

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. 108019

NEW AIR CONDITIONERS & GENERATOR FOR INFORMATION MANAGEMENT

**CITY-COUNTY BUILDING
210 MARTIN LUTHER KING JR BLVD
MADISON, WISCONSIN**

Opening Date: **THURSDAY, February 21, 2008**

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

Time: **2:00 P.M.**

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

Location: **DANE COUNTY PUBLIC WORKS
1919 ALLIANT ENERGY CENTER WAY
MADISON, WI 53713**

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

JOHN SCHRAUFNAGEL, PROJECT ENGINEER
DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY & TRANSPORTATION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713
TELEPHONE NO.: 608/266-4798
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DOCUMENT INDEX FOR RFB NO. 108019

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- Instructions to Bidders
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- Sample Public Works Contract
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- General Conditions of Contract
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DANE COUNTY VENDOR REGISTRATION PROGRAM

All bidders / proposers wishing to submit a bid / proposal should be registered with Dane County Purchasing before bid / proposal opening & must be registered before award of contract. Complete a Vendor Registration Form at www.danepurchasing.com, or obtain one by calling 608/266-4131.

LEGAL NOTICE

INVITATION TO BID

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

2:00 P.M., THURSDAY, FEBRUARY 21, 2008

REQUEST FOR BIDS NO. 108019

NEW AIR CONDITIONER & GENERATOR FOR INFORMATION MANAGEMENT

AT

**CITY-COUNTY BUILDING
210 MARTIN LUTHER KING, JR. BLVD.
MADISON, WISCONSIN**

Dane County is inviting Bids for construction services. Contractor to replace two (2) indoor AC units with two (2) new 15-ton indoor AC units, replace two (2) existing drycoolers, provide one (1) 240 KW standby natural gas generator set and all necessary appurtenances, and remove existing cooling tower and chiller. County staff will provide all electrical, mechanical, and structural disconnections of cooling tower and chiller, so Contractor can remove this equipment with a crane and dispose of it.

A **mandatory** pre-bid meeting is scheduled for 9:00 a.m. on Tuesday, February 12, 2008 outside room 524 of the City-County Building.

Request for Bids package may be obtained at Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, by calling 608/266-4018, or downloading it from www.countyofdane.com/pwht/bid/logon.aspx. Please call John Schraufnagel, Project Engineer, at 608/266-4798, for any questions or additional information.

All Bidders wishing to submit Bids should be registered with Dane County Purchasing before bid opening & must be registered before award of contract. Complete Vendor Registration Form at www.danepurchasing.com or obtain one by calling 608/266-4131.

**PUBLISH: JAN 31ST & FEB 7TH, 2008 - WISCONSIN STATE JOURNAL
 FEBRUARY 4TH & 11TH, 2008 - WESTERN BUILDER**

INSTRUCTIONS TO BIDDERS

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1. GENERAL

- A. Before submitting Bid, bidder shall thoroughly examine all Construction Documents. Successful Bidder shall be required to provide all the Work that is shown on Drawings, set forth in Specifications, or reasonably implied as necessary to complete Contract for this project.
- B. Bidder shall visit site to become acquainted with adjacent areas, means of approach to site, conditions of actual site and facilities for delivering, storing, placing, and handling of materials and equipment.
- C. Pre-bid meeting is scheduled on February 12, 2008 at 9:00 AM at City-County Building, 210 Martin Luther King Jr Blvd, Madison, outside Room 524. **Attendance by all bidders is mandatory.** Other subcontractors to bidders are encouraged to attend.
- D. Failure to visit site or failure to examine any and all Construction Documents will in no way relieve successful Bidder from necessity of furnishing any necessary materials or equipment, or performing any work, that may be required to complete the Work in accordance with Drawings and Specifications. Neglect of above requirements will not be accepted as reason for delay in the Work or additional compensation.

2. DRAWINGS AND SPECIFICATIONS

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

3. INTERPRETATION

- A. No verbal explanation or instructions will be given in regard to meaning of Drawings or Specifications before Bid Opening. Bidders shall bring inadequacies, omissions or conflicts to County or Architect / Engineer's attention at least ten (10) days before Bid Opening. 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. County will not be responsible for verbal instructions.

4. QUALIFICATIONS OF BIDDER (CONTRACTOR AND SUBCONTRACTOR)

- A. Before award of Contract can be approved, County 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. Complies with Chapter 40 of the Dane County Ordinances with respect to Best Value Contracting qualification. Qualification with State of Wisconsin's Executive Order 108 or City of Madison's Best Value Contracting Ordinance meets qualification requirements of County.
- 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. County reserves right to reject Bid if evidence submitted by, or investigation of, bidder fails to satisfy County that bidder is responsible and qualified to carry out obligations of Contract and to complete the Work contemplated therein.

5. BID GUARANTEE

- A. Bank certified check, cashier's check or Bid Bond, payable to County in amount not less than five percent (5%) of maximum bid, shall accompany each Bid as guarantee that if Bid is accepted, Bidder will execute and return proposed Contract and Performance and Payment Bonds within ten (10) days after being notified of acceptance of Bid. Company issuing bonds must be licensed to do business in Wisconsin.
- B. Any bid, which is not accompanied by bid guarantee, will be considered "No Bid" and will not be read at Bid Opening.
- 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 lowest qualified, responsible bidders, will be returned to their makers within three (3) days after Bid Opening. 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 Opening, without prejudice to right of bidder to file new Bid. Withdrawn Bids will be returned unopened. Negligence on part of bidder in preparing their Bid confers no right for withdrawal of Bid after it has been opened.
- B. No Bid may be withdrawn for period of sixty (60) days after Bid Opening 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 County within seventy-two (72) hours of Bid Opening.

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 \$7,500.00 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 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) days after Bid Opening 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) days after Bid Opening. Bidder who fails to submit Emerging Small Business Report shall be deemed not responsive, which is grounds for disqualification of Bidder.
- D. **ESB Goal.** Ten percent (10%) ESB participation is goal of this project. ESB utilizations are shown as percentage of total Bid. If Bidder meets or exceeds specified goal, Bidder is only required to submit Form A - Certification, and Form B - Involvement. Goal shall be met if Bidder qualifies as ESB.
- E. **Report Contents.** Following award of Contract, Bidder shall submit copies of executed contracts for all Emerging Small Businesses. Emerging Small Business Report shall consist of these:
1. Form A - Certification;
 2. Form B - Involvement;
 3. Form C - Contacts;
 4. Form D - Certification Statement (if appropriate); and
 5. Supportive documentation (i.e., copies of correspondence, telephone logs, copies of advertisements).
- F. **ESB Listing.** Bidders will solicit bids from ESB listing provided by Dane County.
- G. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Certification Application to Dane County Contract Compliance Program.

- H. **Certification Statement.** If ESB firm has not been certified by County as ESB prior to submittal of this Bid, ESB Report cannot be used to fulfill ESB goal for this project unless firm provides “Form D - Certification Statement”. Certification statement must be completed and signed by ESB firm.
- I. **Questions.** Questions concerning Emerging Small Business provisions shall be directed to:
Dane County Contract Compliance Officer
City-County Building, Room 421
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-5623
- J. **Substituting ESBs.** In event of any significant changes in subcontract arrangements or if need arises to substitute ESBs, Bidder shall report such proposed changes to Contract Compliance Officer to making any official changes and request authorization to substitute ESB firm. Bidder further agrees to make every possible effort to replace ESB firm with another qualified ESB firm.
- K. **Good Faith Efforts.** Good faith efforts can be demonstrated by meeting all of these obligations:
1. Selecting portions of the Work to be performed by ESBs in order to increase likelihood of meeting ESB goal including, where appropriate, breaking down Contract into smaller units to facilitate ESB participation.
 2. Advertising in general circulation, trade associations, and women / minority focus media concerning subcontracting opportunities.
 3. Providing written notices to reasonable number of specific ESBs that their interest in Contract was being solicited in sufficient time to allow ESBs to participate effectively.
 4. Following up on initial solicitations of interest by contacting ESBs within five (5) working days prior to Bid Opening 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 ten (10) days after Bid Opening.
- 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 any Owner accepted alternates. Alternates do not need to be chosen in order of their appearance on the Bid Form.
 - 2. County reserves right to reject all bids or any bid, to waive any informality in any bid, and to accept any bid that will best serve interests of County.
 - 3. Unit Prices and Informational Bids will not be considered in establishing low bidder.

11. SECURITY FOR PERFORMANCE AND PAYMENTS

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

12. TAXES

- A. Bidder shall include in Bid, all Sales, Consumer, Use and other similar taxes required by law.
- B. In accordance with Wisconsin Statue 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 will be rejected if receipt of any particular addendum applicable to award of Contract has not been acknowledged on Bid Form.
- F. All bidders are encouraged to submit their bids in special printed bid envelope available at Dane County Public Works, Highway & Transportation Department - Public Works Engineering Division. Bids submitted in any other type of envelope run risk of not being identified as bid and County shall not be liable therefore in any respect. Bids shall be signed, sealed and delivered to Dane County Department of Public Works, Highway & Transportation, 1919 Alliant Energy Center Way, Madison, WI 53713 before time of closing designated in Invitation to Bid, and identified with project name, bid number, location, category of work being bid upon, Bid Opening date, name and address of bidder.
- G. Bidder shall be responsible for sealed Bid being delivered to place designated for Bid Opening on or before date and time specified. Bids received after time of closing will be rejected and returned to bidder unopened.
- H. Bid will be considered invalid and will be rejected if bidder has not signed it.
- I. Faxed Bids will not be accepted.

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. UNIT PRICES

- A. Provide unit prices where requested on Bid Form. Unit prices will include all costs for materials, labor, insurance, taxes, overhead and profit necessary to perform specified work. Estimated quantities are approximate only. Payment will be based upon actual quantities placed, provided or installed. Failure to provide requested unit prices may result in rejection of entire Bid.
- B. County reserves right to accept or reject any unit prices as given in Bid.
- C. Bidder shall refer to Bid Form and applicable specification section to determine basis of unit measure and detailed information related to each unit price item requested.

17. 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."

18. WORK BY COUNTY

- A. This work will be accomplished by County and will not be included under this Contract:
 - 1. Disconnection of existing cooling tower weighing approximately 5,500 lbs. This Work includes disconnection of all plumbing, electrical service, and mounting connections. However, bidder will be responsible for removing the existing cooling tower unit by crane and disposing of the unit.

19. 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 Opening.

PROJECT NAME: _____

BID NO.: _____ BID OPENING DATE: _____

BIDDER INFORMATION

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE NO.: _____

CONTACT PERSON: _____

FORM B

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

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

COMPANY NAME: _____

PROJECT NAME: _____ BID NO.: _____

ESB NAME: _____ CONTACT PERSON: _____

ADDRESS: _____ PHONE NO.: _____

CITY: _____ STATE: _____ ZIP: _____

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

ESB NAME: _____ CONTACT PERSON: _____

ADDRESS: _____ PHONE NO.: _____

CITY: _____ STATE: _____ ZIP: _____

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

ESB NAME: _____ CONTACT PERSON: _____

ADDRESS: _____ PHONE NO.: _____

CITY: _____ STATE: _____ ZIP: _____

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

FORM C

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

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

COMPANY NAME: _____

PROJECT NAME: _____ BID NO.: _____

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

FORM D

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

I, _____, _____ of
Name Title

_____ certify to best of my knowledge and
Company

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

Bidder's Signature

Date

BID FORM

BID NO. 108019

**PROJECT: NEW AIR CONDITIONER & GENERATOR FOR INFORMATION
MANAGEMENT DIVISION
CITY-COUNTY BUILDING**

**TO: DANE COUNTY PURCHASING AGENT
210 MARTIN LUTHER KING, JR. BLVD. - ROOM 425
MADISON, WISCONSIN 53703**

BASE BID - LUMP SUM:

Replace two (2) existing Liebert indoor AC units with two (2) new 15-ton indoor AC units in two (2) phases, and replace two (2) existing drycoolers with new units in two (2) phases. Provide a 240 kW standby generator set, including providing a 600 amp ATS, two transformers, distribution panels, feeders, all necessary generator and engine exhaust and venting, and necessary natural gas service connection. Remove and dispose of Marley cooling tower, Model 8805 NC and Carrier Liquid Chiller, Model 19DK4213AC. County staff will provide all electrical, mechanical, and structural disconnections of cooling tower and chiller, so Contractor can remove this equipment with a crane and dispose of it.

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

The undersigned further agrees to add the alternate(s) portion of the Work as described, for the following subtraction(s) from the Base Bid stipulated below. They further agree to honor the alternate(s) bid for 60 days from date of Award of Contract.

Note: Alternate 1 and Alternate 4 will not be chosen together, so there will crane Work included in this project.

ALTERNATE BID 1 - LUMP SUM:

Do not replace the two (2) existing drycoolers with new units, and do not remove existing cooling tower. Do not deduct entire crane charge, as a crane will still be needed to remove the chiller and install the new generator set, as included in the Base Bid Work.

Deduct: _____ and _____ /100 Dollars
Written Price

\$ _____
Numeric Price

ALTERNATE BID 2 - LUMP SUM

Instead of the generator and engine specified in the Base Bid, provide a Generac Model SG250 generator with a Generac 13.3GTA Engine, or equal.

Deduct: _____ and _____ /100 Dollars
Written Price

\$ _____
Numeric Price

ALTERNATE BID 3 - LUMP SUM

Substitute aluminum conductor for copper conductor, size to match circuit requirements for conductor ampacity and voltage drop. This substitution relates to all new feeders associated with the generator Work of the Base Bid.

Deduct: _____ and _____ /100 Dollars
Written Price

\$ _____
Numeric Price

ALTERNATE BID 4 - LUMP SUM

Do not furnish a generator set, feeders, breakers, ATS, transfer switches, distribution panels, or any Work related to the generator set. Also, do not remove and dispose of existing chiller. Do not deduct entire crane charge, as a crane will still be needed to remove the cooling tower and replace the drycoolers, as included in the Base Bid Work.

Deduct: _____ 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 Information Management must have this project completed by July 31, 2008. Assuming a Notice to Proceed is issued by April 4, 2008, what dates can you commence and complete this job?

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

Name of Bidder: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Contact Person: _____

SIGNATURE: _____
(Bid is invalid without signature)

<p>BID CHECK LIST: These items must be included with Bid or completed before bidding</p> <p><input type="checkbox"/> Bid Form <input type="checkbox"/> Bid Bond <input type="checkbox"/> Fair Labor Practices Certification <input type="checkbox"/> Vendor Registration</p> <p><input type="checkbox"/> Best Value Contracting Compliance Form</p>

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 a submitted a proposal, bid or application for a contract with the county of Dane.

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

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

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

Officer or Authorized Agent Signature

Date

Printed or Typed Name and Title

Printed or Typed Business Name

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

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

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

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



DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Kathleen M. Falk

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

Commissioner / Director
Gerald J. Mandli

PREQUALIFICATION APPLICATION

CONTRACTORS/LICENSURE APPLICANTS

The Dane County Department of Public Works requires all bidders to be prequalified with the County prior to bid opening. In addition, the County reviews potential contractors and sub-contractors who wish to work on County contracts. This document shall be completed, properly executed, along with the necessary attachments regarding information relating to financial ability, equipment, experience in the work prescribed in the public contract, and other matters that the County requires for the protection and welfare of the public in the performance of a County contract.

The Contractor shall notify the County within 15 days of any information regarding any material changes to its business or operations that are relevant to the prequalification application. Failure to do so could result in suspension, revocation of the contractor's prequalification, debarment from County contracts for up to three years or other sanctions available under the law.

Contractors or subcontractors of any tier who attain prequalification status will retain that status for a period of two years from the date of qualification. Subcontractors must become prequalified ten days prior to commencing work under any Dane County Public Works Contract. Potential subcontractors are urged to become prequalified as early as possible.

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 www.wisconsinapprenticeship.org.

EXEMPTIONS

- Contractors or subcontractors of any tier automatically attain prequalification status with Dane County if the contractor has current Executive Order 108 precertification status with the State of Wisconsin or prequalification status with the City of Madison.
- Contractors who employ less than five (5) craft workers are not required to prequalify.
- 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; or
 - 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 the project or obtain the same through the use of responsible, prequalified subcontractors?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
2	Does 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	Does your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
4	Does 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	Does 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	Does 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 prequalified with the City of Madison?	Yes: <input type="checkbox"/> No: <input type="checkbox"/>
16	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"/>
17	Is your firm exempt from being prequalified with Dane County?	Yes: <input type="checkbox"/> No: <input type="checkbox"/> If Yes, attach reason for exemption.
18	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 prequalified with the County or become so ten days prior to commencing work?	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:

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

EMAIL: SCHRAUFNAGEL@CO.DANE.WI.US
OFFICE: (608) 266-4798, CELL: (608) 575-3374, FAX: (608) 267-1533

APPENDIX A

APPRENTICEABLE TRADES

Bricklayer
Carpenter
Cement Mason/Concrete Finisher
Cement Mason (Heavy Highway)
Construction Craft Laborer
Data Communications Installer
Electrician
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

COUNTY OF DANE

PUBLIC WORKS CONTRACT

Contract No. _____ Bid No. 108019

Authority: Res. _____, 2007-08

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 Associate Public Works Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR provide New Air Conditioner & Generator for Information Management, including Alternate Bids 1, 2, & 3 ("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 _____ (hereinafter referred to as "the Architect / Engineer"), and as enumerated in the Project Manual Document Index, all of which are made a part hereof and collectively evidence and constitute the Contract.
2. COUNTY agrees to pay the CONTRACTOR in current funds for the performance of the Contract subject to additions and deductions, as provided in the General Conditions of Contract, 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 Agreement, CONTRACTOR agrees to take affirmative action to ensure equal employment opportunities. The CONTRACTOR agrees in accordance with Wisconsin Statute 111.321 and Chapter 19 of the Dane County Code of Ordinances not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status,

sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, or political beliefs. Such equal opportunity shall include, but not be limited to, the following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation. CONTRACTOR agrees to post in conspicuous places, available to all employees and applicants for employment, notices setting forth the provisions of this paragraph.

4. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Officer in accord with Chapter 19 of the Dane County Code of Ordinances. CONTRACTOR must file such plan within fifteen (15) days of the effective date of this Agreement. During the term of this Agreement 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 Agreement, 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 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 Agreement.

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

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.

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 Associate Public Works Director.

FOR COUNTY:

Kathleen M. Falk, County Executive Date

Robert Ohlsen, County Clerk Date

THE AMERICAN INSTITUTE OF ARCHITECTS



AIA Document A310

Bid Bond

Bond No.

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

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

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

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

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

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

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

Signed and sealed this day of , 20 .

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

THE AMERICAN INSTITUTE OF ARCHITECTS



Bond No. _____

AIA Document A312

Performance Bond

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

CONTRACTOR (Name and Address):

SURETY (Name and Principal Place of Business):

OWNER (Name and Address):

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

BOND

Date (Not earlier than Construction Contract Date):

Amount: \$

Modifications to this Bond:

None

See Page 3

CONTRACTOR AS PRINCIPAL
COMPANY: (Corporate Seal)

SURETY COMPANY:
(Corporate Seal)

Signature: _____
Name and Title:

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

(Any additional signatures appear on page 3)

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

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

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

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

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

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

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

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

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

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

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

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

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

1. After investigation, determine the amount for

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

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

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

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

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

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

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

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

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

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

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

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

12 DEFINITIONS

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

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

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

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

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

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

SAMPLE

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

CONTRACTOR AS PRINCIPAL
Company: (Corporate Seal)

SURETY
Company: (Corporate Seal)

Signature: _____
Name and Title:
Address:

Signature: _____
Name and Title:
Address:

THE AMERICAN INSTITUTE OF ARCHITECTS



Bond No. _____

AIA Document A312

Payment Bond

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

CONTRACTOR (Name and Address): _____

SURETY (Name and Principal Place of Business): _____

OWNER (Name and Address): _____

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

BOND

Date (Not earlier than Construction Contract Date): _____

Amount: \$ _____

Modifications to this Bond: _____

None

See Page 6

CONTRACTOR AS PRINCIPAL
COMPANY: _____
(Corporate Seal)

SURETY COMPANY: _____
(Corporate Seal)

Signature: _____
Name and Title:

Signature: _____
Name and Title:

Attorney-in-Fact

(Any additional signatures appear on page 6)

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

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

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

2. With respect to the Owner, this obligation shall be null and void if the Contractor:

2.1 Promptly makes payment, directly, or indirectly, for all sums due Claimants, and

2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for the payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2 Claimants who do not have a direct contract with the Contractor:

1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

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

6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2 Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

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

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

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

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

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

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor

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

15. DEFINITIONS

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

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

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

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

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

SAMPLE

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

CONTRACTOR AS PRINCIPAL
Company: (Corporate Seal)

SURETY
Company: (Corporate Seal)

Signature: _____
Name and Title:
Address:

Signature: _____
Name and Title:
Address:

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 a 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 Project Engineer that are made after execution of Contract.
- C. Construction Documents are complementary, and what is required by one shall be as binding as if required by all. Intent of Construction Documents is to include all labor, materials and equipment necessary for proper execution of the Work.

2. DEFINITIONS

- A. These terms as used in this Contract are respectively defined as follows:
 - 1. All uses of term “County” in Construction Documents shall mean Dane County.
 - 2. All uses of term “Department” in Construction Documents shall mean Department of Public Works, Highway & Transportation, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
 - 3. All uses of term Project Engineer shall mean Public Works Project Engineer, which is appointed by and responsible to Department. Public Works Project Engineer has authority to act on behalf of Department and will sign change orders, payment requests and other administrative matters related to projects.
 - 4. Project Engineer is responsible for supervision, administration and management of field operations involved in construction phase of this Work.
 - 5. Term “Work” includes all labor, equipment and materials necessary to produce project required by Construction Documents.
 - 6. Term “Substantial Completion” is date when project or specified area of project is certified by Project 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 a 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 Architect / Engineer's approval, one (1) copy shall remain in Architect / Engineer's file, one (1) kept at Department's office and one (1) kept at job site by Contractor for reference purposes.
- C. Samples shall consist of physical examples furnished by Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards to compare the Work.
 - 1. Submit Samples in sufficient quantity (minimum of two (2)) to permit Project Engineer to make all necessary tests and of adequate size showing quality, type, color range, finish, and texture. Label each Sample stating material, type, color, thickness, size, project name, and Contractor's name.
 - 2. Submit transmittal letter requesting approval, and prepay transportation charges to Architect / Engineer's office on samples forwarded.
 - 3. Materials installed shall match approved Samples.
- D. Contractor shall review Shop Drawings and place their dated stamp thereon to evidence their review and approval and shall submit with reasonable promptness and in orderly sequence to cause no delay in the Work or in work of any other contractor. At time of submission, Contractor shall inform Project Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Project Engineer will not consider partial lists.
- E. Project Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Architect / Engineer's approval shall not relieve Contractor from responsibility for errors or omission in Shop Drawings.
- F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until Project 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, an approved or conformed copy of Shop Drawings and shall at all time give Public Works Engineer 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. Project 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 a 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 a 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 a 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 a 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 a 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 a 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 Project Engineer and other County staff access to the Work under all circumstances.
- B. Contractor shall confine operations at site to areas permitted by County, law, ordinance, permits and Construction Documents and shall not unreasonably encumber site with materials or equipment. Contractor shall assure free, convenient, unencumbered, direct and safe access to all properties adjacent to the Work for County, its employees, invitees and guests.

8. MATERIALS AND WORKMANSHIP

- A. Contractor shall perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary to complete the Work required by this Contract, within time specified, in accordance with provisions of Construction Documents.
- B. All equipment and materials incorporated in the Work covered by this Contract are to be new; use recycled and / or recovered materials to extent that such use is technically and economically feasible. Recovered materials are products recovered from solid waste in form identical to original form for use that is same as, or similar to original use. Recycled materials are products manufactured from solid waste.
- C. If requested, Contractor shall furnish satisfactory evidence as to kind and quality of construction materials proposed or used. Contractor shall furnish to Architect / Engineer, for approval, manufacturer name and model, performance capacities and other pertinent information of machinery, mechanical, electrical or other types of equipment, which Contractor plans to install.
- D. If not otherwise provided, materials and labor called for in this Contract shall be provided and performed in accordance with established practice and standards recognized by Architects, Engineers, Department, and construction industry.
- E. Reference to "Standard" specifications of any association or manufacturer, or codes of County authorities, intends most recent printed edition or catalog in effect on date that corresponds with date of Construction Documents.
- F. Whenever reference is made in Specifications that work shall be "performed", "applied", in accordance with "manufacturer's directions or instructions", Contractor to whom those instructions are directed shall furnish three (3) printed copies of such instructions to Project 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 a standard; 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 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, 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 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 Dane County, 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 shall constitute a violation of Contract, and that Engineer 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 an Addendum, does not relieve Contractor from obligation to coordinate such optional products with other Contractors, whose work may be affected by them, and to pay all additional costs resulting from their inclusion into the Work. Contractor's liability shall include payment of Architect / Engineer's fees for any additional services made necessary by or directly connected to such product changes. No extra costs resulting from such changes shall become responsibility of Dane County, Engineer or any other separate Contractor.
- C. No request for approval of "or equal" materials will be entertained except from Contractor. Identify any request for substitution as substitution on Contractor's letter of transmittal and give reasons for substitution. Engineer 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. Engineer 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 Project 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, Project Engineer will require correction of variance to comply with applicable law, code, rule or regulation at no additional cost to Contractor.
- F. Work under this Contract shall comply with all applicable State of Wisconsin, Federal and local laws, codes and regulations.
- G. Contractor shall pay charges for water, sewer and other utility connections made by municipalities where required by Specifications.

13. CONTRACTOR'S OBLIGATIONS AND SUPERINTENDENCE

- A. Contractor shall provide and pay for all materials, labor, tools, equipment, transportation and superintendence necessary to execute, complete and deliver the Work within specified time. Contractor agrees to secure at their own expense all personnel necessary to carry out the Work. Such personnel shall not be deemed County employees nor shall they have or be deemed to have any direct contractual relationship with County.
- B. Performance of any work necessary after regular working hours, on Sundays or Legal Holidays shall be without additional expense to County. Performance of any work at site at other than normal working hours must be coordinated with Public Works Project Engineer.
- C. Contractor shall furnish, erect, maintain and remove such temporary works as may be required.
- D. Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of Construction Documents.
- E. At the Work site, Contractor shall give personal superintendence to the Work or shall employ a 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 Information Management Department.

- F. Remove from project or take other corrective action upon notice from Engineer for Contractor's employees whose work is considered by Engineer or Information Management 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 Public Works Project Engineer shall not relieve Contractor of any obligations.

14. WEATHER CONDITIONS

- A. In event of temporary suspension of work, or during inclement weather, or whenever 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, any work or materials that have been damaged or injured due to failure on part of Contractor or any subcontractors so to protect the Work, such materials shall be removed and replaced at expense of Contractor.

15. PROTECTION OF WORK AND PROPERTY

- A. Contractor shall at all times safely guard County's property from injury or loss in connection with this Contract. Contractor shall at all times safely guard and protect the Work, and adjacent property, from damage. Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in Contract, or by County, or County's duly authorized representative.
- B. Contractor may act in a diligent manner, without previous instructions from Engineer, in an emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Engineer immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to Engineer 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 an examination of work already completed, by removing or tearing out same, Contractor shall upon request, promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any aspect, due to fault of Contractor or subcontractors thereof, Contractor shall assume all expenses of such examination and of satisfactory reconstruction. Contractor will be reimbursed for such examination and replacement in accordance with Article 18 - A.3. of these General Conditions of Contract if such work is found to meet requirements of Contract.
- C. If Specifications, Architect / Engineer's, or Public Works Project Engineer's instructions require any work to be specially tested or approved, Contractor shall give Project Engineer timely notice of its readiness for testing or inspection. Test all materials and equipment

requiring testing in accordance with accepted or specified standards, as applicable. Project Engineer shall select laboratory or inspection agency and Dane County 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 Public Works Project Engineer such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, invoices, records and other data as either may request concerning work performed or to be performed under this Contract.

18. CHANGES IN THE WORK

- A. Make no changes, except in cases of emergency, in the Work covered by approved Construction Documents without having prior written approval of Project Engineer. 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. An 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) Project Engineer may require correct amount of costs with supporting vouchers; Contractor shall keep and present in such form as directed.
 - 3. Cost-plus work, with a 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 a 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 Project Engineer.
- B. If Contractor claims that by any written instructions given by Project Engineer regarding performance of the Work or furnishing of material under Contract, involves extra cost, Contractor shall give Project Engineer written notice of cost thereof within two (2) weeks after receipt of such written 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 Project Engineer, as previously mentioned, and claim presented with payment request submitted after changed or extra work is completed.
- D. Negotiation of cost for a change in the Work shall not be cause for Contractor to delay prosecution of the Work if Contractor has been authorized in writing by Public Works Project Engineer to proceed.

19. EXTRAS

- A. Without invalidating Contract, Project Engineer 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 Project Engineer who shall be judge of quality and suitability of the Work, materials, and processes of manufacture for purposes for which they are used. Should they fail to meet Project Engineer's approval they shall be reconstructed, made good, replaced or corrected, by Contractor at Contractor's expense. Immediately remove all rejected material from site.
- B. If Contractor defaults or neglects to carry out the Work in accordance with Construction Documents or fails to perform any provision of Contract, County may, after ten (10) days' written notice to Contractor and without prejudice to any other remedy County may have, make good such deficiencies. In such case, an appropriate Change Order shall be issued deducting from Contractor's payments then or thereafter, cost of correcting such deficiencies, including cost of Project 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 Project Engineer of such conditions before they are disturbed. Project Engineer will thereupon promptly investigate conditions, and if Project Engineer finds that they materially differ from those shown on Drawings or indicated in Specifications, Project 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 THE COUNTY TO TERMINATE CONTRACT

- A. In event that any provisions of this Contract are violated by Contractor or by any subcontractors, County may serve written notice upon Contractor and Surety of its intention to terminate Contract, such notice to contain reasons for such intention to terminate Contract, and unless within ten (10) days after serving of such notice upon Contractor, such violation or delay shall cease and satisfactory arrangement or correction be made, Contract shall, upon expiration of said ten (10) days, cease and terminate.
- B. In event of any such termination, County shall immediately serve notice thereof upon Surety and Contractor, and Surety shall have right to take over and perform Contract subject to County's approval; provided, however, that if Surety does not commence performance thereof within ten (10) days from date of mailing to such Surety of notice of termination, County may take over the Work and prosecute same to completion by Contract or by force account for 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 a Construction Schedule. Contractor and all subcontractors associated with the Work shall furnish following information from each Division of Specifications:
 - 1. A list of construction activities;
 - 2. Start, finish and time required for completion of each activity;
 - 3. Sequential relationships between activities;
 - 4. Identify all long lead-time items, key events, meetings or activities such as required submittals, fabrication and delivery, procurement of materials, installation and testing;
 - 5. Weekly definition of extent of work and areas of activity for each trade or Subcontract; and
 - 6. Other information as determined by Public Works Project Engineer.
- B. In addition to above requested items, Contractor shall request delivery dates for all County-furnished equipment, materials or labor. This shall include any work handled by County 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 a monthly basis. Revisions to Schedule shall be by Contractor and made in same detail as original Schedule and accompanied by an explanation of reasons for revision; and shall be subject to approval by Project Engineer.
2. Contractor shall submit actual percentage of each activity completed, estimated future progress, and anticipated completion time.

D. Responsibility for timely completion requires:

1. Contractor and subcontractors understand that performance of each is interdependent upon performance of others.
2. Whenever it becomes apparent from current schedule, that phasing or progress completion dates will not be met, Contractor must take some or all following actions at no additional cost to County:
 - a) Increase construction manpower in such quantities and crafts as will eliminate backlog of work.
 - b) Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination of foregoing to eliminate backlog of work.
 - c) Reschedule work (yet remain in conformance with Drawings and Specifications).
3. Prior to proceeding with any of above actions, Contractor shall notify Public Works Project Engineer.

E. Maintain current Construction Schedule at all times. Revise Construction Schedule in same detail as original and accompany with explanation of reasons for revision. Schedule shall be subject to approval by Project Engineer.

25. PAYMENTS TO CONTRACTOR

A. Contractor shall provide:

1. Detailed estimate giving a complete breakdown of contract price by Specification Division; and
2. Periodic itemized estimates of work done for purpose of making partial payments thereon.

Submit these estimates for approval to Project Engineer. Costs employed in making up any of these schedules are for determining basis of partial payments and not considered as fixing a basis for additions to or deductions from Contract price.

- B. County will make partial payments to Contractor for value, proportionate to amount of Contract, of all labor and material incorporated in the Work during preceding calendar month upon receipt of Application and Certificate for Payment form from Project Engineer and approval of all appropriate County Boards and Committees.
- C. Contractor shall submit for approval to Public Works Project Engineer all Application and Certificate for Payment forms. If requested, Application and Certificate for Payment shall be supported by such additional evidence as may be required, showing Contractor's right to payment claimed.
- D. Application and Certificate for Payment for preparatory work and materials delivered and suitably stored at site to be incorporated into the Work at some future period, will be given due consideration. Requesting payment for materials stored off site, may be rejected, however, if deemed essential for reasons of job progress, protection, or other sufficient cause, requests will be considered, conditional upon submission by Contractor of bills of sale, photographs and such other procedures as will adequately protect County's interest such as

storage in a bonded warehouse with adequate coverage. If there is any error in a payment, Contractor is obligated to notify Project Engineer immediately, but no longer than ten (10) days from receipt of payment.

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

26. WITHHOLDING OF PAYMENTS

- A. County, after having served written notice on said Contractor, may either pay directly any unpaid bills of which County has written notice, or withhold from Contractor's unpaid compensation a 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 a payment made under Contract by County to Contractor and County shall not be liable to Contractor for any such payment made in good faith.
- C. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from all claims growing out of lawful demands of subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in performance of this Contract.
- D. At County'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 a 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 a waiver of all claims by Contractor.

28. PAYMENTS BY CONTRACTOR

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

29. CONTRACT SECURITY

- A. Contractor shall furnish a Performance and Payment Bonds in an 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 Project Engineer.

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 Project Engineer. In case Contractor assigns all or any part of any moneys due or to become due under this Contract, instrument of assignment shall contain a 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, County 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. County 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 Project Engineer. 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 Project Engineer 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 Project Engineer. Qualifications of subcontractors shall be same as qualifications of Contractor. Request for subcontractor approval shall be submitted to Project Engineer fifteen (15) days before start of subcontractor's work. If subcontractors are changed or added, Contractor shall notify Project Engineer 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 County 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, 42, and 44, respectively entitled: “Withholding of Payments”, “Subcontracts”, “Affirmative Action Provision and Minority / Women / Disadvantaged Business Enterprises”, and “Minimum Wages”, and shall further require all subcontractors to incorporate physically these same Articles in all subcontracts.

34. PUBLIC WORKS PROJECT ENGINEER’S AUTHORITY

- A. Public Works Project Engineer shall:
 - 1. Administer and ensure compliance with Construction Documents;
 - 2. Provide responsible on-site observations of construction and have authority to request work and to stop work whenever necessary to insure proper enforcement of Construction Documents;
 - 3. Convene and chair project meetings and foreman’s coordination meetings when necessary to coordinate resolution of conflicts between Contractors, Architects, Engineers, Consultants, and County staff; 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.
 - 5. Make decisions on all matters relating to progress of the Work, and certify Applications and Certificates for Payment.

35. ARCHITECT / ENGINEER’S AUTHORITY

- A. There will be no Architect / Engineer acting as a Consultant on this project. The Project Engineer is John Schraufnagel, Dane County Public Works Project Engineer.

36. 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 County 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”.

37. 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.

38. 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 an 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 a waiver by County of any breach of covenants of Contract or a 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 a 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 a period of one (1) year from date of substantial completion, providing such defects are not clearly due to abuse or misuse by County. County 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 Project Engineer.
- D. Where guarantees or warranties are required in sections of Specifications for periods in excess of one (1) year, such longer terms shall apply; however, Contractor's Performance and Payment Bonds shall not apply to any guarantee or warranty period in excess of one (1) year.

39. 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.

40. NOTICE AND SERVICE THEREOF

- A. Any notice to Contractor from County 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.

41. 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.

42. 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 a recipient of services (actual or potential), an employee, or an applicant for employment. Such equal opportunity shall include but not be limited to following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). Contractor agrees to post in conspicuous places, these affirmative action standards so as to be visible to all employees, service recipients and applicants for this paragraph. Listing of prohibited bases for discrimination shall not be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to extent allowable in state or federal law.
 - 2. Contractor is subject to this Article only if Contractor has ten (10) or more employees and receives \$10,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Officer in accord with Chapter 19 of Dane County Code of Ordinances. Such plan must be filed within fifteen (15) days of effective date of this Contract and failure to do so by said date shall constitute ground for immediate termination of Contract by County. Contractor shall also, during term of this Contract, provide copies of all announcements of employment opportunities to County's Contract Compliance Office, and shall report annually number of persons, by race, sex and handicap status, who apply for employment and, similarly classified, number hired and number rejected.
 - 3. Contact Dane County Contract Compliance Officer at Dane County Contract Compliance Office, 210 Martin Luther King, Jr. Blvd., Room 421, Madison, WI 53703, 608/266-4114.
 - 4. In all solicitations for employment placed on Contractor's behalf during term of this Contract, Contractor shall include a statement to effect Contractor is an "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. A 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 a percentage of total dollar amount of bid.

43. COMPLIANCE WITH FAIR LABOR STANDARDS

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

44. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

- A. Contractor agrees to coordinate Work to allow continual occupancy and operation by County staff. Specifically, the indoor AC units must be replaced in two (2) phases in order to maintain at least one (1) unit in operation at all times. Also, if Alternate 1 is chosen, the dry coolers must be replaced in two (2) phases to allow at least one (1) unit to remain in operation at all times.
- B. Contractor agrees to use and occupancy of a portion or unit of the Work before formal acceptance by Project Engineer, provided County:
 - 1. Secures written consent of Contractor; except when in opinion of Project Engineer, Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
 - 2. Assumes all costs and maintenance of heat, electricity and water.

45. MINIMUM WAGES

- A. Contractor shall post, at appropriate conspicuous point on site of project, a 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 a 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 Project Engineer of Contractor's intention to employ persons in trades or occupations not so classified in sufficient time for County to obtain approved rates for such trades or occupations.

- D. Specified wage rates are minimum rates only, and County will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of applicable rate contained in this Contract. Contractor shall adjust any disputes in regard to payment of wages in excess of those specified in this Contract.
- E. Submit required affidavit(s) to Department of Public Works, Highway & Transportation, as requested and with final application for payment for work under said contract. Affidavit(s) shall clearly indicate name, trade or occupation, and paid wages of every laborer, workman or mechanic employed by Contractor and all subcontractors during billing period including accurate record of number of hours worked by each employee and actual wages paid as stipulated in Wisconsin Statute 66.0903. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

46. CLAIMS

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

47. 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.

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

B. County Provided Protection:

1. County shall provide a Builder's Risk policy when applicable to project. County's Risk Manager, upon Contractor's request, will make available terms of this policy. By executing this Contract, Contractor warrants it is familiar with terms of said policy.

C. Indemnification / Hold Harmless:

1. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from performance of the Work, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, and is caused in whole or in part by any act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a part indemnified hereunder.
2. In any and all claims against Dane County, its boards, commissions, agencies, officers, employees and representatives or by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, indemnification obligation under this Contract shall not be limited in any way by any limitation on amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts.
3. Obligations of Contractor under this Contract shall not extend to liability of Architect / Engineer, its agents or employees arising out of:
 - a) Preparation or approval of maps, drawings, opinion, reports, surveys, change orders, designs or specifications; or
 - b) Giving of or failure to give directions or instruction by Architect / Engineer, its agents or employees provided such giving or failure to give is primary cause of injury or damage.
4. Dane County shall not be liable to Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.


49. 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 Public Works Project Engineer for approval.


AIA Document G702™ – 1992

Application and Certificate for Payment

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

CONTRACTOR'S APPLICATION FOR PAYMENT
Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM \$ _____

2. Net change by Change Orders \$ _____

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

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

5. RETAINAGE:

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

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

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

6. TOTAL EARNED LESS RETAINAGE \$ _____

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

8. CURRENT PAYMENT DUE \$ _____

9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 8 less 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 shows (green in row due).

CONTRACTOR:
 By: _____ Date: _____
 State of _____
 County of _____
 Subscribed and sworn to before me this _____ day of _____
 Notary Public
 My Commission expires: _____

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

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

ARCHITECT:
 By: _____ Date: _____

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

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

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AIA Document G703™ – 1992

Continuation Sheet

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

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

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

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

AIA Document G703™ – 1992. Copyright © 1993, 1995, 1996, 1997, 1970, 1976, 1982 and 1992 by The American Institute of Architects. All rights reserved. (WARNING) This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. Purchasers are permitted to reproduce ten (10) copies of this document when completed. To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects legal counsel, copyright@aia.org.

2. PREVAILING WAGE RATE DETERMINATION

- A. These supplements shall modify, delete, and / or add to General Conditions of Contract. Where any article, paragraph, or subparagraph in General Conditions of Contract is supplemented by one of these paragraphs, provisions of such article, paragraph, or subparagraph shall remain in effect and supplementary provisions shall be considered as added thereto. Where any article, paragraph, or subparagraph in General Conditions of Contract is amended, voided, or superseded by any of these paragraphs, provisions of such article, paragraph, or subparagraph not so amended, voided, or superseded shall remain in effect.
 - 1. General Conditions of Contract Article 44, “Minimum Wages”, paragraph B. Following Prevailing Wage Rate Determination No. 200701451 is added to General Conditions of Contract.

- B. These State of Wisconsin forms, hereinafter set forth in this section, shall be filled out and submitted to Department of Public Works, Highway & Transportation:
 - 1. Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-5724)
 - 2. Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-10584)
 - 3. Disclosure of Ownership (ERD-7777)
 - 4. Request To Employ Subjourneyperson (ERD-10880)

Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination

NOTICE REQUIRED UNDER Section 15.04(1) (m), Wisconsin Statutes. Authorization for this form is provided under Sections, 66.0903(9) (b) and 103.49(4r) (9b) Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes. Personally identifiable information may be used for secondary purposes.

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

State Of _____))SS County Of _____)	Project Name	
	Project Number	Determination Number
	Date Determination Issued	Date of Contract
	Awarding Agency	
	Date Work Completed	

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

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

Name of Corporation, Partnership, Sole Proprietorship or Business				
Street Address or P O Box	City	State	Zip Code	Telephone Number ()
Print Name of Authorized Officer			Date Signed	
Signature of Authorized Officer				

List of Agents and Subcontractors

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

If you have any questions call (608) 266-0028

Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination

NOTICE REQUIRED UNDER Section 15.04(1)(m), Wisconsin Statutes. Authorization for this form is provided under Sections, 66.0903(9)(b) and 103.49(4r)(9b) Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes. Personally identifiable information may be used for secondary purposes.

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

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

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

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

Name of Corporation, Partnership, Sole Proprietorship or Business

Street Address	City	State	Zip Code	Telephone Number ()
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Print Name of Authorized Officer	Date Signed
----------------------------------	-------------

Signature of Authorized Officer

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

If you have any questions call (608) 266-0028

Disclosure of Ownership

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

- (1) On the date a contractor submits a bid to or completes negotiations with a state agency or local governmental unit, on a project subject to Section 66.0903 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency or local governmental unit the name of any "other construction business", which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.
- (2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 103.49(2) and 103.50(2), Wisconsin Statutes.
- (3) This form must **ONLY** be filed, with the state agency or local governmental unit that will be awarding the contract, if **both (A) and (B) are met.**
 - (A) The contractor, or a shareholder, officer or partner of the contractor:
 - (1) Owns at least a 25% interest in the "other construction business", indicated below, on the date the contractor submits a bid or completes negotiations.
 - (2) Or has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.
 - (B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for hours worked in excess of the prevailing hours of labor, to any employee at any time within the preceding three (3) years.

Other Construction Business

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

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

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

If you have any questions call (608) 266-0028

Request To Employ Subjourneyperson

Personal information you provide may be used for secondary purposes. [See Section 15.04(1)(m), Wisconsin Statutes for details.] The use of this form is mandatory. The authority for the use of this form is prescribed in Section DWD 290.025, Wisconsin Administrative Code. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes.

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

1. Name of Public Works Project					
County		City, Village or Township			
Determination Number		Project Number			

2. Name of Employee (Last, First and Initial)	P.O. Box or Street Address	City	State	Zip Code	Date of Birth	Journey Classification

3. Name of Employer (Print)		Name of Person Making Request (Print)			
P O Box or Street Address		City	State	Zip Code	
Telephone Number ()		Title of Requestor			

READ CAREFULLY: I fully understand that this request is ONLY applicable to the project and employee(s) listed above and that such employee(s) will ONLY work under the direction of and directly assist a skilled trades employee by frequently using the tools of a skilled trades employee and will NOT regularly perform the duties of a general laborer, heavy equipment operator or truck driver. If the employee(s) indicated above regularly perform(s) the work of a different trade or occupation, he/she will be compensated for such work at the applicable journeypersons prevailing wage rate. I agree not to employ any employee as a subjourneyperson on this project until I receive written confirmation from the DWD. After such confirmation is received, I will compensate the employee(s) indicated above in strict accordance with the directions received from the DWD.

Signature of Requestor _____ Date Signed _____

MAIL COMPLETED REQUEST TO Equal Rights Division, Labor Standards Bureau, P. O. Box 8928 Madison WI 53708.
 You may call (608) 266-6860 if you need assistance in completing your request

SECTION 01000
BASIC REQUIREMENTS

PART 1 GENERAL

1.1 SECTION SUMMARY

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

1.2 SUMMARY OF THE WORK

- A. Project Description: Replace two (2) existing Liebert indoor AC units with two (2) new 15-ton indoor AC units in two (2) phases, and replace two (2) existing drycoolers with new units in two (2) phases. Remove and dispose of existing Marley cooling tower, Model 8805 NC, and existing Carrier Liquid Chiller, model 19DK4213AC. Provide a 240 kW natural gas standby generator set, including providing a 600 amp ATS, two transformers, distribution panels, feeders, all necessary generator and engine exhaust and venting, and necessary natural gas service connection.
- B. Work by Owner: Disconnect existing cooling tower on roof and chiller in penthouse so that Contractor can remove and dispose of these. Owner will provide all electrical, mechanical, and structural disconnections, so Contractor can remove this equipment with a crane.
- C. Permits: Prior to commencement of the Work, Contractor to secure any and all necessary permits for completion of the Work and facility occupancy.
- D. Crane Requirements: Contractor is solely responsible for securing all permits, paying for parking meters, barricading sidewalks, rerouting traffic, and any other requirements which may be needed for safe operation of the crane according to all applicable codes.

1.3 CONTRACTOR USE OF PREMISES

- A. Limit use of premises to allow work by Contractors or Subcontractors and access by Owner.
- B. Provide County staff with 48 hour notice before performing any project Work in County work areas.
- C. Provide 48 notice before any utility outages or shutdowns.

1.4 APPLICATIONS FOR PAYMENT

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

1.5 ALTERNATES

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

C. Schedule of Alternates:

1. Alternate 1
 - a. Do not replace the two (2) existing drycoolers with new units, and do not remove existing cooling tower. However, a crane will still be needed to remove the chiller and install the new generator set, as included in the Base Bid Work.
2. Alternate 2
 - a. Instead of the generator and engine specified in the Base Bid, provide a Generac Model SG250 generator with a Generac 13.3GTA Engine, or equal.
3. Alternate 3
 - a. Substitute aluminum conductor for copper conductor, size to match circuit requirements for conductor ampacity and voltage drop.
4. Alternate 4
 - a. Do not furnish a generator set, feeders, breakers, ATS, transfer switches, distribution panels, or any Work related to the generator set. Also, do not remove and dispose of existing chiller. However, a crane will still be needed to remove the cooling tower and replace the drycoolers, as included in the Base Bid Work.

1.6 COORDINATION

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

1.7 CUTTING AND PATCHING

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

1.8 CONFERENCES

- A. Dane County Department Public Works, Highway & Transportation will schedule a preconstruction conference after Award of Contract for all affected parties.

- B. When required in individual Specification section, convene a pre-installation conference at project site prior to commencing work of the section.

1.9 PROGRESS MEETINGS

- A. Owner shall schedule and administer meetings throughout progress of the Work at minimum of one (1) per week.
- B. Owner shall preside at meetings, record minutes, and distribute copies within two (2) days to those affected by decisions made.

1.10 SUBMITTAL PROCEDURES

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

1.11 PROPOSED PRODUCTS LIST

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

1.12 SHOP DRAWINGS

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

1.13 PRODUCT DATA

- A. Submit number of copies that Contractor requires, plus two (2) copies that shall be retained by Public Works Project Engineer.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this Project.

1.14 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product.

- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Public Works Project Engineer's selection.

1.15 MANUFACTURERS' INSTRUCTIONS

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

1.16 MANUFACTURERS' CERTIFICATES

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

1.17 QUALITY ASSURANCE / QUALITY CONTROL OF INSTALLATION

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

1.18 REFERENCES

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

1.19 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.

1.20 PROTECTION OF INSTALLED WORK

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

1.21 PARKING

- A. One parking stall, either in the underground parking area or on an adjacent street, will be provided by the County for Contractor's use. Contractor must coordinate and pay for additional parking to accommodate construction personnel.
- B. Underground parking garage may be used for temporary unloading of equipment and materials. Vehicles may not remain parked there after unloading. Equipment may be stored in underground parking area for up to two (2) days before installation. Coordinate unloading and storing of equipment with Steve Alwin, Facility Manager, at 266-4350.

1.22 PROGRESS CLEANING

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

1.23 PRODUCTS

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

1.24 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

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

1.25 PRODUCT OPTIONS

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

1.26 REQUESTS FOR SUBSTITUTIONS

- A. Document each request with complete data substantiating compliance of proposed Substitution with Construction Documents.
- B. Submit three (3) copies of requests for Substitution for consideration. Limit each request to one (1) proposed Substitution.
- C. Substitutions shall not change contract price established at Bid Opening.

1.27 STARTING SYSTEMS

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

1.28 DEMONSTRATION AND INSTRUCTIONS

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

1.29 CONTRACT CLOSEOUT PROCEDURES

- A. Submit written certification that Construction Documents have been reviewed, the Work has been inspected, and the Work is complete in accordance with Construction Documents and ready for Public Works Project Engineer's inspection.
- B. Submit final Application for Payment identifying total adjusted Contract Sum / Price, previous payments, and amount remaining due.

1.30 FINAL CLEANING

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

1.31 ADJUSTING

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

1.32 OPERATION AND MAINTENANCE DATA

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

1.33 SPARE PARTS AND MAINTENANCE MATERIALS

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

1.34 AS-BUILT DRAWINGS AND SPECIFICATIONS

- A. Contractor shall furnish Public Works Project Engineer with one set of Operation and Maintenance manuals, one set of details for all equipment, and electrical schematic as-builts showing how equipment is connected to existing electrical system.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01100

SUMMARY

PART 1 GENERAL

1.1 SECTION SUMMARY

- A. Section Includes:
 - 1. Section Summary
 - 2. Work by Owner
 - 3. Products
 - 4. Contractor's use of site
 - 5. Work sequence
 - 6. Owner occupancy

1.2 CONTRACT DESCRIPTION

- A. Base Bid
 - 1. Replace two (2) existing Liebert indoor AC units with two (2) new 15-ton indoor AC units in two (2) phases.
 - 2. Replace two (2) existing drycoolers with new units that have enough capacity for the new air conditioners. Remove and dispose of existing drycooler units, which are 3 fan Liebert units, model D0080, 230 V, 60 Hz, 1 phase with 1/2 HP motors.
 - 3. Provide a 240 kW natural gas standby generator set, including providing a 600 amp ATS, two transformers, distribution panels, feeders, all necessary generator and engine exhaust and venting, all necessary natural gas service connection, and appurtenances.
 - 4. Remove and dispose of chiller
 - a. Carrier Liquid Chiller, model 19DK4213AC
 - b. L= 13'-9 1/4" W= 3'-7 1/18" H= 6'-4 3/4"
 - c. Operating weight = 9110 lbs
 - d. County will disconnect for Contractor to remove.
 - e. Location as shown on plans.
 - 5. Remove and dispose of cooling tower
 - a. Marley cooling tower, Model 8805 NC.
 - b. L= 7'-3 1/2" W= 15'-6 9/16" H= 9'-3 1/16"
 - c. Shipping weight = 4100 lbs
 - d. County will disconnect for Contractor to remove.
 - e. Location as shown on plans.
- B. Alternate Bid 1
 - 1. Do not replace the two (2) existing drycoolers with new units, and do not remove existing cooling tower. However, a crane will still be needed to remove the chiller and install the new generator set, as included in the Base Bid Work.

- C. Alternate Bid 2
 - 1. Instead of the generator and engine specified in the Base Bid, provide a Generac Model SG250 generator with a Generac 13.3GTA Engine, or equal.
- D. Alternate Bid 3
 - 1. Substitute aluminum conductor for copper conductor, size to match circuit requirements for conductor ampacity and voltage drop.
- E. Alternate Bid 4
 - 1. Do not furnish a generator set, feeders, breakers, ATS, transfer switches, distribution panels, or any Work related to the generator set. Also, do not remove and dispose of existing chiller. However, a crane will still be needed to remove the cooling tower and replace the drycoolers, as included in the Base Bid Work.
- F. Perform Work of Contract under stipulated sum contract with Owner in accordance with Conditions of Contract.

1.3 WORK BY OWNER

- A. Owner will disconnect existing cooling tower and chiller so that Contractor can remove and dispose of them.

1.4 PRODUCTS

- A. Owner's Responsibilities:
 - 1. Review contractor-supplied Shop Drawings, Product Data, and Samples.
 - 2. On delivery, inspect products jointly with Contractor.
- B. Contractor's Responsibilities:
 - 1. Submit Shop Drawings, Product Data, and Samples, to owner for review.
 - 2. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
 - 3. Arrange and pay for delivery to site.
 - 4. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
 - 5. Submit claims for transportation damage and replace damaged, defective, or deficient items.
 - 6. Handle, store, install and finish products.
 - 7. Repair or replace items damaged after receipt.
 - 8. Arrange for manufacturers' warranties, inspections, and service.

1.5 CONTRACTOR'S USE OF SITE

- A. Limit use of site to allow Owner occupancy.
- B. Provide County staff with 48 hour notice before performing any project Work in County work areas.

- C. Provide 48 notice before any utility outages or shutdowns.

1.6 WORK SEQUENCE

- A. Remove chiller before installing generator on existing chiller concrete pad.
- B. Construct Work in two phases to allow continued operation of at least one air condition and one drycooler at all times during construction period. Coordinate construction schedule and operations with Project Engineer.

1.7 OWNER OCCUPANCY

- A. The Owner will occupy the site during the entire period of construction in order to normal operations. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations. Schedule the Work to accommodate Owner occupancy.

END OF SECTION

SECTION 01508

RECYCLING

PART 1 GENERAL

1.1 SUMMARY

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

- B. Related Sections:
 - 1. Section 01000 - Basic Requirements

1.2 WASTE MANAGEMENT GOALS

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

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

1.3 WASTE MANAGEMENT PLAN

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

1.4 REUSE

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

1.5 RECYCLING

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

1.6 MATERIALS SORTING AND STORAGE ON SITE

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

1.7 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

- A. Web site www.countyofdane.com has recycling symbol (link) near top of page that lists current information for Dane County Recycling Markets. Contractors can also contact Dane County's Recycling Manager at 608/267-8815, or local city, village, town recycling staff listed in above referenced web site. Statewide listings of recycling / reuse markets at available from Wisconsin Department of Natural Resources, www.dnr.state.wi.us/org/aw/wm/markets.

1.8 WASTE MANAGEMENT PLAN FORM

A. Contractor Information:

Name: _____

Address: _____

Phone No.: _____ Recycling Coordinator: _____

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

Solvents	_____ gallons	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____
Other	_____	_____ Recycled _____ Landfilled	_____ Reused _____ Other	Name: _____

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01700
EXECUTION REQUIREMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Closeout procedures.
- B. Final cleaning.
- C. Starting of systems.
- D. Demonstration and instructions.
- E. Testing, adjusting and balancing.
- F. Protecting installed construction.
- G. Project record documents.
- H. Operation and maintenance data.
- I. Manual for equipment and systems.
- J. Spare parts and maintenance products.
- K. Product warranties and product bonds.
- L. Maintenance service.

1.2 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect/Engineer's review.
- B. Provide submittals to Project Engineer required by authorities having jurisdiction.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- D. Owner will occupy building as specified in Section 01100.

1.3 FINAL CLEANING

- A. Execute final cleaning prior to final project assessment.
- B. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- C. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned.
- D. Clean filters of operating equipment.
- E. Clean debris from roofs, gutters, downspouts, and drainage systems.
- F. Clean site; sweep paved areas, rake clean landscaped surfaces.
- G. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.4 STARTING OF SYSTEMS

- A. Coordinate schedule for start-up of various equipment and systems.
- B. Notify Project Engineer seven days prior to start-up of each item.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions which may cause damage.
- D. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of applicable manufacturer's representative / Contractors' personnel in accordance with manufacturers' instructions.

1.5 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of products to Owner's personnel.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within nine months.
- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

- D. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed time, at equipment location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.
- F. Required instruction time for each item of equipment and system is specified in individual sections.

1.6 TESTING, ADJUSTING AND BALANCING

- A. Perform testing, adjusting, and balancing of all new equipment.

1.7 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.
- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.8 PROJECT RECORD DOCUMENTS

- A. Maintain on site one set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress, not less than weekly.

- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.

- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - 3. Field changes of dimension and detail.
 - 4. Details not on original Contract drawings.

- G. Submit documents to Project Engineer with claim for final Application for Payment.

1.9 OPERATION AND MAINTENANCE DATA

- A. Submit data bound in 8-1/2 x 11 inch text pages, three D side ring binders with durable plastic covers.

- B. Prepare binder cover with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project , and subject matter of binder when multiple binders are required.

- C. Internally subdivide binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

- D. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- E. Contents: Prepare Table of Contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:
 - 1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, Subcontractors, and major equipment suppliers.
 - 2. Part 2: Operation and maintenance instructions, arranged by system. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
 - a. Significant design criteria.
 - b. List of equipment.
 - c. Parts list for each component.
 - d. Operating instructions.
 - e. Maintenance instructions for equipment and systems.
 - 3. Part 3: Project documents and certificates, including the following:
 - a. Shop drawings and product data.
 - b. Air and water balance reports.
 - c. Certificates.
 - d. Photocopies of warranties and bonds.

1.10 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Project Engineer will review draft and return one copy with comments.
- B. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.
- C. Submit one copy of completed volumes 15 days prior to final inspection. Draft copy be reviewed and returned after final inspection, with Project Engineer comments. Revise content of document sets as required prior to final submission.
- D. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
- E. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
- F. Include color coded wiring diagrams as installed.
- G. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and special operating instructions.
- H. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
- I. Include servicing and lubrication schedule, and list of lubricants required.
- J. Include manufacturer's printed operation and maintenance instructions.
- K. Include sequence of operation by controls manufacturer.
- L. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
- M. Include control diagrams by controls manufacturer as installed.
- N. Include Contractor's coordination drawings, with color coded piping diagrams as installed.
- O. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

- P. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
- Q. Include test and balancing reports.
- R. Additional Requirements: As specified in individual product specification sections.
- S. Include listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

1.11 SPARE PARTS AND MAINTENANCE PRODUCTS

- A. Furnish spare parts, maintenance, and extra products in quantities specified in individual specification sections.
- B. Deliver to Project site and place in location as directed by Owner; obtain receipt prior to final payment.

1.12 PRODUCT WARRANTIES AND PRODUCT BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten days after completion of applicable item of work.
- B. Execute and assemble transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers.
- C. Verify documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Include Table of Contents and assemble in three D side ring binder with durable plastic cover.
- F. Submit prior to final Application for Payment.
- G. Time Of Submittals:
 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
 2. Make other submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.
 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

1.13 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components as indicated in individual specification sections.
- B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 15735

COMPUTER ROOM AIR CONDITIONING UNITS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes air conditioning units, controls, control panels, and related equipment. These specifications describe requirements for a Mission Critical Cooling system. The system shall be designed to control temperature and humidity conditions in rooms containing electronic equipment, with good insulation and vapor barrier. The manufacturer shall design and furnish all equipment to be fully compatible with heat dissipation requirements of the room.
- B. Price and Payment Procedures: Purchase, delivery, and installation of two (2) floor mounted computer room air conditioning units of 15 nominal tons each is included in this section and is part of Base Bid Contract Sum.
- C. Price and Payment Procedures: Purchase, delivery, and installation of two (2) dry coolers to replace existing units on roof is included in this section and is part of Alternate 2 bid.

1.2 REFERENCES

- A. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
 - 1. ASHRAE 52.1 - Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter.
- B. American Society of Mechanical Engineers:
 - 1. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.
- C. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

1.3 SUBMITTALS

- A. Product Data: Submit manufacturers literature and data indicating water, drain, refrigeration, and electrical characteristics and connection requirements.
- B. Manufacturer's Installation Instructions: Submit procedures for rigging and making service connections.
- C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- D. Manufacturer's Field Reports: Indicate conditions at initial start-up including date, and initial set points.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit manufacturer's descriptive literature, operating instructions, installation instructions, and maintenance and repair data.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with State of Wisconsin standard.
- B. Maintain one copy of Construction Documents on site during project.

1.6 QUALIFICATIONS

- A. Manufacturer: Liebert or other company specializing in manufacturing products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years experience approved by manufacturer.

1.7 PRE-INSTALLATION MEETINGS

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

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Accept computer room units on site in factory packing. Inspect for damage.
- B. Protect equipment and material from damage until installation.
- C. Underground parking garage may be used for temporary unloading of equipment and materials. Vehicles may not remain parked here after unloading. Equipment may be stored in underground parking area for up to two (2) days before installation. Coordinate unloading and storing of equipment with Steve Alwin, Facility Manager, at 266-4350.
- D. Service elevator may be used to transport equipment to fifth floor from garage level. Coordinate this with Steve Alwin, Facility Manager, at 266-4350.

1.9 WARRANTY

- A. Furnish four (4) year manufacturers warranty for refrigeration compressors and one (1) year manufacturers warranty for parts.

1.10 MAINTENANCE SERVICE

- A. Provide emergency call back service during working hours for one year from Date of Substantial Completion.

- B. Maintain locally, near Place of the Work, adequate stock of parts for replacement or emergency purposes. Have personnel available to ensure fulfillment of this maintenance service, without unreasonable loss of time.
- C. Perform maintenance work using competent and qualified personnel under supervision of manufacturer or original installer.
- D. Do not assign or transfer maintenance service to agent or subcontractor without prior written consent of Owner.

PART 2 PRODUCTS

2.1 FLOOR MOUNTED AIR CONDITIONING UNITS

- A. Manufacturers:
 1. Liebert Model DS053KMAOEI indoor unit.
 2. Substitutions: As approved by Project Engineer per Specification Section 01000 - Basic Requirements.
- B. Product Description: Liebert self-contained, factory-assembled GLYCOOL unit with Economizer for downflow air delivery. The system shall utilize Green Refrigerant R407C and have a net total cooling capacity of 166,700 BTUH with a net sensible cooling capacity of 149,700 BTUH based on an entering air temperature of 75 °F dry bulb and 62.5 °F wet bulb. The Economizer Capacities shall have a net total cooling capacity of 161,000 BTUH with a net sensible cooling capacity of 144,000 BTUH based on an entering air temperature of 75 °F dry bulb and 62.5 °F wet bulb and 45°F Entering Glycol Temperature @ 52 GPM. The unit is to be supplied with 460 volt 3 ph 60 Hz electrical service. Net capacities shall include losses due to fan motor heat. Catalogued Capacity Ratings shall be based on the New ASHRAE Standard 127 for calculating performance capacities. Must be modular unit that can be delivered to location by existing elevators and through existing doorways.
- C. Blower Section:
 1. The blower section shall be designed for 10,900 CFM at an external static pressure of 0.2_ in. wg.. The fans shall be the centrifugal type, double width double inlet and shall be dynamically balanced as a completed assembly. The shaft shall be heavy duty steel with self-aligning, permanently sealed, pillow block bearings with a minimum L3 life of 200,000 hours. The fans shall draw air through the A-frame coil to ensure even air distribution and maximum coil performance. A static regain duct shall be factory-installed to the bottom of the blower.
 2. The fan motor shall be 10 hp at 1750 RPM @60hz, mounted to an automatic, spring-tensioning base. The motor shall be removable from the front of the cabinet.
 3. The fan motor shall be Open Drip-Proof, Premium efficiency and shall meet NEMA Premium standard.
 4. The motor sheave and fan pulley shall be double-width fixed pitch. Two belts, sized for 200% of the fan motor horsepower shall be provided with the drive

package. An auto-tension system shall provide constant tension on the belts. Belts, shaft, blower bearings, sheave and pulley shall be warranted for five years (parts only).

D. Assembly:

1. Down-flow air delivery in blow-through configuration.
2. The Unit shall require service clearances only in the front of Unit. Side Service Clearances shall not be required. The two units may be installed side by side with zero service clearance between the two.

E. Cabinet and Frame:

1. Structural Frame: Welded steel suitably braced for rigidity, capable of supporting compressors and other mechanical equipment and fittings with 15” high welded tubular steel floor stand with adjustable legs and vibration isolation pads. In addition, the frame shall be capable of being separated into parts in the field to accommodate rigging through existing elevators, hallways, and doorways.
2. Doors and Access Panels: Galvanized steel with polyurethane gaskets, hinges to allow removal of panels, and concealed fastening devices.
3. Insulation: Thermally and acoustically line cabinet interior with 1 inch thick acoustic duct liner.
4. Finish of Exterior Surfaces: Baked-on textured vinyl enamel; color to be chosen by Owner.

F. Dual Refrigeration System

1. Each unit shall include two (2) independent refrigeration circuits utilizing refrigerant and shall include hot gas mufflers (semi-hermetic compressors units only), liquid line filter driers, refrigerant sight glass with moisture indicator, externally equalized expansion valves and liquid line solenoid valves. Compressors shall be located outside the airstream and shall be removable and serviceable from the front of the unit.
 - a. Compressors:

The compressor shall be semi-hermetic with a suction gas cooled motor, vibration isolators, thermal overloads, oil sight glass, automatic reset high pressure switch with control lockout after three failures, pump-down low pressure transducer, suction line strainer, service valves, reversible oil pumps for forced feed lubrication, a maximum operating speed of 1750 RPM. The system shall include cylinder unloaders on the semi-hermetic compressors. The unloaders shall be activated by solenoid valves which are controlled from the microprocessor control. In response to the return air temperature, the microprocessor control shall activate the unloader solenoids and the liquid line solenoids such that four stages of refrigeration cooling are obtained. The stages shall be: 1) one compressor, partially loaded, 2) two compressors partially loaded, 3) one compressor partially loaded, one compressor fully loaded, 4) two compressors fully loaded. On a call for dehumidification, the microprocessor control shall insure that at least one compressor is on full for proper humidity control.
 - b. Evaporator Coils:

The evaporator coil shall be A-frame design with offset orientation and have 24.7 sq. ft. face area, three rows DX & 3 rows Economizer. It shall be constructed of rifled copper tubes and aluminum fins. A stainless steel condensate drain pan shall be provided.

c. Refrigerant:

The system shall be designed for use with manufacturer recommended refrigerant. Refrigerant must meet the EPA clean air act for phase-out of HCFC refrigerants.

G. Filters:

1. Media: Pleated, lofted, non-woven, reinforced cotton fabric; supported and bonded to welded wire grid; enclosed in cardboard frame; 4 inch nominal thickness.
2. Rating: ASHRAE 52.2 MERV8 rating (45% ASSHRAE 52.1)
3. The filter chamber shall be located within the cabinet, and filters shall be removable from the top of the unit. Filters shall be arranged in a V-bank configuration to minimize air pressure drop.

H. Reheat/heating Coils:

1. The environmental control unit shall include a factory-installed reheat to control temperature during dehumidification.
2. The electric reheat coils shall be low watt density, 304/304 stainless steel fin tubular construction, protected by thermal safety switches, shall be 27.6 kW (94,199 BTUH) controlled in three stages. The reheat elements shall be removable from the front of the cabinet.

I. Humidifier:

1. Infrared Type: High intensity quartz lamps mounted above stainless steel evaporator pan, serviceable without disconnecting water, drain, or electrical connections; pre-piped and utilizing condensate water from cooling coils with stainless steel or brass float valve mechanism; located in bypass air stream. A high-water detector shall shut down the humidifier to prevent overflowing. An air-gap shall prevent backflow of the humidifier supply water.
2. A humidifier shall be factory-installed inside the unit. Bypass air slots shall be included to enable moisture to be absorbed into the air stream. The humidifier capacity shall be 22lb./hr. The humidifier shall be removable from the front of the cabinet.

J. Water/Glycol Systems

1. Condenser
The water-cooled condensers for each circuit shall be cleanable, shell-and-tube, counter flow type. The heads shall be removable to allow for cleaning of the water tubes. Condensers shall be rated for a maximum refrigerant pressure of 400 psi at 200°F. The condenser shall be capable of operating with manufacturer recommended refrigerant. The unit shall require 75 GPM of 45 °F Glycol and have a maximum pressure drop of 46.4 Ft.
2. Water/Glycol Regulating Valve

The condenser shall be pre-piped with a three-way regulating valve which is head pressure actuated.

3. Pressure Rating

The condenser water circuit shall be designed for a pressure of 150 psi.

4. GLYCOOL Systems

a. GLYCOOL Coil: The GLYCOOL (Econ-O-Coil) shall be constructed of copper tubes and aluminum fins. The coil shall be A-frame or V-frame in order to minimize air pressure drop, and shall be nested with the DX coil. The Econ-O-Coil shall be upstream of the DX coil and under design conditions, shall provide 100% of cooling capacity with out compressor operation.

b. GLYCOOL Three-Way Control Valve: The GLYCOOL coil shall be equipped with a fully proportional 3-way control valve. This motorized control valve shall control the amount of flow to the GLYCOOL (Econ-O-Coil) coil to control room temperature and relative humidity.

K. Remote Dry Coolers (Alternate 1 only):

1. Replace two (2) existing drycoolers in two stages to ensure that one unit is operating at all times.

2. Low profile, slow speed, multiple direct drive, propeller fan type. Corrosion resistant aluminum cabinet with copper tube aluminum fin coils, multiple direct drive propeller fans with fan guard, single-phase motors with internal overload protection, an integral electric control panel, and disconnect switch. The drycooler shall be Liebert model D0080, 3 fan unit, or equal, designed for 95 °F ambient. Furnish capacity control by cycling fans.

3. Pump Package:

a. The dual pump package shall include pumps, enclosure, field mounted flow switch, and a separate factory-wired control box. The standby pump shall automatically start upon failure of the lead pump. Each pump shall be rated for 76 GPM at 100 feet of head and operate on 460 volt, 3-phase, 60 Hz.

b. Cabinet: Weatherproof and vented enclosure of enameled, galvanized steel on structural base frame.

c. Controls: Electrical control cabinet with starters, disconnect, lead/lag switch, and automatic switchover and alarm light.

d. Piping: Interconnecting piping, from suction to discharge with shut-off valves, flow switches, check valves in pump discharge, unions, and pressurized expansion tank with air purge vent and system charging connection. Connect piping and electrical conduits to existing services penetrating through roof.

L. Control Cabinet: NEMA 250; Type 2 enclosure, UL listed, with piano hinged door, grounding lug, combination magnetic starters with overload relays, circuit breakers and cover interlock, and fusible control circuit transformer.

M. Locking disconnect Switch: Mount the disconnect switch in the high voltage section of the electrical panel. The switch shall be accessible from the outside of the unit with the

door closed and shall prevent access to the high voltage electrical components until switched to the "OFF" position.

- N. Low Voltage Lockout Relay for Humidifier & Reheat
1. Factory-installed and wired terminals shall be provided for customer connection to lock out the reheat and humidifier upon contact closure. Two (2) extra N/O common alarm contacts shall be provided. Two (2) extra remote shutdown terminals shall be provided.
- O. Water Sensor
1. Provide one solid state water sensor under the raised floor.
- P. Microprocessor Control System:
1. Logic Circuitry: Microprocessor continuously monitors operation of process cooling system; continuously displays room temperature and room relative humidity; sounds alarm on system malfunction and simultaneously displays problem. When more than one malfunction occurs, display fault in sequence with room temperature, capability of remembering alarm even when malfunction is cleared, and continue to display fault until reset.
 2. Manufacturer: iCOM Microprocessor Control With Large Graphic Display.
 - a. The iCOM unit control with large graphic display shall include all of the features as the iCOM with small graphic display, except that it includes a larger graphical display and shall include the additional features of: "System View", Spare Parts List, Unit Diary.
 - b. The iCOM control processor shall be microprocessor based with a 320x240 dot matrix graphic front monitor display panel and control keys for user inputs mounted in an ergonomic, aesthetically pleasing housing.
 - c. System View - Status Overview: "System View" shall display a summary of operation for the total number of operating units within a Unit-to-Unit (U2U) configuration.
 - d. Spare Parts List: Menu shall include a list of critical spare parts, their quantity and part numbers.
 - e. Unit Diary: Menu shall include a free field area within the unit memory where unit history may be stored for reference.
 - f. The iCOM unit control shall be factory-set for Intelligent Control which uses "fuzzy logic" and "expert systems" methods. Proportional and Tunable PID shall also be user selectable options. Internal unit component control shall include the following:
 - (1) Compressor Short Cycle Control - Prevents compressor short-cycling and needless compressor wear.
 - (2) System Auto Restart - The auto restart feature will automatically restart the system after a power failure. Time delay is programmable.
 - (3) Sequential Load Activation - On initial startup or restart after power failure, each operational load is sequenced with a minimum of one second delay to minimize total inrush current.
 - (4) Hot Water/Econ-O-Coil Flush Cycles - Hot water reheat coils and Econ-O-Coils are periodically flushed to prevent a buildup of contaminants.

- (5) Predictive Humidity Control - calculates the moisture content in the room and prevents unnecessary humidification and dehumidification cycles by responding to changes in dew point temperature.
- h. The iCOM control shall be compatible with all Liebert remote monitoring and control devices. **It shall also have a NIC card and be capable of BMS interface via BACNet.**
- i. The iCOM control processor shall be microprocessor based with a 128x64 dot matrix graphic front monitor display and control keys for user inputs mounted in an ergonomic, aesthetically pleasing housing. The display & housing shall be viewable while the unit panels are open or closed. The controls shall be menu driven. The display shall be organized into three main sections: User Menus, Service Menus and Advanced Menus. The system shall display user menus for: active alarms, event log, graphic data, unit view/status overview (including the monitoring of room conditions, operational status in % of each function, date and time), total run hours, various sensors, display setup and service contacts. A password shall be required to make system changes within the service menus. Service menus shall include: setpoints, standby settings (lead/lag), timers/sleep mode, alarm setup, sensor calibration, maintenance/wellness settings, options setup, system/network setup, auxiliary boards and diagnostics/service mode. A password shall be required to access the advanced menus, which include the factory settings, and password menus.
- j. The User Menus Shall be Defined as Follows:
- (1) Active Alarms: Unit memory shall hold the 200 most recent alarms with time and date stamp for each alarm.
 - (2) Event Log: Unit memory shall hold the 400 most recent events with id number, time and date stamp for each event.
 - (3) Graphic Data View: Eight graphic records shall be available: return air temperature, return air humidity, supply air temperature, outdoor temperature and four custom graphs.
 - (4) Unit View - Status Overview: Simple or Graphical "Unit View" summary displays shall include temperature and humidity values, active functions (and percent of operation) and any alarms of the host unit.
 - (5) Total Run Hours: Menu shall display accumulative component operating hours for major components including compressors, Econ-O-Coil (FC), fan motor, humidifier and reheat.
 - (6) Various Sensors: Menu shall allow setup and display of optional custom sensors. The control shall include four customer accessible analog inputs for sensors provided by others. The analog inputs shall accept a 4 to 20 mA signal. The user shall be able to change the input to 0 to 5VDC or 0 to 10VDC if desired. The gains for each analog input shall be programmable from the front display. The analog inputs shall be able to be monitored from the front display.

- (7) Display Setup: The desired grouping of display languages is Group 1: English, French, Italian, Spanish, German.
 - (8) Service Contacts: Menu shall allow display of local service contact name and phone number.
- k. The Service Menus Shall be Defined as Follows:
- (1) Setpoints: Menu shall allow setpoints within the following ranges:
 - (a) Temperature Setpoint 65-85°F (18-29°C)*
 - (b) Temperature Sensitivity +1-10°F (0.6-5.6°C)
 - (c) Humidity Setpoint 20-80% RH*
 - (d) Humidity Sensitivity 1-30% RH
 - (e) High Temperature Alarm 35-90°F (2-32°C)
 - (f) Low Temperature Alarm 35-90°F (2-32°C)
 - (g) High Humidity Alarm 15-85% RH
 - (h) Low Humidity Alarm 15-85% RH
 - (2) Standby Settings/Lead-Lag: Menu shall allow planned rotation or emergency rotation of operating and standby units.
 - (3) Timers/Sleep Mode: Menu shall allow various customer settings for turning on/off unit.
 - (4) Alarm Setup: Menu shall allow customer settings for alarm notification (audible/local/remote). The following alarms shall be available:
 - (a) High Temperature
 - (b) Low Temperature
 - (c) High Humidity
 - (d) Low Humidity
 - (e) Compressor Overload
 - (f) Main Fan Overload
 - (g) Humidifier Problem
 - (h) High Head Pressure
 - (i) Change Filter
 - (j) Fan Failure
 - (k) Low Suction Pressure
 - (l) Power Loss
 - (m) Water-Under-Floor.
 - (5) Audible Alarm: The audible alarm shall annunciate any alarm that is enabled by the operator.
 - (6) Common Alarm: A programmable common alarm shall be provided to interface user selected alarms with a remote alarm device.
 - (7) Remote Monitoring: All alarms shall be communicated to the Liebert monitoring system with the following information: Date and time of occurrence, unit number and present temperature and humidity.
 - (8) Sensor Calibration: Menu shall allow unit sensors to be calibrated with external sensors.
 - (9) Maintenance/Wellness Settings: Menu shall allow reporting of potential component problems before they occur.

- (10) Options Setup: Menu shall provide operation settings for the installed components.
- (11) System/Network Setup: Menu shall allow Unit-to-Unit (U2U) communication and setup for teamwork modes of operation (up to 32 units).
- (12) Teamwork Modes of Operation: Saves energy by preventing operation of units in opposite modes multiple units.
- (13) Auxiliary Boards: Menu shall allow setup of optional expansion boards.
- (14) Diagnostics/Service Mode: The iCOM control shall be provided with self-diagnostics to aid in troubleshooting. The microcontroller board shall be diagnosed and reported as pass/not pass. Control inputs shall be indicated as on or off at the front display. Control outputs shall be able to be turned on or off from the front display without using jumpers or a service terminal. Each control output shall be indicated by an LED on a circuit board.

2.2 ELECTRICAL CHARACTERISTICS AND COMPONENTS

- A. Provide all necessary conduits, wiring, and connections to connect the two (2) AC units to the existing electrical service.
- B. Provide a factory mounted disconnect switch in the control panel.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify computer-flooring system is ready to receive work and opening dimensions are as instructed by manufacturer. Owner to supply any needed flooring tile.
- B. Verify ceiling system is ready to receive work and opening dimensions are as instructed by manufacturer.

3.2 INSTALLATION

- A. Install precision air conditioning units in accordance with manufacturer's installation instructions. Install units plumb and level, firmly anchored in locations indicated, and maintain manufacturer's recommended clearances.
- B. Coordinate installation of all equipment to minimize any disruptions in operations. If installation of equipment will cause interruptions in service, notify Owner at least one week in advance and perform Work, at no additional cost to Owner, during hours that will minimize effect of service interruption.
- C. Coordinate installation of computer room air conditioning units with existing computer room raised floor.

- D. Coordinate installation of air conditioning unit with computer room ceiling.
- E. Install the following piping accessories on condenser piping connections.
 - 1. On inlet:
 - a. Thermometer well and thermometer.
 - b. Strainer.
 - c. Flow switch.
 - d. Flexible pipe connection.
 - e. Pressure gage.
 - f. Shut-off valve.
 - 2. On outlet:
 - a. Thermometer well and thermometer.
 - b. Flexible pipe connection.
 - c. Pressure gage.
 - d. Balancing valve.
- F. Install drainage piping connections for condensate and humidifier flushing system.
- G. Install hot water heating piping connections to reheat coils. Install shut-off valves in hot water heating inlet and outlet piping.
- H. Connect refrigerant piping for air-cooled condensing units to existing piping (Alternate 2 only).
- I. Install accessories furnished loose for field mounting.
- J. Install electrical devices furnished loose for field mounting.
- K. Install control wiring between control panel and field mounted control devices.
- L. Provide connection to electrical service.
- M. Provide all mechanical and drainage connections.
- N. Install Work in accordance with State of Wisconsin standards.

3.3 FIELD QUALITY CONTROL

- A. Start up cooling units in accordance with manufacturer's startup instructions. Test controls and demonstrate compliance with requirements.
- B. Test and record for maintenance of room conditions over continuous 24-hour period.
- C. Adjust and balance and repeat test when necessary to demonstrate compliance with performance.

3.4 MANUFACTURER'S FIELD SERVICES

- A. Section 01700 – Demonstration and Instructions

- B. Set initial temperature and humidity set points.
- C. Furnish 2 hours of instruction for at least two persons, to be conducted at project site with manufacturer's representative to instruct Owner on operation and maintenance. This is to be done after all equipment and controls have been calibrated and adjusted to maximum efficiency.

3.5 DEMONSTRATION

- A. Demonstrate system operations and verify specified performance.
- B. Demonstrate alarm conditions.

END OF SECTION

SECTION 16123

BUILDING WIRE AND CABLE

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes building wire and cable; conduits; and wiring connectors and connections.

1.2 REFERENCES

- A. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.

1.3 SYSTEM DESCRIPTION

- A. Product Requirements: Provide products as follows:
 - 1. Stranded conductor for feeders
- B. Wiring Methods: Use only building wire, Type THHN, in thin walled, galvanized conduit.

1.4 DESIGN REQUIREMENTS

- A. Base Bid Only: Conductor sizes are based on copper.
- B. Alternate Bid 3 Only: Substitute Aluminum conductors for all copper conductors.
 - 1. When aluminum conductor is substituted for copper conductor, size to match circuit requirements for conductor ampacity and voltage drop.
 - 2. Aluminum alloy conductors shall be compact stranded conductors of a recognized Aluminum Association 8000 Series aluminum alloy conductor material (AA-8000 series alloy).
 - 3. Increase the size of the conduit, wire gutter, or enclosure, if necessary, to accommodate the aluminum conductors and meet allowable code requirements.
 - 4. Submit a feeder schedule to the Engineer for all conductor substitutions indicating the aluminum conductor wire size and the conduit size. The contractor shall not begin the installation until written approval is granted by the Engineer.

1.5 SUBMITTALS

- A. Section 01000 – Basic requirements: Submittal Procedures.
- B. Product Data: Submit for building wire and conduit type.

C. Design Data: Indicate voltage drop and ampacity calculations for aluminum conductors substituted for copper conductors.

D. Test Reports: Indicate procedures and values obtained.

1.6 CLOSEOUT SUBMITTALS

A. Section 01700 - Execution Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of components and circuits.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.

1.8 FIELD MEASUREMENTS

A. Verify field measurements are as indicated on Drawings.

1.9 COORDINATION

A. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.

B. Wire and cable routing indicated is approximate. Contractor is solely responsible for visiting site and verifying all measurements.

PART 2 PRODUCTS

2.1 BUILDING WIRE

A. Product Description: Single conductor insulated wire.

B. Conductor:
1. Base Bid: Copper.
2. Alternate Bid 3 Only: Aluminum.

C. Insulation: NFPA 70; Type THHN/THWN.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify Work areas are ready to receive Work.

3.2 EXISTING WORK

- A. Remove abandoned wire and cable in one of the two existing 2” conduits on the south end of the building. This conduit will be reused to run a feeder from the 5th floor computer room down to the garage level. This feeder is described as Section C in Diagram 1 of the Construction Documents.
- B. Reuse existing 2-1/2” conduit and four (4) #4/0 wires, which currently feed the chiller and are approximately 300 LF long. Also, run one (1) new #2 ground to be included in this service. The four #4/0 and one #2 ground will form half of the new service denoted as Section A in Diagram 1 of the Construction Documents. The other half of this service will be 400 LF of four #4/0 wires with one #2 ground in a new 2-1/2” conduit. Route this new feeder as described in Paragraph 3.5 - Schedules of this Section.
- C. Provide access to existing electrical work remaining active and requiring access.

3.3 INSTALLATION

- A. Install stranded conductors.
- B. Completely and thoroughly swab raceway before installing wire.
- C. Route wire and cable to meet Project conditions.
- D. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- E. Identify each conductor with its circuit number or other designation indicated.
- F. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.
- G. Special Techniques--Building Wire in Raceway:
 - 1. Pull conductors into raceway at same time.
 - 2. Install building wire 4 AWG and larger with pulling equipment.
- H. Special Techniques - Wiring Connections:
 - 1. Clean conductor surfaces before installing lugs and connectors.
 - 2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
 - 3. Tape uninsulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
 - 4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
 - 5. Install solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
 - 6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.
 - 7. (Alternate Bid 3 Only) Terminate all aluminum conductors on a mechanical screw-type connector or mechanical compression-type connector. Connector

shall be dual rated (AL7CU or AL9CU) and Listed by UL for use with aluminum and copper conductors, and sized to accept aluminum conductors of the required ampacity. When using compression-type connectors, the lugs shall be marked with wire size, die index, number and location of crimps and shall be suitably color-coded. Using a suitable stripping tool, remove insulation from the required length of the conductor. Wire brush the conductor and apply a UL listed joint compound. Tighten or crimp the connection per the connector manufacturer's recommendation. Wipe off any excess joint compound.

3.4 WIRE COLOR

- A. General
 - 1. For wire sizes 10 AWG and smaller, install wire colors in accordance with the following:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
 - 2. For wire sizes 8 AWG and larger, identify wire with colored tape at terminals, splices and boxes. Colors are as follows:
 - a. Black and red for single phase circuits at 120/240 volts.
 - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
 - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.
- D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:
 - 1. For 6 AWG and smaller: Green.
 - 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

3.5 SCHEDULE

- A. See Diagram 1 - Electrical Schematic for description of sections.
- B. Section A:
 - 1. Reuse existing 2-1/2" conduit and four (4) #4/0 wires, which currently feed the chiller and are approximately 300 LF long. Also, run one (1) new #2 ground in the same conduit to be included in this service. The four #4/0 and one #2 ground will form half of the new service denoted as Section A in Diagram 1 of the Construction Documents. The other half of this service will be 400 LF of four #4/0 wires with one #2 ground in a new 2-1/2" conduit.

2. Furnish approximately 400 LF of four #4/0 wires with one #2 ground in a new 2-1/2" conduit. Conduit will run in drop ceiling from switchgear room to room GR-24. From GR-24, the feeder will run up to room 321. In room 321, it will run 20' north and 5' east in the drop ceiling. Then it will run up, through the fourth floor stage room and through the existing 5th floor computer room chase, to the penthouse. The drop ceiling in room 321 does not need to be replaced.
 3. Replace the existing switch and fuses on this service with a new 600 amp fusible switch with 450 amp fuses.
- C. Section B:
1. Furnish new feeder approximately 85 feet from ATS in penthouse to a new 600 amp distribution panel in the fifth floor computer room through existing chase. This feeder consists of two (2) parallel runs. Each of these runs consists of four #4/0 wires with one #2 ground in a new 2-1/2" conduit.
 2. From the distribution panel, run service to the transformer, breaker, and 100 KVA UPS, as shown on Diagram 1.
- D. Section C:
1. From the new distribution panel, install a new 2" conduit with three (3) #250 KCMIL and one (1) #4 ground. Run this feeder approximately 100 LF from the 5th floor computer room down to the garage level. Run this feeder into room GR-24, along the same path as the new conduit of Section A. Then, run this feeder straight down to the garage level. Once this conduit reaches the garage level, connect it to a new conduit denoted as Section D on Diagram 1 - Electrical Schematic.
- E. Section D:
1. Tie new 2" conduit with 3 #250 KCMIL and 1 #4 ground into new conduit from GR-24. Run this new feeder approximately 250 LF to a new 400 amp non-fused switch, a new 112.5 KVA transformer, and a new 400 amp distribution panel in the City's computer room. Finally, tie the City's 40 KVA UPS and HVAC system into the new distribution panel with feeders sized per manufacturers' recommendations.

3.6 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

END OF SECTION

SECTION 16235

ENGINE GENERATORS

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes engine generator set, exhaust silencer and fittings, transfer switch, transformer, electrical feeders, natural gas line and fittings, natural gas regulators, load bank, battery, charger, and heat rejection exhaust duct.

1.2 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
 - 2. NEMA AB 1 - Molded Case Circuit Breakers and Molded Case Switches.
 - 3. NEMA ICS 10 - Industrial Control and Systems: AC Transfer Switch Equipment.
 - 4. NEMA MG 1 - Motors and Generators.
- B. International Electrical Testing Association:
 - 1. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
- C. National Fire Protection Association:
 - 1. NFPA 30 - Flammable and Combustible Liquids Code.
 - 2. NFPA 110 - Standard for Emergency and Standby Power Systems.

1.3 SYSTEM DESCRIPTION

- A. Description: Natural gas engine generator assembly and accessories to provide source of power for Level 2 applications in accordance with NFPA 110.
- B. Capacity:
 - 1. Minimum of 240 kW for 12 hours, at elevation of 3500 feet above sea level, standby rating using specified engine cooling scheme.
- C. Service:
 - 1. Manufacturer must provide guarantee of a maintenance response time of 4 hours or less.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate electrical characteristics and connection requirements. Include plan and elevation views with overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, electrical diagrams including schematic and interconnection diagrams.

- B. Product Data: Submit data showing dimensions, weights, ratings, interconnection points, and internal wiring diagrams for engine, generator, control panel, transfer switch, battery, battery rack, battery charger, exhaust silencer, vibration isolators, day tank, and remote radiator.
- C. Test Reports: Indicate results of performance testing.
- D. Manufacturer's Field Reports: Indicate inspections, findings, and recommendations.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit instructions and service manuals for normal operation, routine maintenance, oil sampling and analysis for engine wear, and emergency maintenance procedures.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.
- B. Supplier: Authorized distributor of specified manufacturer with minimum three years experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Accept generator on site in factory packing. Inspect for damage.
- B. Protect equipment and materials from damage until installation.
- C. Underground parking garage may be used for temporary unloading of equipment and materials. Vehicles may not remain parked here after unloading. Materials may be stored in underground parking area for up to two (2) days before installation. Coordinate unloading and storing of materials with Steve Alwin, Facility Manager, at 266-4350.
- D. Service elevator may be used to transport materials to fifth floor from garage level. Coordinate this with Steve Alwin, Facility Manager, at 266-4350.

1.8 MAINTENANCE SERVICE

- A. Provide emergency call back service of engine generator and transfer switch during working hours for one year from Date of Substantial Completion.
- B. Maintain locally, near Place of the Work, adequate stock of parts for replacement or emergency purposes. Have personnel available to ensure fulfillment of this maintenance service, without unreasonable loss of time.
- C. Perform maintenance work using competent and qualified personnel under supervision of manufacturer or original installer.

- D. Do not assign or transfer maintenance service to agent or subcontractor without prior written consent of Owner.

1.9 MAINTENANCE MATERIALS

- A. Furnish one set of tools required for preventative maintenance of engine generator system. Package tools in adequately sized metal tool box.
- B. Furnish two of each fuel, oil and air filter element.

PART 2 PRODUCTS

2.1 GENERATOR

- A. Manufacturers:
 - 1. (Base Bid Only) Caterpillar Model SR4B Generator with CAT G3406 TA Gas Engine.
 - 2. (Alternate Bid 2 Only) Generac Model SG250 with Generac 13.3GTA Engine.
 - 3. Substitutions: As approved by Project Engineer per Specification Section 01000 - Basic Requirements.
- B. Product Description: NEMA MG1, three phase, four pole, reconnectable brushless synchronous generator with brushless exciter.
- C. Rating: 277/480 volts, 60 Hz at 1800 rpm for minimum of 12 hours.
- D. Insulation Class: H.
- E. Temperature Rise: 266 degrees F Standby.
- F. Enclosure: Not required.
- G. Voltage Regulation: Furnish generator mounted volts per hertz exciter-regulator to match engine and generator characteristics, with voltage regulation plus or minus 1 percent from no load to full load. Furnish manual controls to adjust voltage droop, voltage level (plus or minus 5 percent) and voltage gain.

2.2 ENGINE

- A. Use natural gas engine that is recommended by generator manufacturer to accompany chosen generator.
- B. Rating: Sufficient to operate under 10 percent overload for one hour in ambient of 90 degrees F at elevation of 1000 feet above mean sea level.
- C. Fuel System: natural gas.
- D. Engine speed: 1800 rpm.

- E. Safety Devices: Engine shutdown on high water temperature, low oil pressure, overspeed, and engine overcrank. Limits as selected by manufacturer.
- F. Engine Starting: DC starting system with positive engagement, number and voltage of starter motors in accordance with manufacturer's instructions. Furnish remote starting control circuit, with MANUAL-OFF-REMOTE selector switch on engine-generator control panel.
- G. Engine Jacket Heater: Thermal circulation type water heater with integral thermostatic control, sized to maintain engine jacket water at 90 degrees F, and suitable for operation on 120 volts AC.
- H. Radiator: Radiator sized to maintain safe engine temperature in ambient temperature of 122 degrees F. Radiator air flow restriction 0.5 inches of water maximum.
- I. Engine Accessories: Fuel filter, lube oil filter, intake air filter, lube oil cooler, fuel transfer pump, fuel priming pump, gear-driven water pump. Provide fuel pressure gage, water temperature gage, and lube oil pressure gage on engine/generator control panel.
- J. Mounting: Provide unit with suitable spring-type vibration isolators and mount on existing concrete pad.

2.3 GOVERNOR

- A. Manufacturers:
 1. As recommend by engine and generator manufacturer.
 2. Substitutions: Not Permitted.
- B. Product Description: Isochronous governor to maintain engine speed within 0.5 percent, steady state, and 5 percent, no load to full load, with recovery to steady state within 2 seconds following sudden load changes. Equip governor with means for manual operation and adjustment.

2.4 AUTOMATIC TRANSFER SWITCH

- A. Manufacturers:
 1. As recommend by generator manufacturer.
 2. Substitutions: As approved by Project Engineer per Specification Section 01000 - Basic Requirements.
- B. Product Description: NEMA ICS 10, 600 amp automatic transfer switch.
- C. Configuration: Electrically operated, mechanically held transfer switch.
- D. Control Features and Functions:
 1. Indicating Lights: Mount in cover of enclosure to indicate NORMAL SOURCE AVAILABLE, ALTERNATE SOURCE AVAILABLE, switch position.
 2. Test Switch: Mount in cover of enclosure to simulate failure of normal source.

3. Return to Normal Switch: Mount in cover of enclosure to initiate manual transfer from alternate source to normal source.
 4. Transfer Switch Auxiliary Contacts: 1 normally open; 1 normally closed.
 5. Normal Source Monitor: Monitor each line of normal source voltage and frequency; initiate transfer when voltage drops below 85 percent or frequency varies more than 3 percent from rated nominal value.
 6. Alternate Source Monitor: Monitor alternate source voltage and frequency; inhibit transfer when voltage is below 85 percent or frequency varies more than 3 percent from rated nominal value.
- E. Automatic Sequence of Operation:
1. Initiate Time Delay to Start Alternate Source Engine Generator: Upon initiation by normal source monitor.
 2. Time Delay To Start Alternate Source Engine Generator: 0 to 10 seconds, adjustable.
 3. Initiate Transfer Load to Alternate Source: Upon initiation by normal source monitor and permission by alternate source monitor.
 4. Time Delay Before Transfer to Alternate Power Source: 0 to 10 seconds, adjustable.
 5. Initiate Retransfer Load to Normal Source: Upon permission by normal source monitor.
 6. Time Delay Before Transfer to Normal Power: 0 to 10 seconds, adjustable; bypass time delay in event of alternate source failure.
- F. Time Delay Before Engine Shut Down: 0 to 30 minutes, adjustable, of unloaded operation.
- G. Enclosure:
1. Enclosure: NEMA ICS 10, Type 1.
 2. Finish: Manufacturer's standard gray enamel.

2.5 TRANSFORMERS

- A. Manufacturers:
1. As recommend by generator manufacturer.
 2. Substitutions: As approved by Project Engineer per Specification Section 01000 - Basic Requirements
- B. Product Description:
1. One (1) 150 KVA, 480/208 – 120V, three phase transformer unit.
 2. One (1) 112.5 KVA 480/208 – 120V, three phase transformer unit.
- C. Inspect and test in accordance with NETA ATS, except Section 4.
- D. Adjust primary taps so secondary voltage is within 2 percent of rated voltage.

2.6 ACCESSORIES

- A. Exhaust Silencer: Critical type silencer, with muffler companion flanges and flexible stainless steel exhaust fitting, sized in accordance with engine manufacturer's instructions.
- B. Batteries: Heavy duty, diesel starting type lead-acid storage batteries, 170 ampere-hours minimum capacity. Match battery voltage to starting system. Provide cables and clamps.
- C. Battery Tray: Treated for electrolyte resistance, constructed to contain spillage.
- D. Battery Charger: Current limiting type designed to float at 2.17 volts for each cell and equalize at 2.33 volts for each cell. Furnish overload protection, full wave rectifier, DC voltmeter and ammeter, and 120 volts AC fused input. Provide wall mounted enclosure to meet NEMA 250, Type 1 requirements.
- E. Line Circuit Breaker: NEMA AB 1, 450 amp, molded case circuit breaker on generator output with integral thermal and instantaneous magnetic trip in each pole. Furnish battery voltage operated shunt trip, connected to open circuit breaker on engine failure.
- F. Furnish new 600 amp fusible switch with 450A fuses and, as shown on Diagram 1 – Electrical Schematic.
- G. Engine-Generator Control Panel: NEMA 250, Type 1 generator-mounted control panel enclosure with engine and generator controls and indicators. Furnish provision for padlock and the following equipment and features:
 - 1. Frequency Meter: 45-65 Hz. range, 3.5 inch dial.
 - 2. AC Output Voltmeter: 3.5 inch dial, 2 percent accuracy, with phase selector switch.
 - 3. AC Output Ammeter: 3.5 inch dial, 2 percent accuracy, with phase selector switch.
 - 4. Output voltage adjustment.
 - 5. Push-to-test indicator lamps, one each for low oil pressure, high water temperature, overspeed, and overcrank.
 - 6. Engine start/stop selector switch.
 - 7. Engine running time meter.
 - 8. Oil pressure gage.
 - 9. Water temperature gage.
 - 10. Auxiliary Relay: 3PDT, operates when engine runs, with contact terminals prewired to terminal strip.
 - 11. Additional visual indicators and alarms in accordance with by NFPA 110.
- H. Load Bank: Complete load bank for pacing resistive load on generator. 480 volts three phase 250 kW. Complete with transfer switches, disconnect, ventilation fans and enclosure.
- I. Engine Exerciser: Start engine every 30 days; run for 30 minutes before shutting down. Bypass exerciser control when normal source fails during exercising period.

- J. Alternate System Exerciser: Transfer load to alternate source during engine exercising period.
- K. Provide engine exhaust piping and silencer. Penetrate through east exterior wall, and terminate at least 4' above penthouse roof grade.
- L. Provide ventilation ducts to exhaust heat from the generator set to the outside per manufacturer's heat rejection recommendations. Penetrate the east exterior wall with this duct at least 10' above 7th floor roof grade, as shown on plans.
- M. Connect generator set to the existing natural gas service. Increase existing natural gas line to a high pressure service. Coordinate with MG&E to increase the building's gas service to a high pressure service. Costs and fees for MG&E to do this Work are included in Base Bid. Provide the necessary regulators to reduce this pressure at the three make-up heating units in the garage, at the two water heaters in the penthouse, and at the new generator set.

2.7 SOURCE QUALITY CONTROL

- A. Provide shop inspection and testing of completed assembly.

PART 3 EXECUTION

3.1 EXISTING WORK

- A. There is currently a 2-1/2" conduit with four (4) #4/0 wires that runs approximately 300 LF from the building's switchgear room to the existing chiller. Reuse these wires, and install one (1) #2 ground, as described in Specification Section 16123 - Building Wire and Cables. The four #4/0 and one #2 ground will form half of the new service denoted as Section A in Diagram 1 of the Construction Documents. The other half of this service will be 400 LF of four #4/0 wires with one #2 ground in a new 2-1/2" conduit.
- B. Remove abandoned wire and cable in one of the two existing 2" conduits on the south end of the building. The existing conduit runs from the 5th floor computer room down to the garage level. Reuse this conduit to install a new feeder, as described in Specification Section 16123 - Building Wire and Cables.
- C. Remove and dispose of existing cooling tower, which weighs approximately 5,000 lbs. This is a Marley cooling tower, Model 8805 NC. County staff will provide all electrical, mechanical, and structural disconnections of cooling tower and will drain all fluids from cooling tower, so Contractor can remove this equipment with a crane and dispose of it.
- D. Remove and dispose of chiller, which has an operating weight of 9,110 lbs. This is a Carrier Liquid Chiller, Model 19DK4213AC. County staff will provide all electrical, mechanical, and structural disconnections of chiller and will drain all fluids from chiller, so Contractor can remove this equipment with a crane and dispose of it.

3.2 INSTALLATION

- A. After removing the existing chiller, install the generator set on the existing concrete pad.
- B. Install feeders, distribution panels, switches, breakers, ATS, and transformers as described in Specification Section 16123 - Building Wire and Cable and as shown on Diagram 1 - Electrical Schematic.
- C. Install transformers plumb and level and in accordance with IEEE C57.94.
- D. Feeders: Install wiring as described in Specification Section 16123 - Building Wire and Cable, and as described in Diagram 1 - Electrical Schematic.
- E. Coordinate installation of all electrical services from the generator to minimize any disruptions in operations. If these connections will cause interruptions in service, notify Owner at least one week in advance and perform Work, at no additional cost to Owner, during hours that will minimize effect of service interruption.
- F. Ground and bond generator and other electrical system components in accordance with State of Wisconsin Standards.
- G. Install engine exhaust piping, exhaust silencer, and generator air exchange exhaust ducts to meet minimum heat rejection and air exchange rates recommended by manufacturer. Penetrate northeast wall with exhaust piping and air exchange exhaust duct. Once engine exhaust pipe penetrates this outside wall, install a 90 degree bend upward and terminate the exhaust pipe 4' feet above penthouse roof grade. Install generator exhaust ducts as shown on plans.
- H. Coordinate with MG&E to install a regulator at the building's natural gas service entrance, so that the gas service is increased to high pressure. Install regulators to reduce the gas pressure at the three make-up heating units in the garage, at the two water heaters in the penthouse, and at the new generator set. Also, install all piping to connect the new generator set to the existing natural gas service. Perform this Work in accordance with State of Wisconsin standards.
- I. Install engraved plastic nameplates in accordance with State of Wisconsin Standards.

3.3 FIELD QUALITY CONTROL

- A. Section 01700 - Execution Requirements: Testing, adjusting, and balancing.
- B. Inspect and test in accordance with NETA ATS, except Section 4.
- C. Perform inspections and tests listed in NETA ATS, Section 7.22.

3.4 MANUFACTURER'S FIELD SERVICES

- A. Prepare and start up engine-generator assembly.

3.5 ADJUSTING

- A. Section 01700 - Execution Requirements: Testing, adjusting, and balancing.
- B. Adjust generator output voltage and engine speed to meet specified ratings.

3.6 CLEANING

- A. Section 01700 - Execution Requirements: Final cleaning.
- B. Clean engine and generator surfaces. Replace oil and fuel filters with new.

3.7 DEMONSTRATION AND TRAINING

- A. Section 01700 – Demonstration and Instructions
- B. Furnish 2 hours of instruction for at least two persons, to be conducted at project site with manufacturer's representative.
- C. Describe loads connected to emergency and standby system and restrictions for future load additions.
- D. Simulate power outage by interrupting normal source, and demonstrate system operates to provide emergency and standby power.

END OF SECTION

Section B:

All new

600A. 3 Pole
(25K SYM AMPS)

240KW/300KVA, 480/277V.
ENGINE GENERATOR
w/ 450A. MAIN BRKR

ATS

Section A:

Reuse existing conduit and wires, and run 1 #2 ground to create half of new service. Also, run new conduit and wires for other half of new service.

DP

600A. 480/277V, 3ph 4w

(2) 2 1/2" C. w/ 4 # 4/0 & 1 # 2 GRD

FED BY 250/3 BRKR

Fed By 350/3 BRKR

(1) 3" C. w/ 3 # 500KCMIL & 1 # 3 GRD

T

150KVA
480/208-120V. 3ph
TRANSFORMER

600A. FUSIBLE SW

450A. FUSES

Brkr SIZE PER
WPS MFR

100KVA
WPS

Section C:

Remove existing wires from one of two existing conduits. Reuse conduit to run feeder to garage.

EXISTING 4000A, 480/277V
MAIN SWBD ASSUMED 100,000 Sym
Short Circuit AMPS.

(1) 2" C. w/ 3 # 250KCMIL & 1 # 4 GRD
(APPROX - 455 FT 2% VD)

(1) 3" C/w 4 # 500KCMIL & 1 # 3 GRD

Section D:

All new.

400A. NON FUSED
DISC. SW.

T

112.5KVA
480/208-120V
3ph.

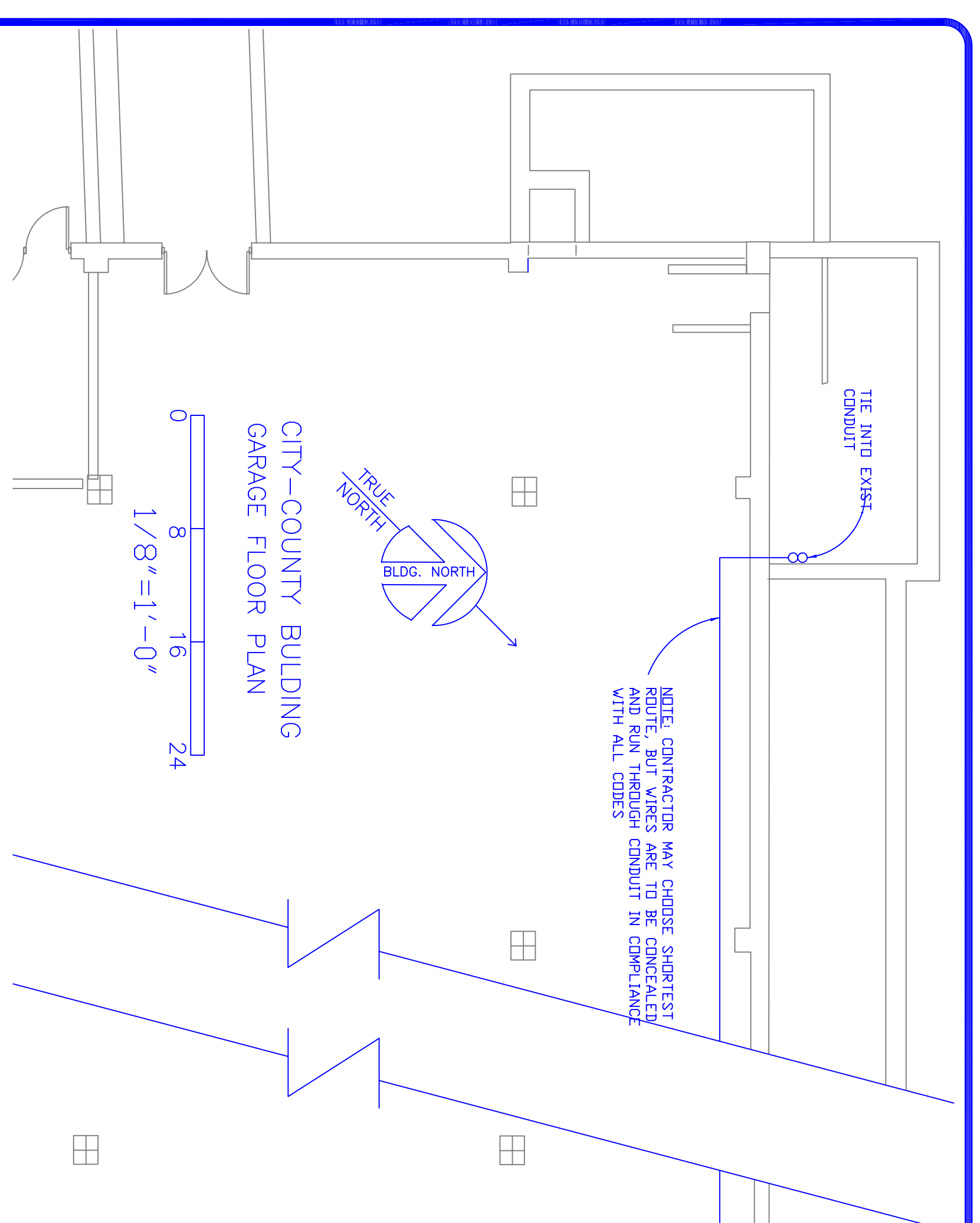
DP
CITY

400A 208/120V 3ph
w/ 400A. Main
Brkr
DISTRIBUTION
PANEL

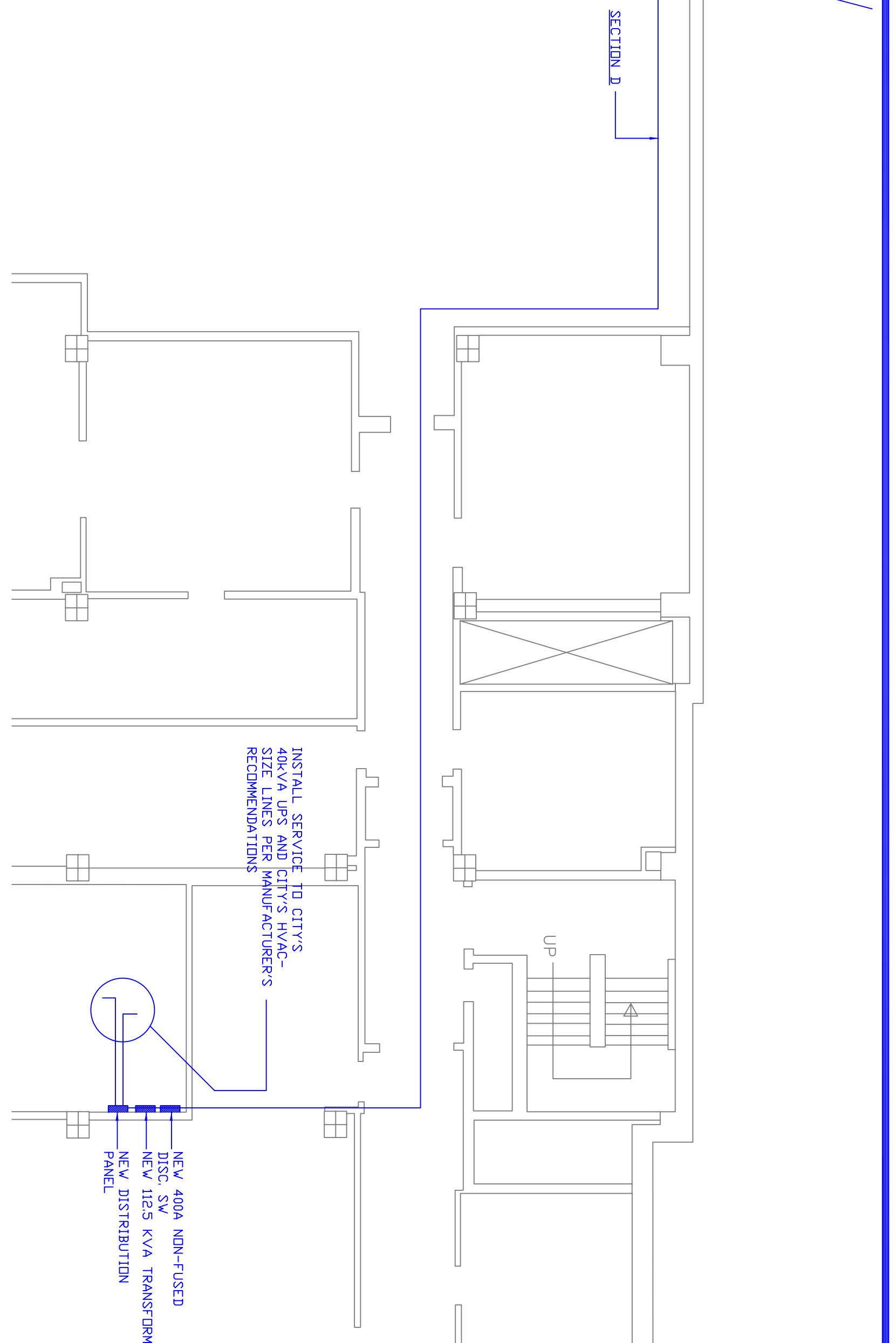
MIN. 10KAIC

Diagram 1 - Electrical Schematic

WEST DOTY STREET

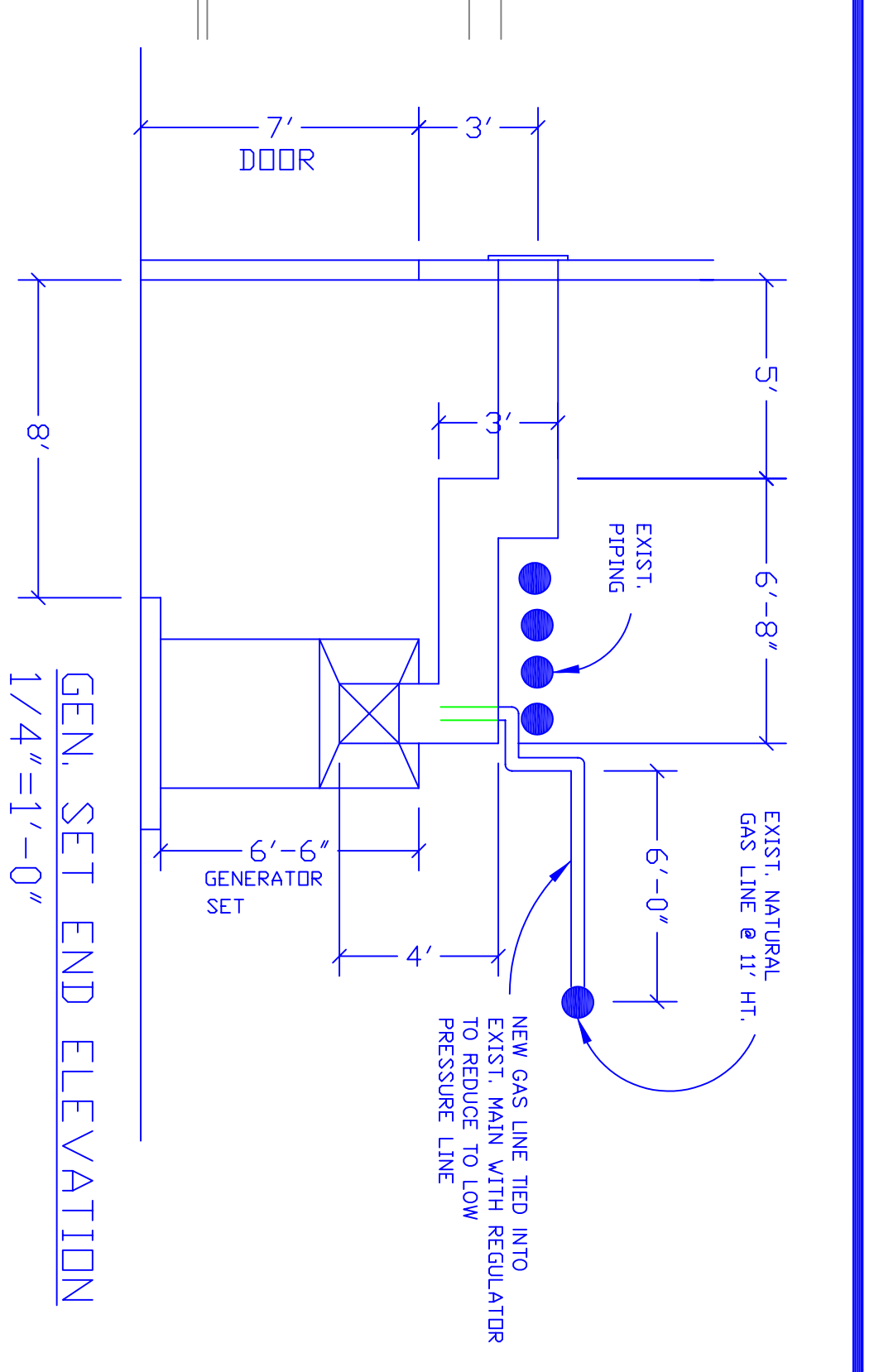


NOTE: CONTRACTOR MAY CHOOSE SHORTEST ROUTE, BUT WIRES ARE TO BE CONCEALED WITH ALL CODES



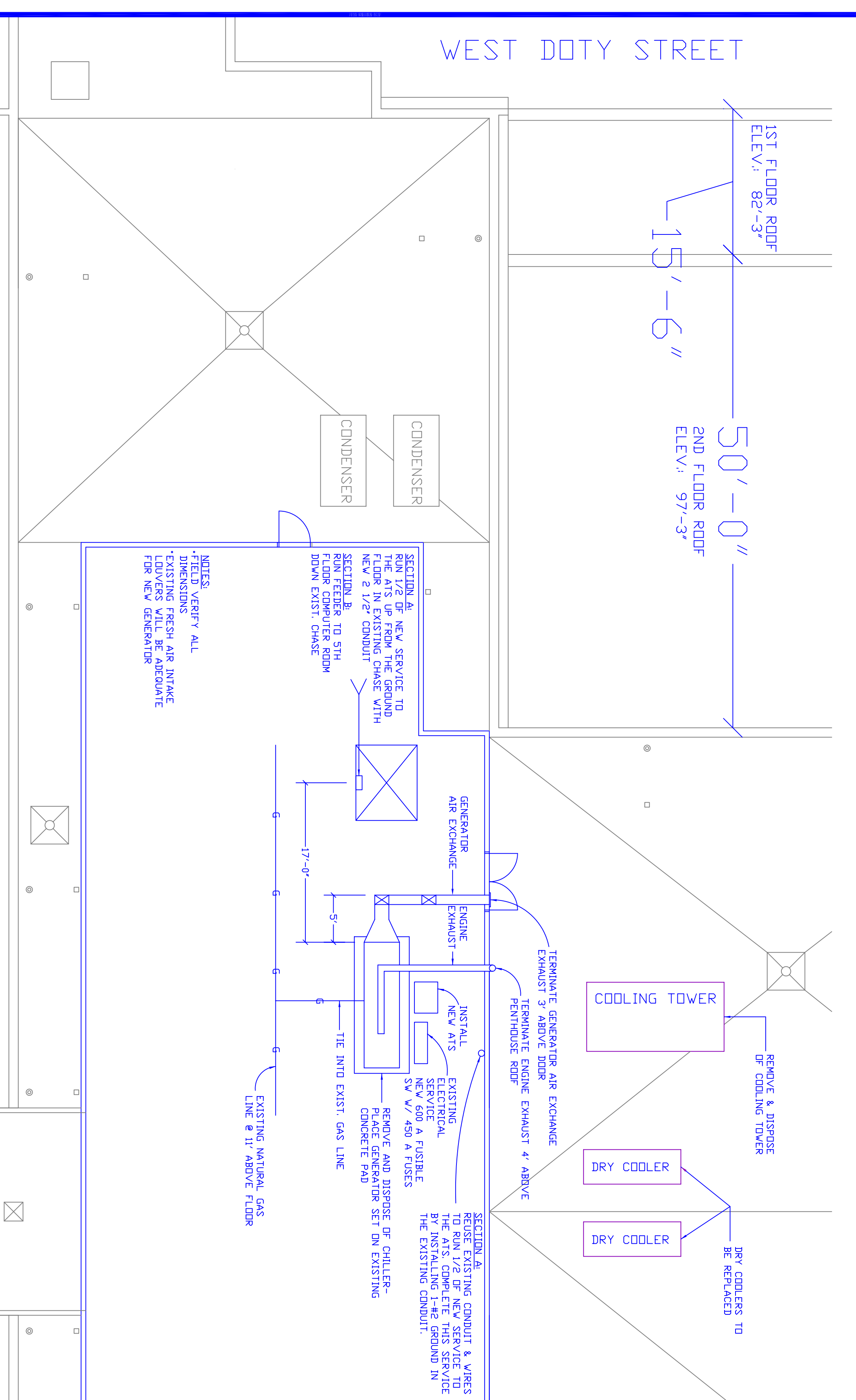
INSTALL SERVICE TO CITY'S OKAYA UPS AND CITY'S HVAC-SECTION AFTER MANUFACTURERS' RECOMMENDATIONS

NEW 400A NON-FUSED DISC. SW NEW 1125 KVA TRANSFORMER NEW DISTRIBUTION PANEL



EXIST. NATURAL GAS LINE 8" I.D. HT. NEW GAS LINE TIED INTO EXIST. MAIN WITH REGULATOR TO REDUCE TO LOW PRESSURE LINE

GEN. SET END ELEVATION 1/4"=1'-0"



1ST FLOOR ROOF ELEV.: 82'-3"

2ND FLOOR ROOF ELEV.: 97'-3"

REMOVE & DISPOSE OF COOLING TOWER

BUY COLLARS TO BE REPLACES TO

TERMINATE GENERATOR AIR EXCHANGE EXHAUST 3' ABOVE DOOR

TERMINATE ENGINE EXHAUST 4' ABOVE PENHOUSE ROOF

REMOVE AND DISPOSE OF CHILLER-EXISTING CONDUIT & WIRES THE AT'S COMPLETE THIS SERVICE BY INSTALLING 1-1/2" CONDUIT IN

SECTION A: NEW SERVICE TO RUN UP FROM PENHOUSE FLOOR IN EXISTING CHASE WITH NEW 2 1/2" CONDUIT

SECTION B: RUN FEEDER TO 5TH FLOOR COMPUTER ROOM DOWN EXIST. CHASE

CONDENSER

CONDENSER

CONDENSER

CONDENSER

CONDENSER

NOTES:
-FIELD VERIFY ALL DIMENSIONS
-EXISTING FRESH AIR INTAKE COVERS WILL BE RELOCATED FOR NEW GENERATOR

GENERATOR AIR EXCHANGE

ENGINE EXHAUST

INSTALL NEW ATS EXISTING ELECTRICAL NEW 600 A FUSIBLE SW V/ 450 A FUSES

REMOVE AND DISPOSE OF CONCRETE PAD

TIE INTO EXIST. GAS LINE

EXISTING NATURAL GAS LINE 8" I.D. ABOVE FLOOR

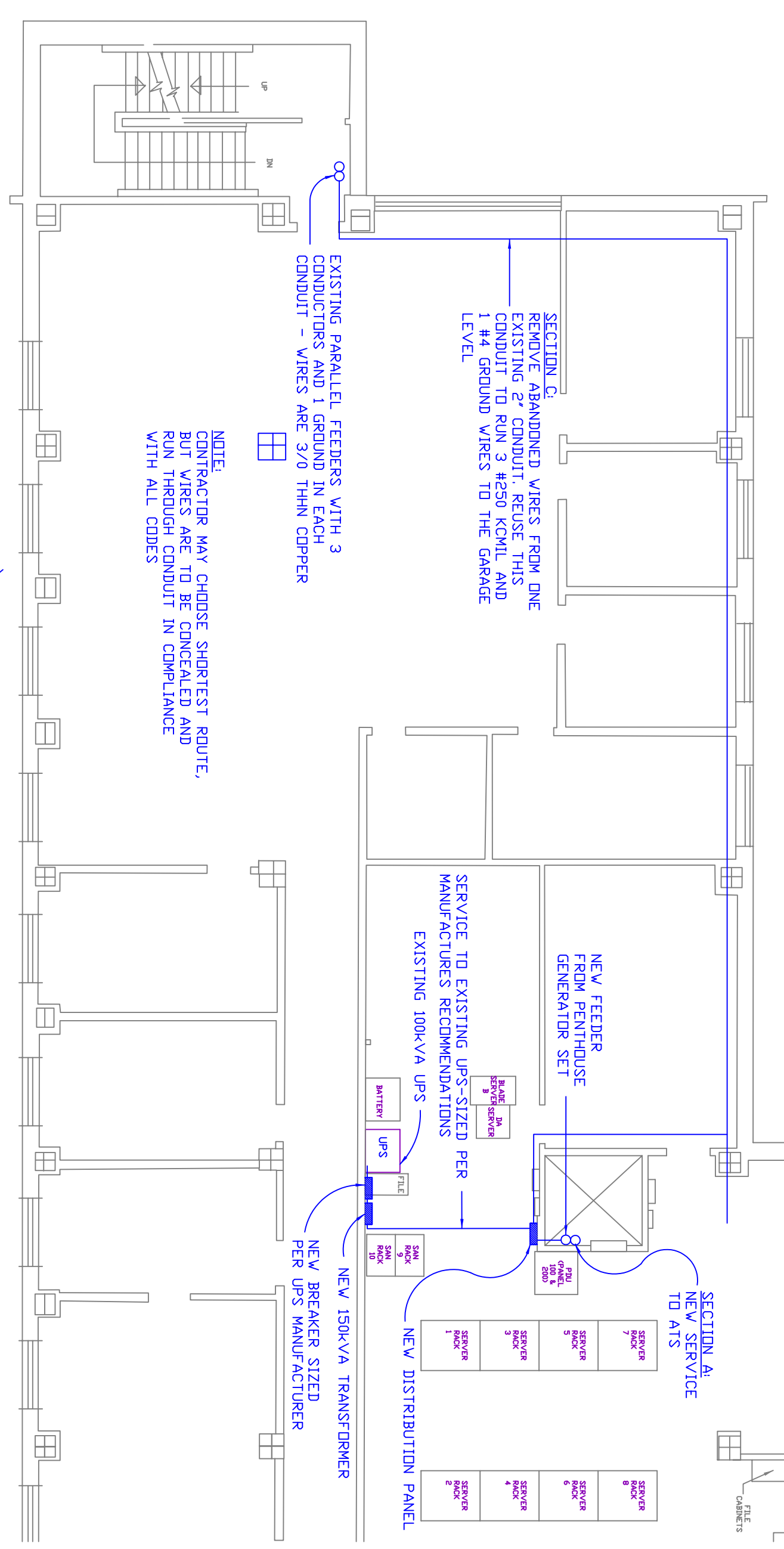
SECTION A: REUSE EXISTING CONDUIT & WIRES THE AT'S COMPLETE THIS SERVICE BY INSTALLING 1-1/2" CONDUIT IN

SECTION B: RUN FEEDER TO 5TH FLOOR COMPUTER ROOM DOWN EXIST. CHASE

CONDENSER

CONDENSER

CONDENSER



EXISTING PARALLEL FEEDERS WITH 3 CONDUCTORS AND 1 GROUND IN EACH CONDUIT - WIRES ARE 3/0 THIN COPPER

SECTION C: REMOVE ABANDONED WIRES FROM ONE EXISTING 3" CONDUIT REUSE THIS EXISTING 3" CONDUIT TO THE GARAGE LEVEL 1 #4 GROUND WIRES TO THE GARAGE

NEW FEEDER FROM PENHOUSE GENERATOR SET

SERVICE TO EXISTING UPS-SIZED PER MANUFACTURER'S RECOMMENDATIONS

EXISTING 100KVA UPS

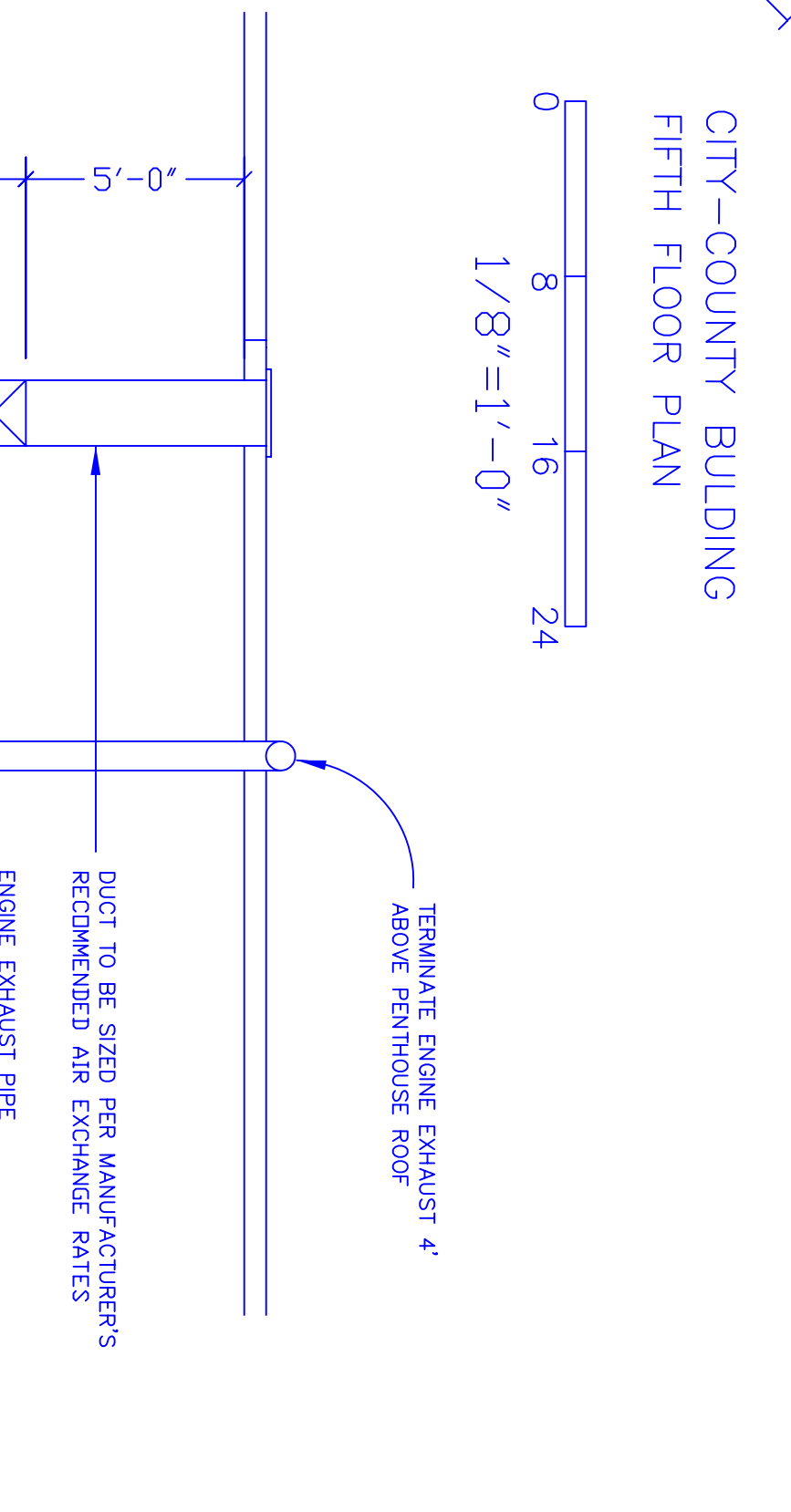
NEW 150KVA TRANSFORMER

NEW BREAKER SIZED PER UPS MANUFACTURER

NOTE: CONTRACTOR MAY CHOOSE SHORTEST ROUTE, BUT WIRES ARE TO BE CONCEALED AND RUN THROUGH CONDUIT IN COMPLIANCE WITH ALL CODES

CITY-COUNTY BUILDING FIFTH FLOOR PLAN 1/8"=1'-0"

TERMINATE ENGINE EXHAUST 4' ABOVE PENHOUSE ROOF



DUCT TO BE SIZED PER MANUFACTURER'S RECOMMENDED AND EXCHANGE RATES TO BE 4" I.D.

ENGINE EXHAUST PIPE

GEN. SET PLAN VIEW 1/4"=1'-0"

Revisions

Approved By: JFS

Design By: JFS

Drawn By: JRL

Scale: AS NOTED

Date: 2/08/08

Bid No: 108019

DEPARTMENT OF PUBLIC WORKS
DANE COUNTY WISCONSIN

IT AIR COND./GENERATOR SET
CITY/COUNTY BUILDING
210 MLK JR. BLVD
MADISON, WISCONSIN

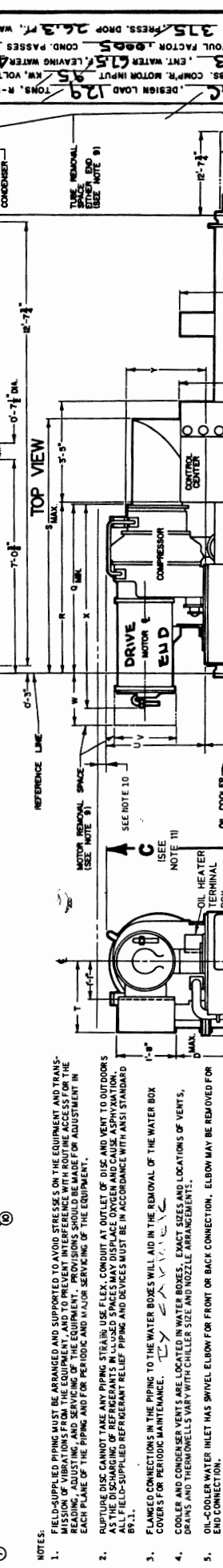
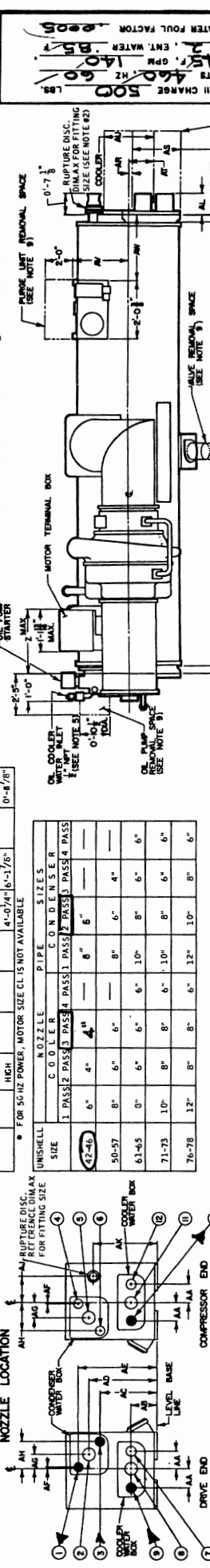
Sheet 1 of 1

UNISHELL COMPRESSOR MOTOR

VESEL	NOZZLE	1 PASS	2 PASS	3 PASS	4 PASS	5 PASS	6 PASS	7 PASS	8 PASS	9 PASS	10 PASS	11 PASS	12 PASS	13 PASS	14 PASS	15 PASS	16 PASS	17 PASS	18 PASS	19 PASS	20 PASS
42-46	11-38	13-9 1/2	15-7 1/2	17-5 1/2	19-3 1/2	21-1 1/2	22-9 1/2	23-7 1/2	24-5 1/2	25-3 1/2	26-1 1/2	26-11 1/2	27-9 1/2	27-7 1/2	28-5 1/2	28-3 1/2	29-1 1/2	29-11 1/2	30-9 1/2	30-7 1/2	31-5 1/2
50-57	11-66	15-9 1/2	17-7 1/2	19-5 1/2	21-3 1/2	23-1 1/2	23-11 1/2	24-9 1/2	24-7 1/2	25-5 1/2	25-3 1/2	26-1 1/2	26-11 1/2	27-9 1/2	27-7 1/2	28-5 1/2	28-3 1/2	29-1 1/2	29-11 1/2	30-9 1/2	30-7 1/2
61-65	11-98	15-9 1/2	17-7 1/2	19-5 1/2	21-3 1/2	23-1 1/2	23-11 1/2	24-9 1/2	24-7 1/2	25-5 1/2	25-3 1/2	26-1 1/2	26-11 1/2	27-9 1/2	27-7 1/2	28-5 1/2	28-3 1/2	29-1 1/2	29-11 1/2	30-9 1/2	30-7 1/2
71-73	41-98	15-10 3/8	17-8 1/8	19-6 1/8	21-4 1/8	23-2 1/8	23-12 1/8	24-10 1/8	24-8 1/8	25-6 1/8	25-4 1/8	26-2 1/8	26-12 1/8	27-10 1/8	27-8 1/8	28-6 1/8	28-4 1/8	29-2 1/8	29-12 1/8	30-10 1/8	30-8 1/8
76-78	41-98	15-10 3/8	17-8 1/8	19-6 1/8	21-4 1/8	23-2 1/8	23-12 1/8	24-10 1/8	24-8 1/8	25-6 1/8	25-4 1/8	26-2 1/8	26-12 1/8	27-10 1/8	27-8 1/8	28-6 1/8	28-4 1/8	29-2 1/8	29-12 1/8	30-10 1/8	30-8 1/8

NOZZLE ARRANGEMENTS - F L A H G

VESEL	NOZZLE	1 PASS	2 PASS	3 PASS	4 PASS	5 PASS	6 PASS	7 PASS	8 PASS	9 PASS	10 PASS	11 PASS	12 PASS	13 PASS	14 PASS	15 PASS	16 PASS	17 PASS	18 PASS	19 PASS	20 PASS
42-46	11-38	13-9 1/2	15-7 1/2	17-5 1/2	19-3 1/2	21-1 1/2	22-9 1/2	23-7 1/2	24-5 1/2	25-3 1/2	26-1 1/2	26-11 1/2	27-9 1/2	27-7 1/2	28-5 1/2	28-3 1/2	29-1 1/2	29-11 1/2	30-9 1/2	30-7 1/2	31-5 1/2
50-57	11-66	15-9 1/2	17-7 1/2	19-5 1/2	21-3 1/2	23-1 1/2	23-11 1/2	24-9 1/2	24-7 1/2	25-5 1/2	25-3 1/2	26-1 1/2	26-11 1/2	27-9 1/2	27-7 1/2	28-5 1/2	28-3 1/2	29-1 1/2	29-11 1/2	30-9 1/2	30-7 1/2
61-65	11-98	15-9 1/2	17-7 1/2	19-5 1/2	21-3 1/2	23-1 1/2	23-11 1/2	24-9 1/2	24-7 1/2	25-5 1/2	25-3 1/2	26-1 1/2	26-11 1/2	27-9 1/2	27-7 1/2	28-5 1/2	28-3 1/2	29-1 1/2	29-11 1/2	30-9 1/2	30-7 1/2
71-73	41-98	15-10 3/8	17-8 1/8	19-6 1/8	21-4 1/8	23-2 1/8	23-12 1/8	24-10 1/8	24-8 1/8	25-6 1/8	25-4 1/8	26-2 1/8	26-12 1/8	27-10 1/8	27-8 1/8	28-6 1/8	28-4 1/8	29-2 1/8	29-12 1/8	30-10 1/8	30-8 1/8
76-78	41-98	15-10 3/8	17-8 1/8	19-6 1/8	21-4 1/8	23-2 1/8	23-12 1/8	24-10 1/8	24-8 1/8	25-6 1/8	25-4 1/8	26-2 1/8	26-12 1/8	27-10 1/8	27-8 1/8	28-6 1/8	28-4 1/8	29-2 1/8	29-12 1/8	30-10 1/8	30-8 1/8



NOTES:

1. FIELD-SUPPLIED REFRIGERANT RELIEF PIPING AND DEVICES MUST BE IN ACCORDANCE WITH ANSI STANDARD B31.1.
2. RUPTURE DISC: CANNOT TAKE ANY PIPING STRESS. USE FLEX. CONDUIT AT OUTLET OF DISC AND VENT TO OUTDOORS AS THE DISCHARGING OF REFRIGERANT'S MIXTURES MAY DISPLACE OXYGEN AND CAUSE ASPHYXIAATION. ALL FIELD-SUPPLIED REFRIGERANT RELIEF PIPING AND DEVICES MUST BE IN ACCORDANCE WITH ANSI STANDARD B31.1.
3. FLANGED CONNECTIONS IN THE PIPING TO THE WATER BOXES WILL AID IN THE REMOVAL OF THE WATER BOX COVERS FOR PERIODIC MAINTENANCE.
4. COOLER AND CONDENSER VENTS ARE LOCATED IN WATER BOXES. EXACT SIZES AND LOCATIONS OF VENTS, DRAINS AND THERMOWELLS VARY WITH CHILLER SIZE AND NOZZLE ARRANGEMENTS.
5. OIL-COOLER WATER INLET HAS SWIVEL ELBOW FOR FRONT OR BACK CONNECTION. ELBOW MAY BE REMOVED FOR END CONNECTION.
6. DIMENSION "X" IS OVERALL CHILLER LENGTH WITH NOZZLES ON DRIVE END AND NOT INCLUDING RUPTURE DISC. DIMENSION "Y" IS OVERALL CHILLER LENGTH WITH NOZZLES ON COMPRESSOR END AND NOT INCLUDING RUPTURE DISC. DIMENSION "Z" IS OVERALL CHILLER LENGTH WITH NOZZLES ON COMPRESSOR END AND INCLUDING RUPTURE DISC. DIMENSION "A" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "B" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "C" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "D" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "E" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "F" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "G" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "H" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "I" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "J" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "K" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "L" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "M" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "N" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "O" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "P" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "Q" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "R" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "S" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX. DIMENSION "T" IS OVERALL HEIGHT TO TOP OF MOTOR TERMINAL BOX.
7. BASIC INSULATION IS FACTORY APPLIED AS STANDARD TO COMPRESSOR MOTOR, COMPRESSOR MOTOR COOLING PIPING BY MECHANICAL CONTRACTOR.
8. FOR ISOLATION PACKAGE AND GROUTING DETAILS, REFER TO DWG. 19DK-203-1.
9. SERVICE ACCESS SHOULD BE PROVIDED PER ANSI STANDARD B9.1, NFPA 70 (NEC) AND LOCAL SAFETY CODES. CLEAR SPACE AROUND INSPECTION, SERVICING, AND RIGGING OF ALL MAJOR COMPONENTS OF THE CHILLER IS REQUIRED. SUPPLEMENTARY INFORMATION APPLIED TO COOLER, SECTION ELBOW, AND MISCELLANEOUS PIPING BY MECHANICAL CONTRACTOR.
10. FOR EASE OF SERVICABILITY ALLOW 30-40 INCHES CLEARANCE.
11. FOR DIMENSION "C" - OVERALL HEIGHT) ADD DIMENSIONS "M" AND "U"

CHILLER SIZE: 19DK4213AC

DESIGN LOAD: 129 TONS, R-11 CHARGE

APPROX. OPER. WT. 9110 LBS. COMP. MOTOR INPUT 460 HZ

PHASE 3 COOLER PASSES 3 ENT. WATER 140 GPM

LEAVING WATER 95 F. OPM 375 PRESS. DROP 26.3 FT. WATER FOUL FACTOR 2.005

ENTER. WATER 100.5 F. COND. PASSES 3 ENT. WATER 140 GPM

CHILLER SIZE: 19DK4213AC

DESIGN LOAD: 129 TONS, R-11 CHARGE

APPROX. OPER. WT. 9110 LBS. COMP. MOTOR INPUT 460 HZ

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