitate the installation of the insulation.
 3 Where rigid board or flexible insulation is specified, install high density inserts to prevent the weight of the
 4 ductwork from crushing the insulation.

5
 6 Where insulated low temperature (below 45°F) ductwork is supported by steel metal straps or wire ropes
 7 that are secured directly to the duct, the straps or ropes shall be completely covered with insulation and
 8 sealed to provide a complete vapor barrier.

9
 10 Where ductwork exposed to the weather is insulated the top surface of the insulation shall be sloped a
 11 minimum of 1/4" per foot to eliminate ponding and create positive drainage off of insulation.

12
 13 **DUCT INSULATION SCHEDULE:**

14 Provide duct insulation on new and existing remodeled ductwork in the following schedule:

15 Service	16 Insulation Type	17 Jacket	18 Insulation Thickness
19 Outside air ducts	Rigid Fiberglass	FSJ	2"
20 Exposed supply ducts*	Rigid Fiberglass	FSJ	2"
21 All Ducts located in unconditioned or unheated areas***	Flexible Fiberglass	FSJ	3"
22 Exhaust ducts downstream of motorized backdraft dampers	Rigid Fiberglass	FSJ	2"
23 Exhaust ducts upstream of motorized backdraft dampers and in cold areas**	Rigid Fiberglass	FSJ	2"
24 All ducts exposed to weather	Ext. Polystyrene	SAJ	3"

25
 26
 27 * Exposed supply branch ducts located in the space they are serving do not require insulation. Exposed
 28 supply main ducts running through spaces they serve shall be insulated as exposed supply ducts
 29 scheduled above.

30
 31 ** Ducts located in attics between backdraft damper and heated space shall be insulated as scheduled or
 32 shall be enclosed with building attic insulation with an R value equal to the scheduled insulation.

33
 34 *** Outside air ductwork between the isolation damper and the outside air intake does not require
 35 insulation where it is located in an unheated attic.

36 **EQUIPMENT INSULATION SCHEDULE:**

37 Provide equipment insulation as follows:

38 Equipment	39 Insulation	40 Jacket	41 Thickness
42 Hot Water Air separators	Semi-Rigid Fiberglass	ASJ/FMJ	1.5"

43
 44 END OF SECTION

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SECTION 23 09 26
GAS DETECTION SYSTEM

PART 1 - GENERAL

SCOPE

The work covered by this section of the specifications includes the furnishing of all labor, equipment, materials, and performance of all operations associated with the installation of the new Gas Alarm System as shown on the drawings and as herein specified.

Technical assistance for the installation of the gas detection system shall be provided to the Owner by the system manufacturer and/or the system supplier.

RELATED WORK

The work covered by this section of the specifications shall be coordinated with the related work as specified elsewhere.

DESCRIPTION OF WORK

Furnish and install a complete Multi-Zone Gas Detection System within the Dane County Parks Operations Facility as described herein and as shown on the plans; to be wired, connected, and left in first class operating condition.

- Zone 1 shall consist of Room 100; CH4 detection.
- Zone 2 shall consist of Room 103; CH4 detection.
- Zone 3 shall consist of Room 105; CH4, NO2 and CO detection.

The Gas Detection System shall be manufactured by Quatrosense Environmental, LTD. (www.QELsafety.com), or approved equivalent, and shall be provided for the monitoring of toxic and combustible gas concentrations, and any other 4-20mA input parameter.

The complete installation shall be done in a neat, workmanlike manner in accordance with all applicable Codes and the manufacturer's recommendations.

REGULATORY REQUIREMENTS

The complete installation shall conform to the applicable sections of the latest edition of the following Codes and Standards:

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):

- NFPA-70 National Electrical Code (NEC)
- NFPA 101 Life Safety Code
- IBC International Building Code
- IFC International Fire Code
- IMC International Mechanical Code

SUBMITTALS

Supplier of the gas detection system shall submit all products for approval prior to ordering any equipment.

PRODUCT DELIVERY, STORAGE AND HANDLING

Owner shall receive equipment at job site; verify applicable components and quantity delivered.

Handle equipment to prevent internal components' damage and breakage, as well as denting and scoring of enclosure finish.

Do not install damaged equipment.

1 **SPARE PARTS**

2 Supplier shall provide the following spare parts in quantities shown:

3 Quantity : Type of Device

4 (1) Toxic Gas Transmitter/Sensor

5 (1) Combustible Gas Transmitter/Sensor

6

7

8

PART 2 - PRODUCTS

9

10 **ENCLOSURES**

11 All panels and peripheral devices shall be the standard product of a single manufacturer and shall display
12 the manufacturer's name on each component.

13

14 **CONTROL PANEL**

15 Provide QEL Model M-CONTROLLER with CTS-M-Series Gas Detectors or 4-20mA inputs from gas
16 detectors and/or auxiliary input devices.

17

18 Controller requirements:

19

- 20 • 4 parallel RS 485 ports for up to 32 gas sensors wired in a ‘daisy chain’ configuration, and a
21 total of 99 relays wired in a ‘daisy chain’ configuration without compromising sensor count.
- 22 • 8 analog (4-20mA) input ports for monitoring from any other measurement device.
- 23 • Three on board DPDT relays rated 5 Amp resistive 3.7 Amp inductive at 240 VAC / 30 VDC.
- 24 • Relay assignment individually set to one or all transmitter/sensors in any combination. May be
25 set for averaging, or voting.
- 26 • Time delays individually set, make, break, average, voting.
- 27 • Audio indicator with three modes of alarm.
- 28 • 24VDC Horn and strobe outputs.
- 29 • Available 8 channel scalable analog 4-20mA output from controller configurable for any
30 sensor or group of sensors to host computer, BAS, DDC or data acquisition system.
- 31 • RS-422 output to computer/PLC with Modbus Protocol.
- 32 • RS-232 programming port and interconnect cable for programming configuration of system
33 (includes non-proprietary M-View software CD for system configuration).
- 34 • 5 LED status lights.
- 35 • Digital display and keypad for manual programming.
- 36 • Test Function for microprocessor, lights, relays, audio calibration disable through front
37 keypad.
- 38 • Locking door latch.
- 39 • Non-proprietary configuration software and access password to controller. 45

40

41 Sequence of Operation:

42 Refer to Division 23, Section 23 09 93, Sequence of Operations for HVAC Controls for complete
43 sequence of operation.

44

45 Activate visual alarm at low warning, visual alarm at high warning, audible device fully configurable
46 for either or both.

47

48 **TRANSMITTER/SENSORS**

49 TOXIC GAS TRANSMITTER/SENSOR – NO2

50 Provide QEL Model CTS-M5150 Series stand-alone, analog and/or networked toxic gas
51 transmitter/sensors.

- 1 Toxic Gas Transmitter/Sensor requirements:
- 2 • Electrochemical Sensor
 - 3 • Range 0 to 10 ppm.
 - 4 • Digital display of gas concentration.
 - 5 • Scalable 4-20 mA or 2-10 VDC linearized output.
 - 6 • RS-485 digital communication.
 - 7 • 2 SPDT relay output Form C, 1 amp dry contact and buzzer (optional).
 - 8 • Time delays (make and break) on relay outputs.
 - 9 • Outputs, range, relay enable/disable, time delays, digital addressing, configuration adjustable
 - 10 through 3 switches on side of unit.
 - 11 • Input voltage 24VAC or 24VDC.
 - 12 • Non-proprietary calibration protocol.

13

14 Sequence of Operation:

15 Refer to Division 23, Section 23 09 93, Sequence of Operations for HVAC Controls for complete

16 sequence of operation.

17

18 Activate fan(s) per zone when the level of gas reaches 1.00 ppm concentration.

19

20 Activate visual alarm at low warning, audible and visual alarm at high warning.

21

22 TOXIC GAS TRANSMITTER/SENSOR - CO

23 Provide QEL Model CTS-M5160 Series stand-alone, analog and/or networked toxic gas

24 transmitter/sensors.

25

26 Toxic Gas Transmitter/Sensor requirements:

- 27 • Electrochemical Sensor
- 28 • Range 0 to 250 ppm.
- 29 • Digital display of gas concentration.
- 30 • Scalable 4-20 mA or 2-10 VDC linearized output.
- 31 • RS-485 digital communication.
- 32 • 2 SPDT relay output Form C, 1 amp dry contact and buzzer (optional).
- 33 • Time delays (make and break) on relay outputs.
- 34 • Outputs, range, relay enable/disable, time delays, digital addressing, configuration adjustable
- 35 through 3 switches on side of unit.
- 36 • Input voltage 24VAC or 24VDC.
- 37 • Non-proprietary calibration protocol.

38

39 Sequence of Operation:

40 Refer to Division 23, Section 23 09 93, Sequence of Operations for HVAC Controls for complete

41 sequence of operation.

42

43 Activate fan(s) per zone when the level of gas reaches 35.00 ppm concentration.

44

45 Activate visual alarm at low warning, audible and visual alarm at high warning.

46

47 COMBUSTIBLE GAS TRANSMITTER/SENSOR – CH₄

48 Provide QEL Model CTS-M1710 Series stand-alone, analog and/or networked combustible gas

49 transmitter/sensor.

50

51 Combustible Gas Transmitter/Sensor requirements:

- 52 • Catalytic Bead Sensor.
- 53 • Range 0 to 100 % LEL
- 54 • Digital display of gas concentration

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SECTION 23 09 93
SEQUENCE OF OPERATION FOR HVAC CONTROLS

PART 1 - GENERAL

SCOPE

This section includes control sequences for HVAC equipment provided by this project.

Material and equipment will be provided by the Owner,

Work required to execute the control sequences described in this section will be performed by the Owner.

RELATED WORK

Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC – Coordination

DESCRIPTION OF WORK

Control sequences are hereby defined as the manner and method by which automatic controls function.

Operation equipment, devices and system components required for control systems are specified in other Division 23 control sections of these specifications.

SUBMITTALS

The Owner with the assistance of the engineer will develop the control equipment diagrams and narrative of the sequence of operation for equipment that is controlled by the electric control system. The narrative of the sequence of operation shall not be a verbatim copy of the sequences contained herein, but shall reflect the actual operation as applied by the contractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

CONTROL SEQUENCES

MAKEUP AIR UNIT MUA-1

Unit is provided with remote control panel, discharge temperature control with room override and an outside air inlet damper.

The unit is 100 percent outside air.

The unit shall operation shall be controlled by:

- A 24 hour, 7 day time clock to provide programmed operation time to provide makeup air for exhaust ventilation
- A manual switch to provide operation to provide supply air for space ventilation and exhaust makeup when manually switched on.
- Interlocked with the lighting switches in rooms 100 and 103 to operate to provide supply air for space ventilation and exhaust makeup when the space is occupied.
- Interlocked with gas detection system. Refer to gas detection control sequences.

EXHAUST FANS

The exhaust fans shall be controlled with the following sequences:

EF-1:

- Manual switched with space lighting with time delay operation.

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EF-2:

- Fan is interlocked to operate whenever makeup air unit MUA-1 is operating.
- Interlocked with the lighting switches in rooms 100 and 103 to provide exhaust for space exhaust ventilation when the space is occupied.
- Fan is interlocked with gas detection system.
- Refer to gas detection control sequences.

EF-3:

- Fan is interlocked with CH₄ gas detection system in Room 100.
- Refer to gas detection control sequences.

EF-4:

- Fan is interlocked with CH₄ gas detection system in Room 103.
- Refer to gas detection control sequences.

EF-5 and EF-7:

- Fan EF-5, fan discharge damper actuator and intake louver damper actuator shall be controlled by a 24 hour, 7 day time clock to provide programmed operation of the fan and open the fan discharge damper and intake damper.
- Fan EF-5 shall operate for a minimum of 5 hours in each 24 hour period.
- Fan EF-5 and associated dampers shall be interlocked with the lighting switches in rooms 105 to provide exhaust for space exhaust ventilation when the space is occupied.
- Fan EF-5 and associated dampers shall also be interlocked with the CO and NO₂ gas detection system to operate on detection of CO or NO₂ above the detection activation levels.
- Fan EF-7 shall operate whenever fan EF-5 and EF-6 are not operating.
- Refer to gas detection control sequences.
- When EF-6 is activated based on detection of CH₄, fans EF-5 and EF-7 shall not operate.

EF-6:

- Fan is interlocked with CH₄ gas detection system in Room 105.
- Refer to gas detection control sequences.

EF-3 ALT:

- If alternate exhaust fan EF-3 ALT is installed exhaust fans EF-3 and EF-4 are not installed
- Interlocked with CH₄ gas detection system in Rooms 100 and 103.
- Refer to gas detection control sequences.

IN-FLOOR HEATING SYSTEM

The in-floor heating system control sequences will be developed when the boilers and associated hot water heating system equipment is installed. The boilers and associated hot water heating system equipment will be installed in a future phase.

Room 105 is designed to be unheated at this time. In-floor heating tubing is installed in the event that the space is to be heated in the future.

GAS DETECTION CONTROL SEQUENCES

The scope of this project is the control of make-up air units and exhaust fans for various modes of operation based on normal occupied-unoccupied cycles and on detection of carbon dioxide (CO), Nitrogen Dioxide (NO₂, diesel exhaust) or Methane (CH₄, natural gas aka CNG).

The building is divided into 3 detection zones for gas detections. There is also other ventilation/exhaust equipment controlled as part of this project.

In the sequence descriptions the following are the designated gases detected:

- CO is Carbon Monoxide
- NO₂ is Nitrogen Dioxide
- CH₄ is Methane, Natural Gas (CNG)

The gas detection system will provide a signal on the detection of each specific gas in each of three detection zones. This section shall receive the specific gas detection zone signal from the system to activate the ventilation sequence of operation starting or stopping specific equipment required to execute the ventilation sequence.

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An audio and visual alarm shall be provided in all three zones upon detection of any gas in any of the zones.

Signs shall be posted in all building areas indicating:

**UPON ACTIVATION OF THE CH₄ GAS DETECTION ALARMS
ALL AREAS OF THE BUILDING SHALL BE EVACUATED**

THE BUILDING SHALL NOT BE OCCUPIED WHILE THE ALARMS ARE ACTIVE

ONCE THE ALARMS ARE CLEARED THE BUILDING CAN BE REOCCUPIED

This specification has the following detections zone designations:

Detection Zone 1 - Room 100
Normal occupied
Normal unoccupied
Detection Zone 1 detection of CH₄

Detection Zone 2 - Room 103
Normal occupied
Normal unoccupied
Detection Zone 2 detection of CH₄

Detection Zone 3 - Room 105
Normal occupied
Normal unoccupied
Detection Zone 3 detection of CH₄
Detection Zone 3 detection of CO
Detection Zone 3 detection of NO₂

SEQUENCES FOR DETECTION ZONE ONE - ROOM 100

NORMAL OCCUPIED OPERATION

Make up air unit MUA-1 and EF-2 shall operate as specified above.

NORMAL UNOCCUPIED OPERATION

All fans and the makeup air shall be off.

DETECTION OF CH₄ - ZONE 1

Exhaust fan EF-3 shall be energized. (or exhaust fan EF-3 ALT if this fan is installed)

Designated garage doors shall open to the indicated level. Coordinate the garage door operation with the door supplier to provide the required control.

Make up air unit MUA-1 shall be de-energized.

Exhaust fan EF-2 shall de-energized.

Building shall be evacuated.

CLEARING OF DETECTION ALARMS

When the alarm of a detected gas, CH₄ returns to normal and the alarm is cleared the mode of operation shall return to normal programmed occupied or unoccupied mode **and the building can be reoccupied.**

SEQUENCES FOR DETECTION ZONE TWO - ROOM 103

NORMAL OCCUPIED OPERATION

Make up air unit MUA-1 and EF-2 shall operate as specified above.

1 NORMAL UNOCCUPIED OPERATION
2 All fans and the makeup air shall be off.
3
4 DETECTION OF CH₄ - ZONE 2
5 Exhaust fan EF-4 shall be energized. (or exhaust fan EF-3 ALT if this fan is installed)
6
7 Designated garage doors shall open to the indicated level. Coordinate the garage door operation with the
8 door supplier to provide the required control.
9
10 Make up air unit MUA-1 shall be de-energized.
11
12 Exhaust fan EF-2 shall de-energized.
13
14 **Building shall be evacuated.**
15
16 CLEARING OF DETECTION ALARMS
17 When the alarm of a detected gas, CH₄ returns to normal and the alarm is cleared the mode of operation
18 shall return to normal programmed occupied or unoccupied mode **and the building can be reoccupied.**
19
20 **SEQUENCES FOR DETECTION ZONE THREE - ROOM 105**
21
22 NORMAL ON - MINIMUM PERIOD OF OPERATION
23 EF-5 shall operate as specified above for required minimum operation each 24 hour period .
24
25 NORMAL OFF - OPERATION
26 All fans and the makeup air shall be off, except exhaust fan EF-5 and associated dampers shall interlocked
27 with the lighting switches in rooms 105 to provide exhaust for space exhaust ventilation when the space is
28 occupied.
29
30 DETECTION OF CH₄ - ZONE 3
31 Exhaust fan EF-6 shall be energized.
32
33 The outside air intake louver/damper shall be open.
34
35 Exhaust fan EF-5 and EF-7 shall de-energized.
36
37 **Building shall be evacuated.**
38
39 CLEARING OF DETECTION ALARMS
40 When the alarm of a detected gas, CH₄ returns to normal and the alarm is cleared the mode of operation
41 shall return to normal programmed occupied or unoccupied mode **and the building can be reoccupied.**
42
43 DETECTION OF CO - ZONE 3
44 The system shall remain in the NORMAL ON - MINIMUM PERIOD OF OPERATION mode, or if in the
45 NORMAL OFF - OPERATION mode switch to the NORMAL ON mode.
46
47 DETECTION OF NO₂ - ZONE 3
48 The system shall remain in the NORMAL ON - MINIMUM PERIOD OF OPERATION mode, or if in the
49 NORMAL OFF - OPERATION mode switch to the NORMAL ON mode.
50
51 CLEARING OF DETECTION ALARMS
52 When the alarm of a detected gas, CO, NO₂ or CH₄ returns to normal and the alarm is cleared the mode of
53 operation shall return to normal programmed occupied or unoccupied mode.
54
55 **TRAINING**
56
57 The supplier of the gas detection system shall provide up to 2 hours training on the operation of the
58 ventilation control system to designate Owner personnel.
59
60 **END OF SECTION**

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**SECTION 23 21 13
HYDRONIC PIPING**

PART 1 - GENERAL

REFERENCE STANDARDS

ANSI B16.4	Cast Iron Threaded Fittings
ANSI B16.5	Pipe Flanges and Flanged Fittings
ANSI B16.22	Wrought Copper and Wrought Copper Alloy Solder Joint Pressure Fittings
ASTM A53	Pipe, Steel, Black and Hot-Dipped, Zinc Coated Welded and Seamless
ASTM A105	Forgings, Carbon Steel, for Piping Components
ASTM A126	Gray Cast Iron Castings for Valves, Flanges, and Pipe Fittings
ASTM A181	Forgings, Carbon Steel for General Purpose Piping
ASTM A234	Pipe Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and Elevated Temperatures
ASTM B75	Seamless Copper Tube
ASTM B88	Seamless Copper Water Tube

PART 2 - PRODUCTS

IN-FLOOR HOT WATER RADIANT PEX PIPING

Radiant floor heating using cross-linked polyethylene (PEX) tubing and appropriate fittings specification.

Certified to:

- ASTM F876 Standard Specification for Cross-linked Polyethylene (PEX) Tubing.
- ASTM E84, Standard Test Method for Surface Burning Characteristics of Test Materials.
- ASTM E119
- STM F877
- UL 263
- NFPA 251 Fire Tests of Building Construction and Materials.
- International Mechanical Code (IMC)
- International Building Code (IBC)

Design Requirements

- Cross-linked Polyethylene Tubing (PEX): Standard Grade hydrostatic pressure ratings from Plastics Pipe Institute in accordance with TR-3 as listed in TR-4.
- Performance requirements: Provide Hydronic system that is manufactured, fabricated and installed to comply with regulatory agencies and authorities with jurisdiction, and maintain performance criteria stated by the tubing manufacturer.
- Cross-linked Polyethylene Tubing (PEX):
 - 1 Show compliance with ASTM F877
 - 2 Show compliance with DIN 4726 regarding oxygen diffusion concerns where applicable.

Submittals

- Provide engineering analysis using manufacturer's proprietary software.
- Provide installation drawings indicating tubing layout, manifold locations, zoning requirements.
- Provide manufacturer's heat output delivered to the structure.

1 Warranty

- 2
- 3 • Submit, for Owner's acceptance, manufacturer's standard warranty document executed by
 - 4 authorized company official.
 - 5 • Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have
 - 6 under contract documents.
 - 7 • Warranty covers the repair or replacement of any tubing or fittings proven defective.
 - 8 • Warranty Period for Tubing is 25-year, non-prorated warranty against failure due to defect in
 - 9 material or workmanship, beginning with date of substantial completion.

10

11 Layout Drawings

- 12
- 13 • Provide Owner with copies of any detailed layout drawings before installation.

14

15 Manufacturers:

- 16
- 17 • REHAU, Watts Radiant, Inc., Uponor/Wirsbo, or approved equivalent.

18

19 Temperature/Pressure Ratings: shall be capable of withstanding temperatures of:

- 20
- 21 • 73.4°F (23°C) at 160 psi
 - 22 • 180°F (82.2°C) at 100 psi

23

24 Minimum Bend Radius (Cold Bending):

- 25
- 26 • No less than six times the outside diameter.
 - 27 • Use the tubing manufacturer's bend supports if radius is less than stated.

28

29 Barrier Tubing Type:

- 30
- 31 • Oxygen Diffusion Barrier: Tubing has an oxygen diffusion barrier that shall not exceed an oxygen
 - 32 diffusion rate of 0.10 g/cubic meter (.000062 lb/cu. ft.) per day at 104 degrees F (40 degrees C)
 - 33 water temperature.

34

35 Nominal Inside Diameter: Provide tubing with nominal inside diameter in accordance with ASTM F876, as

36 indicated:

- 37
- 38 • 3/8 inch (9.53 mm)
 - 39 • 1/2 inch (12.7 mm)
 - 40 • 5/8 inch (15.88 mm)
 - 41 • 3/4 inch (19.05 mm)
 - 42 • 1 inch (25.4 mm)
 - 43 • 1 1/4 inch (31.75 mm)
 - 44 • 1 1/2 inch (38.1 mm)

45

46 **IN-FLOOR HOT WATER RADIANT SYSTEM ACCESSORIES AND CONTROLS**

47

48 Fittings

- 49
- 50 • Fittings shall be third-party certified to applicable standards ASTM F877, ASTM F2080 and CSA
 - 51 B137.5 as part of the manufacturer's PEX piping system, with independent listings from NSF, CSA
 - 52 and ICC, as applicable.
 - 53 • Compression nut manifold fittings shall be manufactured of brass with a barbed insert and a
 - 54 reusable split compression ring.

- 1 • Compression-sleeve fittings shall be manufactured of brass and shall be approved by the piping
2 manufacturer to be part of a proven cataloged system.
3 • Fittings embedded within the thermal mass or encased behind walls or ceilings shall be cold-
4 expansion compression-sleeve fittings certified to ASTM F2080. Where required by the
5 manufacturer, fittings shall be protected from external environmental conditions.
6

7 **Manifolds**
8

- 9 • Material: Distribution manifolds shall be manufactured of brass or copper and be supplied by the
10 piping manufacturer as a proven cataloged part of the manufacturer's system.
11 • Brass manifolds shall be produced from extruded brass round pipe with tapped holes for
12 connections, and be pre-assembled by the manufacturer. 100% of manifolds used shall have been
13 air tested by the manufacturer with no indication of leaks.
14

15 **Balancing Manifolds**
16

- 17 • Where required, brass balancing manifolds shall be equipped with integral visual flow gauges,
18 circuit balancing and flow control valves, isolation valves with integral thermometer housings, and
19 air vent/fill ports.
20 • Each circuit valve shall be supplied with a manual actuating handle for filling/purging operation.
21

22 **HEATING HOT WATER**

23 2" and Smaller:

24 ASTM A53, type F, standard weight (schedule 40) black steel pipe with ASTM A126/ANSI B16.4, class
25 125, standard weight cast iron threaded fittings.
26

27 ASTM B88 seamless, type L, hard temper copper tube with ANSI B16.22 wrought copper solder-joint
28 fittings in lieu of steel pipe for all sizes. Mechanically formed tee fittings may be used in lieu of wrought
29 copper solder-joint tee fittings for branch takeoff up to one-half (1/2) the diameter of the main.
30

31 **MAKEUP WATER**

32 Extend from where left by the Plumbing Contractor with the same materials.
33

34 **VENTS AND RELIEF VALVES**

35 Use pipe and pipe fittings as specified for the system to which the relief valve or vent is connected.
36

37 **UNIONS AND FLANGES**

38 2" and Smaller: ASTM A197/ANSI B16.3 malleable iron unions with brass seats. Use black malleable iron
39 on black steel piping and galvanized malleable iron on galvanized steel piping. Use ANSI B16.18 cast
40 copper alloy unions on copper piping. Use unions of a pressure class equal to or higher than that specified
41 for the fittings of the respective piping service but not less than 250 psi.
42

43 **GASKETS**

44 Water and Glycol Systems: Branded, compressed, non-asbestos sheet gaskets. Klingersil C4401, Garlock
45 3000, JM Clipper 978 or approved equal.
46
47

48 **PART 3 - EXECUTION**
49

50 Carefully inspect all pipe, fittings, valves, equipment and accessories before installation. Any items that
51 are unsuitable, cracked or otherwise defective shall be rejected and removed from the job site immediately.
52 Excluding minor surface rust, piping that exhibits significant oxidation or corrosion will be rejected.
53 Exercise care at every stage of storage, handling, laying and erecting to prevent entry of foreign matter into
54 piping, fittings, valves, equipment and accessories. Do not erect or install any item that is not clean.

55 Remove all loose dirt, scale, oil, chips, burrs and other foreign material from the internal and external
56 surfaces of all pipe and piping components prior to assembly, including debris associated with cutting,
57 threading and welding.

1 During construction, until system is fully operational, keep all openings in piping and equipment closed
2 except when actual work is being performed on that item of the system. Use plugs, caps, blind flanges or
3 other items designed for this purpose.

4 Furnish and install all flanges, caps, bypasses, drains, valves, etc. required to facilitate flushing and
5 draining all heating and cooling system piping.
6

7 Install all piping parallel to building walls and ceilings and at heights which do not obstruct any portion of a
8 window, doorway, stairway, or passageway. Where interferences develop in the field, offset or reroute
9 piping as required to clear such interferences. In all cases, consult drawings for exact location of pipe
10 spaces, ceiling heights, door and window openings, or other architectural details before installing piping.
11

12 Mitered ells, notched tees, and orange peel reducers are not acceptable. On threaded piping, bushings are
13 not acceptable.
14

15 Install drains throughout the systems to permit complete drainage.
16

17 Install all valves, control valves, and piping specialties, including items furnished by others, as specified
18 and/or detailed. Make connections to all equipment installed by others where that equipment requires the
19 piping services indicated in this section.
20

21 **INSTALLATION OF IN-FLOOR HEATING SYSTEMS**

22

23 Comply with manufacturer's product data, including product technical bulletins, installation instructions
24 and design drawings, including the following:
25

- 26 • Installation manuals
- 27 • Design software engineering and analysis
- 28 • Staple the tubing to the subflooring for above grade installations and to insulation board for slab
29 on grade installations in accordance with the tubing manufacturer's installation recommendations.
- 30 • Use closer tubing on-center distances along exterior walls. Increase tubing on-center
31 distances as the installation moves away from the exterior wall as determined by
32 manufacturer analysis.
- 33 • In slab on grade installations Install tubing at a consistent depth below the surface elevation.
34 Ensure sufficient clearance to avoid control joint saw cutting.
- 35 • Where tubing crosses expansion joints in the concrete, interior concrete floors, exterior concrete
36 ensure the tubing passes below the joints or is sleeved through the joint
37

38 **Site Tests**

39

- 40 • To ensure system integrity, pressure test the system before covering tubing in concrete or when
41 other trades are working in the vicinity of the tubing. Maintain tests until all flooring is installed.
42

43 **Tube identification**

44

- 45 • Identify each zone tubing riser above the floor at the future manifold location with the zone
46 number for future coordination.
47

48 **Protection**

49

- 50 • Protect installed work from damage caused by subsequent construction activity on the site.
- 51 • Repair or replace damaged installed products.
52

53 **THREADED PIPE JOINTS**

54 Use a Teflon based thread lubricant or Teflon tape when making joints; no hard setting pipe thread cement
55 or caulking will be allowed.
56
57

- 1 **COPPER PIPE JOINTS**
2 Remove all slivers and burrs remaining from the cutting operation by reaming and filing both pipe surfaces.
3 Clean fitting and tube with emery cloth or sandpaper. Remove residue from the cleaning operation, apply
4 flux, and assemble joint. Use 95-5 solder or brazing to secure joint as specified for the specific piping
5 service.
6
- 7 **MAKEUP WATER**
8 Install where indicated and/or specified, including all valves, piping specialties and dielectric unions
9 required for a functional system.
10
- 11 **VENTS AND RELIEF VALVES**
12 Install vent and relief valve discharge lines as indicated on the drawings, as detailed, and as specified for
13 each specific valve or piping specialty item. In no event is a termination to occur less than six feet above a
14 roof line.
15
- 16 **UNIONS AND FLANGES**
17 Install a union or flange, as required, at each automatic control valve and at each piping specialty or piece
18 of equipment which may require removal for maintenance, repair, or replacement. Where a valve is located
19 at a piece of equipment, locate the flange or union connection on the equipment side of the valve.
20 Concealed unions or flanges are not acceptable.
21
- 22 **GASKETS**
23 Store horizontally in cool, dry location and protect from sunlight, water and chemicals. Inspect flange
24 surfaces for warping, radial scoring or heavy tool marks. Inspect fasteners, nuts and washers for burrs or
25 cracks. Replace defective materials.
26
- 27 Align flanges parallel and perpendicular with bolt holes centered without using excessive force. Center
28 gasket in opening. Lubricate fastener threads, nuts and washers with lubricant formulated for application.
29
- 30 Draw flanges together evenly to avoid pinching gasket. Tighten fasteners in cross pattern sequence (12 – 6
31 o'clock, 3 – 9 o'clock, etc.), one pass by hand and four passes by torque wrench at 30% full torque, 60%
32 full torque and two passes at full torque per ASME B16.5.
33
- 34 **PIPING SYSTEM LEAK TESTS**
35 Verify that the piping system being tested is fully connected to all components and that all equipment is
36 properly installed, wired, and ready for operation. If required for the additional pressure load under test,
37 provide temporary restraints at expansion joints or isolate them during the test. Verify that hangers can
38 withstand any additional weight load that may be imposed by the test.
39
- 40 Provide all piping, fittings, blind flanges, and equipment to perform the testing.
41
- 42 Conduct pressure test with test medium of air or water unless specifically indicated. Minimum test time is
43 indicated in the table below; additional time may be necessary to conduct an examination for leakage.
44 Each test must be witnessed by the Division's representative. If leaks are found, repair the area with new
45 materials and repeat the test; caulking will not be acceptable.
46
- 47 Do not insulate pipe until it has been successfully tested.
48
- 49 For hydrostatic tests, use clean water and remove all air from the piping being tested by means of air vents
50 or loosening of flanges/unions. Measure and record test pressure at the high point in the system.
51
- 52 For air tests, gradually increase the pressure to not more than one half of the test pressure; then increase the
53 pressure in steps of approximately one-tenth of the test pressure until the required test pressure is reached.
54 Examine all joints and connections with a soap bubble solution or equivalent method. The piping system
55 exclusive of possible localized instances at pump or valve packing shall show no evidence of leaking.
56 After testing is complete, slowly release the pressure in a safe manner.
57
- | <i>System</i> | <i>Pressure</i> | <i>Medium</i> | <i>Duration</i> |
|----------------------|-----------------|---------------|-----------------|
| 58 Heating hot water | 59 100 psig | 60 Water | 61 8 hr |

1 On piping that can not be tested because of connection to an active line, provide temporary blind flanges
2 and hydrostatically test new section of piping. After completion of test, remove temporary flanges and
3 make final connections to piping. Die penetrate test pass weld or x-ray the piping that was not
4 hydrostatically tested up to the active system.
5

6 **HYDRONIC PIPING SYSTEM FLUSHING**

7 All new heating hot water system piping shall be flushed thoroughly before the systems are put in to
8 operation. Discharge shall be from drains provided at all low points in the piping, ends of headers and as
9 otherwise necessary to flush and drain the entire system.
10

11 A clean water source shall be tapped into the system downstream of the main circulation pump(s). Flush
12 piping systems using the following procedure:
13

14 Flushing sequence for hot water systems is as follows:

- 15 1. Flush piping by turning on flushing water source and sequentially opening drains on mains on
16 each floor until the discharge is clean. This will flush the mains without forcing water/debris into
17 the branches and run out pipes.
- 18 2. Open individual drain valves until the discharge is clean.
- 19 3. Open the individual isolation valves located downstream of the coils/wall fin. This will flush the
20 return branch and run out lines located between the coils/wall fin and the mains back into the
21 mains and out the drains on the return mains. The water going through the coil/wall fin should be
22 already be clean since this section was flushed previously.
- 23 4. Repeat steps 1-3 to clean debris from the mains.
24

25 After flushing operations are complete, drain and/or blow out any residual water, clean and replace all
26 strainers, and add scale and corrosion inhibitors. Leave flushing connections/valves in place and cap.
27

28 **END OF SECTION**
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SECTION 23 25 25
HEAT TRANSFER FLUIDS

PART ONE - GENERAL

SCOPE

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. Included are the following topics:

RELATED WORK

Section 23 21 13 - Hydronic Piping

DESCRIPTION

Fill the closed loop in-floor hydronic heating system with a 35 % by volume solution of a fully formulated propylene glycol based heat transfer fluid. The final concentration shall be no less than 30 % by volume. (System shall be filled with 5% higher concentration than desired final concentration due to dilution effects of flush water entrapped in low spots of piping system and factory hydrostatic test water.)

The system shall have a metal system nameplate and shall contain the following information:

- Date of original HTF charge
- Description of Heat Transfer Fluid
- Manufacture's Name, Address and Telephone
- Percent Propylene Glycol
- Freeze Point & Burst Point
- Total System Gallons
- Reference to Material Safety Sheet
- Instructions for Sampling of Fluid
- Month for Annual Sampling
- Mailing Instructions

SUBMITTALS

Refer to division 1, General Conditions, Submittals.

Required for all items in this section. Include manufacture and specific product ratings/capacities/ranges.

PART TWO - PRODUCTS

ACCEPTABLE HEAT TRANSFER FLUIDS

Choose one of the following:

Dow, DowFrost HD, Interstate Chemical, Intercool P-300, Houghton Chemical, Safe-T-Therm or approved equivalent

PROPYLENE GLYCOL-BASED PRODUCTS

The heat transfer fluid shall be an inhibited propylene glycol-based industrial heat transfer fluid specifically formulated for use in HVAC and geothermal systems. The fluid must contain corrosion inhibitors and buffers and an antifoam agent, necessary for long fluid and system life.

Provide the following concentrations:

The 35% solution (final solution not less than 30%) of heat transfer fluid and de-ionized water, pre-mixed by the chemical manufacturer, shall have a freezing point of 15.6 degrees F, a burst point of 5 degrees F, a pH between 9.5 and 10.5, a reserve alkalinity of 15.0ml HCl/10ml, a specific gravity of 1.053-1.063 at 15/15 degrees C, no flash point, no silicates and an orange or yellow color.

The de-ionized water used to dilute the concentrate and the pre-mixed solutions shall contain less than: 100 ppm calcium carbonate hardness 40 ppm calcium plus magnesium ions 50 ppm chloride plus sulfate ions.

1
2 Field or distributor mixed fluid, automotive antifreeze, uninhibited glycol or field or distributor inhibited
3 glycol is not acceptable.
4

5 6 **PART THREE - EXECUTION** 7

8 **PREPARATION FOR FILL**

9 The piping system shall be hydro-statically tested to the required test conditions to assure no leaks.
10

11 Piping system shall be cleaned prior to system fill of heat transfer fluid. Dirt, filings, oil, etc. shall be
12 removed and flushed from the system prior to final fill.
13

14 **GLYCOL-BASED PRODUCTS**

15 For the initial flush fill system with high quality water and system cleaner recommended by the glycol
16 manufacturer. Water shall contain less than 100ppm CaCO₃ hardness and less than 50ppm chloride plus
17 sulfate ions. Blended solution shall have a concentration of cleaner recommended by the glycol
18 manufacturer.
19

20 Drain the system of cleaning solution. Open the isolation valves to all heat transfer equipment. Using a
21 meter refill, fill the system with high quality water.
22

23 The premixed formulated heat transfer fluid solution shall be pumped into the fill connection on the suction
24 side of the pump. Before starting the filling pump, high points of the system should have vents open.
25 (Note: Unlike filling with water, these vent locations must be manned at all times during the filling process
26 so that the formulated heat transfer fluid solution is not inadvertently spilled.)
27

28 When the brine reaches the vent, the vent shall be manually closed and the fill pump shall be stopped. Care
29 must be taken not to over pressurize the system. The systems air eliminator shall be used to remove the
30 final amounts of air.
31

32 The formulated heat transfer fluid shall be kept circulating through the system at the design pressure. The
33 contractor shall monitor the system pressure to make sure the pressure does not drop. If the pressure does
34 drop, there is a leak in the system.
35

36 **FILLING THE SYSTEM**

37 Fill the system with the specified solution concentration of 35%. The manufacturer's pre-mixed solution
38 shall be complete with all inhibitors, buffers, and anti-foam agent as specified.
39

40 Vent system during fill. After the system is filled and the air is properly purged, allow the fluid to circulate
41 for 24 hours. Then, pull a sample using the sample kit provided by the manufacturer. Pull a second sample
42 six months after the initial fill, and on the anniversary of the fill. It is recommended these samples are to be
43 sent to the manufacturer for analysis.
44

45 The analysis from the manufacturer should list the following:

- 46 - Concentration, vol %
- 47 - Freeze Point, Degrees F
- 48 - pH, Color, Clarity
- 49 - Reserve Alkalinity, ml
- 50 - Inhibitors: Ferrous, Copper & Brass Corrosion Products
- 51 - Degradation Products
- 52 - Corrosives
- 53 - Scale Promoters
- 54 - Contaminants

55
56 **END OF SECTION**

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SECTION 23 31 00
HVAC DUCTS

PART 1 - GENERAL

SCOPE

This section includes specifications for all duct systems used on this project

RELATED WORK

Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC

Section 23 33 00 – Air Duct Accessories

REFERENCE

Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS

ASTM A90 Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles

ASTM A623 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process

ASTM A527 Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process, Lock-Forming Quality

NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems

UL 181 Standard for Safety for Factory Made Air Ducts and Air Connectors.

DESIGN CRITERIA

Construct all ductwork to be free from vibration, chatter, objectionable pulsations and leakage under specified operating conditions.

Use material, weight, thickness, gauge, construction and installation methods as outlined in the following SMACNA publications, unless noted otherwise:

- HVAC Duct Construction Standards, Metal and Flexible, 3rd Edition, 2005
- HVAC Air Duct Leakage Test Manual, 2nd Edition, 2012
- HVAC Systems - Duct Design, 4th Edition, 2006

Use products which conform to NFPA 90A, possessing a flame spread rating of not over 25 and a smoke developed rating no higher than 50.

DELIVERY, STORAGE AND HANDLING

Promptly inspect shipments to ensure that Ductwork is undamaged and complies with the specification.

Protect Ductwork against damage.

Storage and protection methods must allow inspection to verify products.

PART 2 - PRODUCTS

GENERAL

All sheet metal used for construction of duct shall be 24 gauge or heavier except for round 12” and below may be 26 gauge where allowed in SMACNA HVAC Duct Construction Standards.

MATERIALS

GALVANIZED STEEL SHEET:

Use ASTM A 653 galvanized steel sheet of lock forming quality. Galvanized coating to be 1.25 ounces per square foot, both sides of sheet, G90 in accordance with ASTM A90.

LOW PRESSURE DUCTWORK (Maximum 2 inch pressure class)

Fabricate and install ductwork in sizes indicated on the drawings and in accordance with SMACNA recommendations, except as modified below.

1 Construct so that all interior surfaces are smooth. Use slip and drive or flanged and bolted construction
2 when fabricating rectangular ductwork. Use spiral lock seam construction when fabricating round spiral
3 ductwork. Sheet metal screws may be used on duct hangers, transverse joints and other SMACNA
4 approved locations if the screw does not extend more than 1/2 inch into the duct.

5
6 Provide expanded take-offs or 45 degree entry fittings for branch duct connections with branch ductwork
7 airflow velocities greater than 700 fpm. Square edge 90-degree take-off fittings or straight taps will not be
8 accepted.

9
10 **DUCT SEALANT**

11 Manufacturer: 3M 800, 3M 900, H.B. Fuller/Foster, Hardcast, Hardcast Peal & Seal, Lockformer cold
12 sealant, Mon-Eco Industries, United Sheet Metal, or approved equal. Silicone sealants are not allowed in
13 any type of ductwork installation.

14
15 Install sealants in strict accordance with manufacturer's recommendations, paying special attention to
16 temperature limitations. Allow sealant to fully cure before pressure testing of ductwork, or before startup
17 of air handling systems.

18
19
20 **PART 3 - EXECUTION**

21
22 **INSTALLATION**

23 Verify dimensions at the site, making field measurements and drawings necessary for fabrication and
24 erection. Check plans showing work of other trades and consult with Architect in the event of any
25 interference.

26
27 Install duct to pitch toward outside air intakes and drain to outside of building. Solder or seal seams to
28 form watertight joints.

29
30 Install all motor operated dampers. Do not install ductwork through dedicated electrical rooms or spaces
31 unless the ductwork is serving this room or space.

32
33 Protect diffusers, registers and grilles with plastic wrap or some other approved form of protection to
34 maintain dirt and dust free and to prevent entry of dirt, dust and foreign material into the Ductwork.

35
36 **DUCTWORK SUPPORT**

37 Support ductwork in accordance with SMACNA HVAC Duct Construction Standards.

38
39 **LOW PRESSURE DUCT (Maximum 2 inch pressure class)**

40 Seal all duct, with the exception of transfer ducts, in accordance with SMACNA seal class "A"; all seams,
41 joints, and penetrations shall be sealed.

42
43 Install a manual balancing damper in each branch duct and for each diffuser or grille.

44
45 **END OF SECTION**

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SECTION 23 33 00
AIR DUCT ACCESSORIES

PART 1 - GENERAL

SCOPE

This sections includes accessories used in the installation of duct systems.

REFERENCE STANDARDS

NFPA 90A Standard for Installation of Air Conditioning and Ventilating Systems
SMACNA HVAC Duct Construction Standards - Metal and Flexible, 2nd Edition, 1995
UL 214
UL 555 (6th edition) Standard for Fire Dampers and Ceiling Dampers
UL 555S (4th edition) Leakage Rated Dampers for Use in Smoke Control Systems

SHOP DRAWINGS

Submit for all accessories and include dimensions, capacities, ratings, installation instructions, and appropriate identification.

PART 2 - PRODUCTS

MANUAL VOLUME DAMPERS

Manufacturers: Ruskin, Vent Products, Air Balance, or approved equal.

Dampers must be constructed in accordance with SMACNA Fig. 2-12, Fig. 2-13, and notes relating to these figures, except as modified below.

TURNING VANES

Manufacturers: Aero Dyne, Anemostat, Barber-Colman, Hart & Cooley, or approved equal.

Construct turning vanes and runners for square elbows in accordance with SMACNA Fig. 2-3 and Fig. 2-4 except use only airfoil type vanes. Construct turning vanes for short radius elbows and elbows where one dimension changes in the turn in accordance with SMACNA Fig. 2-5 and Fig. 2-6.

ACCESS DOORS

Access door to be designed and constructed for the pressure class of the duct in which the door is to be installed. Doors in exposed areas shall be hinged type with cam sash lock. Hinges shall be aluminum or steel full length continuous piano type. Doors in concealed spaces may be secured in place with cam sash latches. For both hinged and non hinged doors provide sufficient number of camp sash latches to provide air tight seal when door is closed. Do not use hinged doors in concealed spaces if this will restrict access. Use minimum 1" deep 24 gauge galvanized steel double wall access doors with minimum 24 gauge galvanized steel frames. For non-galvanized ductwork, use minimum 1" deep double wall access door with frame that shall use materials of construction identical to adjacent ductwork. Provide double neoprene gasket that shall provide seals from the frame to the door and frame to the duct. When access doors are installed in insulated ductwork or equipment provide insulated doors with insulation equivalent to what is provided for adjacent ductwork or equipment. Access doors constructed with sheet metal screw fasteners will not be accepted.

LOUVERS

Manufacturers: Greenheck, or approved equivalent by Airolite, Industrial Louvers, American Warming and Ventilating, Construction Specialties, Ruskin.

Extruded aluminum alloy as and accessories and construction as scheduled. Provide with bird screen of 1/2" x 1/2" mesh aluminum in 12 gauge aluminum.

Louver to bear the AMCA certified ratings seal for both air performance and water penetration, having a free area not less than scheduled based on a 48" x 48" section

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PART 3 - EXECUTION

MANUAL VOLUME DAMPERS

Install manual volume dampers in each branch duct and for each grille, register, or diffuser as far away from the outlet as possible while still maintaining accessibility to the damper. Install so there is no flutter or vibration of the damper blade(s).

TURNING VANES

Install turning vanes in all rectangular, mitered elbows in accordance with SMACNA standards and/or manufacturer's recommendations.

If duct size changes in a mitered elbow, use single wall type vanes with a trailing edge extension. If duct size changes in a radius elbow or if short radius elbows must be used, install sheetmetal turning vanes in accordance with SMACNA Figure 2-5 and Figure 2-6.

ACCESS DOORS

Install access doors where specified, indicated on the drawings, and in locations where maintenance, service, cleaning or inspection is required. Examples include, but are not limited to motorized dampers, fire and smoke dampers, smoke detectors, fan bearings, heating and cooling coils, filters, valves, and control devices needing periodic maintenance.

Size and numbers of duct access doors to be sufficient to perform the intended service. Minimum access door size shall be 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, or other size as indicated.

LOUVERS

Louvers are furnished and installed by Owner.

FLASHINGS

Flashing for wall penetrations with ductwork or the installation of louvers and wall mounted fans, shall be sealed water tight to the building wall.

END OF SECTION

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SECTION 23 34 00
HVAC FANS

PART 1 - GENERAL

SCOPE

This section includes specifications for fans that are not an integral part of a manufactured device.

RELATED WORK

Section 23 05 13 - Common Motor Requirements for HVAC Equipment
Section 23 05 31 - HVAC Ducts
Section 23 05 33 - Air Duct Accessories

REFERENCE STANDARDS

AMCA 203 AMCA Fan Application Manual - Troubleshooting
AMCA 210 Laboratory Method of Testing Fans for Rating
NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems
NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations

QUALITY ASSURANCE

Refer to division 1, Basic Requirements, Equals and Substitutions.

SHOP DRAWINGS

Include dimensions, capacities, fan curves, materials of construction, ratings, weights, motors and drives, sound power levels, appropriate identification and vibration isolation for all equipment. Sound power levels to be based on tests performed in accordance with AMCA Standard 300.

Fan curves shall indicate the relationship of CFM to static or total pressure for various fan speeds. Brake horsepower, recommended selection range, and limits of operation are to also be indicated on the curves. Indicate operating point on the fan curves at design air quantity and indicate the manufacturer's recommended drive loss factor for the specific application. Tabular fan performance data is not acceptable.

OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

DESIGN CRITERIA

Tested and certify all fans in accordance with the applicable AMCA test code.

Each fan and motor combination shall be capable of delivering 110% of air quantity scheduled at scheduled static pressure. The motor furnished with the fan shall not operate into the motor service factor when operating under these conditions. Consider drive efficiency in motor selection according to manufacturer's published recommendation or according to AMCA Publication 203, Appendix L.

Where inlet and outlet ductwork at any fan is changed from that shown on the drawings, provide any motor, drive and/or wiring changes required due to increased static.

All roof mounted equipment to be provided with curbs as an accessory to the fan and be compatible with the roof on which the equipment is to be installed .

PART 2 - PRODUCTS

GENERAL

Use fan size, class, type, arrangement, and capacity as scheduled.

Furnish complete with motors, wheels, drive assemblies, bearings, vibration isolation devices, and accessories required for specified performance and proper operation. All single phase motors to have inherent thermal overload protection. Provide variable pitch sheaves for drives 3 hp and smaller, fixed pitch sheaves for drives 5 hp and larger. Design all drives for 150% of motor rating.

1 Use OSHA approved belt guards that totally enclose the entire drive. Construct guards of expanded metal
2 to allow for ventilation; provide tachometer openings at shaft locations.

3
4 Statically and dynamically balance all fans so they operate without objectionable noise or vibration.

5
6 Use AMCA Type A spark resistant construction for all fans handling flammable or explosive vapors.

7
8 **SIDEWALL CENTRIFUGAL FANS**

9 Manufacturers: Carnes, Greenheck, Cook, Jenn-Air, ACME, Penn, or approved equal.

10
11 Dome type with spun aluminum housing, non-overloading centrifugal wheel, factory mounted and wired
12 motor and disconnect switch housed in a separate ventilated compartment, belt or drive drive as scheduled,
13 120 volt electrically operated control damper with blade edge and jamb seals, damper operator, and
14 birdscreen.

15
16 Provide accessories as scheduled.

17
18 **SIDEWALL PROPELLER FANS**

19 Manufacturers: Greenheck, Penn, ACME, Cook, S&P or approved equal.

20
21 Constructed of steel with angle iron reinforcing and motor support frame, die formed propeller blades of
22 aluminum construction or drive drive as scheduled, electric operated control damper with blade edge and
23 jamb seals, damper operator, birdscreen, and screened inlet/fan guard. Unless a special coating is
24 scheduled, paint fans with a prime coat after metal cleaning and surface preparation; apply a second coat of
25 paint to all exterior surfaces.

26
27 Provide accessories as scheduled and factory fabricated wall sleeves.

28
29 **CEILING EXHAUST FANS**

30 Carnes, Greenheck, Penn, Jenn-Air, Cook, ACME, S&P, or approved equal.

31
32 Centrifugal blower wheel, steel housing with acoustical lining, integral exhaust grille, adjustable mounting
33 brackets to allow for any ceiling thickness, permanently lubricated motor, integral junction box with
34 permanently lubricated and thermally protected motor factory wired, and backdraft damper. Provide wall,
35 eave, or roof discharge assembly, as indicated on the drawings.

36
37
38 **PART 3 - EXECUTION**

39
40 **INSTALLATION**

41 Install as shown on the drawings, as detailed, and according to manufacturer's installation instructions.

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44 **END OF SECTION**

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SECTION 23 37 13
DIFFUSERS, REGISTERS & GRILLES

PART 1 - GENERAL

SCOPE

This section includes specifications for air terminal equipment.

RELATED WORK

Section 23 31 00 - HVAC Ducts

Section 23 33 00 - Air Duct Accessories

Section 23 05 93 - Testing, Adjusting and Balancing for HVAC

REFERENCE STANDARDS

NFPA 90A - Installation of Air Conditioning and Ventilation Systems.

UL 181 - Factory-Made Air Ducts and Connectors.

ARI-ADC Standard 880

SUBMITTALS

Refer to division 1, Basic Requirements, Submittals.

Furnish submittal information including, but not limited to, the following:

Manufacturer's name and model number

Identification as referenced in the documents

Capacities/ratings

Materials of construction

Sound ratings

Dimensions

Finish

Color selection charts where applicable

Manufacturer's installation instructions

All other appropriate data

DESIGN CRITERIA

All performance data shall be based on tests conducted in accordance with Air Diffusion Council (ADC)

Test Code 1062 GRD 84.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Carnes, Krueger, Titus, Metal-Aire, and E.H. Price.

SIDE-WALL REGISTERS AND GRILLES

Carnes model as scheduled. Titus, Metal Aire, Krueger,,Price or prior approved equivalent.

Steel unless otherwise indicated, with frame type appropriate to installation.

Double deflection type blade supply registers and supply grilles allow deflection adjustment in all direction.

Fixed blade (0 degree, 30 degree or 45 degree) core return and exhaust registers and grilles.

Register and grille sizes as shown on drawings and/or as scheduled.

- 1
- 2 White, baked enamel finish or powder coat finish, unless otherwise indicated.
- 3
- 4 Screw holes on surface counter sunk to accept recessed type screws.
- 5

6

7 **PART 3 - EXECUTION**

8

9 **INSTALLATION**

- 10 Install grilles, registers and diffusers as shown on drawings and according to manufacturer's instructions.
- 11
- 12 Seal connections between ductwork drops and diffusers/grilles airtight.
- 13

14 **END OF SECTION**

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SECTION 23 55 00
FUEL-FIRED HEATERS

PART 1 - GENERAL

SCOPE

This section includes specifications for fuel-fired heaters.

REFERENCE STANDARDS

AGA	American Gas Association
ANSI Z83.4	Direct Gas Fired Makeup Air Heaters
GAMA	Gas Appliance Manufacturers Association
NEC	National Electrical Code

WARRANTY

Direct fired make-up air units warranted for 12 months from date of startup.

PART 2 - PRODUCTS

DIRECT FIRED MAKE-UP AIR UNITS

Manufacturers: Greenheck, Hastings, Reznor, Rupp, Sterling, Trane or Weather-Rite.

AGA certified for use with propane gas.

Entire unit shall be ETL Certified per ANSI Z83.4 or ANSI Z83.18 and bear an ETL mark.

Outdoor units cabinet constructed of 18 gauge aluminized steel with enamel finish or 18 gauge galvanized steel. Gasketed access panels and doors for access to all components including blower, burner and electrical components. All seams to be foam taped or caulked to prevent moisture from entering the unit. Provide a weatherhood constructed of 16 gauge galvanized steel with galvanized bird screen.]

Insulate cabinet with 1" thick foil faced fiberglass. Comply with NFPA 90A and NFPA 90B and erosion requirements of UL 181

Service receptacle: 120 VAC GFCI service outlet shall be factory-provided for field installation.

Provide centrifugal forward curved fan with statically and dynamically balanced wheels and one piece through shaft and heavy duty sealed ball bearings with extended grease fittings. Ratings are to be established in accordance with AMCA 210, "Laboratory Methods of Testing Fans for Rating".

Fan shall be isolated from unit with vibration isolators and flexible connectors to prevent vibration from transmitting to the building.

Motors shall be open drip proof with adjustable belt drives.

Shall be equipped for operation on LP gas with a maximum rated inlet gas pressure of 1/2 PSI. A gas pressure regulator shall be supplied.

Verify inlet pressure requirement and available inlet LP gas pressure.

Modulating type direct fired burner shall be constructed of cast iron gas manifold connected to stainless steel mixing plates, turndown ratio of 25:1.

Furnace shall be assembled, piped, and wired direct gas-fired system of 92% efficiency with a draw through design and field adjustable burner baffles with a direct spark ignition system.

- 1 AGA certified gas controls, meeting FM requirements and meeting IRI requirements including flame
2 safeguard relay with flame sensor, high & low gas pressure switches, intermittent spark or hot surface
3 ignition system, manual main shut-off valve, electronic modulating gas valve, pilot controls, electric safety
4 shut-off valve, main and pilot gas regulators suitable for inlet pressure indicated on the drawings.
5
- 6 Control panel / connections: Unit shall have an electrical control center where all high and low voltage
7 connections are made. Control center shall be constructed to permit single-point high voltage power supply
8 connections.
9
- 10 Provide complete with the following electric controls as noted in the schedule on the drawings. Factory
11 installed motor starter with auxiliary contacts, control transformer, high temperature limit switch, low
12 outlet temperature shut-off, high and low flow proving switches, automatic mild weather burner lockout.
13 Contain all electrical in a NEMA 1 control box with fused disconnect,
14
- 15 Refer to Sections 23 09 93 for temperature control sequence.
16
- 17 Provide filter section with 2" thick, MERV 8 throwaway filters. Provide dirty filter switch with indicating
18 light. Filter section to be low velocity V-bank type.
19
- 20 Provide units complete with the following accessories:
21 Intake shut-off damper with motor and end switch.
22 Outside air inlet hood with screened inlet.
23
24
25

26 **PART 3 - EXECUTION**

27 **INSTALLATION**

28 Install units as shown on plans, as detailed and according to the manufacturer's installation instructions.
29
30 manufacturer's instructions.
31
32

33 **MAKE -UP AIR UNITS**

34 Install on concrete pad, elevated on a steel stand as indicated on the drawings. Install per the
35 manufacturer's written instructions and in compliance with applicable codes.
36
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38 Make supply duct connection and run duct to inside building
39
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41 **END OF SECTION**
42