



**RFB NO. 316003-  
REBID**

# **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. 316003-REBID CONCRETE FLATWORK REMOVAL AND REPLACEMENT CITY-COUNTY BUILDING 210 MARTIN LUTHER KING JR. BLVD. MADISON, WISCONSIN**

Due Date / Time: **TUESDAY, MARCH 20, 2018 / 2:00 P.M.**

Location: **PUBLIC WORKS OFFICE**

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

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

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FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

RYAN SHORE, PROJECT MANAGER  
TELEPHONE NO.: 608/266-4475  
FAX NO.: 608/267-1533  
E-MAIL: SHORE@COUNTYOFDANE.COM

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## 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., TUESDAY, MARCH 20, 2018**

#### **REQUEST FOR BIDS NO. 316003-REBID**

#### **CONCRETE FLATWORK REMOVAL AND REPLACEMENT**

#### **CITY-COUNTY BUILDING**

**210 MARTIN LUTHER KING JR. BLVD.**

**MADISON, WISCONSIN**

Dane County is inviting bids for construction services for concrete flatwork removal and replacement and installation of a hydronic snow melt system at the City-County Building. Only firms with capabilities, experience & expertise with similar projects should obtain this Request for Bids document & submit Bids.

Request for Bids document may be obtained after **2:00 p.m. on February 13, 2018** by downloading it from [bids-pwht.countyofdane.com](http://bids-pwht.countyofdane.com). Please call Ryan Shore, Project Manager, at 608/266-4475, or our office at 608/266-4018, for any questions or additional information.

All Bidders must be a registered vendor with Dane County & pay an annual registration fee before award of Contract. Complete Vendor Registration Form at [danepurchasing.com/Account/Login?](http://danepurchasing.com/Account/Login?) or obtain one by calling 608/266-4131. Complete Pre-qualification Application for Contractors at [countyofdane.com/pwht/BVC\\_Application.aspx](http://countyofdane.com/pwht/BVC_Application.aspx) or obtain one by calling 608/266-4029.

A pre-bid facility tour will be held February 23, 2018 at 1:00 p.m. at the City-County Building, starting in front of the entrance on Martin Luther King Jr. Blvd. Bidders are strongly encouraged to attend this tour.

**PUBLISH: FEBRUARY 13 & 20, 2018 - WISCONSIN STATE JOURNAL**

**FEBRUARY 13 & 20, 2018 - THE DAILY REPORTER**



# 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/](http://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

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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 February 23, 2018 at 1:00 p.m. at the City County Building, 210 Martin Luther King Jr. Blvd, starting in front of the entrance on Martin Luther King Jr. Blvd.. 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 available 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 Owner or Architect / Engineer's attention at least ten (10) calendar 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 Consultant / 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 no more than three (3) 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) business days after Bid Due Date. 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) business 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) business 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) calendar 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 ten (10) business days of 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 ten (10) business days 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 may solicit bids from this ESB listing: [pdf.countyofdane.com/commissions/2013-2015\\_Targeted\\_Business\\_Directory.pdf](http://pdf.countyofdane.com/commissions/2013-2015_Targeted_Business_Directory.pdf).
- G. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Report 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) business 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 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. Wisconsin Statute 77.54 (9m) allows building materials that become part of local unit government facilities to be exempt from sales & use tax. Vendors & materials suppliers may not charge Bidders sales & use tax on these purchases. This does not include highways, streets or roads. Any other Sales, Consumer, Use & other similar taxes or fees required by law shall be included in Bid.
- 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 or emailed 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. Bidder shall carefully read requests for Alternate Bids, and thoroughly examine Drawings and Specifications to determine extent various changes and conditions will affect Bid.
- B. Space is provided in Bid Form for requested Alternate Bids. Failure to submit bid for any requested Alternate Bids may result in rejection of entire Bid.
- C. Bidder shall state amount to be added / subtracted to Base Bid for providing alternates, including all incidentals, omissions, additions, and adjustments as may be necessary or required by such changes. If there is no difference in price, Bidder shall state, "No Change".

D. Descriptions of requested Alternate Bids are as set forth in Construction Documents.

**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. Not Applicable.

**20. SPECIAL HAZARDS COVERAGE**

A. Not Applicable.

**FORM A**

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

In accordance with General Conditions of Contract, submit this Emerging Small Business Report within ten (10) days after Bid Due Date.

PROJECT NAME: \_\_\_\_\_

\_\_\_\_\_

BID NO.: \_\_\_\_\_ BID DUE DATE: \_\_\_\_\_

**BIDDER INFORMATION**

COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

TELEPHONE NO.: \_\_\_\_\_

CONTACT PERSON: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

**FORM B**

Page \_\_\_ of \_\_\_

**DANE COUNTY**

(Copy this Form as necessary to provide complete information)

**EMERGING SMALL BUSINESS REPORT - INVOLVEMENT**

COMPANY NAME: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

BID NO.: \_\_\_\_\_ BID DUE DATE: \_\_\_\_\_

ESB NAME: \_\_\_\_\_

CONTACT PERSON: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE NO & EMAIL.: \_\_\_\_\_

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

ESB NAME: \_\_\_\_\_

CONTACT PERSON: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

PHONE NO & EMAIL.: \_\_\_\_\_

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

**FORM C**

Page \_\_\_ of \_\_\_

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

(Copy this Form as necessary to provide complete information)

COMPANY NAME: \_\_\_\_\_

PROJECT NAME: \_\_\_\_\_

BID NO.: \_\_\_\_\_ BID DUE DATE: \_\_\_\_\_

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

**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

Name of Bidding Firm: \_\_\_\_\_

**BID FORM**

**BID NO. 316003**

**PROJECT: CONCRETE FLATWORK REMOVAL AND REPLACEMENT  
CITY-COUNTY BUILDING**

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

**NOTE: WISCONSIN STATUTE 77.54 (9M) ALLOWS FOR NO SALES & USE TAX ON  
THE PURCHASE OF MATERIALS FOR COUNTY PUBLIC WORKS PROJECTS.**

**BASE BID - LUMP SUM:**

Construction services for concrete flatwork removal and replacement and installation of a hydronic snow melt system at the City-County Building. 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 Administration must have this project completed by November 16, 2018. Assuming this Work can be started by May 21, 2018, what dates can you commence and complete this job?

Commencement Date: \_\_\_\_\_ Completion Date: \_\_\_\_\_  
(final, not substantial)

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 sixty (60) calendar 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: \_\_\_\_\_

**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  
 Project Experience / Reference Summary

**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](http://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](http://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 25.13. 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](http://www.danepurchasing.com/partner_benefit.aspx)

**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 bid, application or proposal for a contract or agreement 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](http://www.nlr.gov) and [werc.wi.gov](http://werc.wi.gov).

For reference, Dane County Ordinance 25.09 is as follows:

- (1) 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 Controller 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.**

Include this completed Certification with your bid, application or proposal.

**COUNTY OF DANE**

**PUBLIC WORKS CONSTRUCTION CONTRACT**

Contract No. \_\_\_\_\_ Bid No. 316003

Authority: 2017 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 provide Concrete Flatwork Removal and Replacement with Hydronic Snowmelt System at the City County Building, 210 Martin Luther King Jr. Blvd. including Alternate Bid[s] X, Y & Z (if applicable) ("the Project"); and

**WHEREAS**, CONTRACTOR, whose address is \_\_\_\_\_ is able and willing to construct the Project, in accordance with the Construction Documents;

**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, General 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 Engineering 370, LLC (hereinafter referred to as "the Architect / Engineer"), and as enumerated in the Project Manual Table of Contents, 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, and to make payments on account thereof as provided in Article entitled, "Payments to Contractor" of the General 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) business 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 25.13 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.** 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.

**9.** 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.

**10.** 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) business days prior to commencing Work under 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

# AIA<sup>®</sup> Document A310<sup>™</sup> – 2010

## Bid Bond

**CONTRACTOR:**

*(Name, legal status and address)*

**SURETY:**

*(Name, legal status and principal place of business)*

**OWNER:**

*(Name, legal status and address)*

**BOND AMOUNT:**

**PROJECT:**

*(Name, location or address, and Project number, if any)*

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

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

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner 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. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_

_____	<i>(Contractor as Principal)</i>	_____	<i>(Seal)</i>
<i>(Witness)</i>	_____	_____	<i>(Title)</i>
	<i>(Surety)</i>	_____	<i>(Seal)</i>
<i>(Witness)</i>	_____	_____	<i>(Title)</i>

**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.**

# AIA<sup>®</sup> Document A312<sup>™</sup> – 2010

## Performance Bond

**CONTRACTOR:**

*(Name, legal status and address)*

**SURETY:**

*(Name, legal status and principal place of business)*

**OWNER:**

*(Name, legal status and address)*

**CONSTRUCTION CONTRACT**

Date:

Amount:

Description:

*(Name and location)*

**BOND**

Date:

*(Not earlier than Construction Contract Date)*

Amount:

Modifications to this Bond:  None  See Section 16

**CONTRACTOR AS PRINCIPAL**

Company: *(Corporate Seal)*

**SURETY**

Company: *(Corporate Seal)*

Signature: \_\_\_\_\_

Name \_\_\_\_\_  
and Title: \_\_\_\_\_

*(Any additional signatures appear on the last page of this Performance Bond.)*

Signature: \_\_\_\_\_

Name \_\_\_\_\_  
and Title: \_\_\_\_\_

*(FOR INFORMATION ONLY — Name, address and telephone)*

**AGENT or BROKER:**

**OWNER'S REPRESENTATIVE:**

*(Architect, Engineer or other party:)*

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

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

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

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

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

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

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

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

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

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

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

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

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

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

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

#### § 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

Sample

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

**CONTRACTOR AS PRINCIPAL**

**SURETY**

Company: \_\_\_\_\_

*(Corporate Seal)*

Company: \_\_\_\_\_

*(Corporate Seal)*

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Address \_\_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Address \_\_\_\_\_

**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.**



# AIA® Document A312™ – 2010

## Payment Bond

**CONTRACTOR:**

*(Name, legal status and address)*

**SURETY:**

*(Name, legal status and principal place of business)*

**OWNER:**

*(Name, legal status and address)*

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

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

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

**CONSTRUCTION CONTRACT**

Date:

Amount:

Description:

*(Name and location)*

**BOND**

Date:

*(Not earlier than Construction Contract Date)*

Amount:

Modifications to this Bond:  None  See Section 18

**CONTRACTOR AS PRINCIPAL**

Company: *(Corporate Seal)*

**SURETY**

Company: *(Corporate Seal)*

Signature: \_\_\_\_\_

Name \_\_\_\_\_  
and Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Name \_\_\_\_\_  
and Title: \_\_\_\_\_

*(Any additional signatures appear on the last page of this Payment Bond.)*

*(FOR INFORMATION ONLY — Name, address and telephone)*

**AGENT or BROKER:**

**OWNER'S REPRESENTATIVE:**

*(Architect, Engineer or other party:)*

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

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

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

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

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

#### § 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

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

**CONTRACTOR AS PRINCIPAL**

Company: \_\_\_\_\_

(Corporate Seal)

**SURETY**

Company: \_\_\_\_\_

(Corporate Seal)

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Address \_\_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

Address \_\_\_\_\_

**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.**

**EQUAL BENEFITS COMPLIANCE PAYMENT CERTIFICATION FORM**

**PURPOSE**

25.13 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 25.13 “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 25.13 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.

# 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 Engineer or Public Works Project Manager 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 Manager is appointed by and responsible to Department. Public Works Project Manager 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 Manager 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 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 submit three (3) copies of all Shop Drawings for each submission, until receiving final approval. After final approval, provide five (5) additional copies for distribution and such other copies 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 Engineer's approval, one (1) copy shall remain in 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 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 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 Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Engineer will not consider partial lists.
- E. Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Engineer's approval shall not relieve Contractor from responsibility for errors or omissions in Shop Drawings.
- F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until 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 times 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. 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 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 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 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 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 Engineer, of equal substance and function. 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 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 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, 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 Engineer and Department, shall constitute violation of Contract, and that 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. 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 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, 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 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 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, 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 Manager.
- 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 Engineer and Department.
- F. Remove from project or take other corrective action upon notice from Engineer or Department for Contractor's employees whose work is considered by 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 Engineer or Public Works Project Manager shall not relieve Contractor of any obligations.

#### **14. WEATHER CONDITIONS**

- A. In event of temporary suspension of work, or during inclement weather, or whenever 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 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 is 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 Engineer and / or Department, in emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Engineer and / or Department immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to 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, Engineer's, or Public Works Project Manager's instructions require any work to be specially tested or approved, Contractor shall give Engineer and Public Works Project Manager 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. 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 Engineer and Public Works Project Manager 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 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 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 Manager 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 Engineer and Public Works Project Manager 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 Engineer's and Public Works Project Manager'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) business 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 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 Engineer and Public Works Project Manager of such conditions before they are disturbed. Engineer will thereupon promptly investigate conditions, and if Engineer finds that they materially differ from those shown on Drawings or indicated in Specifications, 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) business 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) business 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) business 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 Manager.
- 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 labor 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 Manager.

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 Engineer and Public Works Project Manager.

## **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.

B. Submit these estimates for approval first to Engineer, then to Public Works Project Manager. 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.

C. 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 Engineer and approval of Department.

- D. Contractor shall submit for approval first to Engineer, and then to Public Works Project Manager 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.
- E. 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) business days from receipt of payment.
- F. Payments by County will be due within forty-five (45) business days after receipt by Department of Application and Certificate for Payment.
- G. 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 Engineer and Public Works Project Manager find that progress of the Work corresponds with Construction Schedule. If Engineer and Public Works Project Manager 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.
- H. 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.
- I. County will make final payment within sixty (60) calendar 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.
- J. 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.
- K. 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. Use "Dane County, Wisconsin Contractor Wage Affidavit" form 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, workers, 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 (5<sup>th</sup>) business 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 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) business 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 MANAGER'S AUTHORITY**

- A. Public Works Project Manager 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, 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. ENGINEER'S AUTHORITY**

- A. Engineer is retained by, and is responsible to Department acting for County.
- B. 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. 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. Engineer shall provide responsible observation of construction. Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of Construction Documents.
- E. Engineer shall be interpreter of conditions of Construction Documents and judge of its performance.

- F. Within reasonable time, Engineer shall make decisions on all matters relating to progress of the Work or interpretation of Construction Documents.
- G. Engineer's decisions are subject to review by Public Works Project Manager.

**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 Engineer and Public Works Project Manager.
- 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.

### **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) business 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 affect 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) business 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 25.13, 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 Manager, 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, worker 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 Statute 66.0903. Use "Dane County, Wisconsin Contractor Wage Affidavit" form included in Supplementary Conditions.

#### **48. CLAIMS**

- A. No claim may be made until Department's Assistant Public Works Director has reviewed 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 Assistant Public Works Director the 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 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 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 50.A.2.b) shall not extend to liability of 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 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 50.A.2 & 50.A.3. 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) business days written notice has been received by Risk Manager."

**B. Builder's Risk:**

1. County shall provide Builder's Risk insurance coverage for its insurable interests in construction or renovation projects with completed value of \$1,000,000 or less. Therefore, if project completed value is more than \$1,000,000, Contractor shall obtain and maintain in force, at its own expense, Builder's Risk Insurance on all risks for amount equal to full completed value of covered structure or replacement value of alterations or additions. Any deductible shall not exceed \$25,000 for each loss. Policy shall include occupancy clause and list Dane County as loss payee.

**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 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 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.

# 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 project Architect / Engineer, for approval.


**AIA** Document G702™ – 1992

**Application and Certificate for Payment**

TO OWNER:	PROJECT:	APPLICATION NO:	Distribution to:
FROM CONTRACTOR:	VIA ARCHITECT:	PERIOD TO:	OWNER <input type="checkbox"/>
		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. AIA Document G703™, Continuation Sheet, is attached.

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  
(Columns D + E on G703) ..... \$ \_\_\_\_\_

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

Total Retainage (Lines 5a + 5b, or Total in Column I of G703) ..... \$ \_\_\_\_\_

6. TOTAL EARNED LESS RETAINAGE ..... \$ \_\_\_\_\_  
(Line 4 minus Line 5 Total)

7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... \$ \_\_\_\_\_  
(Line 6 from prior Certificate)

8. CURRENT PAYMENT DUE ..... \$ \_\_\_\_\_

9. BALANCE TO FINISH, INCLUDING RETAINAGE ..... \$ \_\_\_\_\_  
(Line 3 minus Line 6)

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 now due.

CONTRACTOR:  
By: \_\_\_\_\_ Date: \_\_\_\_\_  
State of: \_\_\_\_\_  
County of: \_\_\_\_\_  
Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_

Notary Public:  
My commission expires: \_\_\_\_\_

---

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ _____	\$ _____
Total approved this month	\$ _____	\$ _____
<b>TOTAL</b>	<b>\$ _____</b>	<b>\$ _____</b>
NET CHANGES by Change Order	\$ _____	\$ _____

**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.

**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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**Continuation Sheet**

AIA Document G702™-1992, Application and Certificate for Payment, or G732™-2009, Application and Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached. In tabulations below, amounts are in US dollars. 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 <i>(Not in D or E)</i>	G TOTAL COMPLETED AND STORED TO DATE <i>(D+E-F)</i>	H BALANCE TO FINISH <i>(C-G)</i>	I RETAINAGE <i>(if variable rate)</i>
			FROM PREVIOUS APPLICATION <i>(D-E)</i>	THIS PERIOD				
GRAND TOTAL								

**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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NOT FOR SUBMITTAL

**2. CONTRACTOR WAGE AFFIDAVIT**

- A. 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 in form as hereinafter set forth in this section. Affidavit affirms that all persons employed by contractor or by any of contractor's subcontractors on such contract have been paid no less than minimum wages established under Dane County Ordinances, Chapter 40, Subchapter II (Minimum Wage Ordinance) and in effect at date of execution of contract, that full payment of wages earned has been made, and that no rebates either directly or indirectly have been made. Form of such affidavit is included in this section.
- B. Form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.



### 3. INSURANCE

A. **Contractor Carried Insurance.** In order to protect itself and the County, Contractor shall not commence work under this Contract until obtaining all required insurance and the County has approved such insurance. Contractor shall not allow any subcontractor to commence work on subcontract until insurance required of subcontractor has been so obtained and approved.

1. **Pollution Insurance Policy**

Contractor shall procure and maintain during life of this Contract, Pollution Insurance Policy in amount of at least \$1,000,000 per occurrence, \$5,000,000 aggregate.

SAMPLE ONLY -  
NOT FOR  
SUBMITTAL

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. Change Procedures
  6. Alternates
  7. Coordination
  8. Cutting and Patching
  9. Conferences
  10. Progress Meetings
  11. Submittal Procedures
  12. Proposed Products List
  13. Shop Drawings
  14. Product Data
  15. Samples
  16. Manufacturers' Instructions
  17. Manufacturers' Certificates
  18. Quality Assurance / Quality Control of Installation
  19. References
  20. Interior Enclosures
  21. Protection of Installed Work
  22. Parking
  23. Staging Areas
  24. Occupancy During Construction and Conduct of Work
  25. Protection
  26. Progress Cleaning
  27. Products
  28. Transportation, Handling, Storage and Protection
  29. Product Options
  30. Substitutions
  31. Starting Systems
  32. Demonstration and Instructions
  33. Contract Closeout Procedures
  34. Final Cleaning
  35. Adjusting
  36. Operation and Maintenance Data
  37. Spare Parts and Maintenance Materials
  38. As-Built and Record 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 concrete flatwork removal and replacement and installation of a hydronic snow melt system at the City-County Building.
- B. Work by Owner:
  - 1. Removal and replacement of existing concrete benches, refuse containers and USPS mailbox.
- 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 and access by Owner.

## 1.4 APPLICATIONS FOR PAYMENT

- A. Submit one (1) original copies with “wet” signatures 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.
- D. Submit Applications for Payment to Architect / Engineer for initial approval. Architect / Engineer will forward approved copies to Owner who will also approve & process for payment.

## 1.5 CHANGE PROCEDURES

- A. Change Order Forms: Dane County Contract Change Order, Form 014-32-20 (latest issue).
- B. Contractor's costs for Products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from contingency allowance.

## 1.6 ALTERNATES

- A. Alternates quoted on Bid Form shall be reviewed and accepted or rejected at Owner's option.
- B. Coordinate related work and modify surrounding work as required.

- C. Schedule of Alternates: there are no alternates proposed for this project.

#### 1.7 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. Refer to Drawings for recommended work sequence and duration.
- E. Contractor shall provide Public Works Project Engineer with work plan that ensures the Work will be completed within required time of completion.
- F. Public Works Project Manager may choose to photograph or videotape site or workers as the Work progresses.

#### 1.8 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.

#### 1.9 CONFERENCES

- A. There will be a pre-bid conference for this project; see Instructions to Bidders.
- B. Owner will schedule a preconstruction conference after Award of Contract for all affected parties.
- C. Contractor shall submit Construction Schedule at pre-construction meeting.
- D. When required in individual Specification section, convene a pre-installation conference at project site prior to commencing work of Section.

#### 1.10 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at minimum of one (1) per week with Public Works Project Manager.
- B. Preside at meetings, record minutes, and distribute copies within two (2) business days to those affected by decisions made.
- C. Attendance at progress meetings by General Contractor, subcontractors, or their authorized representative, is mandatory.
- D. Contractors shall give verbal reports of progress on the Work, discuss schedule for upcoming period and present all conflicts, discrepancies or other difficulties for resolution.
- E. Day & time of progress meetings to be determined at pre-construction meeting.

#### 1.11 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.

#### 1.12 PROPOSED PRODUCTS LIST

- A. Within fifteen (15) business 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.

#### 1.13 SHOP DRAWINGS

- A. Submit number of copies that Contractor requires, plus three (3) copies that shall be retained by Public Works Project Manager.

#### 1.14 PRODUCT DATA

- A. Submit number of copies that Contractor requires, plus two (2) copies that shall be retained by Public Works Project Manager.

- 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.

#### 1.15 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of Product.
- B. Submit samples of finishes from full range of manufacturers' standard colors, textures, and patterns for Public Works Project Manager's selection.

#### 1.16 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.

#### 1.17 MANUFACTURERS' CERTIFICATES

- A. When specified in individual Specification sections, submit manufacturers' certificate to Public Works Project Manager 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.

#### 1.18 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.

#### 1.19 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 Public Works Project Manager before proceeding.

#### 1.20 INTERIOR ENCLOSURES

- A. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent distribution of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

1.21 PROTECTION OF INSTALLED WORK

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

1.22 PARKING

- A. Arrange for temporary parking areas to accommodate construction personnel. Parking shall not be available at the Work site.
- B. All contractors and their employees shall cooperate with General Contractor and others in parking of vehicles to avoid interference with normal operations and construction activities.
- C. Do not obstruct existing service drives and parking lots with equipment, materials and / or vehicles. Keep accessible for Owner's use at all times.

1.23 STAGING AREAS

- A. Coordinate staging areas with Public Works Project Manager prior to starting the Work.
- B. On-site space for use as staging areas and storage of materials is limited and will be apportioned among various Contractors as their needs dictate with due regard for storage requirements of each Contractor. Each Contractor shall be responsible for safety of equipment and materials that are stored on site.

1.24 OCCUPANCY DURING CONSTRUCTION AND CONDUCT OF WORK

- A. Smoking is prohibited on Dane County property.
- B. Owner reserves right at any time to dismiss from premises any Contractor or construction personnel that do not uphold requirements of this Section.
- C. Owner shall not be held liable for any lost time, wages, or impacts to construction schedule by any Contractor or construction personnel dismissed for failure to uphold requirements of this Section.
- D. Areas of existing facility will be occupied during period when the Work is in progress. Work may be done during normal business hours (8:00 am to 4:30 pm), but confer with Owner, schedule work and store materials so as to interfere as little as possible with normal use of premises. Notify Owner when coring or similar noise making work is to be done and obtain Owner's written approval of schedule. If schedule is not convenient for Owner, reschedule and resubmit new times for Owner approval. Coring of floor along with other noisy work may have to be done on second and third shifts.
- E. Contractor shall, at all times, provide approved, safe walkways and facility entrances for use by Owner, employees and public.

- F. Contractor shall provide adequate protection for all parts of facility, its contents and occupants wherever the Work under this Contract is to be performed.
- G. Each Contractor shall arrange with Owner to make necessary alterations, do new work, make connections to all utilities, etc., at such times as will not cause interruption of utility services to facility. Contractor doing this work shall protect, cap, cut off and / or replace and relocate existing pipes, electrical work and other active utilities encountered which may interfere with new construction work.
- H. New work in extension of existing work shall correspond in all respects with that to which it connects or similar existing work unless otherwise indicated or specified.
  - 1. Existing work shall be cut, altered, removed or replaced as necessary for performance of Contract obligations.
  - 2. Work remaining in place, damaged or defaced by reason of work done under this Contract shall be restored equal to its condition at time of Award of Contract.
  - 3. If removal of work exposes discolored or unfinished surfaces or work out of alignment, such surfaces shall be refinished or materials replaced as necessary to make continuous work uniform and harmonious.
- I. Contractor is not responsible for providing & maintaining temporary toilet facilities.

#### 1.25 PROTECTION

- A. Contractor shall protect from damage / injury all trees, shrubs, hedges, plantings, grass, mechanical, electrical & plumbing equipment, walks and driveways and pay for any damage to same resulting from insufficient or improper protection.
- B. Contractor shall provide and maintain barricades & signage to prohibit public access to construction site.
- C. Contractor shall provide and maintain guard lights at all barricades, railings, obstructions in streets, roads or sidewalks and at all trenches adjacent to public walks or roads.

#### 1.26 PROGRESS CLEANING

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

#### 1.27 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.

1.28 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

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

1.29 PRODUCT OPTIONS

- A. Where definite material is specified, it is not intentional 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 Public Works Project Manager for approval at least seven (7) business days prior to Bid Due Date.
- B. Products and materials that are not specified, but have been approved for use by Public Works Project Manager shall be identified in addenda to all bidding contractors.
- C. Requests for material or product substitutions submitted after Bid Due Date may be considered. Owner reserves right to approve or reject substitutions based on Specification requirements and intended use.

1.30 SUBSTITUTIONS

- A. Public Works Project Manager shall consider requests for Substitutions only within fifteen (15) calendar days after date of Public Works Construction Contract.
- B. Document each request with complete data substantiating compliance of proposed Substitution with Construction Documents.
- C. Submit three (3) copies of requests for Substitution for consideration. Limit each request to one (1) proposed Substitution.
- D. Substitutions shall not change contract price established at Bid Due Date.

1.31 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.

1.32 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.
- C. Owner may choose to photograph or videotape demonstration session; demonstration and demonstrator shall be to level of satisfaction of Owner.

#### 1.33 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 Public Works Project Manager's inspection.
- B. Submit final Application for Payment identifying total adjusted Contract Sum / Price, previous payments, and amount remaining due.

#### 1.34 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.

#### 1.35 ADJUSTING

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

#### 1.36 OPERATION AND MAINTENANCE MANUAL

- A. Provide two (2) bound, hard-copy operation and maintenance manuals that include all systems, materials, products, equipment, mechanical and electrical equipment and systems supplied and installed in the Work. Provide electronic version of operation and maintenance manual also.

#### 1.37 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.

#### 1.38 AS-BUILT AND RECORD 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 Architect / Engineer with original marked up redlines of Construction Documents' drawings and specifications that shall include all Addendums, Change Orders,

Construction Bulletins, on-site changes, field corrections, etc. These are project As-Built Drawings & Specifications

- B. Architect / Engineer shall update original Construction Documents to include all Addendums & any other changes including those provided by Contractor in As-Built Drawings & Specifications. These updates are project Record Drawings & Specifications.
- C. Architect / Engineer shall furnish Public Works Project Manager with Record Drawings as detailed in Professional Services Agreement.

#### PART 2 PRODUCTS

Not Used.

#### PART 3 EXECUTION

Not Used.

END OF SECTION

## SECTION 01 74 19

### CONSTRUCTION WASTE MANAGEMENT, DISPOSAL & RECYCLING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Summary
  - 2. Waste Management Goals
  - 3. Construction and / or Demolition Waste Management
  - 4. Waste Management Plan
  - 5. Reuse
  - 6. Recycling
  - 7. Materials Sorting and Storage On Site
  - 8. Lists of Recycling Facilities Processors and Haulers
  - 9. 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 Dane County Green Building Policy, Resolution 299, 1999-2000.

##### 1.3 CONSTRUCTION AND / OR DEMOLITION WASTE MANAGEMENT

- A. All construction and demolition waste suitable for recycling must go to Dane County Construction & Demolition Recycling Facility located at 7102 US Hwy 12, Madison, located across from Yahara Hills Golf Course. This facility can receive mixed loads of construction and demolition waste. For complete list of acceptable materials see [www.countyofdane.com/pwht/recycle/CD\\_Recycle.aspx](http://www.countyofdane.com/pwht/recycle/CD_Recycle.aspx).
- B. Dane County Landfill, also at 7102 US Hwy 12, Madison, must receive all other waste from this project. [www.countyofdane.com/pwht/recycle/landfill.aspx](http://www.countyofdane.com/pwht/recycle/landfill.aspx).

##### 1.4 WASTE MANAGEMENT PLAN

- A. Contractor shall develop Waste Management Plan (WMP) for this project. Dane County's Special Projects & Materials Manager may be contacted with questions. 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.

B. Contractor shall complete WMP and include cost of recycling / reuse in Bid. WMP will be submitted to Public Works Project Manager within fifteen (15) business days of Bid Due 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.

#### 1.5 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.

#### 1.6 RECYCLING

A. These materials must be recycled at Dane County Construction & Demolition Recycling Facility:

1. Wood.
2. Wood Pallets.
3. PVC Plastic (pipe, siding, etc.).
4. Asphalt & Concrete.
5. Bricks & Masonry.
6. Cardboard.
7. Metal.

B. These materials can be recycled elsewhere in Dane County area:

1. Foam Insulation & Packaging (extruded and expanded).
2. Barrels & Drums.

C. All materials must be recycled at WDNR permitted waste processing facilities that adhere to all State Statutes.

#### 1.7 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.

C. Mixed loads of recycled materials are allowed only per instructions at [www.countyofdane.com/pwht/recycle/CD\\_Recycle.aspx](http://www.countyofdane.com/pwht/recycle/CD_Recycle.aspx).

## 1.8 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

- A. Refer to [www.countyofdane.com/pwht/recycle/CD\\_Recycle.aspx](http://www.countyofdane.com/pwht/recycle/CD_Recycle.aspx) for information on Dane County Construction & Demolition Recycling Facility.
- B. Web site [www.countyofdane.com/pwht/recycle/categories.aspx](http://www.countyofdane.com/pwht/recycle/categories.aspx) lists current information for Dane County Recycling Markets. Contractors can also contact Allison Hackner at 608/266-4990, or local city, village, town recycling staff listed at site [www.countyofdane.com/pwht/recycle/contacts.aspx](http://www.countyofdane.com/pwht/recycle/contacts.aspx). Statewide listings of recycling / reuse markets are available from UW Extension at <https://www.uwgb.edu/shwec/>.

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

Not Used.

END OF SECTION

## WASTE MANAGEMENT PLAN FORM



Contractor 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	Name: _____
Wood	_____ cu. yds. _____ tons	_____ Recycled	_____ Reused	Name: _____
Wood Pallets	_____ units	_____ Recycled	_____ Reused	Name: _____
PVC Plastic	_____ cu. ft. _____ lbs.	_____ Recycled	_____ Reused	Name: _____
Asphalt & Concrete	_____ cu. ft. _____ lbs.	_____ Recycled	_____ Reused	Name: _____
Bricks & Masonry	_____ cu. ft. _____ lbs.	_____ Recycled	_____ Reused	Name: _____
Cardboard	_____ cu. ft. _____ lbs.	_____ Recycled	_____ Reused	Name: _____
Metals	_____ cu. yds. _____ tons	_____ Recycled	_____ Reused	Name: _____
Foam Insulation	_____ cu. ft. _____ lbs.	_____ Recycled	_____ Reused	Name: _____
Barrels & Drums	_____ units	_____ Recycled	_____ Reused	Name: _____
Glass	_____ cu. yds. _____ tons	_____ Recycled	_____ Reused	Name: _____
Other	_____	_____ Recycled	_____ Reused	Name: _____
Other	_____	_____ Recycled	_____ Reused	Name: _____
Other	_____	_____ Recycled	_____ Reused	Name: _____
Other	_____	_____ Recycled	_____ Reused	Name: _____

## SECTION 02 41 19

### SELECTIVE STRUCTURE DEMOLITION

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section Includes:
  - 1. Demolishing designated construction.
  - 2. Cutting and alterations for completion of the Work.
  - 3. Protecting items designated to remain.
  - 4. Removing demolished materials.
- B. Related Sections:
  - 1. Section 01 00 00 - Basic Requirements
  - 2. Section 01 74 19 - Recycling

##### 1.2 CLOSEOUT SUBMITTALS

- A. Project As-built Documents: Accurately record actual locations of capped utilities, concealed utilities discovered during demolition, subsurface obstructions, and fixtures and features.
- B. Operation and Maintenance Data: Submit description of system, inspection data, and parts lists.

##### 1.3 QUALITY ASSURANCE

- A. Conform to applicable code for demolition work, dust control, safety of adjacent structures, and disposal.
- B. Conform to applicable code for procedures when hazardous or contaminated materials are discovered.
- C. Obtain required permits from authorities having jurisdiction.
- D. Perform Work in accordance with State of Wisconsin and City of Madison standards.
- E. Maintain one copy of each document on site.

##### 1.4 QUALIFICATIONS

- A. Demolition Firm: Company specializing in performing work of this section with minimum 3 years documented experience.

## 1.5 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing work of this section.

## 1.6 SCHEDULING

- A. Schedule Work to precede new construction.
- B. Describe demolition removal procedures and schedule.
- C. Perform Work between hours of 7 a.m. and 7 p.m.

## 1.7 PROJECT CONDITIONS

- A. Concrete flatwork indicated to be demolished will be vacated before start of Work.
- B. Owner assumes no responsibility for actual condition of concrete to be demolished.
- C. Notify Owner upon discovery of hazardous materials.
- D. Maintain existing sidewalks to greatest extent possible.

## PART 2 PRODUCTS

Not Used.

## PART 3 EXECUTION

### 3.1 PREPARATION

- A. Document condition of adjacent structures and buildings indicated to remain.
- B. Make arrangements with building owners to survey existing buildings and structures.
- C. Notify affected utility companies before starting work and comply with their requirements.
- D. Mark location and termination of utilities.
- E. Erect, and maintain temporary barriers and security devices including warning signs and lights, and similar measures, for protection of the public.
- F. Protect existing landscaping materials, trees, appurtenances, and structures indicated to remain.
- G. Provide appropriate temporary signage including signage for exit or building egress.

### 3.2 DEMOLITION

- A. Remove existing concrete in sections by saw cutting. Use of pneumatic tools is not recommended.
- B. Remove existing waterproof membrane.
- C. Conduct demolition to minimize damage to adjacent building areas.
- D. Use of explosives is not permitted.
- E. Sprinkle work with water to minimize dust. Provide hoses and water connections required for this purpose.
- F. Do not close or obstruct roadways or sidewalks without permits.
- G. Cease operations immediately when structure appears to be in danger and notify Facilities Manager and Public Works Project Manager. Do not resume operations until directed.
- H. Disconnect and remove utilities within demolition areas.
- I. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
- J. Demolish in orderly and careful manner. Protect existing improvements, supporting structural members and adjacent appurtenances.
- K. Remove demolished materials from site. Do not burn or bury materials on site. Do not allow materials to accumulate on site.
- L. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.

### 3.3 SCHEDULES

- A. Items to be removed by Owner before start of demolition:
  - 1. Concrete Benches.
  - 2. Waste Receptacles.
  - 3. USPS Mailbox.
- B. Items to be protected:
  - 1. Existing building and support pillars.
  - 2. Adjacent planter boxes.
  - 3. Existing trench drain.
  - 4. Existing flag pole.

END OF SECTION

SECTION 03 20 00  
CONCRETE REINFORCING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
  - 1. Reinforcing bars.
  - 2. Welded wire fabric.
  - 3. Reinforcement accessories.
  
- B. Related Sections:
  - 1. Section 01 00 00 – Basic Requirements
  - 2. Section 01 74 19 - Recycling
  - 3. Section 03 30 00 - Cast-In-Place Concrete

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Bar Reinforcement:
  - 1. Basis of Measurement: By the ton.
  
- B. Welded Wire Fabric Reinforcement:
  - 1. Basis of Measurement: By the square foot.

1.3 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 318 - Building Code Requirements for Structural Concrete.
  
- B. ASTM International:
  - 1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
  - 2. ASTM A184/A184M - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
  - 3. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
  - 4. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
  - 5. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
  - 6. ASTM A704/A704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
  - 7. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.

- C. Concrete Reinforcing Steel Institute:
  - 1. CRSI - Manual of Standard Practice.
  - 2. CRSI - Placing Reinforcing Bars.

#### 1.4 SUBMITTALS

- A. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and welded wire fabric (if used), bending and cutting schedules, and supporting and spacing devices.
- B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with CRSI - Manual of Standard Practice. Prepare shop drawings in accordance with ACI SP-66.
- B. Perform Work in accordance with State of Wisconsin standard.

#### 1.6 COORDINATION

- A. Coordinate with placement of formwork, formed openings and other work.

### PART 2 PRODUCTS

#### 2.1 REINFORCEMENT

- A. Deformed and Plain Reinforcement: ASTM A615/A615M; 60 yield strength, steel bars, unfinished. Welded Deformed Wire Fabric: ASTM A497; in flat sheets, coiled rolls; unfinished.

#### 2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions.

#### 2.3 FABRICATION

- A. Fabricate concrete reinforcement in accordance with applicable code.
- B. Form standard hooks as indicated on Drawings.
- C. Form reinforcement bends with minimum diameters in accordance with applicable code.
- D. Fabricate column reinforcement with offset bends at reinforcement splices.

- E. Locate reinforcement splices not indicated on Drawings, at point of minimum stress.

## PART 3 EXECUTION

### 3.1 PLACEMENT

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position beyond specified tolerance.
  - 1. Do not weld crossing reinforcement bars for assembly.
- B. Do not displace or damage vapor retarder.
- C. Accommodate placement of formed openings.
- D. Space reinforcement bars with minimum clear spacing of one bar diameter, but not less than 1 inch.
  - 1. Where bars are indicated in multiple layers, place upper bars directly above lower bars.
- E. Maintain concrete cover around reinforcement in accordance with applicable code.
- F. Conform to applicable code for concrete cover over reinforcement.
- G. Splice reinforcing where indicated on Drawings in accordance with splicing device manufacturer's instructions.

### 3.2 FIELD QUALITY CONTROL

- A. Perform field inspection in accordance with applicable codes.
- B. Provide free access to the Work.
- C. Reinforcement Inspection:
  - 1. Placement Acceptance: Specified material requirements and specified placement tolerances.
  - 2. Periodic Placement Inspection: Inspect for correct materials, fabrication, sizes, locations, spacing, concrete cover, and splicing.

END OF SECTION

## SECTION 03 30 00

### CAST-IN-PLACE CONCRETE

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes cast-in-place concrete for the following:
  - 1. Slabs on grade.
  - 2. Control, expansion and contraction joint devices.

##### 1.2 REFERENCES

- A. American Concrete Institute:
  - 1. ACI 301 - Specifications for Structural Concrete.
  - 2. ACI 305 - Hot Weather Concreting.
  - 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
  - 4. ACI 308.1 - Standard Specification for Curing Concrete.
- B. ASTM International:
  - 1. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
  - 2. ASTM C150 - Standard Specification for Portland Cement.
  - 3. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
  - 4. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
  - 5. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
  - 6. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
  - 7. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

##### 1.3 SUBMITTALS

- A. Product Data: Submit data on joint devices, attachment accessories and admixtures.
- B. Design Data:
  - 1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
    - a. Hot and cold weather concrete work.
    - b. Air entrained concrete work.
  - 2. Identify mix ingredients and proportions, including admixtures.
  - 3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.

- C. Samples: Submit two samples of expansion/contraction joint and control joint.
- D. Manufacturer's Installation Instructions: Submit installation procedures and interface required with adjacent Work.

#### 1.4 CLOSEOUT SUBMITTALS

- A. Project As-built Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

#### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.
- B. Conform to ACI 305 when concreting during hot weather.
- C. Conform to ACI 306.1 when concreting during cold weather.
- D. Acquire cement and aggregate from one source for the Work.

#### 1.6 QUALITY ASSURANCE

- A. Perform the Work in accordance with ACI 301 and State of Wisconsin standards.

#### 1.7 ENVIRONMENTAL REQUIREMENTS

- A. Maintain concrete temperature after installation at minimum 50 degrees F for minimum 7 days.

### PART 2 PRODUCTS

#### 2.1 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I – Normal and/or Type II – Moderate; in accordance with ACI 318.
- B. Water: ACI 318; potable.

#### 2.2 ADMIXTURES

- A. Furnish materials in accordance with State of Wisconsin standards.
- B. Air Entrainment: ASTM C260.
- C. Chemical: ASTM C494/C494M Type A - Water Reducing; Type B - Retarding; Type D - Water Reducing and Retarding; Type F - Water Reducing, High Range; Type G - Water Reducing, High Range and Retarding.

- D. Fly Ash: ASTM C618 Class C.
- E. Slag: ASTM C989; Grade 100 or 120.
- F. Plasticizing: ASTM C1017/C1017M Type II.

2.3 ACCESSORIES

- A. Water proof membrane.

2.4 JOINT DEVICES AND FILLER MATERIALS

- A. Joint Filler: ASTM D1751; Asphalt impregnated fiberboard or felt.
- B. Joint Filler: ASTM D1752; Closed cell foam, resiliency recovery of 95 percent if not compressed more than 50 percent of original thickness.
- C. Sealant: ASTM D6690, Type II.

2.5 CONCRETE MIX

- A. Select proportions for normal weight concrete in accordance with ACI 301. Provide concrete to the following criteria:

Material and Property	Measurement
Compressive Strength (28 day)	4500 psi
Cement Type	ASTM C150
Cement Content (minimum)	520 pounds/cu yd.
Aggregate Type	Normal weight
Water-Cement Ratio (maximum)	0.45 by weight
Aggregate Size (maximum)	1.0 inch
Air Content	6 percent plus or minus 1.5 percent
Fly Ash Content:	15 percent of cementitious materials by weight, maximum
Slag	30 percent of cementitious materials by weight, maximum
Slump	3 inches plus or minus 1 inch

- B. Admixtures: Include admixture types and quantities indicated in concrete mix designs only when approved by Public Works Project Manager.
  - 1. Use accelerating admixtures in cold weather. Use of admixtures will not relax cold weather placement requirements.
- C. Ready Mixed Concrete: Mix and deliver concrete in accordance with ASTM C94/C94M.
- D. Site Mixed Concrete: Mix concrete in accordance with ACI 318.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify requirements for concrete cover over reinforcement.
- B. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

### 3.2 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.
- C. Replace existing underslab waterproof membrane. Install new membrane to ensure a continuous waterproof membrane under trench drain and entire concrete slab. Adhere with manufacturer's recommended products.
- D. Remove debris and ice from formwork, reinforcement, and concrete substrates.
- E. Remove water from areas receiving concrete before concrete is placed.

### 3.3 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301.
- B. Notify Public Works Project Manager minimum 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
- D. Separate slabs on grade from vertical surfaces with 1/2" thick joint filler.
- E. Extend joint filler from bottom of slab to within 1/8inch of finished slab surface.

- F. Install construction joint devices in coordination with slab placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.
- G. Install joint device anchors. Maintain correct position to allow joint cover to be flush with floor finish.
- H. Install joint covers in longest practical length, when adjacent construction activity is complete.
- I. Deposit concrete at final position. Prevent segregation of mix.
- J. Place concrete in continuous operation for each panel or section determined by predetermined joints.
- K. Consolidate concrete.
- L. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- M. Place concrete continuously between predetermined expansion, control, and construction joints.
- N. Do not saw cut control joints.

#### 3.4 CONCRETE FINISHING

- A. Finish concrete floor surfaces in accordance with ACI 301.
- B. In areas with floor or trench drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at existing slope, and ensure that drain grate is at least 3/8" lower than existing slope within the adjacent 12".

#### 3.5 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Cure floor surfaces in accordance with ACI 301.

#### 3.6 FIELD QUALITY CONTROL

- A. Submit proposed mix design to Public Works Project Manager for review prior to commencement of Work.
- B. Concrete Inspections:
  - 1. Continuous Placement Inspection: Inspect for proper installation procedures.

2. Periodic Curing Inspection: Inspect for specified curing temperature and procedures.
- C. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.

### 3.7 PATCHING

- A. Allow Public Works Project Manager to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Public Works Project Manager upon discovery.
- C. Patch imperfections as directed by Public Works Project Manager in accordance with ACI 301.

### 3.8 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by Assistant Facilities Manager and/or Public Works Project Manager.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Assistant Facilities Manager and/or Public Works Project Manager for each individual area.

END OF SECTION

## SECTION 07 14 00

### FLUID-APPLIED WATERPROOFING

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes fluid applied rubberized asphalt membrane waterproofing.
- B. Related Sections:
  - 1. Section 01 00 00 - Basic Requirements
  - 2. Section 02 41 19 - Selective Structure Demolition.
  - 3. Section 03 30 00 - Cast-In-Place Concrete.

##### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM C836 - Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course.
  - 2. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers -Tension.
  - 3. ASTM D429 - Standard Test Method for Rubber Property - Adhesion to Rigid Substrates.
  - 4. ASTM D471 - Standard Test Method for Rubber Property - Effect of Liquids.
  - 5. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
  - 6. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
  - 7. ASTM D822 - Standard Practice for Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Exposure Apparatus.
  - 8. ASTM D1004 - Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting.
  - 9. ASTM D2240 - Standard Test Method for Rubber Property-Durometer Hardness.
  - 10. ASTM D3468 - Standard Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing.
  - 11. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- B. National Roofing Contractors Association:
  - 1. NRCA - The NRCA Waterproofing and Dampproofing Manual.

### 1.3 SYSTEM DESCRIPTION

- A. Waterproofing System: Application of fluid applied material to prevent moisture migration to interior.

### 1.4 SUBMITTALS

- A. Shop Drawings: Indicate special joint or termination conditions and conditions of interface with other materials.
- B. Product Data: Submit data for flexible flashings, joint cover sheet, and joint and crack sealants, with temperature range for application of waterproofing membrane.
- C. Manufacturer's Installation Instructions: Submit special procedures and perimeter conditions requiring special attention.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- E. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

### 1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Waterproofing Manual.
- B. Perform Work in accordance with State of Wisconsin standard.
- C. Maintain one copy of each document on site.

### 1.6 QUALIFICATIONS

- A. Waterproofing Material Manufacturer: Company specializing in waterproofing membrane with minimum three years documented experience.
- B. Applicator: Company specializing in performing the work of this section with minimum three years documented experience.

### 1.7 PRE-INSTALLATION MEETINGS

- A. Convene minimum one day prior to commencing work of this section.

### 1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain ambient temperatures above 40 degrees F for 24 hours before and during application and until liquid or mastic accessories have cured, or as required by manufacturer

## 1.9 WARRANTY

- A. Furnish manufacturer warranty for waterproofing failing to resist penetration of water.
- B. For warranty repair work, remove and replace materials concealing waterproofing.

## PART 2 PRODUCTS

### 2.1 FLUID APPLIED WATERPROOFING

- A. Manufacturers:
  - 1. American Hydrotech, Inc.; Monolithic Membrane 6125
  - 2. Tremco Sealants & Waterproofing.; Tremproof 6100
  - 3. Approved Equal
- B. Furnish materials in accordance with State of Wisconsin and City of Madison standards.

### 2.2 ACCESSORIES

- A. Surface Conditioner or Primer, compatible with membrane compound; as recommended by membrane manufacturer.
- B. Elastic Flashings: as recommended by membrane manufacturer.
- C. Joint Cover Sheet: elastic sheet material designated for and compatible with membrane.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Verify substrate surfaces are free of frozen matter, dampness, loose particles, cracks, pits, projections, penetrations, or foreign matter detrimental to adhesion or application of waterproofing system.
- B. Verify substrate surfaces are smooth, free of honeycomb or pitting, and not detrimental to full contact bond of waterproofing materials.
- C. Verify items penetrating surfaces to receive waterproofing are securely installed.
- D. Verify substrate surface slopes to drain for horizontal waterproofing applications.

### 3.2 PREPARATION

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Clean and prepare surfaces to receive waterproofing.

- C. Do not apply waterproofing to surfaces unacceptable to manufacturer or applicator.
- D. Seal cracks and joints with sealant materials using depth to width ratio as recommended by sealant manufacturer.

### 3.3 INSTALLATION

- A. Apply surface conditioner at rate recommended by manufacturer. Protect conditioner from rain or frost until dry.
- B. Apply waterproofing material per manufacturer's recommendations
- C. Seal items protruding to or penetrating through membrane and install Counterflashing membrane material.
- D. Install membrane flashings and seal into waterproofing material.
- E. Install Work in accordance with State of Wisconsin standards.

### 3.4 FIELD QUALITY CONTROL

- A. On completion of membrane installation, dam installation area as directed by Public Works Project Manager, in preparation for flood testing.
- B. Flood to minimum depth of 1 inch with clean water. After 48 hours, verify no leaks with Public Works Project Manager.
- C. When leaking is found, remove water, patch leaking areas with new waterproofing materials as directed by Public Works Project Manager; repeat flood test. Repair damage to building.
- D. When area is proven watertight, drain water and remove dam.

### 3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Do not permit traffic over unprotected or uncovered membrane.

END OF SECTION

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**SECTION 23 05 00**  
**COMMON WORK RESULTS FOR HVAC**

**PART 1 - 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.

**RELATED WORK**

General Conditions of Contract  
Section 01 00 00 – Basic Requirements  
Section 01 74 19 – Construction Waste Management, Disposal & Recycling  
Section 23 05 15 - Piping Specialties  
Section 23 05 23 - General Duty Valves for HVAC  
Section 23 05 29 - Hangers and Supports for HVAC Piping  
Section 23 07 00 - HVAC Insulation  
Section 23 09 14 - Controls for HVAC  
Section 23 21 13 - HVAC Hydronic and Steam Piping  
Section 23 21 23 - Hydronic Pumps  
Section 23 25 25 - Heat Transfer Fluids  
Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**REFERENCE STANDARDS**

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

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
IEEE	Institute of Electrical and Electronics Engineers
ISA	Instrument Society of America
MCA	Mechanical Contractors Association
MICA	Midwest Insulation Contractors Association
MSS	Manufacturer's Standardization Society of the Valve & Fitting Industry, Inc.
NBS	National Bureau of Standards
NEBB	National Environmental Balancing Bureau
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
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

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

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.

1  
2 **CONTINUITY OF EXISTING SERVICES**

3  
4 Do not interrupt or change existing services without prior written approval from the DFD Project  
5 Representative. When interruption is required, coordinate the down-time with the user agency to minimize  
6 disruption to their activities. Unless specifically stated, all work involved in interrupting or changing  
7 existing services is to be done during normal working hours.

8  
9 **SLEEVES AND OPENINGS**

10 Refer to RELATED WORK listing in this section.

11  
12  
13 **SEALING AND FIRE STOPPING**

14  
15 Sealing and fire stopping of sleeves/openings between piping, etc. and the sleeve, structural or partition  
16 opening shall be the responsibility of the contractor whose work penetrates the opening. Provide all fire  
17 stopping of fire rated penetrations and sealing of smoke rated penetrations in compliance with Fire  
18 Stopping.

19  
20 **EQUIPMENT AND WORK FURNISHED BY OTHERS**

21 Steam to water heat exchanger and stand is existing and owner has located in mechanical room.

22  
23 Testing, Adjusting and Balancing of the Glycol/water fluid system will be performed by Dane County by  
24 separate contract or purchase order.

25  
26 Line voltage electrical work will be performed by Dane County Facilities or by separate contract or  
27 purchase order.

28  
29  
30 **SUBMITTALS**

31 Refer to RELATED WORK listing in this section.

32  
33 Submit for all equipment and systems as indicated in the respective specification sections, marking each  
34 submittal with that specification section number. Mark general catalog sheets and drawings to indicate  
35 specific items being submitted and proper identification of equipment by name and/or number, as indicated  
36 in the contract documents.

37  
38 Include wiring diagrams of electrically powered equipment.

39  
40 Shop drawings may be submitted electronically. Only a Submittal Review Form will be returned indicating  
41 the status of the submittal and containing comments as to any deficiencies.

42  
43 Copies of the submittals shall be included in Operation and Maintenance Manuals.

44  
45  
46 **CERTIFICATES AND INSPECTIONS**

47 Refer to RELATED WORK listing in this section.

48  
49 Obtain and pay for all required State installation inspections except those provided by the  
50 Architect/Engineer in accordance with code. Deliver originals of these certificates to the Division Project  
51 Representative. Include copies of the certificates in the Operating and Maintenance Instructions.

52  
53  
54  
55  
56 **OPERATION AND MAINTENANCE DATA**

57 All operations and maintenance data shall comply with the submission and content requirements specified  
58 under section GENERAL REQUIREMENTS.

59 In addition to the general content specified under GENERAL REQUIREMENTS supply the following  
60 additional documentation:

- 61  
62  
63  
64 1. Records of tests performed a to certify compliance with system requirements

- 1        2. Certificates of inspection by regulatory agencies
- 2        3. Lubrication instructions, including list/frequency of lubrication
- 3        4. Copies of all approved shop drawings.
- 4        5. Manufacturer's wiring diagrams for electrically powered equipment
- 5        6. Temperature control record drawings and control sequences
- 6        7. Parts lists for manufactured equipment
- 7        8. Warranties

8  
9        **TRAINING OF OWNER PERSONNEL**

10  
11        Instruct Owner personnel in the proper operation and maintenance of systems and equipment provided as  
12        part of this project; video tape all training sessions. Include not less than one half hour of instruction, using  
13        the Operating and Maintenance manuals during this instruction. Demonstrate startup and shutdown  
14        procedures for all equipment. All training to be during normal working hours.

15  
16        **RECORD DRAWINGS**

17  
18        Refer to RELATED WORK listing in this section.

19  
20        In addition to the data indicated in the General Requirements, maintain temperature control record  
21        drawings on originals prepared by the installing contractor/subcontractor. Include copies of these record  
22        drawings with the Operating and Maintenance manuals.

23  
24  
25        **PART 2 - PRODUCTS**

26  
27        **SEALING AND FIRE STOPPING**

28  
29        **NON-RATED PENETRATIONS:**

30  
31        **Pipe Penetrations:**

32        At pipe penetrations of non-rated interior walls, floors and exterior walls above grade, use urethane caulk in  
33        annular space between pipe insulation and sleeve. For non-rated drywall, plaster or wood walls where  
34        sleeve is not required use urethane caulk in annular space between pipe insulation and wall material.

35  
36  
37        **PART 3 - EXECUTION**

38  
39        **CUTTING AND PATCHING**

40  
41        Refer to RELATED WORK listing in this section.

42  
43        All cutting and patching required for Division 23 work shall be performed by this section.

44  
45        **BUILDING ACCESS**

46  
47        Arrange for the necessary openings in the building to allow for admittance of all apparatus. When the  
48        building access was not previously arranged and must be provided by this contractor, restore any opening  
49        to its original condition after the apparatus has been brought into the building.

50  
51        **COORDINATION**

52  
53        Coordinate all work with other contractors prior to installation. Any installed work that is not coordinated  
54        and that interferes with other contractor's work shall be removed or relocated at the installing contractor's  
55        expense.

56  
57        Cooperate with the test and balance agency in ensuring Section 23 05 93 specification compliance. Verify  
58        system completion to the test and balance agency (flushing, pressure testing, chemical treatment, filling of  
59        liquid systems, proper pressurization and air venting of hydronic systems, clean strainers, controls adjusted  
60        and calibrated, controls cycled through their sequences, etc.), ready for testing, adjusting and balancing  
61        work.  
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**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.

**SLEEVES AND OPENINGS**

Pipe penetrations in existing concrete: Core drill openings.

**SEALING AND FIRE STOPPING**

**NON-RATED PENETRATIONS:**

At all floors, ceilings to exterior and exterior walls, pipe penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the pipe sleeve or cored opening and the pipe or insulation is completely blocked.

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**SECTION 23 05 15**  
**PIPING SPECIALTIES**

**PART 1 - GENERAL**

**SCOPE**

This section contains specifications for HVAC piping specialties for all piping systems.

**RELATED WORK**

- General Conditions of Contract
- Section 01 00 00 – Basic Requirements
- Section 01 74 19 – Construction Waste Management, Disposal & Recycling
- Section 23 05 00 – Common Work Results for HVAC
- Section 23 05 23 - General Duty Valves for HVAC
- Section 23 05 29 - Hangers and Supports for HVAC Piping
- Section 23 07 00 - HVAC Insulation
- Section 23 09 14 - Controls for HVAC
- Section 23 21 13 - HVAC Hydronic and Steam Piping
- Section 23 21 23 - Hydronic Pumps
- Section 23 25 25 - Heat Transfer Fluids
- Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

**SHOP DRAWINGS**

Refer to RELATED WORK listing in this section.

Required for all items in this section; Include materials of construction, dimensional data, ratings/capacities/ranges, pressure drop data where appropriate, and identification as referenced in this section and/or on the drawings.

**OPERATION AND MAINTENANCE DATA**

Refer to RELATED WORK listing in this section.

**DESIGN CRITERIA**

All piping specialties are to be rated for the highest pressures and temperatures in the respective system in accordance with ANSI B31, but not less than 125 psig unless specifically indicated otherwise.

**PART 2 - PRODUCTS**

**THERMOMETERS**

Manufacturers: Ashcroft, Marsh, Taylor, H. O. Trerice, U. S. Gauge, Weiss, Weksler.

Stem Type, cast aluminum case, nine inch scale, clear acrylic window. adjustable angle brass stem with stem of sufficient length so the end of the stem is near the middle of a pipe without reducing the thickness of any insulation, red or blue indicating fluid, black lettering against a white background, with scale ranges as follows:

<b>Service</b>	<b>Scale Range, °F</b>	<b>Min. Increment, °F</b>
Glycol Snow Melt	0 to 160	2
Fluid Water		

1 **THERMOMETER SOCKETS**

2 Brass with threaded connections suitable for thermometer stems and temperature control sensing elements  
3 in pipeline. Furnish with extension necks for insulated piping systems.

4  
5 **HOSE CONNECTION CAPS**

6 Hose connection caps shall be pressure rated for 150 psig at 180 deg F.

7  
8 **PRESSURE GAUGES**

9 Manufacturers: Ametek/U. S. Gauge Division, Ashcroft, Marsh, Taylor, H. O. Trerice, Weiss, Weksler.

10  
11 Cast aluminum case of not less than 4.5 inches in diameter, double strength glass window, black lettering  
12 on a white background, phosphor bronze bourdon tube with bronze bushings, recalibration from the front of  
13 the dial, 99% accuracy over the middle half of the scale, 98.5% accuracy over the remainder of the scale,  
14 with scale range as follows:

Service	Scale Range, psig	Min. Increment, psig
Glycol Snow Melt Fluid	0 – 60	1
Water		

15  
16 Pressure Snubbers:

17 Bronze construction, suitable for system working pressure, 1/4" size.

18  
19 Gauge Valves:

20 Use valves as specified in Section 23 05 23 - General-Duty Valves for HVAC Piping. For water systems,  
21 use 1/4" ball valves. For steam systems, use 1/4" gate valves suitable for system working pressure.

22  
23 **STRAINERS**

24 Manufacturers: Armstrong, Hoffman, Illinois, Keckley, Metraflex, Mueller Steam, or Sarco.

25  
26 **WATER SYSTEMS:**

27 Y type; cast iron body; stainless steel screens; bolted or threaded screen retainer tapped for a blow off  
28 valve; threaded body in sizes through 2 inch and rated at not less than 175 psi WOG; flanged body in sizes  
29 over 2 inch and rated at not less than 125 psi WOG at 240°F. Screen to be 20 mesh for line sizes 2 inch  
30 and less, 0.125 inch perforations for line sizes 2-1/2 inch through 4 inch, and 0.25 inch perforations for line  
31 sizes 5 inch and larger.

32  
33 **STEAM SYSTEMS (15 PSIG AND LOWER):**

34 Y type; cast iron body; stainless steel screens; bolted or threaded screen retainer tapped for a blow off  
35 valve; threaded in sizes through 2 inch and rated at not less than 250 psi at 400°F; flanged in sizes over 2  
36 inch and rated at not less than 125 psi at 350°F. Screen to be 20 mesh for line sizes 2 inch and less, 0.050  
37 inch perforations for line sizes over 2 inch.

38  
39 **STEAM TRAPS**

40 Manufacturers: Armstrong Manufacturers must meet the material specifications below.

41  
42 Traps with brass/bronze internal parts will not be accepted.

43  
44 **FLOAT AND THERMOSTATIC TRAPS:**

45  
46 Cast iron or semi-steel body and bolted cover, non-asbestos cover gasket, stainless steel bellows type air  
47 vent, stainless steel float, stainless steel lever and valve assembly, and rated at not less than 15 psig  
48 saturated steam. Traps used on low pressure steam, 15 psig or less, are to be SHEMA rated.

49  
50 **EXPANSION TANKS**

51 Manufacturers: Amtrol/Thrush, , Bell and Gossett, Taco, Wessels.

52  
53 **BLADDER TYPE:**

54 Steel construction, tested and stamped in accordance with Section 8D of the ANSI/ASME Code and  
55 furnished with the National Board Form U-1, rated for not less than 125 psig working pressure, precharged  
56 with air to the initial fill pressure indicated on the drawings, butyl replaceable bladder suitable for fluid  
57 temperatures to 220°F, and furnished with a tank drain connection, system connection, mounting saddles  
58 for horizontal installation or base for vertical installation, prime coated, size/capacity as indicated on the  
59 drawings. Tank and bladder construction must allow field replacement of the bladder on its failure.



1 Install on the discharge side of all steam terminals, at the end of mains, at the end of long branches, at  
2 points where mains must rise to a new elevation, and elsewhere as indicated on the drawings and in the  
3 manner indicated on the details. Do not lift condensate from the discharge of any trap without the written  
4 permission of the Architect/Engineer.

5  
6 Install a valved test tee on the discharge of all traps, as detailed. Install a strainer upstream of all drip traps  
7 and all terminal equipment where a strainer is not present upstream of the control valve at the terminal.

8 Install a shutoff valve upstream of each drip trap; shutoff valves are not required when the trap is at a piece  
9 of equipment which has a shutoff valve in the steam line serving it.

10  
11 Install a line size dirt leg at each trap. Trap elevation to be not less than one foot below the equipment  
12 outlet connection. Provide a separate trap for each equipment outlet connection.

13  
14 Install a steam shutoff valve at the blowdown connection of each trap containing a strainer; terminate the  
15 blowdown connection with a nipple and an end cap.

#### 16 **EXPANSION TANKS**

17 Install tanks where indicated on the drawings, coordinating concrete base installation with the General  
18 Contractor or fabricating steel supports to suit the application. Install all specified tank accessories.

#### 19 **BLADDER TANKS:**

20  
21 Verify proper air charge; recharge as necessary. Install an isolation valve in the piping connecting the tank  
22 to the system. In the piping between the tank and the isolation valve, install a pressure gauge and a drain  
23 valve with a hose adapter. Install a drain valve with hose adapter in the drain connection of the tank. Make  
24 sure that all drains are accessible and a hose can be attached.

#### 25 **AIR SEPARATORS**

26  
27 Mount in hot water lines as indicated on the drawings/details. Install ball valve with hose adapter in bottom  
28 blowdown connection.

#### 29 **AIR VENTS**

#### 30 **MANUAL KEY TYPE VENTS:**

31 Install at all high points where air may collect and not be carried by the system fluid. Use a soft Type L  
32 copper "pigtail" so the vent can be positioned for venting and collecting any water that might escape.

#### 33 **AUTOMATIC VENTS:**

34 Install on the top of air separators on systems using bladder type expansion tanks. Install at other locations  
35 as indicated on the drawings or details. All locations to have a ball valve installed upstream of the vent for  
36 maintenance purposes.

#### 37 **VACUUM BREAKERS**

38 Install on steam heating coils, steam-to-water heat exchangers, and elsewhere as indicated on the drawings  
39 and/or details.

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**SECTION 23 05 23**  
**GENERAL DUTY VALVES FOR HVAC PIPING**

**PART 1 - GENERAL**

**SCOPE**

This section includes valve specifications for all HVAC systems.

**RELATED WORK**

- General Conditions of Contract
- Section 01 00 00 – Basic Requirements
- Section 01 74 19 – Construction Waste Management, Disposal & Recycling
- Section 23 05 00 – Common Work Results for HVAC
- Section 23 05 15 – Piping Specialties
- Section 23 05 29 - Hangers and Supports for HVAC Piping
- Section 23 07 00 - HVAC Insulation
- Section 23 09 14 - Controls for HVAC
- Section 23 21 13 - HVAC Hydronic and Steam Piping
- Section 23 21 23 - Hydronic Pumps
- Section 23 25 25 - Heat Transfer Fluids
- Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

**SUBMITTALS**

Refer to RELATED WORK listing in this section.

**PART 2 - PRODUCTS**

**WATER SYSTEM VALVES**

All water system valves to be rated at not less than 125 psig water working pressure at 240°F unless noted otherwise.

**BALL VALVES:**

2" and smaller: Two piece bronze body; threaded or soldered ends, as appropriate to the pipe material; stainless steel or chrome plated brass/bronze ball; conventional port; glass filled teflon seat; threaded packing gland follower; blowout-proof stem; 600 psig WOG.

Apollo 70-100/200 series, Hammond 8301/8311, Milwaukee BA100/150, Nibco T/S 585-70,

**BALANCE VALVES:**

2" and smaller: Bronze or copper alloy body with calibrated ball, globe, integral pointer and calibrated scale to register degree of valve opening, memory stop, drain tapping, threaded or soldered ends, with or without integral unions, P/T or Shraeder pressure taps with integral check valves and seals, adjustable memory stop, suitable for 200 psig water working pressure at 250°F.

Armstrong CBV, Bell & Gossett Circuit Setter Plus, Nibco 1710 Series, Taco Accu-Flo.

**DRAIN VALVES:**

Use 3/4 inch ball valve with threaded hose adapter except strainer blowdown valves to be the same size as the blowdown connection. Provide hose connection caps pressure rated for 150 psig at 180 deg F.

1 **WATER RELIEF VALVES:**

2 Iron or bronze body, direct pressure actuated, teflon seat, stainless steel stem and spring, suitable for 125  
3 psig water working pressure range at 240 deg. F and ASME stamped, with BTU capacity and set point as  
4 scheduled.

5  
6 Bell and Gossett, Cash –Acme, Watts.  
7

8 **LOW PRESSURE STEAM/CONDENSATE (15 psig or less)**

9  
10 **GATE VALVES:**

11 2" and smaller: Class 150, bronze body, bronze trim, threaded ends, solid wedge, rising stem, non-asbestos  
12 packing, union bonnet, malleable iron hand wheel.

13  
14 Crane 431UB, Hammond IB629, Milwaukee 1151(M), Nibco T134, Lunkenheimer 3151, Powell 2714,  
15

16 **SWING CHECK VALVES:**

17 2" and smaller: Class 125, bronze body, threaded ends, regrindable seat, bronze disc, threaded cap,  
18 suitable for installation in a horizontal or vertical line with flow upward.  
19  
20

21 **PART 3 - EXECUTION**

22  
23 **GENERAL**

24 Properly align piping before installation of valves in an upright position.

25  
26 Install valves in strict accordance with valve manufacturer's installation recommendations. Do not support  
27 weight of piping system on valve ends.  
28

29 Install all temperature control valves.  
30

31 Install all valves with the stem in the upright position. Valves may be installed with the stem in the  
32 horizontal position only where space limitations do not allow installation in an upright. Valves installed  
33 with the stems down, will not be accepted.  
34

35 Prior to flushing of piping systems, place all valves in the full-open position.  
36

37 **SHUT-OFF VALVES:**

38 Install shut-off valves at all equipment, for isolation or repair.  
39

40 **BALANCING VALVES**

41 Provide balancing valves as indicated on drawings and details.  
42

43 **CALIBRATED BALANCE VALVES**

44 Install where indicated on the drawings and details for balancing of hydronic systems. Retain the shipping  
45 container for use as removable insulation.  
46

47 **DRAIN VALVES**

48 Provide drain valves for complete drainage of all systems. Locations of drain valves include low points of  
49 piping systems, equipment locations specified or detailed including reheat coils, other locations required for  
50 drainage of systems.  
51

52 **SAFETY RELIEF VALVES**

53 Install relief valves in locations indicated on drawings.  
54

55 Inlet and outlet piping connecting to valves must be the same size as valve connections or larger.  
56

57 **SWING CHECK VALVES**

58 Provide swing check valves where detailed.  
59  
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**SECTION 23 05 29**  
**HANGERS AND SUPPORTS FOR HVAC PIPING**

**PART 1 - GENERAL**

**SCOPE**

This section includes specifications for supports of all HVAC

**RELATED WORK**

General Conditions of Contract  
Section 01 00 00 – Basic Requirements  
Section 01 74 19 – Construction Waste Management, Disposal & Recycling  
Section 23 05 00 – Common Work Results for HVAC  
Section 23 05 15 – Piping Specialties  
Section 23 05 23 – General Duty Valves for HVAC  
Section 23 07 00 - HVAC Insulation  
Section 23 09 14 - Controls for HVAC  
Section 23 21 13 - HVAC Hydronic and Steam Piping  
Section 23 21 23 - Hydronic Pumps  
Section 23 25 25 - Heat Transfer Fluids  
Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**REFERENCE STANDARDS**

MSS SP-58      Materials, Design, Manufacture, Selection, Application, and Installation

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

**DESCRIPTION**

All supports and installation procedures are to conform to the latest requirements of the ANSI Code for pressure piping.

Protect insulation at all hanger points; see Related Work above.

**SHOP DRAWINGS**

Refer to RELATED WORK listing in this section.

**DESIGN CRITERIA**

Materials and application of pipe hangers and supports shall be in accordance with MSS Standard Practice SP-58 unless noted otherwise.

Refer to RELATED WORK listing in this section.

Allow sufficient space between adjacent pipes and ducts for insulation, valve operation, routine maintenance, etc.

**PART 2 - PRODUCTS**

**PIPE HANGER AND SUPPORT MANUFACTURERS**

Anvil, B-Line, Fee and Mason, Kindorf, Michigan Hanger, Unistrut, or approved equal. Anvil figure numbers are listed below; equivalent material by other manufacturers is acceptable.

**PIPE HANGERS AND SUPPORTS**

HANGERS FOR STEEL PIPE SIZES 1/2" THROUGH 2":  
Carbon steel, adjustable, clevis, black finish. Anvil figure 65 or 260.

1 FLOOR SUPPORT FOR PIPE SIZES THROUGH 4”:

2 Cast iron adjustable pipe saddle, locknut nipple, floor flange, and concrete pier or steel support.

4 COPPER PIPE SUPPORT:

5 Carbon steel ring, adjustable, copper plated or polyvinylchloride coated.

7 INSULATION PROTECTION SHIELDS:

8 Galvanized carbon steel of not less than 18 gauge for use on insulated pipe 2-1/2 inch and larger.

9 Minimum shield length is 12 inches. Equal to Anvil figure 167.

11 STEEL HANGER RODS:

12 Threaded both ends, threaded one end, or continuous threaded, black finish.

14 Size rods for individual hangers and trapeze support as indicated in the following schedule.

15 Total weight of equipment, including valves, fittings, pipe, pipe content, and insulation, are not to exceed the limits indicated.

Maximum Load (Lbs.) (650°F Maximum Temp.)	Rod Diameter (inches)
610	3/8

22 Provide rods complete with adjusting and lock nuts.

24 CONCRETE INSERTS

25 Carbon steel expansion anchors, vibration resistant, with ASTM B633 zinc plating. Use drill bit of same manufacturer as anchor. Hilti, Rawl, Redhead.

29 PART 3 - EXECUTION

31 INSTALLATION

32 Install supports to provide for free expansion of the piping. Support all piping from the structure using concrete inserts, or floor stands. Fasten ceiling plates and wall brackets securely to the structure and test to demonstrate the adequacy of the fastening.

36 Where piping can be conveniently grouped to allow the use of trapeze type supports, use standard structural shapes for the supporting steel.

39 Perform all welding in accordance with standards of the American Welding Society. Clean surfaces of loose scale, rust, paint or other foreign matter and properly align before welding. Use wire brush on welds after welding. Welds shall show uniform section, smoothness of weld metal and freedom from porosity and clinkers. Where necessary to achieve smooth connections, joints shall be dressed smooth.

44 HANGER AND SUPPORT SPACING

45 Place a hanger within 12 inches of each horizontal elbow, valve, strainer, or similar piping specialty item.

47 Adjust hangers to obtain the slope specified in the piping section of this specification.

49 Space hangers for pipe as follows:

Pipe Material	Pipe Size	Max. Spacing
Steel	1/2" through 1-1/4"	6'-6"
Steel	1-1/2" through 6"	10'-0"
Copper	1/2" through 1-1/4"	5'-0"
Copper	1-1/2" and larger	8'-0"

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**SECTION 23 07 00**  
**HVAC INSULATION**

**PART 1 - GENERAL**

**SCOPE**

This section includes insulation specifications for snow melt system steam and glycol/water piping and equipment.

**RELATED WORK**

- General Conditions of Contract
- Section 01 00 00 – Basic Requirements
- Section 01 74 19 – Construction Waste Management, Disposal & Recycling
- Section 23 05 00 – Common Work Results for HVAC
- Section 23 05 15 – Piping Specialties
- Section 23 05 23 – General Duty Valves for HVAC
- Section 23 05 29 – Hangers and Supports for HVAC Piping
- Section 23 09 14 - Controls for HVAC
- Section 23 21 13 - HVAC Hydronic and Steam Piping
- Section 23 21 23 - Hydronic Pumps
- Section 23 25 25 - Heat Transfer Fluids
- Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**REFERENCE STANDARDS**

- 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 C921 Properties of Jacketing Materials for Thermal Insulation
- ASTM E84 Surface Burning Characteristics of Building Materials
- ASTM E814 Standard Test Method for Fire Tests of Penetration Firestop Systems
- ASTM E2336 Standard Test Methods for Fire Resistive Grease Duct Enclosure Systems
- MICA National Commercial & Industrial Insulation Standards
- NFPA 225 Surface Burning Characteristics of Building Materials
- UL 723 Surface Burning Characteristics of Building Materials

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

Insulation systems shall be applied by experienced contractors.

**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:

- Pipe Insulation
- Equipment Insulation

Install all insulation in accordance with the latest edition of MICA (Midwest Insulation Contractors Association) Standard and manufacturer's installation instructions.

**SHOP DRAWINGS**

Refer to RELATED WORK listing in this section.

Submit a schedule of all insulating materials to be used on the project, including adhesives, fastening methods, fitting materials along with material safety data sheets and intended use of each material. Include manufacturer's technical data sheets indicating density, thermal characteristics, jacket type, and manufacturer's installation instructions. Include copies of the MICA plates that are applicable to this project.

1 **OPERATION AND MAINTENANCE DATA**

2 Refer to RELATED WORK listing in this section.

3  
4  
5 **PART 2 - PRODUCTS**

6  
7 **MATERIALS**

8 Manufacturers: CertainTeed, Childers, Foster, Imcoa, ITW, Johns Manville, Knauf Insulation, Owens-  
9 Corning, VentureTape or approved equal.

10  
11 Use composite insulation systems (insulation, jackets, sealants, mastics, and adhesives) that have a flame  
12 spread rating of 25 or less and smoke developed rating of 50 or less, with the following exceptions:

13  
14 Pipe insulation which is not located in an air plenum may have a flame spread rating not over 25 and a  
15 smoke developed rating no higher than 450 when tested in accordance with UL 723 and ASTM E84.

16  
17 **INSULATION TYPES**

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

20  
21 **RIGID FIBERGLASS INSULATION:**

22 Minimum nominal density of 3 lbs. per cu. ft., and thermal conductivity of not more than 0.23 at 75 degrees  
23 F mean temperature, 0.25 at 125 degrees F, 0.27 at 150 degrees F, 0.29 at 200 degrees F, 0.32 at 250  
24 degrees F, minimum compressive strength of 25 PSF at 10% deformation, rated for maximum service  
25 temperature of 450 degrees F.

26  
27 **SEMI-RIGID FIBERGLASS INSULATION:**

28 Minimum nominal density of 3 lbs. per cu. ft., thermal conductivity of not more than 0.28 at 75 degrees F  
29 mean temperature, minimum compressive strength of 25 PSF at 10% deformation, rated for service  
30 temperature range of 0 degrees F to 450 degrees F. Insulation fibers perpendicular to jacket and scored for  
31 wrapping cylindrical surfaces.

32  
33 **ADHESIVES, MASTIC, SEALANTS, AND REINFORCING MATERIALS**

34 Products shall be compatible with surfaces and materials on which they are applied, and shall be suitable  
35 for use at operating temperatures of systems to which they are applied.

36  
37 **FIBERGLASS INSULATION ADHESIVE:**

38 Must comply with ASTM C916, Type II: Foster 85-60, Childers CP-127, Duro Dyne SSG.

39  
40 **JACKETS**

41 **PVC FITTING COVERS AND JACKETS (PFJ):**

42 White PVC film, gloss finish one side, semi-gloss other side, FS LP-535D, Composition A, Type II, Grade  
43 GU. Ultraviolet inhibited indoor/outdoor grade to be used where exposed to high humidity, ultraviolet  
44 radiation, in kitchens or food processing areas or installed outdoors. Jacket thickness to be minimum .02"  
45 indoors/.03"outdoors for piping 12" and smaller, .03" indoors/.04" outdoors for piping 15" and larger.

46  
47 **ALL SERVICE JACKETS (ASJ):**

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

51  
52 **INSULATION INSERTS AND PIPE SHIELDS**

53 Manufacturers: B-Line, Pipe Shields, Value Engineered Products.

54  
55 Construct inserts with calcium silicate or polyisocyanurate (service temperatures below 300 degrees F  
56 only), minimum 140 psi compressive strength. piping.

57 Precompressed 20# density molded fiberglass blocks, Hamfab or equal, of the same thickness as adjacent  
58 insulation may be substituted for calcium silicate inserts with one 1"x6" block for piping through 2-1/2"  
59 and three 1"x6" blocks for piping through 4". Submit shield schedule to demonstrate equivalency to pre-  
60 engineered/premanufactured product described above.

61  
62 Wood blocks will not be accepted.

1 **ACCESSORIES**

2 Adhesives, sealants, and protective finishes shall be as recommended by insulation manufacturer for  
3 applications specified.

4  
5 Insulation bands to be 3/4 inch wide, constructed of aluminum or stainless steel. Minimum thickness to be  
6 0.015 inch for aluminum and 0.010 inch for stainless steel.

7  
8 Tack fasteners to be stainless steel ring grooved shank tacks.

9  
10 Staples to be clinch style.

11  
12 Insulating cement to be ANSI/ASTM C195, hydraulic setting mineral wool.

13  
14 Finishing cement to be ASTM C449.  
15  
16

17 **PART 3 - EXECUTION**

18  
19 **EXAMINATION**

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

22  
23 Verify that all surfaces are clean, dry and without foreign material before applying insulation materials.  
24

25 **INSTALLATION**

26 All materials shall be installed by skilled labor regularly engaged in this type of work. All materials shall be  
27 installed in strict accordance with manufacturer's recommendations, building codes, and industry  
28 standards. Do not install products when the ambient temperature or conditions are not consistent with the  
29 manufacturer's recommendations. Surfaces to be insulated must be clean and dry.

30  
31 Locate insulation and cover seams in the least visible location. All surface finishes shall be extended in  
32 such a manner as to protect all raw edges, ends and surfaces of insulation.

33  
34 Install insulation with smooth and even surfaces. Poorly fitted joints or use of filler in voids will not be  
35 accepted. Provide neatly beveled and coated terminations at all nameplates, uninsulated fittings, or at other  
36 locations where insulation terminates.  
37

38 Use full length material (as delivered from manufacturer) wherever possible. Scrap piecing of insulation or  
39 pieces cut undersize and stretched to fit will not be accepted.  
40

41 All pipe and duct insulation shall be continuous through walls, ceiling or floor openings and through  
42 sleeves except where firestop or firesafing materials are required. Vapor retarding jacket shall be  
43 maintained continuous through all penetrations.  
44

45 Provide a continuous unbroken moisture vapor retarding jacket on insulation applied to systems noted  
46 below. Attachments to cold surfaces shall be insulated and vapor sealed to prevent condensation.  
47

48 **PROTECTIVE JACKET INSTALLATION**

49  
50 **PVC FITTING COVERS AND JACKETS (PFJ):**

51 Lap seams and joints a minimum of 2 inches and continuously seal PVC with welding solvent  
52 recommended by jacket manufacturer. Secure PVC fittings with welding solvent on seams and joints. Lap  
53 slip joint ends 4" without fasteners where required to absorb expansion and contraction. For sections where  
54 vapor retarding jacket is not required and jacket requires routine removal, tack fasteners may be used. For  
55 systems requiring a vapor retarding jacket, apply a 1-1/2" band of mastic over ends, throat, seams and  
56 penetrations.  
57

58 **ALL SERVICE JACKETS (ASJ) and FOIL SCRIM KRAFT JACKETS (FSK):**

59 Install according to manufacturer's recommendations using factory supplied lap seals and butt strip seals.  
60 In addition to factory adhesive, secure lap seals and tape with clinch type staples.  
61  
62  
63  
64

1 **PIPING, VALVE, AND FITTING INSULATION**

2  
3 **GENERAL:**

4 Install insulation with butt joints and longitudinal seams closed tightly. Provide minimum 2” lap on jacket  
5 seams and 3” tape on butt joints, firmly cemented with lap adhesive unless otherwise noted. Additionally  
6 secure with clinch style staples along seams and butt joints.

7  
8 Install insulation continuous through pipe hangers and supports with hangers and supports on the exterior  
9 of insulation.

10  
11 Where insulated piping is installed on hangers and supports, the insulation shall be installed continuous  
12 through the hangers and supports. High density inserts shall be provided as required to prevent the weight  
13 of the piping from crushing the insulation. Pipe shields are required at all support locations. The insulation  
14 shall not be notched or cut to accommodate the supporting channels.

15  
16 **INSULATION INSERTS AND PIPE SHIELDS:**

17 Provide pipe shields at all hanger and support locations. Rigid insulation inserts shall be installed between  
18 the pipe and the insulation shields. Quantity and placement of inserts shall be according to the  
19 manufacturer’s installation instructions, however the inserts shall be no less than 12” in length. Inserts shall  
20 be of equal thickness to the adjacent insulation and shall be vapor sealed as required for system.

21  
22 **FITTINGS AND VALVES:**

23 Fittings, valves, unions, flanges, couplings and specialties may be insulated with factory molded or built up  
24 insulation of the same thickness as adjoining insulation. Where the ambient temperature exceeds 150  
25 degrees F, cover insulation with fabric reinforcing and mastic. Where the ambient temperatures do not  
26 exceed 150 degrees, furnish and install PVC fitting covers.

27  
28 **PIPE INSULATION SCHEDULE:**

29 Provide insulation on new and existing remodeled piping as indicated in the following schedule:

SERVICE	INSULATION	JACKET	INSULATION THICKNESS BY PIPE SIZE				
			< 1”	1” to < 1-1/2”	1-1/2” to < 4”	4” to < 8”	8” and Larger
Snow Melt Glycol/Water	Rigid Fiberglass	ASJ	1.5”	1.5”	2”	2”	2”
Low Pressure Steam	Rigid Fiberglass	ASJ	2.5”	2.5”	2.5”	3”	3”
Low Pressure Cond.	Rigid Fiberglass	ASJ	1.5”	1.5”	2”	2”	2”

30  
31 The following piping and fittings are not to be insulated:

- 32 • Steam Traps
- 33 • Piping unions for systems not requiring a vapor retarding Jacket

34  
35 **EQUIPMENT INSULATION**

36  
37 **GENERAL:**

38 Do not insulate over equipment access manholes, fittings, nameplates or ASME stamps. Bevel and seal  
39 insulation at these locations.

40  
41 **SEMI-RIGID FIBERGLASS:**

42 Apply insulation to equipment shells using weld pins, bonding adhesive, banded and wired in place. Fill all  
43 joints, seams and depressions with insulating cement to a smooth, even surface. Cover with reinforcing  
44 fabric and 2 coats of mastic (FMJ).

45  
46 **EQUIPMENT INSULATION SCHEDULE:**

47 Provide equipment insulation as follows:

EQUIPMENT	INSULATION TYPE	JACKET	THICKNESS
Heat exchangers	Semi-Rigid Fiberglass	ASJ/PMJ	2”

48  
49  
50 **END OF SECTION**

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**SECTION 23 09 14**  
**CONTROLS FOR HVAC**

**PART 1 - GENERAL**

**SCOPE**

This sections includes controls associated with the control of a steam to glycol/water heat exchanger and circulation pump providing heat transfer fluid to a sidewalk snow melt system.

**RELATED WORK**

- General Conditions of Contract
- Section 01 00 00 – Basic Requirements
- Section 01 74 19 – Construction Waste Management, Disposal & Recycling
- Section 23 05 00 – Common Work Results for HVAC
- Section 23 05 15 – Piping Specialties
- Section 23 05 23 – General Duty Valves for HVAC
- Section 23 05 29 – Hangers and Supports for HVAC Piping
- Section 23 07 00 – HVAC Insulation
- Section 23 21 13 - HVAC Hydronic and Steam Piping
- Section 23 21 23 - Hydronic Pumps
- Section 23 25 25 - Heat Transfer Fluids
- Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

**CONTROL DESCRIPTION**

Controls include the existing Dane County Building Automation System controlling the heat exchanger steam control valve to provide the specified heat transfer fluid supply temperature to the snow melt tubing grid, start and stop of the fluid circulating pump based on signal from sidewalk sensor, building automation system manual override of the system operation, monitoring of system fluid flow and monitoring of fluid temperatures.

The control contractor shall be:

- Environmental Systems Inc. (ESI)
- 3410 Gateway Rd
- Brookfield, WI 53045
- 262-544-8860, 800-522-037

**SUBMITTALS**

Refer to RELATED WORK listing in this section.

Include the following information:

Manufacturer's data sheets indicating model number, pressure/temperature ratings, capacity, methods and materials of construction, installation instructions, and recommended maintenance. General catalog sheets showing a series of the same device is not acceptable unless the specific model is clearly marked.

Schematic flow diagrams of systems showing pumps, valves, and other control devices. Each control device provided under this Section shall be uniquely labeled. Label each device with setting or adjustable range of control. Indicate all wiring, clearly, differentiating between factory and field installed wiring.

1 Wiring should be shown in schematics that detail contact states, relay references, etc. Diagrammatic  
2 representations of devices alone are not acceptable.

3  
4 Schedule of control valves indicating, rated capacity, flow coefficient, flow required by device served,  
5 actual pressure drop at design flow, size of operator required, close-off pressure.

6  
7 A complete description of each control sequence for equipment that is not controlled by direct digital  
8 controls.

9  
10 **DESIGN CRITERIA**

11 Provide all required control devices required to provide the specified control sequences.

12  
13 Provide all required materials and labor to provide the specified control sequences.

14  
15 Size all control apparatus to properly supply and/or operate and control the apparatus served.

16  
17 Provide control devices subject to corrosive environments with corrosion protection or construct them so  
18 they are suitable for use in such an environment.

19  
20 Provide devices exposed to outside ambient conditions with weather protection or construct them so they  
21 are suitable for this installation.

22  
23 Use only UL labeled products that comply with NEMA Standards. Electrical components and installation  
24 to meet all requirements of the electrical sections (Division 26) of project specifications.

25  
26  
27 **OPERATION AND MAINTENANCE DATA**

28 Refer to RELATED WORK listing in this section.

29  
30 All operations and maintenance data shall comply with the submission and content requirements specified  
31 under section Basic Requirements.

32  
33 In addition to the general content specified under Basic Requirements supply the following additional  
34 documentation:

- 35 9. A complete set of record control drawings.

36  
37  
38 **MATERIAL DELIVERY AND STORAGE**

39 Provide factory shipping cartons for each piece of equipment and control device. This contractor is  
40 responsible for storage of equipment and materials inside and protected from the weather.

41  
42  
43  
44 **PART 2 - PRODUCTS**

45 Provide all new controls required to provide the specified control of snow melt system.

46  
47 **CONTROL VALVES**

48 Provide all control valves as shown on the plans/details and as required to perform functions specified.  
49 Spring ranges must be selected to prevent overlap of operation and simultaneous heating and cooling.

50  
51 Size operators to allow smooth and positive operation of devices served and to provide sufficient torque  
52 capacity for tight shutoff against system temperatures and pressure encountered. For electric modulating  
53 actuation, use fully proportional actuators with 0-10VDC inputs and zero and span adjustments unless  
54 specified otherwise in the chart below. All electric actuators shall be provided with a visible position  
55 indicator.

56  
57 All power required for electric actuation shall be provided by this contractor if it is not able to be directly  
58 provided from the DDC controller.

59 Provide operators with linkages and brackets for mounting on device served.

1  
2 STEAM SYSTEMS (15 psig and less):

3 Use equal percentage valves that have a minimum rangeability of 30 to 1. Size for a pressure drop equal to  
4 80% of the inlet steam gauge pressure.

5  
6 2" and smaller:

7 Belmo Series HTCCV Ball or VS Ball  
8  
9

## 10 **PART 3 - EXECUTION**

### 11 **INSTALLATION**

12  
13  
14  
15 Install all control equipment, accessories, wiring, in a neat and workmanlike manner. All control devices  
16 must be installed in accessible locations. This contractor shall verify that all control devices furnished  
17 under this Section are functional and operating the mechanical equipment as specified.

18  
19 Provide all electrical relays and wiring, line and low voltage, for control systems, devices and components.  
20 Install all high voltage and low voltage wiring (includes low voltage cable) in metal conduit, Electrical  
21 Non-metallic Tubing (ENT), or Electrical Metallic Tubing (EMT), as scheduled below and hereafter  
22 referred to generically as conduit except above accessible ceilings as noted below.  
23

24 Minimum low voltage wiring gauge to be 18 AWG for outputs and 20 AWG for inputs. All low voltage  
25 wiring to be stranded.

26  
27 All wiring in mechanical rooms, above inaccessible hard ceilings, exterior locations, and in any exposed  
28 areas, and in all other locations shall be in conduit.  
29

### 30 **CONTROL VALVES**

31  
32 All temperature control valves furnished by the control manufacturer are to be installed by the Mechanical  
33 Contractor under the coordinating control and supervision of the Control Contractor in locations shown on  
34 plans or where required to provide specified sequence of control.  
35

36 Steam valve actuators shall be mounted at a 45 degree angle from upright vertical to prevent overheating of  
37 the actuator unless shielding is provided and the manufacturer indicates it is acceptable to mount in the  
38 upright vertical position.  
39

### 40 **TRAINING**

41  
42 Contractor to provide factory authorized representative and/or field personnel knowledgeable with the  
43 operations, maintenance and troubleshooting of the system and/or components defined within this section  
44 for a minimum period of 0.5 hours.  
45  
46

## 47 **PART 4 - SEQUENCE OF OPERATION**

### 48 **SIDEWALK SNOW MELT CONTROL SEQUENCE**

#### 49 **GENERAL**

50  
51  
52  
53  
54  
55 The system shall be connected to the existing Dane County Building Automation System. Provide all  
56 programming required.  
57

58 The BAS shall be capable of enabling or disabling the snow melt system and adjusting the temperature that  
59 will allow system activation, and the glycol solution supply temperature.  
60

61 The BAS shall be capable of monitoring the glycol supply as specified in the sequence of operation.

1  
2 A sidewalk Snow/Ice Sensor shall be installed in the concrete slab as indicated on the sidewalk snow melt  
3 tubing layout drawings and wired to the manifold mounting panel at the heat exchanger location. Refer to  
4 specification Section 23 83 18.

5  
6 A Tekmar Snow Melting Control model 654, provided by this section contractor, may be used to provide  
7 interface to the Dane County Building Automation System.

8  
9 This section contractor may connect directly to the sensor wiring at the manifold mounting panel and  
10 provide all controls to provide the specified sequence.

11  
12 CONTROL SEQUENCE

- 13
- 14 • With temperature below 38 deg. F (adjustable) and snow/ice detection by the sensor in the  
15 sidewalk the snow melt controls will be activated.
  - 16
  - 17 • On activation the glycol pump will be started.
  - 18
  - 19 • On flow detection, by a flow sensor in the supply piping, the system will control the heat  
20 exchanger steam control valve to provide a glycol solution supply temperature of 112 .5 deg. F  
21 (adjustable) to the snow melt supply manifolds.
  - 22
  - 23 • The system shall have the option to shut down after a programmed adjustable period of time or be  
24 capable or shutting down when the temperature is above 38 deg. F, adjustable, and the sensor no  
25 longer detects snow or ice.
  - 26
  - 27 • Glycol temperature shall be limited to 120 degree F. A secondary high-limit manual reset shall be  
28 locked at 130 degree F.
  - 29
  - 30 • The Building Automation System shall be provide manual control of the system to override the  
31 automatic controls to allow the operator to start and stop the system at any time.
- 32

33 MONITORING

34  
35 The Building Automation System shall monitor the following:

- 36 • Fluid Flow
  - 37 • Supply fluid temperature
  - 38 • Manifold No. 1 return fluid temperature
  - 39 • Manifold No. 2 return fluid temperature
  - 40 • Control valve position
  - 41 • Operation on time of the system.
- 42

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**SECTION 23 21 13**  
**HVAC HYDRONIC and STEAM PIPING**

**PART 1 - GENERAL**

**SCOPE**

This section contains specifications for all HVAC pipe and pipe fittings for this project

**RELATED WORK**

- General Conditions of Contract
- Section 01 00 00 – Basic Requirements
- Section 01 74 19 – Construction Waste Management, Disposal & Recycling
- Section 23 05 00 – Common Work Results for HVAC
- Section 23 05 15 – Piping Specialties
- Section 23 05 23 – General Duty Valves for HVAC
- Section 23 05 29 – Hangers and Supports for HVAC Piping
- Section 23 07 00 – HVAC Insulation
- Section 23 09 14 - Controls for HVAC
- Section 23 21 23 - Hydronic Pumps
- Section 23 25 25 - Heat Transfer Fluids
- Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**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 A380 Practice for Cleaning and Descaling Stainless Steel Parts, Equipment, and Systems
- ASTM B75 Seamless Copper Tube
- ASTM B88 Seamless Copper Water Tube

**SHOP DRAWINGS**

Refer to RELATED WORK listing in this section.

**TYPE F STEEL PIPE:**

Statement from manufacturer on his letterhead that the pipe furnished meets the ASTM specification contained in this section.

**TYPE E OR S STEEL PIPE:**

Mill certification papers, also known as material test reports, for the pipe furnished for this project, in English. Heat numbers on these papers to match the heat numbers stenciled on the pipe. Chemical analysis indicated on the mill certification papers to meet or exceed the requirements of the referenced ASTM specification.

**COPPER TUBE:**

Statement from manufacturer on his letterhead that the pipe furnished meets the ASTM specification contained in this section.

**QUALITY ASSURANCE**

Order all Type E and Type S steel pipe with heat numbers rolled, stamped, or stenciled to each length or each bundle, depending on the size of the pipe, and in accordance with the appropriate ASTM specification.

Any installed material not meeting the specification requirements must be replaced with material that meets these specifications without additional cost to the Owner.

1 **DELIVERY, STORAGE, AND HANDLING**

2 Refer to RELATED WORK listing in this section.

4 **DESIGN CRITERIA**

5 Use only new material, free of defects, rust and scale, and meeting the latest revision of ASTM  
6 specifications as listed in this specification.

8 Construct all piping for the highest pressures and temperatures in the respective system in accordance with  
9 ANSI B31, but not less than 125 psig unless specifically indicated otherwise.

11 Where ASTM B88, type L hard temper copper tubing is specified, ASTM B88, type K hard temper copper  
12 tubing may be substituted at Contractor's option.

15 **PART 2 - PRODUCTS**

17 **GLYCOL WATER**

18 2" and Smaller:

20 ASTM A53, type F, standard weight (schedule 40) black steel pipe with ASTM A126/ANSI B16.4, class  
21 125, standard weight cast iron threaded fittings.

23 ASTM B88 seamless, type L, hard temper copper tube with ANSI B16.22 wrought copper solder-joint  
24 fittings in lieu of steel pipe for all sizes.

26 **VENTS AND RELIEF VALVES**

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

29 **UNIONS AND FLANGES**

30 2" and Smaller: ASTM A197/ANSI B16.3 malleable iron unions with brass seats. Use black malleable iron  
31 on black steel piping and galvanized malleable iron on galvanized steel piping. Use ANSI B16.18 cast  
32 copper alloy unions on copper piping. Use unions of a pressure class equal to or higher than that specified  
33 for the fittings of the respective piping service but not less than 250 psi.

35 2-1/2" and Larger: ASTM A181 grade I or A105, grade III hot forged steel flanges of threaded, welding  
36 and of a pressure class compatible with that specified for valves, piping specialties and fittings of the  
37 respective piping service. Flanges smaller than 2-1/2" may be used as needed for connecting to equipment  
38 and piping specialties. Use raised face flanges ANSI B16.5 for mating with other raised face flanges on  
39 equipment with flat ring or full face gaskets. Use ANSI B16.1 flat face flanges with full face gaskets for  
40 mating with other flat face flanges on equipment.

42 Provide ASTM A 193 B7 grade bolts and A 194 2H grade nuts & hardened washers for

44 **GASKETS**

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

48 **LOW PRESSURE STEAM (15 psig and lower)**

49 2" and Smaller above grade in buildings: ASTM A53, type F, standard weight (schedule 40) black steel  
50 pipe with ASTM A126/ANSI B16.4, Class 125 cast iron threaded fittings.

52 **LOW PRESSURE STEAM CONDENSATE (Steam pressure 15 psig and lower)**

53 2" and Smaller above grade in buildings: ASTM A53, type F, extra strong (schedule 80) black steel pipe  
54 with ASTM A126/ANSI B16.4, Class 125 cast iron threaded fittings.

57 **PART 3 - EXECUTION**

1     **ERECTION - WATER**  
2     Carefully inspect all pipe, fittings, valves, equipment and accessories before installation. Any items that  
3     are unsuitable, cracked or otherwise defective shall be rejected and removed from the job site immediately.  
4     Excluding minor surface rust, piping that exhibits significant oxidation or corrosion will be rejected.  
5  
6     Remove all loose dirt, scale, oil, chips, burrs and other foreign material from the internal and external  
7     surfaces of all pipe and piping components prior to assembly, including debris associated with cutting,  
8     threading.  
9  
10    Furnish and install all flanges, caps, bypasses, drains, valves, etc. required to facilitate flushing and  
11    draining all heating and cooling system piping.  
12  
13    Provide, swing joints so that piping may expand and contract without damage to itself or equipment.  
14  
15    **ERECTION - STEAM**  
16    Provide swing joints so that piping may expand and contract without damage to itself or equipment.  
17  
18    Install all valves, control valves, and piping specialties, including items furnished by others, as specified  
19    and/or detailed.  
20  
21    **THREADED PIPE JOINTS**  
22    Use a Teflon based thread lubricant or Teflon tape when making joints; no hard setting pipe thread cement  
23    or caulking will be allowed.  
24  
25    **COPPER PIPE JOINTS**  
26    Remove all slivers and burrs remaining from the cutting operation by reaming and filing both pipe surfaces.  
27    Clean fitting and tube with emery cloth or sandpaper. Remove residue from the cleaning operation, apply  
28    flux, and assemble joint. Use 95-5 solder or brazing to secure joint as specified for the specific piping  
29    service.  
30  
31    **WATER SYSTEM**  
32    Use a minimum of two elbows in each pipe line to a piece of terminal equipment to provide flexibility for  
33    expansion and contraction of the piping systems. Offset pipe connections at equipment to allow for service,  
34    such as removal of the terminal device.  
35  
36    **STEAM AND STEAM CONDENSATE**  
37    Pitch mains down 1 inch in 40 feet in the direction of flow. Pitch terminal equipment runouts down 1 inch  
38    in 2 feet for proper condensate drainage.  
39  
40    Use eccentric fittings for changes in horizontal pipe sizes with the fittings installed for proper condensate  
41    drainage. Concentric fittings may be used for changes in vertical pipe sizes.  
42  
43    **VENTS AND RELIEF VALVES**  
44    Install vent and relief valve discharge lines as indicated on the drawings, as detailed, and as specified for  
45    each specific valve or piping specialty item. In no event is a termination to occur less than six feet above a  
46    roof line.  
47  
48    **UNIONS AND FLANGES**  
49    Install a union or flange, as required, at each automatic control valve and at each piping specialty or piece  
50    of equipment which may require removal for maintenance, repair, or replacement. Where a valve is located  
51    at a piece of equipment, locate the flange or union connection on the equipment side of the valve.  
52    Concealed unions or flanges are not acceptable.  
53  
54    **GASKETS**  
55    Store horizontally in cool, dry location and protect from sunlight, water and chemicals. Inspect flange  
56    surfaces for warping, radial scoring or heavy tool marks. Inspect fasteners, nuts and washers for burrs or  
57    cracks. Replace defective materials.  
58  
59    Align flanges parallel and perpendicular with bolt holes centered without using excessive force. Center  
60    gasket in opening. Lubricate fastener threads, nuts and washers with lubricant formulated for application.  
61

1 Draw flanges together evenly to avoid pinching gasket. Tighten fasteners in cross pattern sequence (12 – 6  
2 o'clock, 3 – 9 o'clock, etc.), one pass by hand and four passes by torque wrench at 30% full torque, 60%  
3 full torque and two passes at full torque per ASME B16.5.  
4

5 **PIPING SYSTEM LEAK TESTS**

6 Verify that the piping system being tested is fully connected to all components and that all equipment is  
7 properly installed, wired, and ready for operation. If required for the additional pressure load under test,  
8 provide temporary restraints at expansion joints or isolate them during the test. Verify that hangers can  
9 withstand any additional weight load that may be imposed by the test.

10  
11 Do not insulate pipe until it has been successfully tested.  
12

13 For air tests, gradually increase the pressure to not more than one half of the test pressure; then increase the  
14 pressure in steps of approximately one-tenth of the test pressure until the required test pressure is reached.  
15 Examine all joints and connections with a soap bubble solution or equivalent method. The piping system  
16 exclusive of possible localized instances at pump or valve packing shall show no evidence of leaking.  
17 After testing is complete, slowly release the pressure in a safe manner.  
18

System	Pressure	Medium	Duration
Glycol water	100 psig	air	8 hr

19  
20 \*\*Refer to Section 23 83 18 for testing of Snow Melt System in slab tubing.  
21

22 **HYDRONIC PIPING SYSTEM FLUSHING**

23 All glycol/water system piping shall be flushed thoroughly before the systems are put in to operation.  
24 Subsequent to executing the chemical cleaning processes specified in Section 23 2525, and prior to  
25 installing the heat transfer fluid specified in section 23 25 25 , flush all piping and components with a clean  
26 source of water until the discharge from the system is clean. Discharge shall be from drains provided at all  
27 low points in the piping.  
28

29 Isolate the snow melt system headers and tubing from the heat exchanger steel pr copper piping while  
30 flushing. Refer to Section 23 83 18, Snow Melting System for Flushing that portion of the system.  
31

32 After flushing operations are complete, drain and/or blow out any residual water, clean and replace all  
33 strainers, and Heat Transfer Fluid as specified in Section 23 25 25. Leave flushing connections/valves in  
34 place and cap.  
35

36  
END OF SECTION

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**SECTION 23 21 23**  
**HYDRONIC PUMPS**

**PART 1 - GENERAL**

**SCOPE**

This section includes specifications for water pumps used for HVAC applications.

**RELATED WORK**

General Conditions of Contract  
Section 01 00 00 – Basic Requirements  
Section 01 74 19 – Construction Waste Management, Disposal & Recycling  
Section 23 05 00 – Common Work Results for HVAC  
Section 23 05 15 – Piping Specialties  
Section 23 05 23 – General Duty Valves for HVAC  
Section 23 05 29 – Hangers and Supports for HVAC Piping  
Section 23 07 00 – HVAC Insulation  
Section 23 09 14 - Controls for HVAC  
Section 23 21 13 - HVAC Hydronic and Steam Piping  
Section 23 25 25 - Heat Transfer Fluids  
Section 23 83 18 – Snow Melting Systems

**REFERENCE**

Refer to RELATED WORK listing in this section.

**QUALITY ASSURANCE**

Refer to RELATED WORK listing in this section.

**SHOP DRAWINGS**

Refer to RELATED WORK listing in this section.

Include data concerning dimensions, capacities, materials of construction, ratings, weights, pump curves with net positive suction head requirements, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

Pump curves shall identify design point of operation.

**OPERATION AND MAINTENANCE DATA**

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

**DESIGN CRITERIA**

Pump sizes, capacities, pressures and operating characteristics shall be as scheduled.

Pumps shall meet or exceed operating efficiencies scheduled.

Provide all pumps with motors, impellers, drive assemblies, bearings, coupling guard, and other accessories specified. Statically and dynamically balance all rotating parts. Provide flanged connections on all pumps unless specified otherwise. Service or repair of base mounted pumps shall not require breaking piping connections or removal of motor.

Provide pump with a motor sized for non-overloading over the entire pump curve. Motors to be 1750 rpm unless specified otherwise.

1 Furnish each pump and motor with a nameplate giving the manufacturer's name, serial number of pump,  
2 capacity in GPM and head in feet at design condition, horsepower, voltage, frequency, speed and full load  
3 current.

4  
5 Test all pumps, clean and paint before shipment. The manufacturer shall certify all pump ratings.

6  
7 All pumps to operate without excessive noise or vibration.

8  
9 Furnish one spare seal and casing gasket for each pump.

## 10 11 **PART 2 - PRODUCTS**

### 12 13 **IN-LINE CENTRIFUGAL PUMPS**

#### 14 **MANUFACTURERS:**

15  
16 Bell and Gossett, Taco, Grundfos, or approved equal.

#### 17 **TYPE:**

18  
19 Single stage, direct connected, resiliently mounted motor for in-line mounting, oil lubricated, 175 psig  
20 maximum working pressure at operating temperature of 225 ° F. continuous, 250 ° F. intermittent.

#### 21 **CASING:**

22  
23 Cast iron or stainless steel; flanged suction and discharge connection; with plugged taps for vent, drain,  
24 suction and discharge gauges.

#### 25 **IMPELLER:**

26  
27 Brass or bronze, keyed to the shaft, single suction enclosed type, hydraulically and dynamically balanced.

#### 28 **BEARINGS:**

29  
30 Two, oil lubricated bronze sleeves or ball bearings capable of being greased.

#### 31 **SHAFT:**

32  
33 Stainless steel or carbon steel with stainless steel or bronze sleeve, integral thrust collar.

#### 34 **SEAL:**

35  
36 Mechanical type, carbon rotating against a stationary ceramic seat, 225°F maximum continuous operating  
37 temperature.

#### 38 **DRIVE:**

39  
40 close coupled.

## 41 42 **PART 3 - EXECUTION**

### 43 44 **INSTALLATION**

45  
46 Install all pumps in strict accordance with manufacturer's instructions. Access/service space around pumps  
47 shall not be less than minimum space recommended by pump manufacturer.

48  
49 Support piping adjacent to pump such that no weight is carried on pump casings.

50  
51 Decrease from line size at pump connections with eccentric reducers/increasers for horizontal piping.  
52 Install eccentric reducers/increasers with the top of the pipe level

53  
54 All valves and piping specialties must be full line size as indicated on the drawings

55  
56 Lubricate pumps before startup.

57  
58 Install a full line size balancing valve in the pump discharge piping.

59  
60  
61 **END OF SECTION**  
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**SECTION 23 25 25**  
**HEAT TRANSFER FLUIDS**

**PART ONE - GENERAL**

**SCOPE**

This section includes information on heat transfer fluids for snow melting applications.

**RELATED WORK**

- General Conditions of Contract
- Section 01 00 00 – Basic Requirements
- Section 01 74 19 – Construction Waste Management, Disposal & Recycling
- Section 23 05 00 – Common Work Results for HVAC
- Section 23 05 15 – Piping Specialties
- Section 23 05 23 – General Duty Valves for HVAC
- Section 23 05 29 – Hangers and Supports for HVAC Piping
- Section 23 07 00 – HVAC Insulation
- Section 23 09 14 – Controls for HVAC
- Section 23 21 23 – Hydronic Pumps
- Section 23 21 13 – HVAC Hydronic and Steam Piping
- Section 23 83 08 – Snow Melting Systems

**DESCRIPTION**

Fill the closed loop in-floor hydronic heating system with a 55 % by volume solution of a fully formulated propylene glycol based heat transfer fluid. The final concentration shall be no less than 50% 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
- Manufacturer's Name, Address and Telephone
- Percent Propylene Glycol
- Total System Gallons
- Reference to Material Safety Sheet
- Instructions for Sampling of Fluid
- Month for Annual Sampling
- 

**SUBMITTALS**

Refer to RELATED WORK listing in this section.

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

**PART TWO - PRODUCTS**

**ACCEPTABLE HEAT TRANSFER FLUIDS**

Dow, DowFrost HD, Interstate Chemical, Intercool P-300, Houghton Chemical, Safe-T-Therm or 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 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 55% solution (final solution not less than 50%) of heat transfer fluid and de-ionized water, pre-mixed by the chemical manufacturer, shall have a freezing point of -30 degrees F, no flash point, no silicates and

1 an orange or yellow color. The de-ionized water used to dilute the concentrate and the pre-mixed solutions  
2 shall contain less than: chlorides 25 ppm, total hardness as CaCO<sub>3</sub> of 100 ppm, sulfates 25 ppm.

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

## 6 7 8 **PART THREE - EXECUTION**

### 9 10 **PREPARATION FOR FILL**

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

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

### 15 16 **GLYCOL-BASED PRODUCTS**

17 For the initial flush fill system with high quality water and system cleaner recommended by the glycol  
18 manufacturer. Water shall contain less than 100 ppm CaCO<sub>3</sub> hardness and less than 50 ppm chloride plus  
19 sulfate ions. Blended solution shall have a concentration of cleaner recommended by the glycol  
20 manufacturer. Drain the system of cleaning solution. Open the isolation valves to all heat transfer  
21 equipment. Using a 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. The manufacturer's pre-mixed solution shall be  
38 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 **END OF SECTION**

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**SECTION 23 83 18**  
**SNOW-MELTING SYSTEM**

**PART 1 - GENERAL**

**SCOPE**

This section includes specification for the material, devices and installation of snow and ice melting systems.

Provide all labor, materials, and equipment as necessary to complete work as indicated on the drawings and as specified herein.

**RELATED WORK**

General Conditions of Contract  
Section 01 00 00 – Basic Requirements  
Section 01 74 19 – Construction Waste Management, Disposal & Recycling  
Section 23 05 00 – Common work Results for HVAC  
Section 23 05 15 - Piping Specialties  
Section 23 05 23 - General Duty Valves for HVAC  
Section 23 05 29 - Hangers and Supports for HVAC Piping  
Section 23 07 00 - HVAC Insulation  
Section 23 09 14 - Controls for HVAC  
Section 23 21 13 - HVAC Hydronic and Steam Piping  
Section 23 21 23 - Hydronic Pumps  
Section 23 25 25 - Heat Transfer Fluids

**REFERENCES**

Refer to RELATED WORK listing in this section.  
ASHRAE Handbook - 2003 HVAC Applications, Snow Melting and Freeze Protection

**SYSTEM DESCRIPTION – SNOW MELTING SYSTEM**

System shall be of hydronic type, field-assembled including distribution piping. System consist of an existing steam to glycol heat exchanger, circulating pump, expansion tank, air separator, temperature and pressure gauges, balancing valve, valves and fittings, chemical treatment, supply and return main, manifolds and fittings, distribution loops, and controls. Refer to other section of this specification for some of the listed material and equipment.

Field-mounted power devices including combination starters and power wiring shall be furnished and installed by the owner or electrical contractor, refer to Equipment And Work Furnished By Others in Section 23 05 00.

Control devices and wiring shall be furnished and installed by the control contractors.

**SUBMITTALS**

Shop Drawings for Snow Melt System: Include PEX tubing, manifold, sensor socket and sensor, fixing rails, performance data, components and accessories, wiring diagrams, dimensions, weights and loadings, field connections, and required clearances.

Test Reports: Include operating test data submitted by the manufacturer's field service representative

Operation and Maintenance Data: Include approved selection data, start-up instructions, maintenance data, part lists, accessories, control and wiring diagrams, and test reports.

1  
2 **QUALITY ASSURANCE**

3  
4 Refer to RELATED WORK listing in this section.

5 Codes and Standards

6 MC 2003

7 ASTM F876, "Standard Specification for Crosslinked Polyethylene (PEX) Tubing".

8  
9 **WARRANTY**

10  
11 Manufacturer shall furnish, at the completion of installation, as described herein, a Certificate of Inspection  
12 signed by his authorized representative. The minimum five (5) year system warranty shall be provided to  
13 the Owner by the Contractor.  
14

15  
16 **PART 2 - PRODUCTS FOR SNOW MELT SYSTEM**

17  
18 **MANUFACTURERS**

19  
20 Acceptable manufacturers are

21 Snow Melt System: Rehau, HeatLink, Uponor-Wirsbo Co., Watts Radiant

22 Controls: Tekmar  
23

24 **PIPES AND FITTINGS**

25  
26 Distribution loop shall be cross-linked polyethylene, equivalent to REHAU PEX-A, RAUPEX O2, SDR9  
27 (Rehau article no. 136051) rated at minimum 180 deg. F. and 100 psi working pressure, conform to ASTM  
28 standards F876/F877, and marked "SNOW MELT SYSTEM". Minimum tubing size is 3/4" nominal ID.  
29 Tubing shall have a minimum bend radius of not more than six times the tubing OD at 68 degree F. Tubing  
30 shall be UV stabilized.

31  
32 Provide all fittings required for connection of supply and return mains to manifolds and PEX distribution  
33 piping to manifolds.

34  
35 Tubing shall carry a twenty-five (25) year warranty. Warranty to be included with submittals.  
36

37 **DISTRIBUTION MANIFOLDS**

38  
39 Equivalent to REHAU Pro-Balance (article no. 281861-100). Distribution supply and return manifolds  
40 shall be constructed of brass. Supply and return manifolds shall each be six station. Provide isolation ball  
41 valves and thermometers in both the supply and return. Manifolds shall be compatible with tubing and  
42 shall have end caps tapped for manual air vents and a drain valve. Provide mini ball valves with PEX  
43 compression fittings for each loop for isolation and balancing. Installer shall provide a ball valve and  
44 circuit balancing valve with full shutoff capability for each manifold set.  
45

46 **SNOW/ICE SENSOR SOCKET**

47  
48 Sensor socket shall be Tekmar Model 091 socket designed to house a Tekmar Model 090/094 snow/ice  
49 sensor. Follow manufacturer's recommendations for installation of socket. Utilize mounting plate and  
50 provide for adequate drainage under the socket.  
51

52 If only the socket will be installed, fabricate a disc of stainless steel, 3/18" thick, and install the disc in  
53 place of the plastic plug once the concrete has been poured and finished. Secure the disc to the socket  
54 using the existing screw holes in the socket and the o-ring.  
55

1 Embed a ¾” rigid ENT (PVC) conduit running from the sensor socket to a point inside the building for  
2 future tie-in. Terminate and cap conduit inside outdoor access box, or inside building adjacent to manifold.

3  
4 **SNOW/ICE SENSOR**

5  
6 Sensor shall be Tekmar Model 090 in-slab sensor. Sensor shall be provided with a 65 foot 5 conductor  
7 stranded wire for connecting the sensor to the system controls.

8  
9 Sensor shall have an operating range of -30 to 170 deg. F.

10  
11 Three year warranty

12  
13 **FIXING RAILS**

14  
15 Equivalent to Rehau article no. 266407. Rail shall be designed for holding PEX tubing in position in radiant  
16 floor and snow melting applications. The fixing rail shall be constructed of polypropylene. The rails shall  
17 be pre-drilled for screw fastening to concrete substrate.

18  
19 **BEND GUIDES**

20  
21 Equivalent to Rehau article no. 266175-001. PVC guides for providing 90 deg. bends in PEX tubing .

22  
23 **CONTROLS**

24  
25 Refer to Section 23 09 14

26  
27 Glycol temperature shall be limited to 120 degree F. A secondary high-limit manual reset shall be locked  
28 at 130 degree F

29  
30 **WATER TREATMENT**

31  
32 Refer to Section 23 25 25, Heat Transfer Fluids.

33  
34 Inhibited propylene glycol and corrosion inhibitor shall be provided by the Contractor. Solution to be pre-  
35 mixed at 50%.

36  
37 **PART 3 - EXECUTION**

38  
39 **INSTALLATION**

40  
41 **SLAB PREPARATION AND SNOW MELT SYSTEM**

42  
43 A complete snow melt system including tubing loop, manifolds, fittings, and sensors shall be installed in  
44 accordance with the manufacturers' recommendations. The Contractor shall follow the Drawings for tube  
45 layout, tube spacing, and manifold and sensor locations.

46  
47 Stamp “Snow Melt System” all along the edge of the heated surface. Review layout with Project  
48 Representative prior to stamping.

49  
50 Distribution manifolds, attached to supply and return mains, shall be located in the mechanical room as  
51 indicated on the drawings.

52  
53 Install fixing rails as recommended by the manufacturer to the concrete substrate. Locate the rails at  
54 intervals to maintain the proper spacing of the tubing.

55  
56 Install sensor socket and ENT conduit in concrete slab before concrete placement.

1  
2 Install sensor and sensor wiring after placement of concrete.

3  
4 Use bend guides at 90 degree bends in the tubing.

5  
6 TUBING FLUSHING

7  
8 Flush each branch loop with clean water before connecting to manifold. Flushing shall be observed by the  
9 Owners Representative and/or the engineer. Upon acceptance by the Owners Representative and/or the  
10 engineer the tubing shall have residual water removed from the tubing with compressed air and connected  
11 to manifolds.

12  
13 PRESSURE TESTING

14  
15 Distribution loop shall be pressure tested with water or air in accordance with the manufacturer's  
16 recommendations prior to concrete cover. The system shall remain at this pressure during the concrete  
17 installation and for a minimum of 24 hours thereafter to insure system integrity.

18  
19  
20 END OF SECTION

21  
22  
23  
24  
25  
26  
27

**DISCLAIMER:**

This technical information is provided only for general quotation purposes and is based in part on information you provided. No representations, warranties, or guarantees are made regarding the suitability of P&ID technical information to meet code requirements for any particular project, nor regarding the accuracy of the costing of any project based upon this information.

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PROJECT:

Dane county

CUSTOMER:

PROJECT NO.:

RFB316003 - Rebid

SCALE:

1/4"=1'

DRAWING NAME:

P1 (Snow Melt)

DRAWN BY:

Richard Braund

Created Using LoopCAD 2014 5.0.0196 (2/19/2016)

DATE:

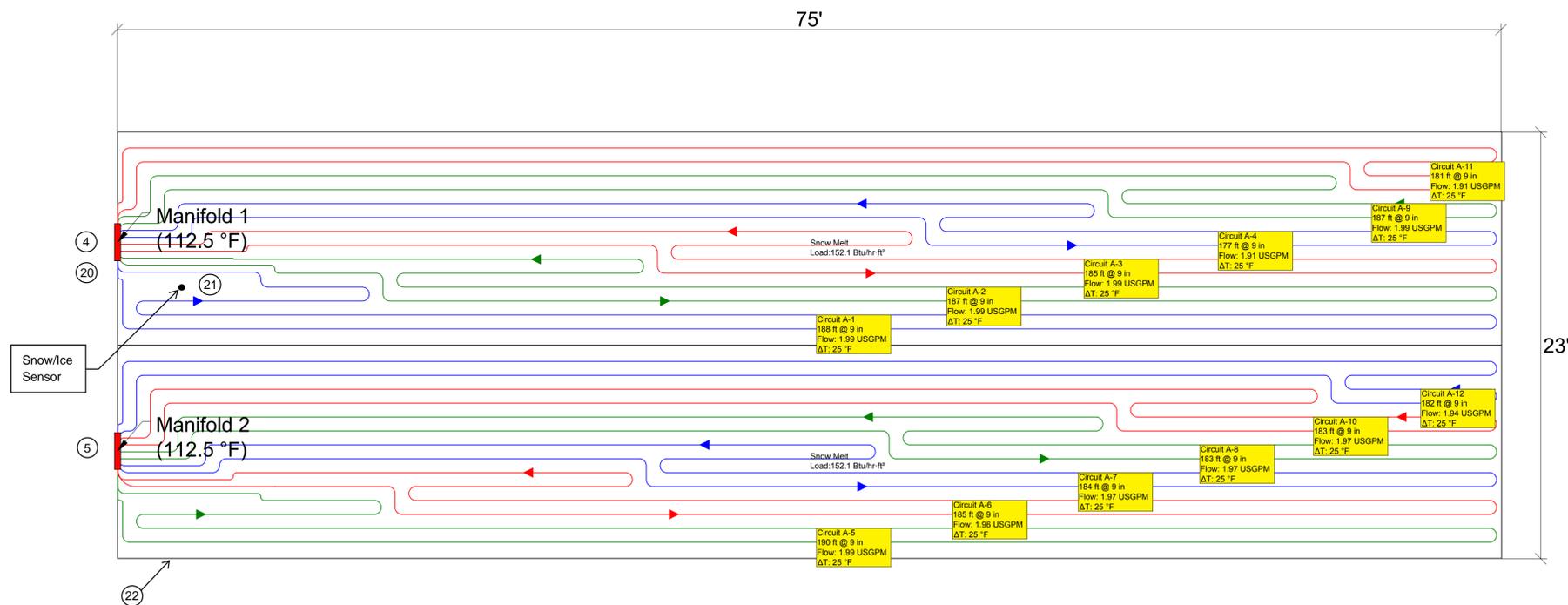
2/19/2016

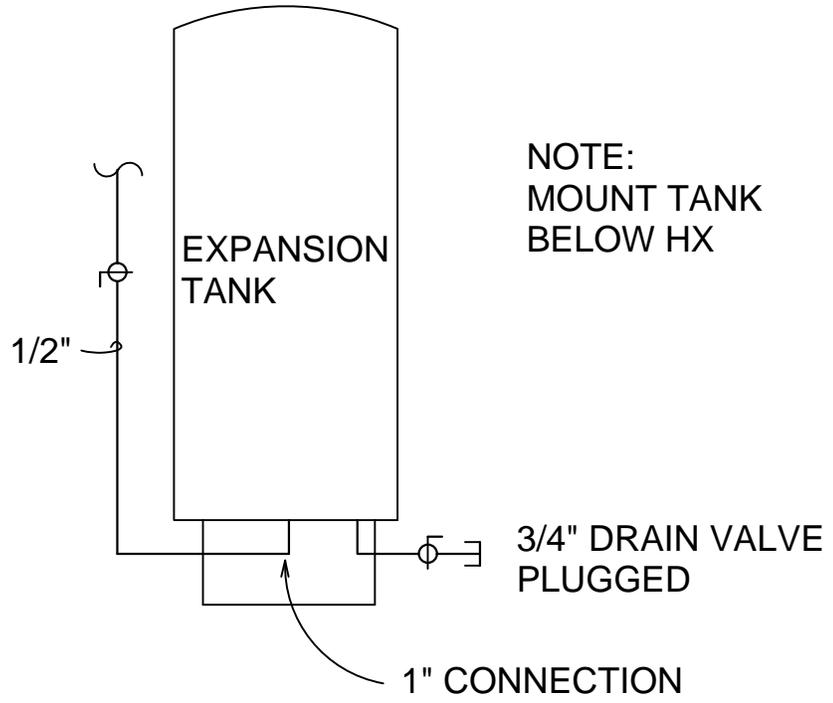
**REVISIONS**

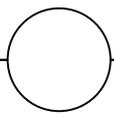
No	Desc	Date

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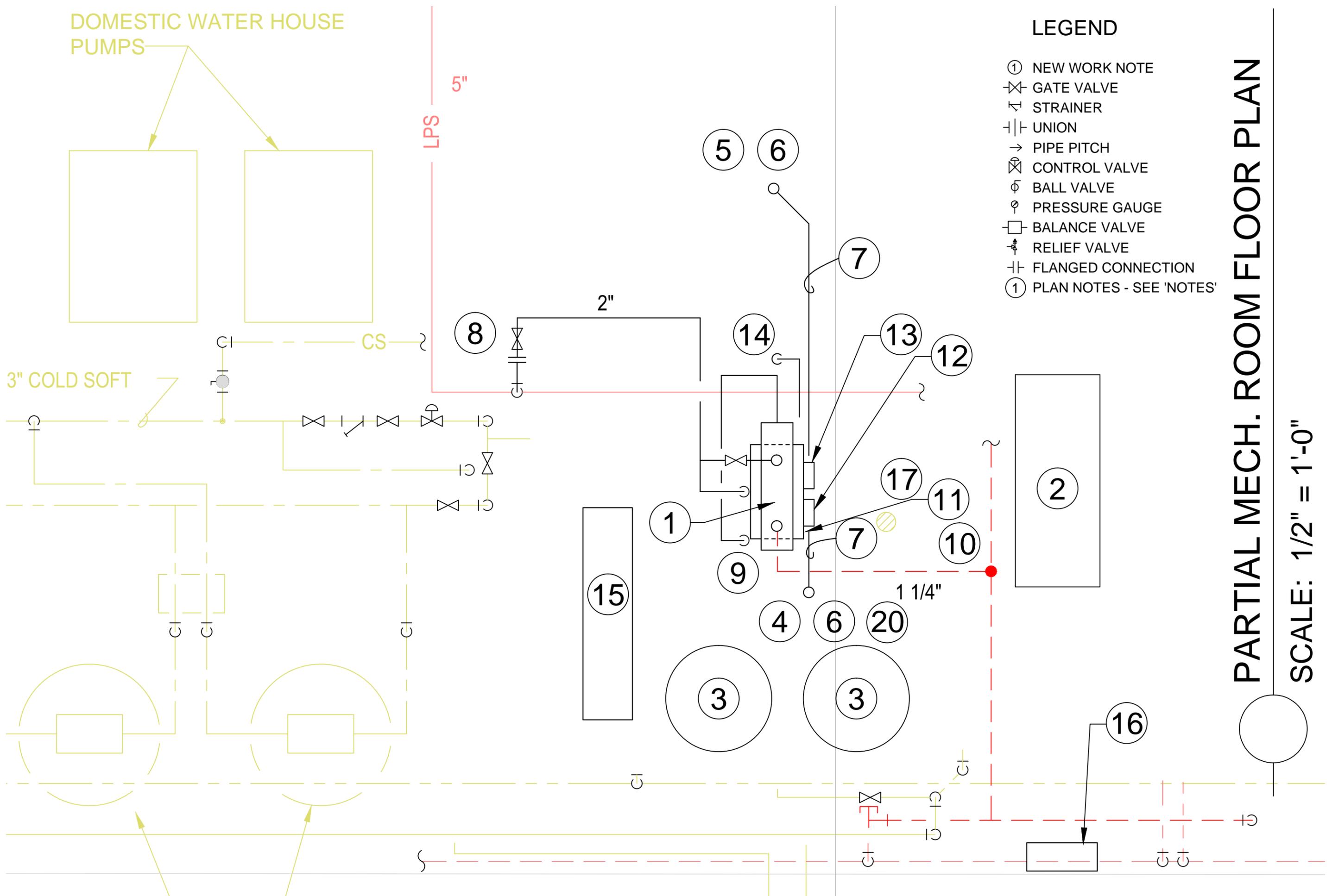
 **EXPANSION TANK PIPING DETAIL**  
NTS

① PLAN NOTES - SEE 'NOTES'

DOMESTIC WATER HOUSE PUMPS

LEGEND

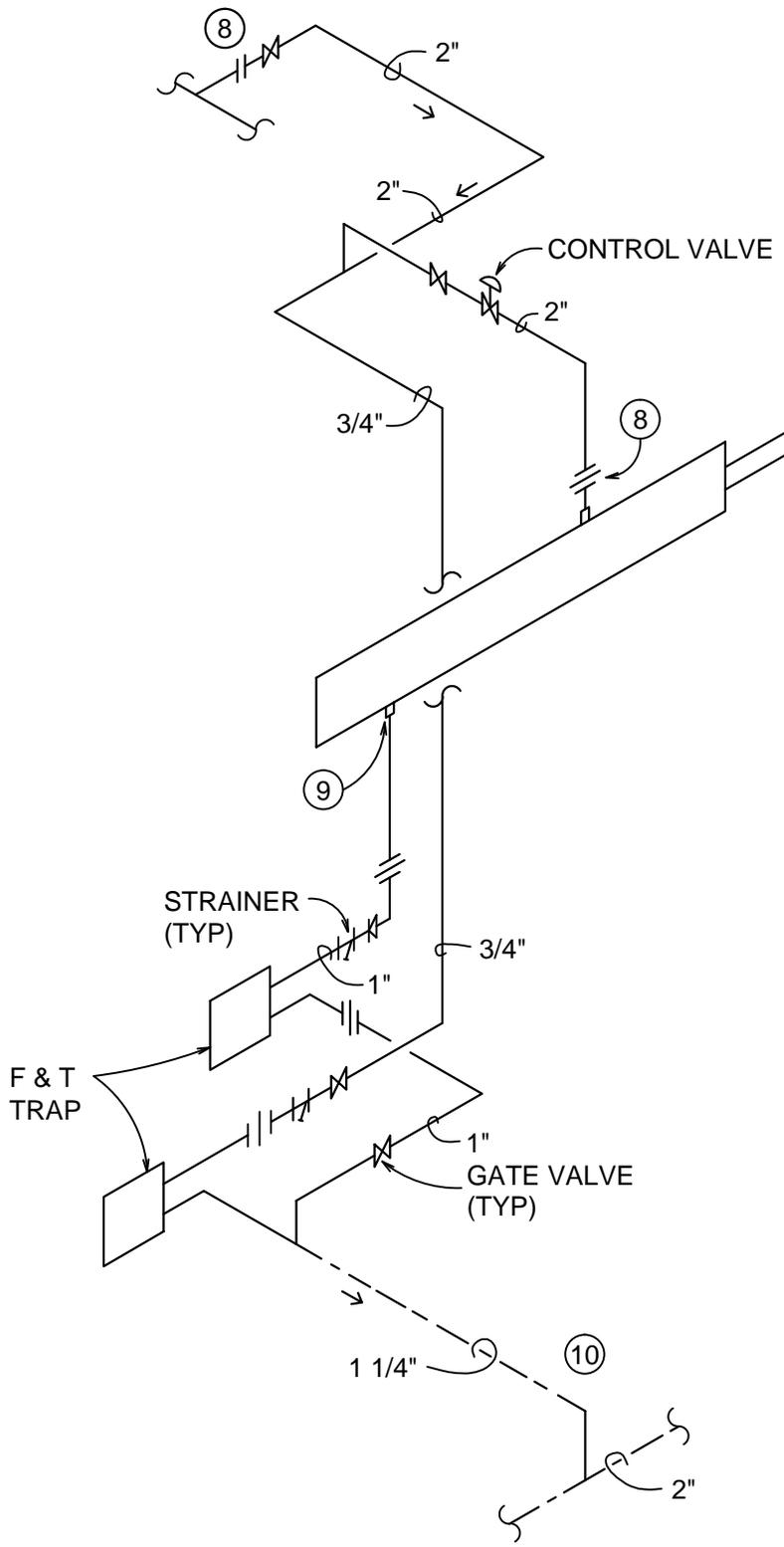
- ① NEW WORK NOTE
- ⊗ GATE VALVE
- ⊘ STRAINER
- ⊕ UNION
- PIPE PITCH
- ⊗ CONTROL VALVE
- ⊕ BALL VALVE
- ⊙ PRESSURE GAUGE
- ⊖ BALANCE VALVE
- ⊕ RELIEF VALVE
- ⊕ FLANGED CONNECTION
- ① PLAN NOTES - SEE 'NOTES'



PARTIAL MECH. ROOM FLOOR PLAN

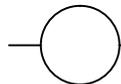
SCALE: 1/2" = 1'-0"





### LEGEND

- ① NEW WORK NOTE
- ⊗ GATE VALVE
- ⊥ STRAINER
- ⊥⊥ UNION
- PIPE PITCH
- ⊗ CONTROL VALVE
- ⊕ BALL VALVE
- ⊙ PRESSURE GAUGE
- ⊞ BALANCE VALVE
- ⊥ RELIEF VALVE
- ⊥ FLANGED CONNECTION
- ① PLAN NOTES - SEE 'NOTES'


**STEAM PIPING DETAIL**  
 NTS

HVAC WORK KEY NOTES – SIDEWALK SNOW MELT

1. EXISTING HEAT EXCHANGER ON STEEL FRAME TO BE USED FOR SNOW MELT SYSTEM. UNIT TO BE MOVED TO LOCATION TO LIMIT THE LENGTH OF PEX PIPING IN MECHANICAL ROOM. WHEN LOCATED BOLT TO FLOOR. REMOVE EXISTING PIPING CONNECTED TO STEAM AND WATER CONNECTIONS.
2. EXISTING DOMESTIC HOT WATER HEATER – NO WORK THIS PROJECT.
3. EXISTING DOMESTIC HOT WATER STORAGE TANKS – NO WORK THIS PROJECT.
4. APPROXIMATE LOCATION OF OPENING FOR MANIFOLD ONE.
5. APPROXIMATE LOCATION OF OPENING FOR MANIFOLD TWO.
6. DANE COUNTY HAS DRILLED A PILOT HOLE BESIDE THE CONCRETE BEAM TO THE SURFACE ABOVE. USE THIS LOCATION FOR THE OPENING FOR THE PEX PIPING. PROVIDE AN OPENING OF SIZE REQUIRED TO RUN THE SIX SUPPLY AND SIX RETURN LINES UP TO THE SIDEWALK. AFTER INSTALLATION CAULK THE CONCRETE SLAB OPENING WATER TIGHT, REFER TO SPECIFICATION.
7. RUN SIX ¾ INCH SUPPLY AND SIX ¾ INCH RETURN PEX LINES FROM ABOVE ALONG THE BEAM AND DROP AND CONNECT TO THE RESPECTIVE MANIFOLD.
8. CONNECT TO STEAM MAIN AT EXISTING 4 INCH BLAND FLANGE. REDUCE TO 2 INCH AND RUN TO HEAT EXCHANGER, MAKE 2 INCH CONNECTION TO 2-1/2 INCH INLET. REFER TO STEAM PIPING DETAIL.
9. CONNECT CONDENSATE PIPING TO HEAT EXCHANGER 1 INCH RETURN AND RUN 1 INCH TO EXISTING MAIN.
10. CONNECT 1-1/4 INCH CONDENSATE TO TOP OF EXISTING 2 INCH SERVING EXISTING WATER HEATERS.
11. PROVIDE GALVANIZED STRUT CHANNEL FASTENED TO EXISTING STEEL HEAT EXCHANGER SUPPORT AND ¾ INCH PLYWOOD FOR MOUNTING MANIFOLDS AND SNOW MELT CONTROLS.
12. MANIFOLD # 1.
13. MANIFOLD # 2.
14. CONNECT 2 INCH GLYCOL/WATER PIPING TO 3 INCH HEAT EXCHANGER INLET AND OUTLET. REFER TO GLYCOL/WATER PIPING DETAIL.
15. EXISTING HEAT EXCHANGER – NO WORK THIS PROJECT.
16. EXISTING CONTROL CABINET. LOCATION OF SNOW MELT SYSTEM CONTROL CONNECTION TO EXISTING BUILDING AUTOMATION SYSTEM
17. CONNECT PEX PIPING TO RESPECTIVE MANIFOLD INLETS AND OUTLETS. TAG EACH PEX LINE IDENTIFYING EACH WITH THE LAYOUT CIRCUIT NUMBER AND SUPPLY OR RETURN DESIGNATION.
18. DROP ½ INCH LINE FROM AIR SEPARATOR TO EXPANSION TANK.
19. DROP ¾ INCH LINE FROM RELIEF VALVE TO A 5 GALLON RECEIVER. RECEIVER TO BE PROVIDED BY OWNER
20. CONNECT ELECTRICAL NON-METALLIC TUBING (ENT) TO SENSOR SOCKET AND RUN TO THE OPENING IN SLAB AND DROP INTO MECHANICAL ROOM. . RUN WIRE FROM SENSOR IN ENT TUBING TO MECHANICAL ROOM. TERMINATE TUBING AND SENSOR WIRING AT MANIFOLD MOUNTING PANEL. COORDINATE CONNECTION OF SENSOR WIRE WITH CONTROL CONTRACTOR.
21. LOCATE A SENSOR SOCKET AND SNOW/ICE SENSOR IN THE CONCRETE SIDE WALK AT LOCATION INDICATED ON THE PEX TUBING LAUOUT DRAWING. INSTALL SENSOR AND SOCKET PER MANUFACTURERS REQUIREMENTS.
22. INSTALL TUBING AS INDICATED ON THE LAYOUT DRAWING. TUBING TO BE ¾ INCH DIAMITER, NINE INCHES ON CENTER. INSTALL SPECIFIED FIXING RAILS ON CONCRETE SUBSTRATE AND INSTALL PEX TUBING INTO RAILS. COORDINATE FIXING RAIL AND TUBING INSTALLATION WITH GENERAL CONTRACTOR.