

City of Mentor

BID SET

2014 Municipal Center HVAC Upgrades

**City of Mentor
January 2014**

CITY OF MENTOR OFFICIALS

ADMINISTRATION

Kenneth J. Filipiak, City Manager

David W. Malinowski, Finance Director

Richard A. Hennig, Law Director

David A. Swiger, City Engineer

Matthew Schweikert, Director of Public Works

Robert Martin, Director of Parks, Recreation and Public Facilities

Ronald Traub, Economic and Community Development Director

Kevin Knight, Chief of Police

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Robert M. Shiner

Elizabeth A. Limestahl, Clerk

ADVERTISEMENT FOR BIDS/PUBLIC NOTICE TO BIDDERS

Sealed proposals will be received at the Purchasing Department, City of Mentor, 8500 Civic Center Boulevard, Mentor, Ohio until 12 noon on January 13, 2014 and will be opened and read immediately thereafter for the following project:

2014 City of Mentor – Municipal Center HVAC Upgrades

COMPLETION DATE: Negotiable 2014

Bids must be in accordance with specifications advertised on the City of Mentor website: www.cityofmentor.com/category/rfp or RFP's will be available for pick-up at the Purchasing Office. The bidder shall be responsible to check for Addenda and obtain same from the website.

BY ORDER OF

Kenneth J. Filipiak, City Manager

Publish: *News-Herald*

December 30, 2013

January 6, 2014

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SECTION 1
BID DOCUMENTS AND BID FORMS

INTRODUCTORY MEMORANDUM

December 30, 2013

RE: Invitation to Bid: City of Mentor – Municipal Center HVAC Upgrades

The City of Mentor is requesting Bids for a Design/Build Contract involving the replacement of portions of the existing building heating and cooling system with new boilers, chiller, packaged rooftop HVAC equipment, air handler refurbishing and related ancillary systems/equipment at the Mentor Municipal Center located at 8500 Civic Center Boulevard, Mentor, Ohio. The HVAC systems will be serving the existing adjoined the City of Mentor's Administration, Police, and Court Buildings.

Following internal investigations by the City of Mentor and their consultants in identifying the current needs, the preferred systems, equipment capacities, manufacturers and vendors are identified on the Design/Build Drawings and Performance Specifications herein. The Drawings, Equipment Schedules/Scope and Specifications reflect "Criteria" for a final Design/Build package from qualified bidders that shall include a complete design, installation, a one (1) year service warranty (parts & labor) and a one (1) year Commissioning Contract.

The Project shall be bid and awarded with intentions of the Mechanical being the "Prime Design/Build Contractor". There is also resulting general/structural (to be verified) and electrical work as implied on the Drawings and Specifications for the new mechanical systems that must be included within the Base Bid.

The contact documents as prepared by the City of Mentor reference the 2007 "Engineers Joint Contract Documents Committee" (EJCDC). The following documents shall be prepared by the Contractor apply with consideration to the Owner's Instruction to Bidders, Owner's Terms and Conditions and all stipulations. The Contractor will be required to prepare and "draft" Design/Build Contract to be included with the Bid. Acceptable forms will include American Institute of Architects (A.I.A.), Design Build Institute of America (DBIA)

The Police Building work will consist of replacing the existing boiler with new minimum 96% efficient rated boilers that provides hydronic heat to the building's existing air handlers and existing Variable Air Volume with Reheat terminal units (VAVRH). Included is the installation of a new central chiller plant to serve the Police, and a portion of the Court buildings. New packaged high-efficiency rooftop unit replacements are included. Scope includes connecting all new HVAC controls to the existing Direct Digital Control (DDC) Building Automation System (BAS) and host software.

The Administration Building work will consist of replacing the existing boilers with a with new minimum 96% efficient rated boilers that currently supplies space hydronic heating water to the existing perimeter baseboard system as well as to the building's existing air handlers (one of which is a constant volume hot/cold deck air handler) that is currently serving the existing Constant Volume Dual Duct terminal units (CVDD) slated to be replaced as future projects.

The air handler refurbishing work will also include the installation of a new DX cooling coil and condensing units on the roof directly above.

The existing Direct Digital Controls (DDC) building automation controls system is a Schneider Electric I/A Series BACNET with Niagara Framework and Building Host Software as installed and serviced by Wadsworth Slawson Northeast. The DDC controls systems are to be expanded and extended to service the new boilers, chiller, rooftop HVAC units, air handlers and pumping systems.

It is mandatory that the bidder coordinate with the City of Mentor's operating schedule in cooperation with the City in order to minimize the facility's operations downtime. All work is to be coordinated with and through the City of Mentor; their Facility Manager, Project Managers and Maintenance Departments.

Per the project criteria Drawings and Specifications, all equipment shall be made entirely in America with vendor written verification of County of Origin in compliance. Products utilized in this project must be manufactured in the United States and must be more than 50 percent US fabricated, assembled, materials, components, and parts to be considered "made in the USA". Contractor must accept terms, conditions and reporting requirements to the City of Mentor.

The Bid Package is also available CD/DVD disc format through the City of Mentor's Purchasing Department. The Bid Package will provide all Contract Documents (Bid Packet, Bid Forms, Alternate Bid Form) as well as of new and existing Drawings with plans, details, equipment schedules, notes and performance based short-form drawing Specifications. If, and as required, any Addendums will be processed a minimum of 48 hours prior to the bid deadline listed below.

Bids must be received no later than 12:00 PM on **Monday, January 13, 2014** at the City of Mentor's Department of Finance.

Please contact Robert Zaluski with any other questions, comments and/or concerns regarding this project. We appreciate your time and look forward to reviewing your Bid.

Robert Zaluski – Facility Manager
City of Mentor, Ohio
Office Telephone: (440) 974-5781 (Ext 2613)
Email: zaluski@cityofmentor.com

FORM OF NONCOLLUSION AFFIDAVIT

STATE OF _____)

) SS

COUNTY OF _____)

_____, being first duly sworn, deposes and says that he/she
(Individual Name)

is _____ of _____ the party making the
(Sole Owner, Partner, President, Secretary, etc.) (Corporation Name)

proposal or bid; that such bid is genuine and not collusive or sham; that said Bidder has not colluded, conspired, connived, or agreed, directly or indirectly with any Bidder or person, to put in a sham bid, or that such other person shall refrain from bidding, and has not in any manner, directly or indirectly sought by agreement or collusion or communication or conference, with any person, to fix the bid price of affiant or any other Bidder, or to fix any overhead, profit, or cost element of said Bid price, or of that of any other Bidder, or to secure any advantage against the Owner, or any person interested in the proposed Contract; and that all statements contained in said proposal or bid are true; and further, that such Bidder has not, directly or indirectly submitted this Bid, or the contents thereof, or divulged information or data relative thereto to any association or to any member or agent thereof.

Affiant

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

Notary Public

My Commission Expires: _____

CORPORATE RESOLUTION

I, _____,
(Individual Name)

Secretary of _____ an _____ Corporation
(Corporation Name) (State)

hereby certify that the Board of Directors of said Corporation on the _____ day of _____, 20____, adopted a resolution authorizing the _____ of this
(Corporation Title, i.e., President, Vice President, etc.)

Company, namely, _____, to sign bid proposals, sign and
(Individual Name)

enter into any and all contracts and other instruments, sign and/or authorize bid guaranty and performance bonds for the purpose of furnishing labor and materials at such price and upon such terms and conditions, including any amendments or modifications thereto, as said _____ in his sole discretion shall deem best, and that said actions

(Corporation Title, ie., President, Vice President, etc.)
shall be binding upon the Corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Corporation at _____, _____ this _____ day
(City) (State)
of _____, 20____, and I further certify that said resolution is still in full force and effect.

Corporate Secretary

SUPPLEMENTAL BOND ACKNOWLEDGEMENT

PROJECT: _____

OWNER: _____

If the bidder submits a Bid Guaranty and Contract Bond (AKA Rollover or Bid/ Performance/ Payment/ Warranty Bond) per O.R.C. Sections 153.54 and 153.571 the following shall be completed, signed, and submitted with the bid:

By submission of the attached bid and these presents, the undersigned bidder and his surety hereby acknowledge that the attached bond shall cover and warrant all work for the correction period per Section 13.07 of the General Conditions and as supplemented or amended elsewhere in these Contract Documents, which period is _____ year(s) commencing on the final acceptance of the work by Owner. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the project or part of the project is located and shall be instituted within one year from the last day of the correction period under the project or within one year after the Surety refuses or fails to perform its obligations under this Bond, whichever first occurs.

BIDDER

SURETY

SIGNATURE: _____	SIGNATURE: _____
NAME: _____	NAME: _____
TITLE: _____	TITLE: _____
DATE: _____	DATE: _____

*Attach Power of Attorney

If the Bidder submits a Certified or Cashier's check, Irrevocable Letter of Credit and is awarded a contract by the Owner, the following shall be completed, signed, and submitted with the Contract Performance/Payment/Warranty Bond per ORC Sections 153.54 and 153.57.

By signature of the attached Contract and these presents the undersigned contractor and his surety acknowledge that the attached Bond shall cover and warrant all work for the correction period per Section 13.07 of the General Conditions and as supplemented or amended elsewhere in these Contract Documents, which period is _____ year(s) commencing on the final acceptance of the work by Owner. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the project or part of the project is located and shall be instituted within one year from the last day of the correction period under the project or within one year after the Surety refuses or fails to perform its obligations under this Bond, whichever first occurs.

BIDDER

SURETY

SIGNATURE: _____	SIGNATURE: _____
NAME: _____	NAME: _____
TITLE: _____	TITLE: _____
DATE: _____	DATE: _____

*Attach Power of Attorney

PROPOSED SUBCONTRACTORS

The Bidder is required to state in the spaces provided below, the Subcontractors he proposes to use to accomplish the work under this Contract. The items and specific amounts of work assigned to each listed Subcontractor shall also be outlined. Duplicate this sheet as needed.

1. Name: _____
Address: _____
City/State/Zip: _____
Description: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____

2. Name: _____
Address: _____
City/State/Zip: _____
Description: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____

3. Name: _____
Address: _____
City/State/Zip: _____
Description: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____

4. Name: _____
Address: _____
City/State/Zip: _____
Description: _____
Phone: () _____ Amount: \$ _____ % of Contract: _____

EXPERIENCE RECORD

The Bidder is required to state the character of previous work, give references, and such other detailed information as will enable the Owner to determine capability, responsibility, experience, skill, and financial standing. Provide data for the last five (5) years. Duplicate this sheet as needed. **Information submitted in an alternate format MUST contain all the information requested on this page.**

Project Name: _____

Description/Scope of Bidder's Work: _____

On this project you were a _____ Prime Contractor **OR** _____ Sub Contractor

Total Project Cost : \$ _____ Bidder's Contract or
Subcontract Amount: \$ _____

% Complete (if in progress): _____ % or Date Completed (if complete): _____

Project Owner: _____

Contact Person: _____ Phone: () _____

Engineer/Arch. Firm: _____

Contact Person: _____ Phone: () _____

Bonding Company: _____

Project Name: _____

Description/Scope of Bidder's Work: _____

On this project you were a _____ Prime Contractor **OR** _____ Sub Contractor

Total Project Cost : \$ _____ Bidder's Contract or
Subcontract Amount: \$ _____

% Complete (if in progress): _____ % or Date Completed (if complete): _____

Project Owner: _____

Contact Person: _____ Phone: () _____

Engineer/Arch. Firm: _____

Contact Person: _____ Phone: () _____

Bonding Company: _____

Project Name: _____

Description/Scope of Bidder's Work: _____

On this project you were a _____ Prime Contractor **OR** _____ Sub Contractor

Total Project Cost : \$ _____ Bidder's Contract or
Subcontract Amount: \$ _____

% Complete (if in progress): _____ % or Date Completed (if complete): _____

Project Owner: _____

Contact Person: _____ Phone: () _____

Engineer/Arch. Firm: _____

Contact Person: _____ Phone: () _____

Bonding Company: _____

BID SECURITY

**CONTRACTOR SHALL STAPLE ONE OF THE FOLLOWING FORMS
OF BID SECURITY TO THE FRONT OF THIS PAGE AND
SUBMIT WITH THE BID.**

CERTIFIED OR CASHIER'S CHECK FOR 10% OF THE AMOUNT BID

OR

IRREVOCABLE LETTER OF CREDIT FOR 10% OF THE AMOUNT BID

OR

**BOND (BID/PERFORMANCE/PAYMENT" BOND, a.k.a., "ROLLOVER BOND") FOR
100% OF THE AMOUNT BID PER ORC SECTIONS 153.54 AND 153.571**

STATEMENT OF BIDDER QUALIFICATIONS

BIDDER NAME (print/type): _____

BIDDER ADDRESS: _____

BIDDER CONTACT: _____

BIDDER PHONE NUMBER: _____

BIDDER FAX NUMBER: _____

BIDDER E-MAIL: _____

Federal Tax Identification Number: _____

State Tax Identification Number: _____

BID PRICE SUMMARY FORM

ITEM #1 – Police and Administration Building Condensing boilers, venting, related pumps and accessories and DDC interface to building controls.

\$ _____

ITEM #2 – Police Building Chiller System including related structural and general work (i.e. excavations, concrete pad work), related piping, pumps, specialties' pump controllers and DDC interface to building controls.

\$ _____

ITEM #3 – Administration Building air handler refurbishing, new cooling coil, rooftop condensers, refrigeration piping, related controllers and DDC interface to building controls.

\$ _____

ITEM #4 – Packaged rooftop equipment, related curbs, ducting and DDC interface to building controls.

\$ _____

GRAND TOTAL ITEMS #1 THRU #4 \$ _____

Submitted by

Firm, Corporation, or Individual Officers Name and Title Telephone

Street Address Officers Signature Fax Number

City, State, Zip Code Date E-Mail Address

Note: Evidence of authority to sign and the corporate seal must be affixed and attested by Secretary.

COMPLETION DATE: _____, 2014

LIQUIDATED DAMAGES: \$500.00 PER DAY.

SECTION 2
CONTRACT FORMS

NOTICE OF AWARD

**PROJECT DESCRIPTION: City of Mentor Municipal Center HVAC
Upgrades**

You are notified that your Bid, opened on _____, 2014 has been accepted for items in the amount of \$ _____.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Bonds, Certificates of Insurance and other documents within ten (10) calendar days from the date of this Notice.

Failure to comply with these conditions within the time specified will entitle the Owner to consider your Bid in default, to annul this Notice of Award and to declare your Bid Security forfeited.

The Owner will return to you one (1) fully signed copy of the contract documents.

ACKNOWLEDGMENT OF AWARD

OWNER: City of Mentor

CONTRACTOR:

As per Ordinance No. _____

Date: _____

CONTRACT

FOR: **City of Mentor Municipal Center HVAC Upgrades**

THIS AGREEMENT made and entered into at Mentor, Ohio, this ___ day of _____, _____ by and between The City of Mentor, OWNER, and _____ (a corporation, partnership or individual), CONTRACTOR.

WITNESSETH: That the said CONTRACTOR has agreed and by this presents does agree with the OWNER for the consideration hereinafter mentioned and contained, and under penalty expressed in a bond bearing even date with these presents, and herein contained or hereunto annexed, to furnish at his own cost and expense, all the necessary tools, materials, labor and tests in an expeditious, substantial and workmanlike manner, the equipment and appurtenances herein contemplated, commencing work within 20 days from the date of the Notice to Proceed and executing the work within the time and in the manner specified and in conformity with the requirements set forth in this Contract.

ARTICLE 1 - WORK

- 1.01 Design/Builder shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:
- A. Design and replacement of Municipal Complex's boilers, chiller, rooftop condensers and packaged rooftop HVAC units. Project also consists of the refurbishing of an existing nominal 100 ton dual-duct air handler, related condenser replacement and extending new direct digital controls to all new and refurbished equipment.

ARTICLE 2 – THE PROJECT

- 2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:
- A. Provide preliminary mechanical and electrical design drawings and equipment schedules for review.
 - B. Provide complete engineered design/build drawing and specifications with appropriate Design Professional Registration to Owner for final review and Building Department reviews.
 - C. Provide demolition of existing equipment and controls being replaced.
 - D. Install new boilers, pumps, related piping and controls.
 - E. Install new Police Building chiller, remote evaporator, related piping and controls.
 - F. Install new packaged rooftop HVAC units.
 - G. Refurbish existing 100 ton dual-duct air handler.
 - H. Electrical related work for all new equipment.

- I. Extend existing DDC controls system to new equipment; interface controls and graphics into existing host computer system.
- J. Air and water systems certified balancing.
- K. One year warranty and commission.
- L. Optional additional one year warranty.

ARTICLE 3 – ENGINEER

- 3.01 The Project criteria has been developed by Bellman Design Services Co. which is to act as Owner’s Representative and have the rights and authority assigned to oversee the Architect/Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Days to Achieve Substantial Completion and Final Payment*

- A. The Work will be substantially completed within ____ days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within ____ days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner \$ for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500.00 for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

- B. If failure to reach a Milestone on time is of such consequence that the assessment of liquidated damages for failure to reach one or more Milestones on time is to be provided, appropriate amending or supplementing language to be stipulated by the contractor as follows:

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

- A. For all Work other than Unit Price Work, a lump sum of: \$ All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.
- B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item:

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
1	Professional Design Services			\$	\$
2	Boilers, Pumps & Piping			\$	\$
3	Chiller, Pumps & Piping			\$	\$
4	Rooftop HVAC Units			\$	\$
5	Admin Bldg AHU Refurbish			\$	\$
6	Admin Bldg Condensing Units			\$	\$
7	Related Controls Work			\$	\$
8	Related Electrical Work			\$	\$
9	Air & Water Balancing			\$	\$
10	Extended Warranty Service			\$	\$

\$ _____

Total of all Bid Prices (Unit Price Work)

- C. The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions (EDJC Form #C700), estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

ARTICLE 6 – PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with the Owner’s Article 14 of the General Conditions (EDJC Form #C700). Applications for Payment will be processed by the Contractor, the Owner and his Representative(s) as provided in the General Conditions.
- B. The Contractor agrees that each individual employed by the Contractor or any Subcontractor and engaged in work on the project under this contract shall be paid by prevailing wage established by the Department of Industrial Relations of the State of Ohio or the U.S. Department of Labor (Davis-Bacon Act) as detailed in the section titled “Wage Rates”. This shall occur regardless of any contractual relationship that may be said to exist between the Contractor or any Subcontractor and such individual.

6.02.1 Progress Payments; Retainage

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor’s Applications for Payment on or about the ____ day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.
 - 2. _____ percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by the Engineer and/or Owner’s Representative, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

3. _____ percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to _____ percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less _____ percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – INTEREST

- 7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:
- A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all Criteria Drawings, Equipments Schedules, Specifications and physical conditions relating to existing systems and equipment.
 - E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Criteria in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor,

including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

- F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following:
 - 1. Advertisement for bids/Public Notice to Bidders;
 - 2. Instructions to Bidders;
 - 3. Bid Forms and Proposal;
 - 4. Contract Forms and Exhibits;
 - 5. Contract Bond – ORC 153.571 or ORC 153.57;
 - 6. Contract Provisions;
 - 7. General Conditions;
 - 8. Supplementary Conditions;
 - 9. Specifications;
 - 10. Specific Project Requirements;
 - 11. Prevailing Wage Rate Schedule;

12. Exhibits to this Agreement:

- a. Contractor's Bid;
- b. Documentation submitted by Contractor prior to Notice of Award.

13. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:

- a. Notice to Proceed;
 - b. Work Change Directives;
 - c. Preliminary drawings, equipments schedules and specifications;
 - d. Change Orders.
- B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:
 - 1. "Corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;
 - 2. "Fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "Collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
 - 4. "Coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

- A. The Owner's EJCDC C-700 Standard General Conditions of the Construction Contract shall be considered as part of the Contract along with all other Contract Documents.

- B. Other (*Contractor to specify*)

IN WITNESS THEREOF: The parties hereunto affixed their signature the day and year first mentioned above.

CONTRACTOR

BY: _____

OWNER

BY: _____

Kenneth J. Filipiak, City Manager

I hereby certify that funds in the amount of: _____ 00/100 Dollars
(\$ _____) necessary for the foregoing Contract have been appropriated and are in the Treasury, or in the process of collection, or are available through grants and/or loans from other funding sources.

BY: _____

David W. Malinowski, Director of Finance

APPROVED AS TO FORM:

BY: _____

Richard A. Hennig, Law Director

SAMPLE

**THE CONTRACTOR SHALL FURNISH THE FOLLOWING ITEMS
WITHIN 10 DAYS OF NOTIFICATION OF AWARD:**

- A) **CERTIFICATE OF INSURANCE FOR
CONTRACTOR'S PUBLIC LIABILITY INSURANCE POLICY**

- B) **CERTIFICATE OF INSURANCE FOR
OWNER'S AND CONTRACTOR'S PROTECTIVE POLICY**

- C) **CERTIFICATE OF WORKER'S COMPENSATION**

- D) **CONTRACT BOND THAT COMPLIES WITH ORC 153.54 AND 153.57**

* D above is not required if a bond complying with ORC 153.54 and 153.571 (rollover bond) was submitted at time of bid.

DELINQUENT PERSONAL PROPERTY STATEMENT

_____, having been awarded a contract by the City of Mentor, hereby affirms under oath, pursuant to Ohio Revised Code Section 5719.042, that at the time the bid was submitted, my company **was / was not** charged with delinquent personal property taxes on the General Tax List of Personal Property for Lake County, Ohio.

If such charge for delinquent personal property tax exists on the General Tax List of Personal Property for Lake County, Ohio, the amount of such due and unpaid delinquent taxes, including due and unpaid penalties and interest, shall be set forth below.

A copy of this statement shall also be incorporated into the Contract made between the City of Mentor and _____ and no payment shall be made with respect to any Contract unless such statement has been so incorporated as a part hereof.

Delinquent Personal Property Tax \$ _____

Penalties \$ _____

Interest \$ _____

Signed: _____
(Contractor)

Subscribed in my presence, and sworn to before me, this ____ day of _____, _____.

Signed: _____
(Notary Public)

NOTICE TO PROCEED

Project: **City of Mentor - Municipal Center HVAC Upgrades**

Owner: **City of Mentor**

To:

Date:

You are hereby notified to commence work in accordance with the Contract dated _____ . Final completion date: No later than _____ .

OWNER:

Kenneth J. Filipiak, City Manager

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____
_____ this the _____ day of _____, 2014.

By _____

Title _____

Completed copy of this Notice to Proceed will be sent to the Contractor's Surety and Surety's Agent.

SECTION 3
GENERAL CONDITIONS

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

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NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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**STANDARD GENERAL CONDITIONS OF THE
CONSTRUCTION CONTRACT**

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
 7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
 10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
 11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. does not conform to the Contract Documents; or
 - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
 3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 Delivery of Bonds and Evidence of Insurance

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 Copies of Documents

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 Commencement of Contract Times; Notice to Proceed

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
 - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 - 2. a preliminary Schedule of Submittals; and
 - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
 - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 1. A Field Order;
 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. reviewing and checking all such information and data;
 - b. locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price

or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 Performance, Payment, and Other Bonds

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 Licensed Sureties and Insurers

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 Certificates of Insurance

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
 - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
 - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
 - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
 3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. allow for partial utilization of the Work by Owner;
 6. include testing and startup; and
 7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. in the exercise of reasonable judgment Engineer determines that:
 - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) it has a proven record of performance and availability of responsive service.
 - b. Contractor certifies that, if approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) shall certify that the proposed substitute item will:
 - a) perform adequately the functions and achieve the results called for by the general design,
 - b) be similar in substance to that specified, and
 - c) be suited to the same use as that specified;
 - 2) will state:
 - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) will identify:
 - a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services; and

- 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
 - C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
 - D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
 - E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
 - F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. all persons on the Site or who may be affected by the Work;
 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. *Shop Drawings:*
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
 2. *Samples:*
 - a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures:*
1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
 3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
1. observations by Engineer;
 2. recommendation by Engineer or payment by Owner of any progress or final payment;
 3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
 4. use or occupancy of the Work or any part thereof by Owner;
 5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
 6. any inspection, test, or approval by others; or
 7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
 - 1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
 - 2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
 - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
 - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
 2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
 3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part;
 2. approve the Claim; or
 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 Cost of the Work

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on

Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
 - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
 - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
 - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.
- C. *Contingency Allowance:*
1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 2. there is no corresponding adjustment with respect to any other item of Work; and
 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
 2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

- c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
- d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
- e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 - 3. as otherwise specifically provided in the Contract Documents.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. repair such defective land or areas; or
 - 2. correct such defective Work; or
 - 3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 Schedule of Values

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. the Work has progressed to the point indicated;
 - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
 - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. to supervise, direct, or control the Work, or

- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:
- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
 - d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. there are other items entitling Owner to a set-off against the amount recommended; or

- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 - 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 - 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 - 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 - 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. consent of the surety, if any, to final payment;
 - c. a list of all Claims against Owner that Contractor believes are unsettled; and
 - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
 1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
 3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 Methods and Procedures

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer’s action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
 - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
 - 2. agrees with the other party to submit the Claim to another dispute resolution process; or
 - 3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 Giving Notice

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 - 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 Computation of Times

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SECTION 4
SUPPLEMENTARY CONDITIONS

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Design/Build Construction Contract and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

- SC-1 The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract have the meaning assigned to them in the General Conditions.
- SC-2.02 Change the number of copies of the Contract Documents to be furnished to the Contractor from “up to ten” to “one executed copy and up to four non-executed bid set copies and one set in electronic format if requested.”
- SC-2.03 In the last sentence, change “sixtieth day” to “ninetieth day.”
- SC-4.02(A) Change “Supplementary Conditions” to read “Specific Project Requirements.”
- SC-5.03(A) The Contractor shall furnish a Certificate of Insurance satisfactory to the Owner from each Insurance Company showing that all required insurance is in force, stating policy numbers, dates of expiration, and limits of liability thereunder. If the Contractor fails to procure and maintain the said insurance, the Owner shall have the right to procure and maintain the said insurance for and in the name of the Contractor and the Contractor shall pay the cost thereof and shall furnish all necessary information to make effective and maintain such insurance.
- SC-5.04(B)(1) Change “Supplementary Conditions” to read “Specific Project Requirements.”
- SC-5.04(B)(2) The limits of liability for the insurance required by paragraph 5.04(A) of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations.
- 5.04(A)(1) and (2) Workers’ Compensation, etc., under paragraphs 5.04(A)(1) and 5.04(A)(2) of the General Conditions:
- | | |
|---|-------------|
| (a) State | Statutory |
| (b) Applicable Federal (e.g., Longshoreman’s): | Statutory |
| (c) Employer’s Liability | \$1,000,000 |
- 5.04(A)(3), (4) and (5). Contractor’s Liability Insurance under paragraphs 5.04(A)(3) through 5.04(A)(5) of the General Conditions which shall also include completed operations and product liability coverage.

Bodily Injury and Property Damage
Each Occurrence \$2,000,000

(c) Umbrella Excess Liability – as needed to increase Primary Policy to specified limits.

SC-5.04(B)(3) Add the following to the end of the paragraph: “to the extent available in the insurance industry with industry standard exclusions and as allowed under the laws and regulations in the State of Ohio;”

SC-5.04(B)(4) Add the following:

Written notice of cancellation for non-payment of premium shall be at least 10 days.

Add the following paragraphs:

SC-5.04(C) Unless otherwise stated in Specific Project Requirements, the Contractor shall purchase and provide an “Owner’s and Contractor’s Protective Policy” for the following limits:

Each Occurrence	\$1,000,000
General Aggregate	\$2,000,000

SC-5.04(D) Unless otherwise stated in Specific Project Requirements: the Contractor shall purchase and maintain during the Contract Time “All Risk Builders’ Risk Insurance,” and/or “Installation Floater Insurance,” and/or “Boiler and Machinery Insurance,” and any and all insurance requirements of section GC-5.06 of the General Conditions as applicable for the type of work to be performed upon the Project to the full insurable value thereof for the benefit of the Owner, the State, the Contractor, Subcontractors and Suppliers as their interest may appear. This insurance shall cover the work until final acceptance and final payment by the Owner. This provision shall in no way release the Contractor or Contractor’s Surety from obligations under the Contract Documents to fully complete the Project. The original policy(s) shall be filed with the Owner or his designated representative.

SC-5.05 See SC-5.04(C) above.

SC-5.06 Unless otherwise stated in Specific Project Requirements, the Contractor, not the Owner, shall purchase and maintain during the Contract Time all property insurance required in section GC-5.06 of the General Conditions and as outlined in SC-5.04(D) above.

SC-6.02(C) Add the following Paragraph:

The Contractor shall be responsible for the Engineer's additional inspection and administrative costs to the Owner for work performed beyond regular working hours as defined in this Section.

SC-6.08(A) Add the following sentence to the end of the paragraph:

Since the Owner is the City of Mentor, and is the Building Code Authority Having Jurisdiction (AHJ), fees and deposits will be waived. The Contractor is required to schedule and obtain all required inspections from the AHJ.

SC-6.10(B) Add the following Paragraphs:

Owner is exempt from Ohio State Sales and Use Taxes on materials and equipment to be incorporated in the Project. Said taxes shall not be included in the Contract Price.

1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the work.
2. Owner's exemption to Contractor does not apply to construction tools, machinery, equipment, or other property by or leased by Contractor, or to supplies or materials not incorporated into the work.

The Contractor shall withhold and/or pay all consumer, use, property, employment, income and other taxes in accordance with the laws and regulations of the United States, State of Ohio and Owner which are applicable during the performance of the work.

SC-6.17 Add the following new paragraph immediately after paragraph 6.17E:

F. Contractor shall furnish required submittals with sufficient information and accuracy in order to obtain required approval of an item with no more than three (3) submittals.

SC-7.02 Delete Section 7.02 of the General Conditions in its entirety and insert the following:

SC-7.02(A) The General Construction Contractor shall be referred to and defined as the Construction Coordinator.

SC-7.02(B) Duties of the Construction Coordinator include the following:

1. Scheduling and coordinating the work of the Prime Contractors including submission and periodic updating of the project schedule.
2. Establishing and administrating the site safety programs and procedures for the project.
3. See that permits are applied for and obtained on a timely basis. Advise the Engineer of any problems related to permit approval.
4. Monitoring compliance with Laws and Regulations.
5. Maintain project site for dust, sedimentation, debris, waste and general site cleanliness.
6. Coordinate location and use of temporary construction facilities including but not limited to sanitary, water, power, telephone and parking.
7. Coordinate Owner interface for utility tie-ins/shut downs.
8. Monitor shop drawings submittal and coordination of submittal information between Prime Contractors.

SC-13.07(A) In the First sentence of Section 13.07(A) remove “Substantial Completion” and insert “Final Acceptance of the entire project and final payment by the Owner.”

SC-13.07(C) Remove 13.07(C) and replace with the following:

All materials and equipment shall be warranted by the respective material supplier or equipment manufacturer until the end of the Contractor’s “correction period” (or longer if specified elsewhere in the contract) regardless of the date of initial installation or operation of the material or equipment. The cost of such extended warranties as needed from material suppliers or equipment manufacturers to provide warranty coverage until the end of the “correction period” or other period as specified in the contract shall be the responsibility of the prime contractor and shall be assumed to have been included in his bid.

SC-14.02(A)(3) Delete Section 14.02(A)(3) of the General Conditions in its entirety and insert the following:

Until the job is 50% complete, the Contractor will be paid 92% of the estimated value of labor and material completed in acceptable form. After the work is 50% complete, no further funds shall be retained and the Contractor shall be paid 100% of the estimated value of labor and material completed in acceptable form, provided that the Contractor is making satisfactory progress and there is no specific cause for greater withholding. Upon the Owner's agreement that the project is substantially complete, the Retainage may be reduced to twice the value of the remaining punch list work subject to the recommendation of the Engineer and the approval of the Owner.

SC-14.02(A)(4) Add the following paragraph:

Payment for stored materials at invoice prices or at the unit price bid for materials, or the lesser value of the two, will be made for accepted nonperishable equipment and materials which are to be incorporated into the work, when accepted, delivered, properly stored, and protected upon the site and verified to the Engineer by a copy of the invoice. For materials and equipment meeting the foregoing conditions, the Owner will pay, when properly included in an approved estimate, 92% of the invoice value of the same. Subsequent to the inclusion of a payment for delivered materials in a progress payment, Contractor shall submit no later than the next payment submission, a partial waiver of lien from each and every supplier for whom delivered materials were paid. If no such waiver is submitted prior to or along with the next payment, the amount of delivered materials paid commensurate with that particular item will be deducted from future payments. No payment for delivered materials shall be made for any items that are scheduled to be incorporated in the work within 30 days of submission of the pay estimate. Delivered materials will not be paid in any given month for a total amount less than \$5,000.00.

SC-14.02(A)(5) Add the following paragraph:

The form for application for payment will be the EJCDC Contractor's Application for Payment and will be provided at the Pre-Construction Meeting.

SC-16.01 Delete Article 16 in its entirety and replace with the following:

DISPUTE RESOLUTION AGREEMENT – JUDICIAL SYSTEM

OWNER and CONTRACTOR hereby agree that Article 16 of the General Conditions to the Agreement between OWNER and CONTRACTOR is amended to include the following agreement of the parties:

16.1 All claims, disputes and other matters in question between Owner and Contractor arising out of or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by Paragraph 14.09) will be decided through the Lake County Court of Common Pleas. Arbitration will be entered into only if agreed upon in writing by both parties.

SECTION 5
SPECIFIC PROJECT REQUIREMENTS

SPECIFIC PROJECT REQUIREMENTS

1) Contact

All Questions during bidding should be addressed to Robert Zaluski, Facilities Manager, who can be reached at the City of Mentor, 8500 Civic Center Boulevard, Mentor, Ohio 44060 at (440) 974-5785, extension 2613.

2) Taxes

The Contractor shall pay and/or withhold all sales, consumer, use, employment and other taxes (including the City of Mentor 2% income tax) paid or withheld by the Contractor in accordance with the Laws and Regulations of the United States, State of Ohio, and City of Mentor which are applicable during the performance of the work.

3) Working Hours

The standard work hours for this project shall be between the hours of 7:30 am and 9:00 pm. Work shall not be permitted nights, or on Saturday, Sunday, or legal holidays, without written permission of the City of Mentor.

4) Project Completion

See the “2013 and 2014 PRELIMINARY CONSTRUCTION SCHEDULE” for basic requirements of the Design/Build project schedules.

All work including restoration and clean-up shall be completed no later than the contract completion date. Failure to complete all work within the allotted time will result in assessment of liquidated damages. Upon completion of all work and written notification of same by the Contractor, the Engineer and Owner will compile a punch list. The punch list will be sent to the Contractor. All punch list work shall be completed to the satisfaction of the Public Works Supervisor and the Owner within 14 days after receipt of the punch list. Failure to complete the punch list work within the allotted time will result in assessment of liquidated damages.

The Owner reserves the right to require the contractor to make changes in the approved phasing plan as it deems necessary or as conditions change throughout the removal/replacement/curing period.

SECTION 6
PRELIMINARY PROJECT REQMNT

**MENTOR MUNICIPAL CENTER - HVAC UPGRADES
2013/2014 PRELIMINARY CONSTRUCTION SCHEDULE**

ITEM	DESCRIPTION	2013				2014																																							
		MONTH --->				MONTH --->				MONTH --->				MONTH --->				MONTH --->				MONTH --->				MONTH --->				MONTH --->				MONTH --->											
		DEC	DEC	DEC	DEC	JAN	JAN	JAN	JAN	FEB	FEB	FEB	FEB	MARCH	MARCH	MARCH	MARCH	APRIL	APRIL	APRIL	APRIL	MAY	MAY	MAY	MAY	JUNE	JUNE	JUNE	JUNE	AUGUST	AUGUST	AUGUST	AUGUST	SEPT	SEPT	SEPT	SEPT	OCT	OCT	OCT	OCT	NOV	NOV	NOV	NOV
1	ADVERTISE FOR BIDS																																												
2	CONTRACTOR WALK-THRU's, RFIS																																												
3	BID DUE DATE JANUARY 24, 2014 12:00 PM																																												
4	REVIEW BIDS																																												
5	COUNCIL MEETING FOR APPROVAL JANUARY 27, 2013																																												
6	AWARD CONTRACT BY JANUARY 31, 2014																																												
7	CONTRACTOR'S MEP ENGINEERS PREPARE PRELIMINARY DESIGN																																												
8	MENTOR REVIEWS PRELIMINARY MEP DESIGNS																																												
9	CONTRACTOR PREPARES SHOP DRAWING/EQUIPMENT SUBMITTALS																																												
10	CONTRACTOR'S MEP ENGINEERS FINALIZE DESIGN																																												
11	BELLMAN/MENTOR FINAL DESIGN REVIEW																																												
12	ORDER BOILERS, PUMPS, RTU's, AHU COMPONENTS AND CU's																																												
13	MOBILIZE ON-SITE																																												
14	DEMOLITION EXISTING BOILERS, PIPING & PUMPS																																												
15	INSTALL NEW BOILERS, PUMPS & CONTROLS																																												
16	DEMO ADMIN BUILDING CONDENSERS, RE-WORK STEEL & POWER																																												
17	ADMIN BUILDING AIR HANDER REFURBISHING																																												
18	INSTALL NEW ADMIN BLDG AHU COILS, CONDENSERS & REFRIG PIPE																																												
19	DEMO EXISTING CONTROLS, ROUGH-IN NEW DDC SYSTEMS																																												
20	REPLACEMENT OF ALL ROOFTOP HVAC UNITS (SUBSTANTIAL COMPLETION)																																												
21	ORDER CHILLER & PUMPS, RTU's, AHU COMPONENTS AND CU's																																												
22	RE-WORK POLICE POWER PANELS, INSTALL NEW CIRCUITING																																												
23	COMPLETE CONTROLS INSTALLATIONS, INTERFACE & PROGRAMMING																																												
24	DEMOLITION CHILLERS & COOLING TOWER, PREP FOR NEW EQUIP																																												
25	INSTALL NEW CHILLED WATER PUMPS & PIPING																																												
26	INSTALL NEW CHILLER, PIPING & CONTROLS																																												
27	ALL HEATING SYSTEMS TO BE 100% OPERATIONAL AND CONTROLLED																																												
28	CONTROLS TWEAKING & COMMISSIONING																																												
29	CONTRACTOR PREPARES AS-BUILT DRAWINGS, O&M MANUALS																																												
30	BELLMAN/MENTOR REVIEW AS-BUILT DWGS AND O&M MANUALS																																												
31	BELLMAN/MENTOR PUNCHLISTING																																												
32	PUNCHLISTED ITEMS CONTRACTOR WORK																																												
33	ALL SYSTEMS TO BE 100% COMPLETE AND OPERABLE																																												
34	SITE TRAINING OF EQUIPMENT AND CONTROLS																																												
35	PROJECT COMPLETION & CLOSE-OUT DEADLINE NOV 31, 2014																																												
36																																													

City offices are closed on the following holidays: New Year's Day, Martin Luther King, Jr. Day, President's Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day and the day following and Christmas Day.

SECTION 7
EQUIP SCHEDULES/BASIC SCOPE

DRAWING KEYED NOTES, EQUIPMENT SCHEDULES AND WORK DESCRIPTIONS

DRAWING #1 - MUNICIPAL CENTER MASTER PLAN

100.0 Remove existing cooling tower as follows:

- 100.01 Drain and disconnect existing cooling tower. Remove supply and return water piping to 36" below grade, cap and abandon. Within building, remove all tower water piping and supports from outside wall penetration to chillers.
- 100.02 Drain existing tower make-up water system, remove piping to 36" below grade, cap and abandon. Disconnect and remove all make-up water piping and supports from CW main source to outside wall penetration within Police Building basement mechanical room.
- 100.03 Disconnect and remove all controls. Cap and abandon below grade conduit outdoors. Within building, control wiring, conduit and supports back to existing control center in Police Building Basement Mechanical Room.
- 100.04 Disconnect power. Cap and abandon below grade conduit outdoors. Within building, remove feeders, conduit and supports back to existing motor control center in the Police Building Basement Mechanical Room.
- 100.05 After tower removal, inspect existing concrete slab and make any required repairs to cracks utilizing hydraulic cement. See new chiller requirements for extending existing slab.

101.0 New 140 Ton Chiller

- 101.01 The existing Trane CGA series water-cooled indoor chillers are originally rated for a total of 113.7 tons nominal. The new chilled water system size requirements have been increased to a nominal of 132 tons based on owner predetermined current building cooling loads.
- 101.02 New McQuay #AGZ140D series air cooled scroll R-410A air-cooled chiller with remote evaporator, 132.7 tons, 158.8 KW, 10 SEER, 15.4 IPLV (SEER), 318 GPM flow rated with 44 Deg F EWT, 54 Deg F LWT, 11.2 ft PD, 95 Deg F outdoor operating ambient, 315 MCA and 350 MFS at 460/60/3 4-wire power .
- 101.03 Remote evaporator (see Drawing #2 and #4 for configurations) shall be an OEM matched multi-circuit, direct expansion, insulated remote evaporator to be installed in the Police Building Basement Mechanical Room. Remote

evaporator shall be installed and piped to the outdoor unit by the installing contractor per OEM and Code. Evaporator may be installed at existing evaporator locations utilizing existing demolished evaporators' mounting stands or provide new as required.

101.04 Chiller system to comply with applicable Standards/Codes of AHRI 550/590-2003, ANSI/ASHRAE 15, ETL, CETL, NEC, OSHA and other as required by the State of Ohio.

101.05 Part-load chiller performance shall be as follows:

Part Load Performance at AHRI Conditions				
Point #	% Load	Capacity ton	Input Power kW	Efficiency EER
1	100	136.2	160.2	10.2
2	75	102.2	89.5	13.7
3	50	68.1	49.2	16.6
4	25	34.1	23.5	17.4

101.05 Chiller outdoor sound ratings shall be as follows:

Sound Pressure (at 30 feet)								
63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA
68	70	68	66	63	60	60	57	69
Sound Power								
63 Hz dB	125 Hz dB	250 Hz dB	500 Hz dB	1 kHz dB	2 kHz dB	4 kHz dB	8 kHz dB	Overall dBA
95	97	95	93	90	87	87	84	96

101.06 The compressors shall be sealed hermetic, scroll type with crankcase oil heater and suction strainer. The compressor motor shall be refrigerant gas cooled, high torque, hermetic induction type, two-pole, with inherent thermal protection on all three phases and shall be mounted on RIS vibration isolator pads.

101.07 The condenser coils shall consist of 3/8 inch (10mm) seamless copper tubes mechanically bonded into plate-type fins. The fins shall have full drawn collars to completely cover the tubes. A sub-cooling coil shall be an integral part of the main condenser coil.

101.08 Condenser fans shall be propeller type arranged for vertical air discharge and individually driven by direct-drive fan motors. The fans shall be equipped with a heavy-gauge vinyl-coated fan guard. Fan motors shall be TEAO type with permanently lubricated ball bearings, inherent overload protection, three-phase, direct-drive, 1140 RPM. Each fan section shall be partitioned to avoid cross circulation.

101.09 OEM options shall include #332871630 single insulation CDE kit, #331776647 refrigerant specialty kit, #332325104 isolator kit, #331776619

base isolator kit, high ambient with exhaust fans (125° F maximum), motor cooling with additional liquid injection cooling, BACnet MSTP communications with interface into existing DDC/BAS system, Single point disconnect switch with circuit breakers.

- 101.10 Contractor shall include all other OEM recommended and necessary accessories including all new refrigeration piping, chilled water piping, related supports, evaporator inlet strainer (40-mesh with extension with pipe and Victaulic couplings), outdoor and indoor 115V GFI convenience outlets.
 - 101.11 Contractor's Design/Build Engineer shall inspect existing chiller's power-up at the existing motor control/power distribution center within the basement mechanical room and modify as required to provide new chiller power-up.
 - 101.12 Install in strict accordance with manufacturer's requirements, shop drawings, and contract documents. Adjust and level chiller in alignment on supports.
 - 101.13 Due to noise generations from the chiller, provide a detailed analysis of sound that may require chiller 1, 2 or 3-side surround wall system utilizing acoustical sound absorbing panels.
 - 101.14 See Drawing #4 and the Project Specifications for additional information and requirements.
- 102.0 **Existing building shaft** enclosure currently houses the existing boiler flue stack. Upon completion of the Police Building's boiler demolition (see Drawing #2) , contractor to completely remove the existing flue, term cap, all supports; patch wall and roof penetrations with materials matching adjacent surfaces. See Police Building Boiler Drawing #2 for additional information.
- 103.0 **Areas Allowed for Crane Use** – Existing parking areas to the north and east of the Police Building and north-northeast of the Administration Building may be utilized for temporary overhead crane use for scheduled demolition of existing equipment and installation of new equipment on the roof areas. All work requiring temporary crane usage shall be carefully coordinated with the owner. Contractor shall protect site and buildings from damage and utilize all OSHA Standards for operation.
- 104.0 **RTU-1 Replacement** – Disconnect and remove existing rooftop unit, replace with new as follows:
- 104.01 Existing 3 ton packaged cooling only unit, constant volume, 208-60-3 power controlled via wall thermostat.
 - 104.02 Provide and install a new McQuay #DPS004A cooling only packaged rooftop unit, nominal 4-ton rated, 1500 CFM total air @ 1.5" ESP maximum, 38.5

MBH sensible/49.5 MBH total ARI capacity, 2.3 BHP motor, 18.4 MCA/25 MOCP at 208/60/3, EER = 12.4, IEER = 15.3, modulating control with inverter compressors.

- 104.03 Contractor's Design/Build Engineer shall inspect existing RTU's power-up at and modify as required to provide new RTU power-up.
 - 104.04 See Specifications for accessories, additional information and requirements.
- 105.0 **RTU-2 Replacement** – Disconnect and remove existing heating, cooling and ventilating rooftop unit, replace with new as follows:
- 105.01 Existing 7-1/2 ton packaged cooling with gas heat unit, single-zone, 480-60-3 power controlled via wall thermostat.
 - 105.02 Provide and install a new McQuay # DPS012A packaged rooftop unit, nominal 12-ton rated, 4500 CFM total air @ 0.75" ESP maximum, 152.5 MBH total /116.7 MBH sensible ARI capacity, 240 MBH minimum output gas heat, 8.0 BHP motor, 25.5 MCA/60 MOCP at 480/60/3, EER = 11.9, IEER = 17.3, modulating control with inverter compressors.
 - 105.03 Contractor's Design/Build Engineer shall inspect existing RTU's power-up at and modify as required to provide new RTU power-up.
 - 105.04 See Specifications for accessories, additional information and requirements.
- 106.0 **RTU-3 Replacement** – Disconnect and remove existing VAV cooling/ventilating rooftop unit, replace with new as follows:
- 106.01 Existing 30 ton packaged cooling only, VAV system, 480-60-3 power controlled via inlet and discharge air controllers.
 - 106.02 Contractor's Design/Build Engineer shall inspect existing RTU's power-up at and modify as required to provide new RTU power-up.
 - 106.03 See Specifications for accessories, additional information and requirements.
- 107.0 **RTU-5 Replacement** – Disconnect and remove existing heating, cooling and ventilating rooftop unit, replace with new as follows:
- 107.01 Existing 7-1/2 ton packaged cooling with gas heat unit, single-zone, 480-60-3 power controlled Provide and install a new McQuay # MPS035F packaged rooftop unit, nominal 35-ton rated (31.75 tons actual), 11,000 CFM nominal total air @ 2.0" ESP minimum, 381 MBH total/295.6 MBH sensible ARI

capacity, 15 HP motor, 79.3 MCA/90 MOCP at 480/60/3, EER = 10.0 with three (3) compressors and five-step control.

- 107.02 Contractor's Design/Build Engineer shall inspect existing RTU's power-up at and modify as required to provide new RTU power-up.
- 107.03 See Specifications for accessories, additional information and requirements.
- 108.0 **RTU-4 Replacement** – Disconnect and remove existing heating, cooling and ventilating rooftop unit, replace with new as follows:
 - 108.01 Existing 5 ton packaged cooling with gas heat unit, single-zone, 480-60-3 power controlled via wall thermostat.
 - 108.02 Provide and install a new McQuay # DPS006A packaged rooftop unit, nominal 6.2 ton rated, 2250 CFM total air @ 0.75" ESP maximum, 74.5 MBH total/52.2 MBH sensible ARI capacity, 128 MBH minimum output gas heat, 4.0 BHP motor, 14.3 MCA/20 MOCP at 480/60/3, EER = 11.3, IEER = 17.8, modulating control with inverter compressors via wall thermostat.
 - 108.03 Provide and install a new McQuay # DPS007A packaged rooftop unit, nominal 7.5 ton rated, 2800 CFM total air @ 0.75" ESP maximum, 94.5 MBH total/72.6 MBH sensible ARI capacity, 160 MBH minimum output gas heat, 4.0 BHP motor, 17.4 MCA/20 MOCP at 480/60/3, EER = 12.7, IEER = 17.6, modulating control with inverter compressors.
 - 108.04 Contractor's Design/Build Engineer shall inspect existing RTU's power-up at and modify as required to provide new RTU power-up.
 - 108.05 See Specifications for accessories, additional information and requirements.
- 109.0 Existing Boiler #1 within Administration Building's 3rd Floor Mechanical Room to be removed, see drawings #5 and #6. Remove existing boiler flue termination stack, related sheetmetal, supports, etc. Provide R-5 nominal insulated sheetmetal curb cap.
- 110.0 Existing Boiler #2 within Administration Building's 3rd Floor Mechanical Room to be removed, see drawings #5 and #6. Remove existing boiler flue termination stack, related sheetmetal, supports, etc. Patch roof deck, replace insulation, patch roof as required to match adjacent roofing surfaces.
- 111.0 Replace two (2) existing 50 ton rooftop condensing units with new.
 - 111.01 Existing condensers are rated nominal 50 ton and serve the Administration Building's 3rd Floor Mechanical Room air handler's dual-deck air handler unit.

- 111.02 New condensers shall be McQuay # RCS062D R-410A 60 ton rated (53.3 tons actual capacity) based on 44.5 Deg F saturated suction temperature and 95 F outdoor ambient conditions with four (4) staged scroll compressors, 640 MBH total capacity, 10.8 EER, 59.1 KW, six (6) condenser fan motors, 110.2 MCA and 125 MCOP at 480/60/3 each. Include hot gas bypass kit, OEM thru-the-door disconnect switch and all required controls interface into the existing DDC controls system.
- 111.03 Contractor's Design/Build Engineer shall inspect existing condensing units' power-up and modify as required to provide new condensers' power-up.
- 111.04 See Specifications for accessories, additional information and requirements.
- 112.0 Existing roof exhaust fans are utilized for currently utilized for building air pressure relief and are to be staged on/off based on pressure (0.02" maximum positive building pressure), time of day and related building occupancy schedules. Design Build Engineer/Contractor shall include time and materials to inspect the existing exhaust fans, provide refurbishing (i.e. replace belts, bearings, sheaves, etc. as necessary) and provide a new motor, VFD drive assembly and required controls to interface with the existing air handler outdoor/return air and related building DDC controls system.
 - 112.01 Inspect existing wiring and power source, provide new power disconnects if and as required, verify existing and bring-up to current NEC compliance.
 - 112.02 See Specifications and section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 113.0 Existing Administration Building roof exhaust fans to be refurbished as required and shall include new VFD controlled motor, drive assembly, etc. See Specifications for additional information and requirements.

DRAWING #2 - POLICE BUILDING BASEMENT MECHANICAL ROOM PLAN

- 200.0 Existing Police Building basement mechanical room boiler system to be replaced with two (2) new lead/lag demand controlled Lochinvar boilers.
 - 200.01 Two (2) new boilers shall be Lochinvar Sync Model #SBN100 having a modulating input rating of 999,000 Btu/Hr, an output of 941,000 Btu/Hr. The boilers shall be capable of full modulation firing down to 10% of rated input with a turndown ratio of 10:1, up to 94.1% thermal efficiency, modulating burner with 10:1 turndown, direct-spark ignition, low NOX operation, sealed combustion, low gas pressure operation, vertical and horizontal venting, Category IV venting up to 100 feet, PVC, CPVC OR AL29-4C vent material, sidewall vent terminations provided, ASME stainless steel heat exchanger, ASME certified, "h" stamped 160 PSI working pressure, on/off switch, adjustable high limit with manual reset, low water cutoff with manual reset and test, low air pressure switch, high and low gas pressure switches, inlet and

outlet temperature sensors, 50 PSI ASME relief valve, temperature and pressure gauge, zero clearance to combustible material, approved for combustible floor installation, BACnet integration card, 1 year warranty on parts and 10 year limited warranty.

- 200.02 The existing boiler and domestic water heating systems venting to be removed. The new boilers' venting shall be designed, furnished and installed as required with venting up within existing boiler flue shaft. Direct Vent system shall be installed with vertical roof top termination of both the exhaust vent and combustion air. The flue shall be Category IV approved Stainless Steel, PVC or CPVC sealed vent material terminating at the rooftop with the manufacturers specified vent termination. A separate pipe shall supply combustion air directly to the boiler from the outside. The air inlet pipe may be PVC or CPVC sealed pipe. The boiler's total combined air intake length shall not exceed 100 equivalent feet. The boiler's total combined exhaust venting length shall not exceed 100 equivalent feet. The air inlet must terminate on the rooftop with the exhaust. Foam Core pipe is not an approved material for exhaust piping.
 - 200.03 Provide design and installation of new gas lines from existing connections per OEM and Code.
 - 200.04 Provide design and installation of new water piping manifold from the boilers to new main HW pumps and to existing building hydronic heating system piping connections as required. See Drawing #3 for preferred piping arrangements.
 - 200.05 Provide all required controls communications interface per OEM and the Owner's controls vendors' requirements, connect to existing building DDC controls system within the Police Building's Basement Mechanical Room.
 - 200.06 Contractor's Design/Build Engineer shall inspect existing power-up and modify as required to provide new boiler power-up which shall include new emergency generator power source load center (if and as required). Provide boiler service disconnect per NEC.
 - 200.07 See Drawing #3 for "POLICE BUILDING BASEMENT MECHANICAL ROOM HEATING SYSTEM FLOW DIAGRAM" for preferred connections and piping arrangements.
 - 200.08 See Drawing #3, Specifications and Section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 201.0 Existing domestic water heater/boiler to be disconnected, removed and replaced.

- 201.01 New domestic water boiler shall be Lochinvar Armor Model # AWN286PM with up to 98% thermal efficiency, 285,000 BTU input, 339 GPH recovery at 100-degree rise. Domestic water heating boiler to include M9 controls, fully modulating, 5:1 turndown, all-bronze circulating pump, diagnostic control, panel, stainless steel heat exchanger, ASME TandP relief valve, 4" vent connection for PVC vent, condensate neutralization kit, BACNET communication capability, and factory start-up.
- 201.02 Design and installation to utilize Category IV venting up to 100 feet, PVC, CPVC OR AL29-4C vent material, sidewall vent terminations provided, ASME stainless steel heat exchanger, ASME certified, "H" Stamped 160 PSI working pressure, on/off switch, adjustable high limit with manual reset, low water cutoff with manual reset and test, low air pressure switch, high and low gas pressure switches, inlet and outlet temperature sensors, 50 PSI ASME relief valve, temperature and pressure gauge, zero clearance to combustible material, approved for combustible floor installation, BACnet integration card, one (1) year warranty on parts and 10 year limited warranty.
- 201.03 The existing domestic water heating systems venting to be removed. The new venting shall be designed, furnished and installed as required with venting up within existing boiler flue shaft. Direct Vent system with vertical roof top termination of both the exhaust vent and combustion air. The flue shall be Category IV approved Stainless Steel, PVC or CPVC sealed vent material terminating at the rooftop with the manufacturers specified vent termination. A separate pipe shall supply combustion air directly to the boiler from the outside. The air inlet pipe may be PVC or CPVC sealed pipe. The boiler's total combined air intake length shall not exceed 100 equivalent feet. The boiler's total combined exhaust venting length shall not exceed 100 equivalent feet. The air inlet must terminate on the rooftop with the exhaust. Foam Core pipe is not an approved material for exhaust piping.
- 201.04 Provide design and installation of new gas lines from existing connections per OEM and Code.
- 201.05 Provide design and installation of new water piping manifold from the water heating boiler to the new circulating pump and to existing the existing tank's piping connections as required.
- 201.06 Provide all required controls communications interface per OEM and the Owner's controls vendors' requirements, connect to existing building DDC controls system with Police Building's Basement mechanical Room.
- 201.07 Contractor's Design/Build Engineer shall inspect existing power-up and modify as required to provide new water heating boiler power-up. Provide boiler service disconnect per NEC.

- 201.08 See Drawing #3, Specifications and Section “BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS” for additional information and requirements.
- 202.0 Existing building heating system ceiling-mounted/supported expansion tank to remain. Contractor to inspect, clean, flush and re-work connections as required. Tank to be prepped, touch-up painted and insulated with 1” closed-cell insulation.
- 203.0 Existing building base mounted building hot water heating system circulating pumps and accessories to be replaced with new.
- 203.01 New pumps capacities to be verified by the Design/Build Engineer and shall be equal to Taco #C12510C 3” x 2-1/2” base-mounted close coupled pump, 8.2” impellor, nominal 175 GPM @ 70 ft THD, 5 HP VFD controlled 1750 RPM motor, 480-60-3 power.
- 203.02 Provide with suction diffuser, flexible inlet/outlet connections, multi-purpose outlet valve (isolation, throttling and check), vibration isolating mounts, VFD and lead-lag controller and disconnect switch.
- 203.03 At contractor’s option, existing pumps’ bases may be modified or replace to accept new pump mounting configuration, verify.
- 203.04 At contractor engineer’s option, existing pumps’ power feeds from main power distribution/motor control center may be re-used if sufficient for new pumps’ power requirements.
- 203.05 See Drawing #3, Specifications and Section “BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS” for additional information and requirements.
- 204.0 Existing building exterior open area well with grated cover at grade extends to basement floor level and is currently utilized for combustion air and boiler room ventilation. This area may be utilized for removing and replacing of large equipment from the outdoors into the basement mechanical area by temporarily removing the existing grating, basement wall exhaust fan, louvers and other existing panel(s) segregating such. Such shall be carefully coordinated with Mentor and the Police offices, as this area north of the area well is utilized for employee parking. Upon completion of construction, the area well shall have the grating re-installed, all fans and louvers replaced as well as any existing blank-off panels.
- 205.0 Existing 480-60-3 600 amp power distribution/motor control center (PDC) to remain and be re-worked as required for new equipment power-up. The existing main 600 amp switch is remotely located elsewhere in the basement and shall remain.

- 205.01 The existing PDC will require significant modifications to provide power-up of the new chiller and pumps and exact scope shall be determined by the Design/Build Contractor's Engineer.
- 205.02 Should the existing PDC be determined to be inadequate on un-reconfigurable to current NEC and Code, the Design/Build Contractor's Engineer shall design a new PDC equal and sectionalize the assembly with new main breaker, load center and branch breakers, starters/relays, etc. as necessary .
- 205.03 Any and all new electrical work shall meet and exceed current NEC, Code and Industry Standards.
- 206.0 Existing building base mounted building chilled water cooling system circulating pumps CHP-1 and 2 and accessories to be replaced with new.
- 206.01 New pumps capacities to be verified by the Design/Build Engineer and shall be equal to Taco #CI3009 4" x 3" base-mounted close coupled pump, 8.7" impellor, nominal 337 GPM @ 65 ft THD, 7-1/2 HP VFD controlled 1750 RPM motor, 480-60-3 power.
- 206.02 Provide with suction diffuser, flexible inlet/outlet connections, multi-purpose outlet valve (isolation, throttling and check), vibration isolating mounts, VFD and lead-lag controller and disconnect switch.
- 206.03 At contractor's option, existing pumps' bases may be modified or replace to accept new pump mounting configuration, verify.
- 206.04 At contractor engineer's option, existing pumps' power feeds from main power distribution/motor control center may be reused if sufficient for new pumps' power requirements.
- 206.05 See drawings #2 and #4, Specifications and section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 207.0 Existing building chilled water system ceiling-mounted/supported expansion tank to remain. Contractor to inspect, clean, flush and re-work connections as required. Tank to be prepped, touch-up painted and insulated with 1/2" nominal closed-cell insulation.
- 208.0 Existing building's DDC control systems mounted on the north wall to be re-worked and expanded as required to accept new input/output points. See Drawing # 8 and Specifications for additional information and requirements.
- 209.0 Existing water-cooled chiller's to be decommissioned, evacuated and disconnected; compressors, evaporators, condensers, power, controls and related supports to be removed. Existing pads to be cleared of all unnecessary components, wiring and controls. Existing concrete base pads to be cleaned, repaired, painted and may be utilized

for new equipment and piping connections. Chiller #1 or Chiller #2 pad may be utilized for mounting new chiller's remote evaporator(s) with required stand/supports.

- 210.0 Existing chilled water systems' water-cooled condenser pumping system to be drained, disconnected and removed.
- 211.0 Existing building air handlers #1, #2 and #3 are to remain. Units contain hydronic heating and chilled water coils as well as existing DDC controls. See Specifications for sequence of controls.

DRAWING #3 - POLICE BUILDING HEATING SYSTEM FLOW DIAGRAM

- 300.0 Existing building hydronic systems fill and make-up water connections to existing domestic water system to be reworked as required and per Code and as follows:
 - 300.01 Provide and install new taps downstream from the existing backflow preventer.
 - 300.02 Provide and install new strainer isolation valves, pressure reducing valves (PRV), unions, isolation valves, check valves and gauges as required.
 - 300.03 Set new make-up water system for 12-14 PSI maximum.
 - 300.04 Provide a system quick-fill PRV bypass line with normally closed isolation valve.
 - 300.05 Extend ¾" insulated piping as required to actual Contractor's Design/Build Engineer determined locations and configurations.
- 301.0 Extend new 4" boiler/building heating piping to existing connections feeding air handlers and variable air volume terminal units with hot water heat/reheat coils. Design/Build Engineer to determine exact locations and configurations on drawings.
- 302.0 Heating system's air separator shall be as follows:
 - 302.01 Furnish and install as shown on the drawing, a full flow coalescing type combination air eliminator, dirt separator, hydraulic separator for the hot water system. Selection shall be based upon system flows with pipe size as a minimum in accordance with the basis of design. Separator shall be fabricated steel, rated for 150 PSIG working pressure, stamped and registered in accordance with ASME Section VIII, Division 1 for unfired pressure vessels, and include three performance chambers within the vessel. One chamber above the higher nozzle set for air elimination, one below the lower nozzle set for dirt separation, and one between the nozzles for hydraulic

separation. The vessel diameter, height above and below the nozzles and distance between the nozzles must be equal to the basis of design. Unit shall include internal Spirotube elements filling the entire vessel to suppress turbulence and provide air elimination efficiency of 100% free air, 100% entrained air, and 99.6% dissolved air at the installed location. Dirt separation efficiency shall be a minimum of 80% of all particles 30 micron and larger within 100 passes. The elements must consist of a copper core tube with continuous wound copper wire medium permanently attached and followed by a separate continuous wound copper wire permanently affixed. Each unit shall have a separate venting chamber to prevent system contaminants from harming the float and venting valve operation. At the top of the venting chamber shall be an integral full port float actuated brass venting mechanism. Basis of design for the separator shall be equal to Spirovent Quad Series V DX as manufactured by Spirotherm, Inc., Glendale Heights, Illinois.

- 302.02 Provide adequate support of the air separator assembly from the ceiling, wall or floor as required and per Industry Standards. Install per OEM.
- 303.0 Provide and install a new chemical treatment system pot feeder as follows:
 - 303.01 Equal to Neptune #VTF series bypass feeder, 5 gallon 10 gauge casing, 300 PSI rated at 200 Deg F. Provide piping and isolation valving per OEM and as required.
 - 303.02 Configure and locate at accessible locations.
 - 303.03 See Specifications for water treatment analysis requirements.

DRAWING #4 - POLICE BUILDING CHILLER SYSTEM FLOW DIAGRAM

- 400.0 Chilled water system air separator shall be as follows:
 - 400.01 Caleffi #546150A (or approved equal) air and dirt separator with brass side drain valve and automatic air vent and pinned float, flanged 6" ANSI B16.5 CLASS 150 RF connections with epoxy resin painted steel body, EPDM seal, 304 stainless steel internal mesh element, PP float, stainless steel float lever and spring, stainless steel float guide pin. Maximum working pressure, 150 PSI and operating temperature range 32 to 250°F. Particle separation shall be rated down to 5 µm (0.2 mil). Provide with 1" NPT drain ball valve code #NA39753.
 - 400.02 Provide adequate support of the air separator assembly from the ceiling, wall or floor as required and per Industry Standards. Install per OEM.

401.0 Refrigerant piping shall be sized, selected, and designed by the Engineer, equipment manufacturer or Contractor in strict accordance with the manufacturer's published instructions. The Engineer prepared schematic piping diagrams shall show all accessories such as, stop valves, level indicators, liquid receivers, oil separator, gauges, thermostatic expansion valves, solenoid valves, moisture separators and driers to make a complete installation. See chiller manufacturer OandM manuals and Project Specifications for additional information and requirements.

402.0 Provide and install a new chemical treatment system pot feeder as follows:

402.01 Equal to Neptune #VTF series bypass feeder, 5 gallon 10 gauge casing, 300 PSI rated at 200 Deg F. Provide piping and isolation valving per OEM and as required.

402.02 Configure and locate at accessible locations.

402.03 See Specifications for water treatment analysis requirements.

DRAWING #5 – ADMINISTRATION BLDG 3rd FL MECHANICAL ROOM PLAN

500.0 Existing residential style domestic water heater to remain; provide new venting system as follows:

500.01 Disconnect and remove existing 6" diameter (verify) domestic water heater venting to stack. Provide new venting and new termination through the roof as required and indicated herein.

500.02 The new vent piping shall be of the double wall, factory- built type for use with approved Category I appliances burning natural gas, which produce flue gases exhausted at temperatures not exceeding 550° F. The vent shall be constructed of an outer wall of galvanized steel, .018" thick G-90. The inner wall shall be constructed of aluminum alloy, .012" thick for sizes. The venting system shall include an integral, annular insulating air space. Edges of inner and outer walls shall be hemmed prior to final assembly to prevent pipe and fittings from having exposed sharp edges. Walls shall be attached to maintain spacing and prevent separation of inner and outer walls. The vent pipe shall incorporate a push - tab locking system to prevent disassembly of vent during or after installation.

500.03 Provide a "Pate" type curb (or equal shop-fabricated) with inside diameter with a minimum of 4" perimeter diameter larger inside dimension for the actual roof penetration. Provide and install all fittings, flashing, storm collar, cap, and appliance adapter required .

500.04 Vent shall be tested and listed for a minimum clearance to combustibles of 1".

- 500.05 Vent shall be installed in accordance with the vent manufacturer's installation instructions, UL listing and state or local codes. Vent shall terminate as required by code.
- 501.0 Existing building heating system ceiling-mounted/supported expansion tank to remain. Contractor to inspect, clean, flush and re-work connections as required. Tank to be prepped, touch-up painted and insulated with 1" closed-cell insulation.
- 502.0 Existing Administration Building 3rd Floor Mechanical Room boiler system to be replaced with two (2) new lead/lag demand controlled Lochinvar boilers.
- 502.01 Two (2) new boilers shall be Lochinvar Sync Model #SBN100 having a modulating input rating of 999,000 Btu/Hr, an output of 941,000 Btu/Hr. The boilers shall be capable of full modulation firing down to 10% of rated input with a turndown ratio of 10:1, up to 94.1% thermal efficiency, modulating burner with 10:1 turndown, direct-spark ignition, low NOX operation, sealed combustion, low gas pressure operation, vertical and horizontal venting, Category IV venting up to 100 feet, PVC, CPVC OR AL29-4C vent material, sidewall vent terminations provided, ASME stainless steel heat exchanger, ASME certified, "h" stamped 160 psi working pressure, on/off switch, adjustable high limit with manual reset, low water cutoff with manual reset and test, low air pressure switch, high and low gas pressure switches, inlet and outlet temperature sensors, 50 PSI ASME relief valve, temperature and pressure gauge, zero clearance to combustible material, approved for combustible floor installation, BACnet integration card, 1 year warranty on parts and 10 year limited warranty.
- 502.02 The existing boiler and domestic water heating systems venting to be removed. The new boilers' venting shall be designed, furnished and installed as required with sidewall or roof venting. Direct Vent system with vertical roof top termination of both the exhaust vent and combustion air. The flue shall be Category IV approved Stainless Steel, PVC or CPVC sealed vent material terminating at the rooftop with the manufacturer's specified vent termination. A separate pipe shall supply combustion air directly to the boiler from the outside. The air inlet pipe may be PVC or CPVC sealed pipe. The boiler's total combined air intake length shall not exceed 100 equivalent feet. The boiler's total combined exhaust venting length shall not exceed 100 equivalent feet. The air inlet must terminate on the rooftop with the exhaust. Foam Core pipe is not an approved material for exhaust piping.
- 502.03 Provide design and installation of new gas lines from existing connections per OEM and Code.
- 502.04 Provide design and installation of new water piping manifold from the boilers to new main HW pumps and to existing building hydronic heating system

- 502.05 piping connections as required. See Drawing #6 for preferred piping arrangements.
- 502.05 Provide all required controls communications interface per OEM and the Owner's controls vendors' requirements, connect to existing building DDC controls system within the Administration Building's 3rd Floor Mechanical Room.
- 502.06 Contractor's Design/Build Engineer shall inspect existing power-up at and modify as required to provide new boiler power-up; provide boiler service disconnect per NEC.
- 502.07 See Drawing #3 for "POLICE BUILDING BASEMENT MECHANICAL ROOM HEATING SYSTEM FLOW DIAGRAM" for preferred connections and piping arrangements.
- 502.08 See Drawing #6, Specifications and section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 503.0 Disconnect, remove and replace existing building perimeter heating systems' circulating pump with two (2) new lead/lag controlled pumps; tag HWP1A and HWP1B. Pumps shall be as follows:
- 503.01 New pumps capacities to be verified by the Design/Build Engineer and shall be equal to Taco #1641 inline pump, 2" x 2" nominal 125 GPM @ 50 ft THD, 7.4" impellor diameter, 3 HP 1750 RPM motor, 480-60-3 power.
- 503.02 Provide with flexible inlet/outlet connections, multi-purpose outlet valve (isolation, throttling and check), vibration isolating mounts lead-lag controller and disconnect switch.
- 503.03 At contractor engineer's option, existing pumps' power feeds from existing source may be reused if sufficient for new pumps' power requirements.
- 503.04 See Drawing #6, Specifications and section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 504.0 Disconnect and remove existing air handler circulating pump with two (2) new lead/lag controlled pumps; tag HWP2A and HWP2B. Pumps shall be as follows:
- 504.01 New pumps capacities to be verified by the Design/Build Engineer and shall be equal to Taco #KV3006 inline pump, 3" x 3" nominal 84 GPM @ 35 ft THD, 6.2" impellor diameter, 1.5 HP 1750 RPM motor, 480-60-3 power.

- 504.02 Provide with flexible inlet/outlet connections, multi-purpose outlet valve (isolation, throttling and check), vibration isolating mounts lead-lag controller and disconnect switch.
 - 504.03 At contractor engineer's option, existing pumps' power feeds from existing source may be reused if sufficient for new pumps' power requirements.
 - 504.04 See Drawing #6, Specifications and Section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 505.0 Disconnect and remove existing Administration Building Basement Air handling Unit heating hot water coil's circulating pump with two (2) new lead/lag controlled pumps; tag HWP3A and HWP3B. Pumps shall be as follows:
- 505.01 New pumps capacities to be verified by the Design/Build Engineer and shall be equal to Taco #1615 inline pump, 1-1/2" x 1-1/2" nominal 12 GPM @ 40 ft THD, 6.1" impellor diameter, 1/2 HP 1750 RPM motor, 208-60-1 power.
 - 505.02 Provide with flexible inlet/outlet connections, multi-purpose outlet valve (isolation, throttling and check), vibration isolating mounts lead-lag controller and disconnect switch.
 - 505.03 At contractor engineer's option, existing pumps' power feeds from existing source may be reused if sufficient for new pumps' power requirements.
 - 505.04 See Drawing #6, Specifications and section "BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS" for additional information and requirements.
- 506.0 Disconnect and remove existing Boiler #2, pump, related piping, venting thru roof, controls and electrical power. Inspect and repair existing concrete pad, prep and pain. Pad may be used for new equipment mounting, verify.
- 507.0 Existing domestic water heater to remain. Disconnect and remove existing flue vent piping from water heater to main stack. Provide new flue vent thru the roof, see Drawing #1 and related keyed notes for additional information and requirements.
- 508.0 Main air handler to remain and to be refurbished. See Specifications for additional information and requirements.
- 509.0 Main air handler's outdoor air and return air damper assemblies to be removed and replaced with new low-leakage dampers % DDC controlled actuators/controllers. See Specifications for additional information and requirements.

510.0 Existing Administration Building roof exhaust fans to be refurbished as required and shall include new VFD controlled motor, drive assembly, etc. and interfaced into the main air handler and related DDC controls. See Specifications for additional information and requirements.

DRAWING #6 - ADMINISTRATION BLDG 3rd FL MECH ROOM HEATING SYSTEM FLOW DIAGRAM

600.0 See Drawing #5 for 500 series keyed notes.

601.0 Connect new 1" HWS piping to existing basement air handler system's existing HWS piping as required. See Specifications for additional information and requirements.

602.0 Connect new 3" HWS piping to existing 3RD floor air handler system's existing HW COIL piping as required. See Specifications for additional information and requirements.

603.0 Connect new 3" HWS piping to existing PERIMETER HEATING SYSTEM'S piping as required. See Specifications for additional information and requirements.

604.0 Existing building hydronic systems fill and make-up water connections to existing domestic water system to be reworked as required and per Code.

604.01 Provide and install new taps downstream from the existing backflow preventer.

604.02 Provide and install new strainer isolation valves, pressure reducing valves (PRV), unions, isolation valves, check valves and gauges as required.

604.03 Set new make-up water system for 12-14 PSI maximum.

604.04 Provide a system quick-fill PRV bypass line with normally closed isolation valve.

604.05 Extend 3/4" insulated piping as required to actual Contractor's Design/Build Engineer determined locations and configurations.

605.0 Heating system's air separator shall be as follows:

605.01 Furnish and install (as shown on the drawing) a full flow coalescing type combination air eliminator, dirt separator, hydraulic separator for the hot water system. Selection shall be based upon system flows with pipe size as a minimum in accordance with the basis of design. Separator shall be fabricated steel, rated for 150 PSIG working pressure, stamped and registered in accordance with ASME Section VIII, Division 1 for unfired pressure vessels, and include three performance chambers within the vessel. One

chamber above the higher nozzle set for air elimination, one below the lower nozzle set for dirt separation, and one between the nozzles for hydraulic separation. The vessel diameter, height above and below the nozzles and distance between the nozzles must be equal to the basis of design. Unit shall include internal Spirotube® elements filling the entire vessel to suppress turbulence and provide air elimination efficiency of 100% free air, 100% entrained air, and 99.6% dissolved air at the installed location. Dirt separation efficiency shall be a minimum of 80% of all particles 30 micron and larger within 100 passes. The elements must consist of a copper core tube with continuous wound copper wire medium permanently attached and followed by a separate continuous wound copper wire permanently affixed. Each unit shall have a separate venting chamber to prevent system contaminants from harming the float and venting valve operation. At the top of the venting chamber shall be an integral full port float actuated brass venting mechanism. Basis of design for the separator shall be equal to Spirovent Quad Series V DX as manufactured by Spirotherm, Inc., Glendale Heights, Illinois.

- 605.02 Provide adequate support of the air separator assembly from the ceiling, wall or floor as required and per Industry Standards. Install per OEM.
- 606.0 Existing hot water system chemical pot feeder to be reused. Clean, flush, paint, install new valving and feeds to and from main HWS piping as shown on the flow diagram and as required. See Specifications for water treatment analysis and system's scope.
- 607.0 New control valve shall be 3-way mixing globe type as follows:
 - 607.01 Equal to Honeywell #V5013 series with modulating electronic actuator controlled by the DDC system. Actual valve sizing shall be by the Design/Build Engineer and/or vendor for lowest possible pressure drop and tightest control.
 - 607.02 Valves to be automatically positioned by the DDC control system to mix main HWS loop's water with specific secondary branch HWR loop's water based on reset control.
 - 607.03 Provide upstream isolation valves, HWR strainer, union or flange connections for serviceability.
 - 607.04 See Specifications for additional information and requirements.
- 608.0 Provide and install new r-410a 100 ton DX cooling coils within existing casing with (4) circuits. Provide new condensate pan and connection to existing drain assembly as required. See Administration Building 3rd floor air handling requirements within the Specifications for additional information and requirements.

DRAWING #7 - ADMINISTRATION BLDG 3rd FL MECHANICAL ROOM COOLING SYSTEM DIAGRAM

- 700.0 Existing air handler to be refurbished. Unit currently operates as a constant volume dual duct hot and cold deck air handler with enthalpy controlled economizer for outdoor/return air control (separate roof exhaust fan relief). Hot deck currently maintained year-round for 110 Deg F discharge; cold deck currently maintained at 55 Deg F discharge. The existing dual duct system serves pneumatically controlled constant volume dual-duct mixing box terminals (CVDD) remotely mounted throughout the Administration Building. Under separate projects/contracts in the future, the CVDD terminals will be converted to variable air volume dual duct terminals (VAVDD).
- 701.0 See drawings #1, #4 through #8 for remote drawing referenced keyed notes.
- 700.01 Existing air handler cooling coil section to be replaced with new.
- 700.02 Existing air handling unit controls to be replaced. Disconnect and remove all existing pneumatic/electric air handler controls. Cap pneumatic lines from source, remove Class II pilot-duty and related controls power wiring.
- 700.03 Provide complete all new electric/electronic sensors for monitoring and control of the air handling unit, see legend on Drawing #7 for basic sensor description.

DRAWING #8 – AUTOMATION SYSTEM BASIC ARCHITECTURE DIAGRAM

- 800.0 The illustrative schematic drawing/diagram depicts the basic architecture of the system with respect to the DDC building automation systems. Although every attempt has been made to include all BAS apparatus connected to the system. Final diagrams shall be developed and included with the as-built drawings and/or within OandM package submittals. Verify actual and final locations and configurations of all equipment. See Wadsworth Northeast existing building controls drawings dated 05-12-12 referenced and included with Bid Documents.
- 801.0 The existing Wadsworth Solutions Schneider ENC520 Network Controller and I/A series plant controllers I/O modules, etc. are mounted and wired within the Police Building's Basement Mechanical Room and Administration Building's 3rd Floor Mechanical Room. The systems are to remain as-is. The existing DDC controllers currently control the existing boilers, pumps and air handlers and contain spare I/O points for some of the new work under this contract. Additional control points shall be provided with new Schneider I/O expansion modules as required to new controlled equipment per the Specification's sequence and as required.

- 801.01 Contact Wadsworth Solutions' Jerry Kocan Wadsworth Northeast of 1792 East 40th Street - Cleveland, Ohio 44103-3586. Office Phone (216) 391-7263, Office Fax (216) 391-3740 and email - jkocan@wadsworthslawson.com
- 802.0 Provide and install a new control panel as required to interface the existing Police Building Basement Mechanical Room's motor control center that currently houses main switches, relays, contactors, etc. of existing equipment. Verify requirements and coordinate with Wadsworth Solutions.
- 803.0 New pump controllers shall interface into the existing DDC system via BACnet or Modbus as required:
- 803.01 Police Building's hot water and chilled water pumps shall be duplex pump controllers with lead/lag and VFD speed controls.
- 803.02 Administration Building's hot water and chilled water pumps shall be duplex pump controllers with lead/lag controls.
- 803.03 See the Specifications for additional information and requirements.

SECTION 8
DESIGN/BUILD CRITERIA SPECS

DESIGN/BUILD CRITERIA SPECIFICATIONS

A. GENERAL

1. Except as specified to the contrary, this Contract shall be considered “Design/Build” and shall include the final design, furnishing, installing, connecting, and operation of all equipment which is a part of the HVAC and related electrical systems replacements as shown on the drawings, equipment schedules, specified herein and as required by similar installations. Contractor shall provide all final designs, labor and designated materials required to provide the Owner complete, Code approved and operational HVAC system.
2. This Contract shall be considered as a “Prime Mechanical Contract” only with expertise in the field of Mechanical Contracting. General Contractors, Electrical Contractors or other non-mechanical Contractors’ bids will not be accepted although if and as necessary, Architectural/General, Structural and Electrical trades may only bid to the Mechanical Prime Contractor as a sub-trade.
3. The drawings and this specification package shall be considered as the Owner’s design and installation performance criteria. The successful Contractor shall have an on-staff and/or shall Contract with a Professional Architect, Mechanical and Electrical Engineer if and as required to provide final design in compliance to this Specification and Code.
4. Contractors shall note that all work under this Contract is considered as a Mechanical Prime Contract with direction and coordination with the City of Mentor, their Agents/Owner Representatives and Project Manager. All work to be done by experienced Contractors, there Professional designers, their personnel and technicians for each Trade and Sub-trade. See Bid Packet and Invitation to Bidders for additional information and requirements.
5. The following documents shall be prepared by the Contractor and applied with consideration to the Owner’s Instruction to Bidders, Owner’s Terms and Conditions and all stipulations:
 - a. Criteria drawings, equipment schedules and the specifications herein;
 - b. The Owner’s Bid Documents Bid Forms;
 - c. The Owner’s “Special Conditions” #SC-1;
 - d. Owner’s EJCDC #C-700 Standard General Conditions of the Construction Contract;

- e. Owner's Contract Form of Agreement
 - f. Contractor to furnish Sub-agreement between Design/Builder and Subcontractor on the Basis of a Stipulated Price;
 - g. Contractor to furnish Contract Performance Bond (or similar);
 - h. Contractor to furnish EJCDC Standard General Conditions of the Subagreement between Design/Builder and Subcontractor (or similar) General Conditions of the Contract noted within these documents, the Bid Documents, General and Special Conditions of the American Institute of Owner's Representatives (EJCDC or similar) and any of the Owner's general requirements shall apply unless noted otherwise.
 - i. Ohio Department of Commerce Bureau of Wage and Hour Administration Prevailing Wage;
 - 1) Prevailing Wage Threshold Levels Quick Reference 2012-2013
 - 2) Affidavit Of Contractor Compliance
 - 3) Instructions For Preparing Certified Payroll Reports
 - 4) Prevailing Wage Bid Tabulation Form
 - 5) Prevailing Wage Contractor Responsibilities
 - 6) Prevailing Wage Determination Cover Letter
 - 7) Prevailing Wage Law
 - j. Other acceptable Contract Documents shall include American Institute of Architects (A.I.A.) and Design Build Institute of America (DBIA) with provisions referencing the Owner provided and/or stipulated documents.
 - k. The owner will provide PDF format drawings of the existing buildings for reference only. The existing Police, Courts and Administration Buildings drawings are available in electronic pdf format. Some drawings are also available from the City of Mentor for reproduction. However, the existing drawings are not as current, correct nor accurate records of existing systems and equipment. Bidders and/or successful Contractors shall notify the City of Mentor if obtaining additional drawings (if, where and as available) where deemed necessary.
 - l. See the Bid Packet for additional information and requirements.
6. The Owner's Representative (unless noted otherwise as assigned by the City of Mentor) shall be as follows:

Michael R. Bellman
Bellman Design Services Company

33039 Lake Road – Avon Lake, Ohio 44012
Phone: (440) 328-4701 Email: bellmandesign@oh.rr.com

7. The drawings are diagrammatic “criteria” only; the work performed as expressed unless existing conditions or coordination issues require changes. Changes will not be an additional cost to the Owner. Basic background AutoCAD format drawings will be available for the successful Contractor’s use for the design and preparation of all drawings.
8. The Equipment Schedules and these Criteria Specifications shall be adhered in every way possible in regards to criteria systems’ types, equipment manufacturers and model numbers (unless alternate manufacturers or “as equal” is mentioned), performance, etc. unless issues arise resulting in the absolute necessities to substitute criteria. Notifications of alternate manufacturers shall be in writing to the Owner’s Representative prior to proceeding with Bid Award, Design, Procurement and Construction.
9. Any incidental design items or systems not included in these criteria specifications or the drawings but reasonably implied are to be furnished at no additional cost and considered as necessary for the complete design and installation of all systems. It will be the judgment of the Owner’s Representative/Project Manager as to whether the item or items are incidental.
10. Contractor shall obtain all necessary Professional Engineering services, licenses, permits, inspections and certificates required to proceed with the work.
11. Installation of all equipment shall comply with the original manufacturer's installation manuals, requirements and any additional guidelines indicated on the plans or specified herein. Contractor shall provide all additional accessories required to complete the design and installations.
12. Provided to the Owner; four (4) sets of design and shop drawings of all equipment and accessories provided for the project whether specified herein or on the drawings. Review of the design and shop drawings shall be for general design concept and adherence with the Criteria Specifications. Drawings shall be submitted prior to start of any field construction work unless specific arrangements are made otherwise through the Owner and/or the owner’s Representative. Electronic submission of design and/or shop drawings to the Owner is acceptable.
13. The bidding of this work will contemplate the use of equipment and materials exactly as noted herein, on the drawings or Owner Representative approved alternate manufacturers and/or substituted equals. If one or more names of manufacturers are mentioned then any one may be utilized if agreeable to the Owner’s Representative. If Contractor intends to substitute any equipment as to type and/or manufacturer in the bid process, before or after the Contract is awarded then the Contractor shall

notify the Owner's Representative in writing as to reasons for such substitutions and any changes in schedule and/or cost to the contract. Such substitutions shall be reviewed by the City of Mentor prior to acceptance.

14. All materials and methods specified herein shall be minimum. If a conflict occurs, the Owner's Representative shall resolve such conflict with the Contractor conforming to the Owner's Representative decision.
15. This Contract shall include a visit to the job site and take into consideration any mechanical, electrical and general trade work currently existing and/or work which the Owner may have provided or installed prior to this Contract award. Relocation of existing and/or new, piping and equipment, as required, to avoid this work shall be provided at no additional cost to the Owner.
16. All existing utility and mechanical services shall be field verified. Corrections to the design and installation shall be made without additional cost to the Owner.
17. Contractor shall verify that all new penetrations through rated assemblies meet appropriate Code required firestopping requirements. Coordinate locations and types of firestopping materials with the Owner's Representative.
18. Provide any additional Structural and Electrical drawings for new rooftop HVAC air handling systems' preferred support systems.
19. New equipment shall not be supported from any ceilings, other piping, conduit, ductwork or roof decking. All equipment and ancillary items shall be supported from acceptable structural building components as determined by the Owner's Representative and Industry Standards for the type of support conditions encountered.
20. Provide the final designs and installations with equipment as scheduled, noted and/or as specified herein for materials and methods as required by the specific installation, related manufacturers' installation manuals and any applicable Codes.
21. Refer to the Owner's Bid Documents and the General and Special Conditions and relative EJCDC (or other) documents for additional requirements regarding; designs, safety, coordination and cooperation, workmanship, protection, cutting and patching, damage to other work, preliminary operations, storage, adjustments, cleaning, etc.
22. After the acceptance tests are completed and accepted by the Owner; four (4) sets of as-built documentation shall be provided to the Owner. It shall include, but not be limited to, accurate plan drawings, operation and maintenance manuals, applicable system schematics, written sequence of operation, and all factory installation diagrams in the form of Operations and Maintenance (OandM) Manuals. Drawings shall also be available to the owner in PDF and AutoCAD format. All other

documents shall be in PDF format.

23. All new work shall be commissioned and guaranteed for one (1) year after acceptance by the Owner.

B. SCOPE OF WORK

1. The Scope of Work as described herein and as directed and illustrated on the drawings shall include the following:
 - a. Preparation of preliminary and final design drawings for the entire project;
 - b. Architectural permit drawings if, where and as required;
 - c. Structural engineered permit drawings if, where and as required;
 - d. Mechanical (plumbing and HVAC) engineered permit drawings;
 - e. Electrical engineered permit drawings;
 - f. Building Department review and permit drawings submittals;
 - g. Complete provision and construction of new systems and equipment;
 - h. Air and Water Balancing with certified reports;
 - i. Project close-out, commissioning and warranty;
2. See the Bid Documents, Criteria drawings and remaining sections of this Criteria Specification for additional information and requirements.

C. DESIGN/BUILD TEAM

1. The Design/Build team includes all Joint-Venture partners, consultants and sub-contractors to the Prime Mechanical Contractor. The Design/Build Team shall provide Professional Engineering disciplines for the preparation of construction documents as required. The Prime Mechanical Contractor shall provide Construction Contractor capabilities for construction of the project.
2. The Bid Documents, Criteria Drawings and these Criteria Specifications are for reference purposes only to define existing conditions, certain required items, and design parameters to be included in the project. It is the Design/Build Team's responsibility to finalize and complete the documents and construction in a manner consistent with the intent of the documents within the required time period (contract length).

3. Design Review Submissions:
 - a. The A/E Design/Build Team will prepare and submit complete construction documents for review and approval by the Owner's Representative in accordance with Standard Professional Practice and prevailing Codes.
 - b. The documents may be divided into multiple review submission packages. The Owner's Representative will review as many as two (2) package submissions (examples: demolition, architectural or structural, mechanical, electrical, plumbing etc.) to facilitate the start of construction.
 - c. All submission packages will be reviewed at approximate 33%, 66% and 95% completion stages. The 95% review submission packages will incorporate the final review comments from the 66% review. If any package is not complete for the required stage, a post review may be required at which the re-review costs will be borne by the Design/Build Team.
 - d. Each review submission package shall include two (2) hard copy sets and two (2) sets on CD-ROM, in both AutoCAD and Adobe PDF formats. The package will include an index of drawings (by sheet number and title) and specifications (by section number and title) submitted. These packages will be submitted to the Owner's Representative.
 - e. The Design/Build Professional Engineer(s) who prepares the actual construction documents shall be a State of Ohio registered Professional Engineer for each structural, mechanical and/or electrical discipline. The professional seal indicating such license by the state shall appear on the final construction documents. The Mechanical Engineer whose seal is shown on the Mechanical Documents will be known as the Engineer of Record for mechanical. Where and as required, sub-disciplines such as the structural, mechanical and electrical engineer(s) shall include their registration stamps on their drawings and specifications.
4. Construction Drawing Preparation - Drawings with plans, mandatory material and equipment schedules and details may be indicated either on the drawings or in the specifications, at the option of the Design/Build team. The construction drawings shall include a coordinated set of the following:
 - a. HVAC drawings including floor and roof plans, equipment schedules, and details, including general notes and all applicable necessary and related calculations;
 - b. Structural drawings if, where and as necessary with chiller slab, RTU/curb and/or other systems requiring such shall include required details, including

general notes and all applicable necessary and related calculations.

- c. Plumbing drawings including natural gas, domestic/make-up water and drainage for all new HVAC systems and details, including general notes, and all related calculations;
 - d. Electrical drawings shall include plans, (power modifications, new equipment power, communications cable access runs), one-line diagrams, panel schedules, equipment schedules, related equipment schedules calculations and details.
 - e. Construction Specifications - Project specifications shall include specifications for all products, materials, equipment, methods, and systems shown on the construction drawings in accordance with Standard Professional Practice and the SOW (Statements of Work). The specification submitted for review shall include the name of the manufacturer, the product name, model number, and indicate if an equivalent is acceptable. Other identification as appropriate to clearly identify the product that will be used in the construction of the project shall be included. Other data as appropriate to clearly identify the product that will be used in the construction of the project (i.e. shop drawings and product data).
 - f. Project design shall be in compliance with applicable Standards and Codes described in the Criteria Documents and design materials included or referenced in the solicitation materials.
 - g. The Design/Build Team shall provide prompt, written notification to the Owner's Representative concerning conflicts with, or recommended deviations from the Criteria Documents, Codes, laws, regulations, Standards, and opinions of possible review officials recommendations as described above. No work altering the Scope of this Contract shall be undertaken prior to receipt of written approval from the Owner's Representative.
 - h. Design Quality Assurance/Quality Control - To reduce design errors and omissions, the Design/Build team shall develop and execute a QA/QC plan that demonstrates the project plans and specifications have gone through a rigorous, thorough review and coordination effort.
5. Design Review Meetings
- a. Meeting participants will include Design/Build team members as appropriate for the specific package to be reviewed. The Design/Build team members will each allow for one (1) full day for all discipline package design review meetings. The Contractor, Design/Build team management will be present at each review meeting.

- b. The Design/Build team shall allow the Owner's Representative a minimum of seven (7) working days for each review cycle. A cycle includes (1) The Owner's Representative's receipt of the design review submission package; (2) The review meeting; (3) The Design/Build's teams receipt of comments from the Owner's Representative, either electronically via email or hard copy delivery.
 - c. Coordination of the review meeting schedules will be the responsibility of the Design/Build Team Project Manager along with the Owner's Representative and/or their selected participants.
- 6. Site Visits and Inspections - During the construction period, the Design/Build Teams A/E's shall make period site visits if or when requested by the Owner's Representative.
 - 7. Construction Period Submittals - The Design/Build Contractor shall distribute three (3) sets of the approved construction documents prepared by the Design/Build Team to the Owner's Representative.
 - 8. Project Record Drawings - The Design/Build team will maintain a set of construction documents (field as-built drawings) to record actual construction changes during the construction process. Such record drawings will be available for review by the Owner's Representative and the City of Mentor selected personnel and Building Officials at all times.
 - 9. Shop drawings and submittals - The Design/Build team and Owner's Representative shall review the Contractor's shop drawings, detail drawings, schedules, descriptive literature and samples, testing laboratory reports, field test data and review the color, texture and suitability of materials for conformity with the Criteria and Construction Documents. The Owner's Representative shall recommend approval, disapproval, or other suitable dispositions and shall evaluate the submittals with reference to any companion submittals that constitute a system. When necessary, the Owner's Representative may request the DESIGN/BUILD Construction Contractor to submit related components of a system before acting on a single component.

D. SELECTIVE STAGED DEMOLITION

- 1. This Contract shall include all labor, materials and miscellaneous expenses required for the required building, mechanical and electrical related demolition of the existing systems shown on the drawings. Coordinate all demolition with the Owner's General Requirements and all sub-trades. Demolition considerations shall be as follows:
 - a. Asbestos inspections of new construction affected areas and reports.

- b. Systems demolitions and equipment replacements shall be scheduled to occur as to not interrupt the Municipal Center Buildings' normal operations. Contractor to anticipate evening, nighttime, weekend and holidays to provide minimal interruptions.
 - c. See anticipated construction schedules within bid packet. Based on Contractor anticipated actual lead times, installation and start-up times, provide a detailed anticipated work schedule within the bid submissions revised as required. Final demolition and new construction to be determined by the Contractor and the Owner/City of Mentor proceeding Contract award and mobilization.
 - d. See descriptions herein, drawing descriptions, instructions to bidders and bid forms for add and deduct alternates.
 - e. Attempt coordination of all demolition with careful consideration to work required, specifically for all air handling systems.
2. Asbestos – It is currently unknown if the existing areas for work under this Contract contain asbestos. Prior to commencement of any demolition and/or new work, the Design/Build Contractor shall employ/contract a Certified Asbestos Consultant/Contractor to inspect the proposed work areas' confinements to determine if asbestos does exist, to what extent and basic means and methods of containment and/or removals as required. This inspection shall be included under this contract. The Asbestos Consultant shall provide a written report to the prime mechanical Contractor whom in turn, shall forward such to the City of Mentor. Any and all subsequent asbestos work (i.e. additional consulting and/or contracting) shall be addressed by the City of Mentor and shall be performed under a separate contract. Should such occur, the Contractor shall not be held liable for project delays resulting from and for appropriate actions by the City of Mentor and/or their Asbestos Contractor/Consultant. The scope under this Contract shall imply that trade work not related by asbestos work shall be commenced and/or completed without major delay.
3. All locations of existing equipment, related structure, fixtures, piping, ductwork, wiring, controls, power and controls conduits, etc. shall be field verified. The scope of work shall include the staged and complete demolition and removal of all unnecessary equipment, ductwork, piping, etc. (except as indicated to remain) whether shown to be removed or not indicated on the plans at all.
4. The Owner shall have the right of first refusal of all equipment to be demolished/removed. Verify which equipment or fixtures the Owner would like the Contractor to remove, and salvage. Remove items to protect against damage.
5. Protect equipment, piping, ductwork, etc. indicated to remain against damage and soiling during selective demolition. When permitted by the Owner, items may be

removed to a suitable, protected storage location during selective demolition, then to be cleaned and reinstalled in their original locations.

6. Where existing systems or equipment to remain is damaged or disturbed, remove the damaged portions and install new products of equal capacity and quality. Where identical materials are unavailable or cannot be used, use materials whose installed performance equals or surpasses that of the existing materials.
7. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.
8. Coordinate any and all shut downs with the City of Mentor's Building Management with at least three (3) days notice. Should inclement weather conditions constitute temporary shutdown of boilers, chiller, packaged air conditioning units, maintain equipment so that outdoor air dampers are maintained for occupied schedules, space temperature setpoints, etc. Provide temporary adjustments to such dampers, actuators and associated linkages.
9. Maintain all existing utilities (HVAC, plumbing and electrical) indicated to remain in service and protect them against damage during selective demolition operations. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by the Owner and/or authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Owner. Provide not less than 72 hours' notice to Owner if shutdown of service is required during changeover. Where utility services are required to be removed or relocated, provide bypass connections to maintain continuity of service to other parts of the building before proceeding with selective demolition. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit after bypassing.
10. Systems demolitions and equipment replacements shall be scheduled to occur as to not interrupt the Municipal Center's normal operations. Contractor to anticipate evening, nighttime, weekend and holidays to provide minimal interruptions.
11. On drawing designated areas, roofing membrane and ballast work shall be done by the Owner's existing Roofing Contractor where currently under warranty. Other areas of roof work shall be done by the Owner approved roofing sub-contractor working under the Mechanical Prime Contractor.
12. Refrigerants shall be removed from existing chiller, existing condensing units and all packaged rooftop HVAC units being demolished containing refrigerants without releasing chlorofluorocarbon refrigerants to the atmosphere in accordance with all governing authorities and as follows:

- a. All air-conditioning removal technicians performing such duties on job site shall have EPA Certification: according to EPA Section 608, Clean Air Act Amendments of 1990.
- b. Individuals who service, repair, or dispose of air-conditioning and refrigeration equipment, including in-house service personnel, installers, Contractor employees, and anyone else who performs installation, maintenance, or repair of HVAC refrigeration equipment shall be EPA certified.
- c. Refrigerant recycling/recovery equipment shall be per EPA Section 608, Clean Air Act Amendments of 1990, the Owners of refrigerant recycling or recovery equipment, including Contractors and others responsible for HVAC equipment serving, shall submit EPA Form OMB #2060-0256 signed by the Owner/responsible company officer, and sent to the appropriate EPA office.
- d. Remove all refrigerants from site in approved containers as required by the recycler and/or governing authorities.

E. MECHANICAL SYSTEM BASIC SCOPE, EQUIPMENT AND MATERIALS

- 1. The scope of the mechanical work shall include the following:
 - a. Final design and installation of the systems as shown on the drawings, specified herein and as required.
 - b. Alternates – see descriptions herein, drawing descriptions, Instructions to Bidders and Bid Forms.
 - c. Existing boiler and chilled water loop and systems treatment analysis, shock treatment and refill.
 - d. Staged demolition and removals as noted.
 - e. Provide and install new boilers, chiller, pumps, related piping and controls.
 - f. Provide and install new domestic water heating system in the Police Building basement's Mechanical Room.
 - g. Provide and install new packaged HVAC units, related piping and controls.
 - h. Provide and install new Administration Building air handler cooling coil and

designated accessories, related piping and controls.

- i. Refurbish existing expansion tanks, air separators, painting and insulation. Replace if, where and as required.
 - j. Insulate piping and equipment as directed and/or as required.
 - k. Install new smoke detectors in all new packaged rooftop HVAC units include Administration Buildings' third (3rd) floor air handling unit and building relief/exhaust fans. Smoke detectors to be designed, furnished and installed per Code and in accordance with Industry Standards. Coordinate interface into existing building fire alarm systems with Owner's existing Fire Alarm System Contractor/Vendor.
 - l. Install new DDC controls systems to interface into existing DDC controls systems.
 - m. Install new VFD drives for two (2) existing building exhaust relief fans on roof of Administration Building for building pressure control.
 - n. Test, balance and warranty including one (1) year commissioning.
 - o. Provide OandM Manuals and operational instructions to the Owner's designated personnel.
 - p. See Electrical portion of these specifications for all related work.
2. See the keyed notes on the drawings and related equipment schedules for equipment criteria, manufacturers, performances, etc. The systems' capacities indicated on the drawings and herein are based upon review of the existing drawings, site investigations of existing systems and equipment, load profiles of the boiler and chiller systems and related HVAC peak load calculations. New equipment sizing and specifications shall be considered as accurate. Should successful Contractor determine otherwise, such shall be indicated in-writing with documentation proving or disproving systems' and/or equipment selections within these Contract documents; include detailed descriptions, schematic/illustrative drawings of design revisions, equipment schedules and any other resulting modifications affecting the work and/or Contract price.
3. Prior to start of any work, a Water Treatment Specialist shall sample the existing buildings' hydronic heating and cooling loops and provide a report as to the probable condition of the entire hydronic systems, required flush and treatment to each system prior to installing any new hydronic orientated equipment. Warranty work under this Contract shall include one (1) year of hydronic systems' analysis reports and water treatment chemicals. Do not fill boiler, chiller or operate with

water containing chlorine in excess of 200 PPM and/or with water hardness above seven (7) grains.

4. Chiller - The new proposed split-evaporator air-cooled chiller base specified as McQuay as provided by Wadsworth Solutions; approved equal shall be Johnson/York, or Trane as follows:
 - a. Chiller output capacities noted in the schedules have been predetermined based on existing buildings' boiler sizes, actual and current heating loads and conditions.
 - b. Chiller performance and ratings shall be per schedule for capacity, tonnages, flow rates, power consumption and noise criteria.
 - c. Existing building chilled loops normally operate in the ranges of 54 to 56 Deg F return water temperatures, 42 to 44 Deg F supply water temperatures. Existing chilled water pumping systems and chillers are to be on DDC controlled/supervised outdoor reset control. New chiller shall be locked-out at 50 Deg F, as existing air handling systems utilize economizer control for intermediate/cool seasons primary cooling.
 - d. Manufacturer must provide both sound power and sound pressure data in decibels. Sound pressure data per ARI 370 must be provided in eight (8) octave band format at full load. In addition, a-weighted sound pressure at 30 feet should be provided at 100%, 75%, 50% and 25% load points to identify the full operational noise envelope. Sound power must be provided in 1/3 octave band format to highlight any tonal quality issues. If manufacturer cannot meet the noise levels (per the chiller equipment schedule), sound attenuation devices must be installed to meet this performance level. See general drawings and specifications for chiller sound attenuation walls base-bid and alternates.
 - e. New chiller shall comply with applicable standards/Codes of ARI 550/590, ANSI/ASHRAE 15, ASHRAE 90.1 current version requirements, and ASME Section VIII.
 - f. The new chiller shall contain stand-alone intelligent controller with BACnet communications interface to the existing campus DDC system (see controls section and sequence of controls).
 - g. Where devices are controls vendor/system house provided and/or where control devices are required to be factory mounted within actual equipment, arrange for shipping of control devices to the actual unit manufacturer.
 - h. Provide factory-authorized starting of chillers, and instruction to the Owner

on proper operation and maintenance.

- i. Due to noise generation from the chiller, provide a detailed analysis of sound that may require chiller one (1), two (2) or three (3) side surround wall system utilizing acoustical sound absorbing panels. Design/Build Engineer and chiller vendor/manufacturer shall provide sound analysis with recommendations for acceptable sound levels. Provide pricing for such as an “Add Alternate”.
- j. During the first 12 months of operation, the manufacturer, the vendor and/or an authorized technician shall perform quarterly remote or on-site operating inspections to confirm the chiller’s operational performance. Resulting from each inspection, the manufacturer shall provide the Owner with a report describing the condition of the equipment and each of its major components, a log of its current operating data, any issues needing to be addressed, and any recommended corrective actions.

5. New Boilers:

- a. Boilers to be commercial condensing type with nominal 92% efficiency rating with 155 Deg F entering, 185 Deg F maximum leaving water temperatures. Integral boiler pumps and secondary loops to be designed and sized for maximum temperature differences (30 Deg F+ preferred). Multiple residential boilers will not be acceptable. Pairs of boilers for some redundancy are required; single boilers for each building will not be acceptable.
- b. Boilers’ output capacities noted in the schedules have been predetermined based on existing buildings’ boiler sizes, actual and current heating loads and conditions.
- c. The new Police Building and Administration Building boilers noted and scheduled shall be “Lochinvar Sync” series as the Owner’s preference as such are present at other Mentor facilities. Considerations for other boiler manufacturers are Thermal Solutions “Evolution” series and Laars “Rheos+” series. Alternate boiler manufacturers other than listed shall be manufactured in the United States and shall be subject to review and acceptance by the Owner prior to awarding contract.
- d. Existing building heating loops normally operate in the ranges of 120 to 155 Deg F return water temperatures, 130 to 180 Deg F supply water temperatures. Pumping systems and boilers are operated to be reset based on outdoor temperatures and actual load conditions.
- e. Boilers to be provided and configured as “complete” systems insofar as

sensors, pumps, starters, relays, controls, related wiring is concerned.

- f. Police Building boilers shall be capable of nominal 1312 MBH total output capacity.
 - g. Administration Building boilers shall be capable of nominal 1880 MBH total output capacity.
 - h. Provide final design and provisions for all new heating systems pumps, piping, specialties, valving and controls up to existing piping main connections within the mechanical rooms.
 - i. Contractor shall stage the demolition and new installations as required to ensure that building heat and/or cooling are not interrupted as to normal HVAC sequence and/or other normal building operations. In the Administration Building, at least one existing and/or new boiler shall remain in operation until all new heating systems installations are complete and operable. Schedule such with the City of Mentor's Building Administrators/Management, vendors and sub-trades.
 - j. The new scheduled boilers shall be made operable as soon as possible to maintain VAV reheat in the Police and Courts Buildings as well as existing air handler heat and perimeter heating systems within the Administration Building.
 - k. The new boilers, separated combustion intake and exhaust flues vent materials and methods shall be as specified in the boiler's installation and operation manual.
 - l. Provide any or all boiler system accessories required by the vendor, manufacturer and Code.
 - m. Provide the final design with materials and methods as required by the specific manufacturers' installation manuals.
6. The Police Building domestic water heating boiler shall be replaced with a new system as follows:
- a. A new Lochinvar "ARMOR" high efficiency commercial domestic hot water boiler. Up to 98% thermal efficiency, 285,000 BTU input (each), 339 GPH recovery (each) at 100-degree rise. Includes: M9 controls, fully modulating, 5:1 turndown, all-bronze circulating pump, and diagnostic control.
 - b. Stainless steel heat exchanger, ASME TandP relief valve, 4" vent connection for PVC vent.

- c. Include condensate neutralization kit, BACNET communication capability, and factory start-up.
 - d. Clean, flush and re-pipe new water heating boiler to existing tank; provide new circulating pump, piping and accessories as required and/or as recommended by the original manufacturer.
7. New Packaged Rooftop Equipment:
- a. Packaged rooftop units shall be R-410A as manufactured by McQuay as the Owner's preference. Subject to approval, acceptable alternate manufacturers include York/Johnson, Carrier and Trane providing that efficiencies meet or exceed that of the scheduled units.
 - b. The new packaged rooftop HVAC equipment noted and scheduled shall be ordered and configured as "complete" systems insofar as sensors, dampers, actuators, starters, relays, controls, related wiring is concerned. Furnish and install all new curbs, curb adapters, related support framing/sub-framing, flashing, insulation repairs, decking repairs and roofing work. For RTU-1, 3, 4 and 5, extend existing natural gas piping to new units' natural gas heating sections.
 - c. Rooftop units to be ARI rated for 80/67 entering conditions, 95 Deg F ambient.
 - d. Units outdoor/return air modulating control shall include low-leakage dampers, enthalpy controlled economizer with CO2/demand-controlled nominal 10% occupied outdoor air (see controls section).
 - e. Units with natural gas heat shall be OEM equipment with powered venter, modulating burner control, minimum of a 5:1 turndown.
 - f. Provide units with nominal 30% efficient MERV 7 filters. Include three (3) spare sets to turn over to owner.
 - g. Disconnect and remove existing units, inspect existing roof curb and modify if it is required to accommodate installation of new adapter curb. At contractor's option, replace curb, required decking, insulation and flashings if deemed necessary.
 - h. All new roofing work shall be done by the Owner's existing or approved roofing Contractor(s) for areas currently under warranty (Police and Courts). All other roofing work shall be done by an Owner approved roofing Contractor.

- i. Prepare existing ductwork connections for new unit as required.
 - j. Inspect existing power wiring/feeders. Modify as required per current NEC to accommodate new RTU disconnect and power wiring.
 - k. See RTU equipment schedules and controls section for additional information and requirements.
8. Administration Building 3rd Floor existing Trane dual-deck constant volume air handler work shall be as scheduled and as follows:
- a. Disconnect power and controls, evacuate, remove and replace existing two (2) 50 ton condensing units prior to removing existing cooling coil. See proceeding "Condensing Units" section and schedules for additional information and requirements.
 - b. Disconnect, evacuate, remove and replace existing cooling coil, drain pan and related refrigerant piping. Seal casing air and make watertight. Replace with new cooling coil assembly with multi-circuit coil(s) as required, one coil for each new condensing unit. Nominal ratings shall be based on ARI 80 Deg F dry bulb, 67 Deg F wet bulb entering air conditions, 55 Deg F maximum dry bulb, 54 Deg F nominal wet bulb leaving conditions with 15,000 CFM per coil or 30,000 CFM total cold deck airflows.
 - c. Provide new refrigeration expansion valves (TXV's) to match new nominal 60 ton condensers' circuiting capacities (50.5 tons each actual @ 45 Deg F suction and 95 Deg F outdoor ambient). See details on drawings and refer to condenser manufacturer's OandM manuals for refrigeration specialties, additional information and requirements.
 - d. Disconnect, remove and replace existing outdoor air dampers, actuators, linkage, etc. Repair duct connections, seal and repair/replace insulation as required.
 - e. Inspect existing hot deck heating coil and casing section; clean, comb fins, flush, re-pipe (see drawings), refill and make operational. Reseal casing air and make watertight. Existing heating coil performance is based on 15,000 CFM, 65 Deg F entering air, 110 Deg F leaving air, 835 MBH hydronic/boiler water heat, 85 GPM of 180 Deg F entering water.
 - f. Replace temperature, humidity and static sensors and related wiring and controls as indicated on the drawings and as required. Interface into DDC controls system.

- g. Provide and install new return air carbon dioxide sensor, related controls and wiring; interface into DDC controls system.
 - h. Add new supply and return smoke detectors, interface into existing building's fire alarm system as required.
 - i. Inspect blower and related belts, sheaves, bearings, motor, vibration isolating mounts, etc. Provide a written report to the Owner's Representative as to any other necessary service work (i.e. blower belts, sheaves, bearings, motor, vibration isolation, etc.).
 - j. Inspect and reseal existing service/inspection doors' casings and gaskets.
 - k. Inspect, determine methods and reseal existing casings' seam leaks.
 - l. See equipment schedules and controls section for additional information and requirements.
9. New Administration Building Condenser Units shall be as follows:
- a. Reclaim and handle refrigerant according to E.P.A. requirements. Supply the necessary labor and equipment to rig the demolition of the existing and new condenser units' installations. Make the necessary structural steel support modifications/alterations, electrical and mechanical connections for a fully functional unit. Include all necessary labor and materials.
 - b. Owners' preferred manufacturer of condensers is McQuay Series RCS R-410A air-cooled split system condensing units. Acceptable alternate manufacturers include York/Johnson Millennium series and Carrier Gemini Select series providing such alternate equipment meet or exceed McQuay performances (EER at 11.1 or above). Nominal new condensers' capacity ratings are to be nominal 60 tons (53.3 tons actual capacity) based on 44.55 Deg F saturated suction temperature and 95 F outdoor ambient conditions. Condensers are to comply with ASHRAE 90.1-2010 with actual coil selection/configuration. New condensers shall be locked-out at 50 Deg F, as existing air handling systems utilize economizer control for intermediate/cool seasons primary cooling.
 - c. Existing two (2) rooftop condensers are nominally rated for 50 tons each and shall be replaced with 60 ton capacity units (see cooling coil requirements in previous section). Condensing units shall be dual-circuit with four (4) scroll type compressors.
 - d. Suction driers to be removable core type. Driers to be properly sized for

tonnages of each circuit.

- e. Charge unit with new refrigerant based on superheat. Leak test and repair all work. Weigh coil charge and compare to manufacturers recommended charge. Provide two (2) extra 25# refrigerant cylinders/tanks with Owner.
 - f. Provide factory startup of units.
 - g. Provide an inspection after the unit has operated for two (2) weeks. Replace the suction line filter drier cores. Test for oil acidity.
 - h. Warranty to include Manufacturer's warranty plus a one (1) year labor warranty.
 - i. See equipment schedules and controls section for additional information and requirements.
10. Pump controllers shall ultimately be of an "intelligent type" (see equipment schedules) and be furnished with single point primary power, variable frequency drives (where noted and applicable), communications (via existing building's DDC and/or integral Modbus, BACnet or LonWorks), integral transducers connections (i.e. pressure, GPM flow transducers, CT's etc.), starters, switching, overload, disconnection means, and installed by the mechanical nearest to the controlled pumps as possible and as follows:
- a. Pump controllers may be a complete factory assembly equal to Cerus or Square D with all components pre-installed for single power and communications connections.
 - b. In lieu of factory assembled pump controllers, such may be final-designed by the "systems house" with remote I/O and sensor wiring, local VFD (where applicable), starter and disconnection means with remote wired sensors to I/O modules.
 - c. See drawing schedules. Verify actual configurations and requirements.
 - d. See equipment schedules and controls section for additional information and requirements.
11. Where and as required by the specific equipment's installation requirements, new indirect waste piping shall be copper pipe and fittings with 50/50 soldered joints. Pitch piping to the drain termination points (verify) at no less than 1/4" per foot slope. Provide threaded cleanout plugs in every 90 degrees change in direction.
12. The use of reducing bushings for change in pipe sizes shall be prohibited. Utilize

reducing concentric reducers and reducing tees per Industry Standards.

13. All piping and equipment connections to dissimilar metals shall be made with dielectric type fittings, unions, valves, etc.
14. New natural gas piping shall be as follows:
 - a. Material, joints and installation shall meet the requirements of the Ohio Mechanical Code, ANSI B31.2 "FUEL GAS PIPING", NFPA 54 "FUEL GAS CODE", the utility company requirements and any other authorities having jurisdiction. All elevation changes shall have a 6" deep drip leg. Provide a full size gas shut-off valve and ground joint union at all connections to gas fired equipment. In no case may a valve be installed in a return air plenum.
 - b. Natural gas line between mains and gas boilers shall be no less than OEM recommended sizes. If equipment connection is less than 3/4", provide appropriate reduction between appliance and union downstream from dirt leg and shut-off cock.
 - c. Natural gas piping 2" and smaller shall be schedule 40 black steel pipe (ASTM A53) with thread joints and malleable iron fittings. Gas shut-off valves shall be equal to Rockwell Super Nordstrom Fig. 142.
 - d. Natural gas piping 2-1/2" and larger shall be schedule 40 black steel pipe (ASTM A53) with wrought steel butt welding fittings. Gas shut-off valves shall be equal to Rockwell Nordstrom Fig. 143.
15. HVAC hydronic piping shall be as follows:
 - a. The Contractor shall utilize Victaulic (or equal) grooved piping products (in lieu of welded, flanged or threaded joints, fittings and valves) configured within their pressure and temperature range on all circulating water systems. Install using manufacturer's recommendations as shown in their latest general catalog, piping design manual (G-100) or pocket handbook (I-100). Mechanical grooved pipe couplings, fittings, butterfly, ball and check valves, expansion joints, mechanical "T"'s and other products as manufactured and/or supplied by Victaulic Company of America. These items shall be used for piping systems and mechanical equipment in connections (in lieu of welded, flanged and threaded methods) and also may be used as unions, seismic joints, flexible connections, expansion joints, expansion compensators, vibration reducers) in systems specified.
 - b. Heating and chilled water piping larger than 2-1/2" shall be ASTM A120, Schedule 40, seamless, black steel pipe with grooved mechanical fittings and

couplings. Victaulic or equal grooved piping connection systems and fittings are acceptable.

- c. Heating/boiler and chilled water piping 2-1/2" and under shall be type "L" hard copper drawn copper pipe with wrought copper fittings and 95-5 soldered joints. Victaulic or equal grooved piping connection systems, fittings and valves are acceptable.
 - d. PVC piping will not be permitted.
- 16. Account for thermal expansion when in process of final design of piping systems, pipe hangers and supports. Where space allows, expansion bends fabricated from standard piping are preferred over expansion joints.
 - 17. Valve types shall be as applicable per Industry Standards. For isolation, valves may be ball type for less than 2-1/2" – ball or butterfly type for over 3". Valves of all pipe sizes for regulating flow shall be globe type.
 - 18. Provide drain valves where required by equipment manufacturers, where indicated on the drawings and at all low points in the piping system for system drainage.
 - 19. Manual air vents shall be 150 PSIG, bronze body with screwdriver or thumbscrew operation and having 1/8" discharge and 1/2" inlet connections. Install vent on all high points in the system as required for system air removal. Vents shall be by Bell and Gossett, Spirax Sarco or equal.
 - 20. Make-up water assembly: replace existing chiller and boiler make-up water assemblies. Inspect and test backflow device(s) and pressure regulating/reducing valves; set for 12-14 psi maximum. Repair and/or replace any faulty assembly components.
 - 21. Pipe insulation shall be as follows:
 - a. All new heating hot water supply and return piping shall be insulated; any or all existing un-insulated piping and fittings within the Mechanical Rooms shall also be insulated.
 - b. Indoor heating and chilled water piping within the mechanical rooms shall utilize 1-1/2" thick fiberglass piping insulation with an all service jacket and self-sealing lap (ASJ/SSL).
 - c. Domestic make-up and chemical feed water piping insulation shall be 1/2" thick. Fittings and valves shall be insulated with pre-molded fiberglass fittings and covered with a pre-formed PVC fitting cover. Insulation jacket and fitting cover must be plenum rated. Insulation by Owens-Corning,

Knauf, or Manville is acceptable. Installation shall conform to the manufacturer's recommendations.

- d. Utilize Owens Corning (or equal) fiberglass pipe insulation with factory applied all-service jacket (ASJ) and two-component adhesive closure system, rated for a maximum service temperature of 850 F (454C). For large pipe sizes where SSL-II is not available, the single adhesive SSL closure may be substituted. Circumferential joints shall be sealed by butt strips having a two-component sealing system. Stapling is not required to complete the closure. When self sealing lap systems are used, sufficient thickness of insulation shall be used to maintain the outer surface temperature of the operating system below +150F (65C). Manufacturer's data regarding thickness constraints in relation to operating temperature shall be followed. When multiple layers are required, all inner layer(s) shall be no wrap. On cold systems, vapor barrier performance is extremely important. All penetrations of the ASJ and exposed ends of insulation shall be sealed with vapor barrier mastic. In areas where humidity level in excess of 90% are expected, the ASJ shall be protected with either a mastic coating or a suitable vapor retarding outer jacket. Vapor seals at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.
- e. Fittings and valves shall be insulated with pre-formed fiberglass fittings, fabricated sections of Owens Corning fiberglass pipe insulation, Owens Corning pipe and tank insulation, Owens Corning blanket insulation, or insulating cement. Thickness shall be equal to adjacent pipe insulation. Finish shall be with pre-formed PVC fitting covers or as otherwise specified on Contract drawings.
- f. Flanges, couplings and valve bonnets shall be covered with an oversized pipe insulation section sized to provide the same insulation thickness as on the main pipe section. An oversized insulation section shall be used to form a collar between the two insulation sections with low-density blanket insulation being used to fill gaps. Jacketing shall match that used on straight pipe sections. Rough cut ends shall be coated with suitable weather or vapor resistant mastic as dictated by the system location and service. On systems where fittings are to be left exposed, insulation ends should be beveled away from bolts for easy access.
- g. On cold systems, particular care must be given to vapor sealing the fitting cover or finish to the pipe insulation vapor barrier. All valve stems shall be sealed with caulking to allow free movement of the stem but provide a seal against moisture incursion.
- h. If, where and as applicable, hydronic piping located outdoors and exposed to

the weather shall be insulated as indicated above except the thickness shall be determined according to the worst weather extremes expected. The insulation shall then be protected with one of the following weatherproof finishes as indicated on Contract drawings:

- 1) Metal jacketing shall be 0.016" (0.4 mm) minimum aluminum or stainless steel with moisture barrier, secured in accordance with the jacket manufacturer's recommendations. Joints shall be applied so they will shed water and shall be sealed completely.
- 2) UV resistant PVC jacketing may be applied in lieu of metal jacketing provided jacketing manufacturer's limitations with regard to pipe size, surface temperature, and thermal expansion and contraction are followed.
- 3) Fittings shall be insulated as prescribed above, jacketed with preformed fitting covers matching outer jacketing used on straight pipe sections, with all joints weather sealed.
- 4) On outdoor chilled water and refrigerant lines, the insulation system shall be completely vapor sealed before the weather-resistant jacket is applied. The outer jacket shall not compromise the vapor barrier by penetration of fasteners, etc. Vapor stops at butt joints shall be applied at every fourth pipe section joint and at each fitting to provide isolation of water incursion.

22. Refrigerant piping shall be as follows:

- a. In strict accordance with the manufacturer's published instructions, refrigerant piping shall be sized, selected, and designed by the Engineer, Equipment Manufacturer or Contractor. The engineer prepared schematic piping diagrams shall show all accessories such as, stop valves, level indicators, liquid receivers, oil separator, gauges, thermostatic expansion valves, solenoid valves, moisture separators and driers to make a complete installation.
- b. Refrigerant Piping: For piping up to four (4) inch shall be Copper refrigerant tube, ASTM B280, cleaned, dehydrated and sealed, marked ACR on hard temper straight lengths.
- c. Brazed joint: Provide a gas-tight joint obtained by the joining of metal parts with alloys, which melt at temperatures higher than 449 degrees C (840 degrees F) but less than the melting temperatures of the joined parts. Refrigerant tubing shall be cadmium free, AWS A5.8/A5.8M, 45 percent

silver brazing alloy, Class BAG-5.

- d. Stop Valves: Brass or bronze alloy, packless, or packed type with gas tight cap, frost proof, back seating.
- e. Pressure Relief Valves: Comply with ASME Boiler and Pressure Vessel Code; UL listed. Forged brass with nonferrous, corrosion resistant internal working parts of high strength, cast iron bodies conforming to ASTM A126, Grade B. Set valves in accordance with ASHRAE Standard 15.
- f. Solenoid Valves: Comply with ARI 760 and UL 429, UL-listed, two-position, direct acting or pilot-operated, moisture and vapor-proof type of corrosion resisting materials, designed for intended service, and solder-end connections. Fitted with suitable NEMA 250 enclosure of type required by location and normally // open // closed // holding coil.
- g. Thermostatic Expansion Valves: Comply with ARI 750. Brass body with stainless steel or non-corrosive non ferrous internal parts, diaphragm and spring-loaded (direct-operated) type with sensing bulb and distributor having side connection for hot-gas bypass and external equalizer. Size and operating characteristics as recommended by manufacturer of evaporator and factory set for superheat requirements. Solder-end connections. Testing and rating in accordance with ASHRAE Standard 17.
- h. Check Valves: Brass or bronze alloy with swing or lift type, with tight closing resilient seals for silent operation; designed for low pressure drop, and with solder-end connections. Direction of flow shall be legibly and permanently indicated on the valve body.
- i. Strainers: Designed to permit removing screen without removing strainer from piping system, and provided with screens 80 to 100 mesh in liquid lines DN 25 (NPS 1) and smaller, 60 mesh in liquid lines larger than DN 25 (NPS 1), and 40 mesh in suction lines. Provide strainers in liquid line serving each thermostatic expansion valve, and in suction line serving each refrigerant compressor not equipped with integral strainer.
- j. Refrigerant Moisture/Liquid Indicators: Double-ported type having heavy sight glasses sealed into forged bronze body and incorporating means of indicating refrigerant charge and moisture indication. Provide screwed brass seal caps.
- k. Refrigerant Filter-Dryers: UL listed, angle or in-line type, as shown on drawings. Conform to ARI Standard 730 and ASHRAE Standard 63.1. Heavy gage steel shell protected with corrosion-resistant paint; perforated baffle plates to prevent desiccant bypass. Size as recommended by

manufacturer for service and capacity of system with connection not less than the line size in which installed. Filter driers with replaceable filters shall be furnished with one spare element of each type and size.

23. Inspect, clean, flush, prep and paint (if and as necessary) existing expansion tanks noted on plans and insulate. Provide a minimum of one (1) inch flexible closed-cell insulation over tanks and fittings and verify requirements. Should any tank(s) be found to be faulty with leaks, notify Owner's Representative in writing as to recommended remedies and related costs.
24. Y-pattern strainers, unions, drain valves, thermometers, pressure gauges, etc. shall be provided where indicated, where required per equipment manufacturer and as required in similar installations. Provide national/USA recognized manufacturer(s).
25. Provide all thermowells, tees and/or any special fittings required to properly mount instrumentation, controls sensors and related apparatus per the controls vendor requirements.
26. Provide visible pipe identification labels to match existing labeling and/or per Industry Standards.
27. Hydronic Chemical Treatment - A company specializing in water treatment systems shall be employed to provide all pre and final treatment systems and equipment. Testing and treatment shall be as follows:
 - a. Submit a written report of actual cleaning activities including:
 - 1) Times;
 - 2) System status;
 - 3) Problems encountered;
 - 4) Actions taken;
 - 5) Composition of cleaning and spent cleaning solutions;
 - 6) Final concentration of corrosion inhibitor in system;
 - 7) Corrosion coupon weights;
 - 8) Corrosion rates;
 - 9) Final suspended solids concentration in system;
 - 10) Final iron concentration in system;
 - 11) Final copper concentration in system;
 - 12) Final ph;
 - 13) Final conductivity.
 - b. Cleaning chemical solutions shall be neutral PH cleaning solution, which is capable of removing oil, grease, and rust from metal surfaces of system and passivating cleaned metal surfaces of system. Cleaning solution shall include low foaming non-ionic surfactant for penetrating oily and greasy deposit

surfaces, solvent for dissolving oil and grease, dispersant for dissolving rust, reducing agent for corrosion control, ferrous and non-ferrous metal corrosion inhibitors.

- c. Deposit removal cleaning solution: blended neutral ph cleaning solution, which is capable of removing scale and iron deposits, destroying bacteria, and passivating the metal surfaces of system.
 - d. Perform following minimum routine maintenance until interim acceptance of the work:
 - 1) Maintain control limits specified under “performance requirements” and “chemical treatment - control limits”. Add chemicals as required.
 - 2) Replace fouled filter cartridges in by-pass filter with new filter cartridges as required to maintain continuous flow through filter.
 - 3) Replace iron and copper corrosion coupons with fresh coupons every 30 to 90 days and maintain records of iron and copper corrosion rates.
 - 4) Test water samples of system monthly for visual appearance,
 - 5) Ph levels.tds concentration, corrosion inhibitor concentration and total plate count.
 - e. Document all water analyses results, quantities, dates chemicals added and make-up water used on chemical treatment report form. Provide routine inspections and adjustments to treatment system for a one (1) contract.
28. Clean, flush and test all piping in accordance with the Ohio Plumbing Code, Local Codes, Ordinances, per Industry Standards and as follows:
- a. Prior to final testing, provide ample notice to any construction trades, Code Officials and any local jurisdiction. Confirm that all piping to be tested is exposed and observable as required by the appropriate authorities. Confirm required testing requirements and methods with local jurisdiction.
 - b. Sanitary sewer systems shall be tested per OPC Section 312.0 and per methods required by Local Jurisdiction.
 - c. Backflow prevention assemblies shall be tested per ASSE and per Local Jurisdiction requirements.
 - d. Test domestic and hydronic water piping to hydrostatic pressure of 100 PSIG; for two hours. Confirm required final testing requirements and methods with local jurisdiction.
29. New Sheetmetal Air Distribution Systems ductwork shall be as follows:
- a. Connect metal ductwork to new equipment and/or existing interior building

ductwork as indicated and as required; provide flexible connection for each ductwork connection to building ducting. Provide access doors as indicated.

- b. All new sheetmetal ductwork shall comply with SMACNA's "HVAC Duct Construction Standards, Metal and Flexible" for fabrication and installation of metal ductwork. ASHRAE Standards. Ductwork shall also comply with ASHRAE Handbook, Equipment Volume, Chapter 1 "Duct Construction", For Fabrication and Installation of Metal Ductwork.
- c. All new supply air ductwork (round or rectangular) shall be of galvanized steel construction and shall be installed in accordance with the Ohio Mechanical Code and the 2" WG table in the latest edition of the SMACNA Manual. Seal per SMACNA Seal Class "A". Ductwork within curbs and/or curb adapters shall also comply with these requirements as well as per Industry Standards.
- d. Construct elbows with radius of not less than 1-1/2 times width of duct on centerline. Transform duct sizes gradually. All attempts shall be made to not exceed convergence standards set by SMACNA and/or ASHRAE.
- e. Ductwork manufacturer's qualifications shall include fabricators regularly engaged in manufacture of metal ductwork products of types, materials, and sizes required, whose products have been in satisfactory use in similar service for not less than five (5) years. Installers must have at least three (3) years of successful installation experience on projects with metal ductwork systems similar to that required for project.
- f. Provide materials, which are free from visual imperfections including pitting, seam marks, roller marks, stains and discoloration, and other imperfections, including those, which would impair painting. Except as otherwise indicated, fabricate ductwork from galvanized sheet steel complying with ASTM A 527, lockforming quality; with G 90 zinc coating in accordance with ASTM A 525; and mill phosphatized for exposed locations.
- g. All new indoor supply and return air ductwork for shall be wrapped with 2" of 1 lb/cu.ft. fiberglass, foil backed duct insulation. Insulation shall be installed per manufacturers' recommendations and shall maintain the integrity of the vapor barrier. Insulation by Owens-Corning, Knauf, or Manville is acceptable. Maintain access to balancing dampers.
- h. All interior ductwork shall be sealed with either "MP" (multi-purpose), Hardcast "Iron-Grip 601," Polymer Adhesive "Airseal #11," Or "United Duct Seal" (United McGill Corp.) or equal with water base, latex or acrylic type sealant. Note that, except as noted, oil or solvent-based sealants are specifically prohibited for use on this project. For exterior applications,

“UNI-WEATHER” (United McGill Corp. or equal) neoprene based sealant shall be used. All seams and joints in shop and field fabricated ductwork shall be sealed by applying one layer of sealant, then immediately spanning the joint with a single layer of 3” wide open weave fiberglass tape. Sufficient additional sealant shall then be applied to completely imbed the cloth. All sealant shall be UL rated and no more than flame spread of five (5) and smoke developed of zero (0).

- i. If, where and as applicable, all ductwork exposed on the exterior/roof of the building shall be installed as follows:
 - 1) Top of duct shall be sloped to prevent standing water.
 - 2) Provide final design and installation of all ductwork and accessories with adequate supports for wind velocities that could exceed 80 mph.
 - 3) Ductwork exposed on the roof to be internally insulated/lined with 2" thick (nominal R value = 7.7) and be completely covered with Johns Manville (or equal) PERMACOTE LINACOUSTIC R-300. The smooth, black Permacote surface of the LINACOUSTIC R-300 shall face the airstream. Liner shall be cut to assure tight, overlapped corner joints. The top pieces shall be supported by the side pieces. Liner shall be adhered to the sheet metal with full coverage of an approved adhesive that meets ASTM C 916, and all exposed leading edges and transfer joints shall be coated with Johns Manville “SUPERSEAL DUCT BUTTER”, Johns Manville “SUPERSEAL EDGE TREATMENT” or an approved adhesive. The liner shall be additionally secured with mechanical fasteners spaced per the manufacturer’s recommendations. The pin length should be such as to hold the material firmly in place with minimum compression of the material. All material shall be installed in accordance with the NAIMA Fibrous Glass Duct Liner Installation Standard.
 - 4) All joints and seams in duct shall be sealed with a weatherproof, commercial grade silicone sealant. Entire duct is to be painted with two coats of epoxy primer, final coat to be the color selected by the Owner. Paint per the manufacturer's recommendations. Installation shall be completely air and water tight.
- j. Assemble and install ductwork in accordance with recognized industry practices which will achieve air-tight and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable braces, and anchors of type, which will hold ducts true-

to-shape, and to prevent buckling. Support ducts from floor. Complete fabrication of work at project as necessary to match shop-fabricated work and accommodate installation requirements.

- k. After duct system is constructed, test for duct leakage in accordance with SMACNA HVAC Air Duct Leakage Test Manual. Repair leaks and repeat tests until total leakage is less than 1% of system design airflow.
30. An independent "AABC" or "NEBB" Certified Water Balance Contractor shall test and balance the system and report results to the construction manager and the Owner.

F. BASIC CONTROLS DESCRIPTION, SCOPE AND MATERIALS

1. The existing pneumatic and electro-pneumatic controls serving all existing equipment within the defines of the Police Building Basement Mechanical Room and the Administration Building Third Floor Mechanical Room to be demolished (be replaced with electric/electronic DDC). Other existing pneumatic controls systems serving terminal units and/or other remote equipment shall remain as-is and operational. Cap pneumatic lines at nearest points to the existing pneumatic main piping distribution system. Remove all branch pneumatic tubing, supports, Class II controls wiring, conduits, PE/EP switches/controllers, etc. not required for the new installations. The existing pneumatic piping and controls systems within the mechanical areas that are serving other areas (i.e. remote terminal units, sensors, controllers, etc.) shall remain operational. Coordinate demolition with the Owner and all other trades.
2. Furnish all labor, materials, equipment, and service necessary to extend the existing operating Direct Digital Controls (DDC) system, utilizing a high-speed peer to peer network of Interoperable Direct Digital Controls (DDC), Graphical User Interface (GUI) with Color-Graphic Displays.
3. The existing Police building and Administration building DDC system is a Schneider Electric I/A series DDC Control System as installed and currently warranty serviced by Wadsworth Solutions Northeast. All system modifications required with this renovation shall be seamlessly integrated into the existing system by the facility DDC Control System Contractor Wadsworth Solutions Northeast. For additional information and requirements, contact Mr. Jerry Kocan at (216) 391-7263.
4. The existing DDC system incorporates Niagara-based products designed to integrate diverse smart devices into a unified, internet-enabled, web-based system. The software integrates LonWorks™, BACnet™, OBIX, internet and web services protocols in a software platform utilized in JACE embedded controllers or server applications. The existing system includes integrated network management tools to support the design, configuration, installation, and maintenance of interoperable

networks.

5. The local area network (LAN) is a 100 MPBS ethernet network supporting BACnet, Java, xml, http, and CORBA IIOP for maximum flexibility for integration of building data with enterprise information systems and providing support for multiple universal network controllers (UNCS), user workstations and a local host computer system.
6. The new systems' ethernet (IEEE 802.3) LAN shall utilize carrier sense multiple/access/collision detect (CSMA/CD), address resolution protocol (ARP) and user datagram protocol (UDP) operating at 10 or 100 mbps.
7. The new DDC System interface will consist of an open architecture that utilizes the common communication protocol between all controllers and integral ANSI/ASHRAE Standard 135-1995, BACnet functionality to assure interoperability between all system components. Both the LONtalk protocol and the ANSI / ASHRAE Standard 135-1995, BACnet protocol are required to assure that the project is fully supported by the two leading HVAC open protocols to reduce future building maintenance, upgrade, and expansion costs.
8. Communications with the control network shall be via any non-dedicated desktop computer, laptop, tablet pc or smart phone w/internet interface and web browser for password leveled and authorized access. Wadsworth Solutions Northeast and the Owner's Representative will establish levels of access with the Contractor(s) and the City of Mentor's personnel as the project proceeds.
9. The Contractor and Controls Vendor(s) shall note that the City of Mentor will be implementing a new Computer Managed Maintenance System (CMMS) with Android or Windows web-based type bar coding equipment identification system in the near future. Such shall be interfaced into the existing campus host Schneider DDC Controls System to obtain equipment service requirements, run-time, etc. for the Service Maintenance Contractor to schedule emergency or regular maintenance. The Maintenance Service Contract may or perhaps awarded at the time of this Contract's award. The Owner's Representative will coordinate such with the appropriate Contractor(s), Vendors and all parties after design (and construction) has been implemented.
10. Where necessary or desired, the DDC network to be encapsulated into TCP/IP messages to take advantage of existing infrastructure or to increase network bandwidth. The software tools required to network manage the Modbus, LONtalk, etc. protocols and the ANSI/ASHRAE Standard 135-1995. BACnet protocol must be provided with the system. Drawings are diagrammatic only. Equipment and labor not specifically referred to herein or on the plans that are required to meet the functional intent shall be provided without additional cost to the Owner.

11. The minimum BACnet compliance is Level 3; with the ability to support data read and write functionality. Physical connection of BACnet devices shall be via wired or wireless ethernet IP.
12. Complete temperature control system to be DDC with electronic sensors and electronic/electric actuation of valves and dampers and electronic actuation of terminal equipment valves and actuators as specified herein. The BAS is intended to seamlessly connect devices throughout the building regardless of subsystem type, i.e. variable frequency drives, low voltage lighting systems, electrical circuit breakers, power metering and card access should easily coexist on the same network channel.
13. The supplied system must incorporate the ability to access all data using Java enabled browsers without requiring proprietary operator interface and configuration programs.
14. An Open Database Connectivity (ODBC) or Structured Query Language (SQL) Compliant Server Database is required for all system database parameter storage.
15. This data shall reside on an existing server for all database access. Systems requiring proprietary database and user interface programs shall not be acceptable. A hierarchical topology is required to assure reasonable system response times and to manage the flow and sharing of data without unduly burdening the customer's internal intranet network. Systems employing a "flat" single tiered architecture shall not be acceptable.
16. All work described herein shall be installed, wired, circuit tested and calibrated by factory certified technicians qualified for this work and in the regular employment of the factory authorized representative Wadsworth Solutions NE.
17. All exposed wiring shall be in conduit. All control, power wiring and related terminations shall be done by the Electrical Contractor. See electrical specifications for wiring specifications and information.
18. Provide DDC controls interface with the new boiler via Modbus (or equal) DDC controls protocol for monitoring and supervisory control.
19. Provide DDC controls interface to the existing main air handlers' controls system to receive signals from the existing building air handlers to enable the building hydronic heating (existing finned tube radiation system and main existing AHU heating). Such shall also be included for Police Building air handlers' signally the new chiller controls via the DDC.
20. Provide flow monitoring, water temperature monitoring sensors and outdoor air temperature sensor as shown on the controls drawing specified herein and as required by the specific DDC controls system.

21. Provide for the front end thin client web server following hardware/software capability:
 - a. Modbus RTU for Lochinvar boilers integration;
 - b. Chiller OEM BACnet integration;
 - c. Pump controller integration;
 - d. Future capability for BACnet MS/TP for new air handling systems (RTU's, AHU's) including future zone systems controller communication;
 - e. Future LON FFT-10 for lighting controls, (4) RS485 ports.
22. Provide basic integration for any supervisory control to the existing air handler and perimeter heating controls systems (non-DDC) with existing electronic/electro-mechanical components as required to start/stop boilers and pumps. Verify requirements.
23. Provide BACnet controllers listed through the BTL (BACnet Testing Laboratory) at a minimum of BACnet Protocol Revision 4 (135-2004).
24. Provide all software needed for all programming including graphics, database creation, calibration, supervision, adjustments and fine tuning for zone controllers, RTU's, AHU's controllers, and web server for a complete and operational HVAC control system.
25. Provide Modbus capability for integrating Lochinvar boilers into facility automation system. Link all OEM monitoring and control points to the building graphics including alarms.
26. Provide outdoor temperature, main heating and cooling temperature monitoring and control. Reset hot water and chilled water loops based on outdoor air temperature and zone of highest demand.
27. Product data: include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials, and installation and startup instructions for each type of product indicated. Each control device labeled with setting or adjustable range of control.
28. Shop drawings: detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.

- a. Schematic flow diagrams showing fans, pumps, coils, dampers, valves, and control devices.
- b. Wiring diagrams: power, signal, and control wiring. Differentiate between any manufacturer installed and field-installed wiring.
- c. Details of control panel faces, including controls, instruments, and labeling.
- d. Written description of Sequence of Operation.
- e. Trunk cable schematic showing programmable control unit locations and trunk data conductors.
- f. Listing of connected data points, including connected control unit and input device.
- g. System graphics indicating monitored systems, data (connected and calculated) point addresses, and operator notations.
- h. System configuration showing peripheral devices, batteries, power supplies, diagrams, modems, and interconnections.
- i. External interface files: XIF files or object diagrams for each DDC system component (custom application controller and application specific controller) proposed.
- j. Software and firmware operational documentation delivered as as-builts documents shall include the following:
 - (1) Engineering, installation, operation and maintenance manuals;
 - (2) Program software backup: on a magnetic media or compact disc, complete with data files;
 - (3) Device address list;
 - (4) Printout of software application and graphic screens;
 - (5) Licenses, guarantee, and warranty documents for all equipment and systems;
 - (6) Field test reports: indicate and interpret test results for compliance with performance requirements.

- (7) Maintenance data: for systems to include in maintenance manuals include the following:
 - (8) Maintenance instructions and lists of spare parts for each type of control device and compressed air station;
 - (9) Interconnection wiring diagrams with identified and numbered system components and devices;
 - (10) Keyboard illustrations and step-by-step procedures indexed for each operator function;
 - (11) Inspection period, cleaning methods, cleaning materials recommended, and calibration tolerances;
 - (12) Calibration records and list of set points.
29. The Police Building chiller, pumps, boilers controls system panels, I/O Modules and controls components are within the Police Building Basement Mechanical Room control the boiler and existing air handlers. Field verify I/O modules, communications connections and integration configurations with the existing DDC controls vendor.
 30. Contractor to include new VFD drive controls and motors to existing Administration Building's two (2) existing roof exhaust fans. Exhaust fans to be operated and controlled based on building pressure during AHU economizer cooling mode and/or CO2 demand controlled ventilation rates. Building to maintain a maximum of 0.02" positive pressure. Include all required equipment, wiring and sensors. Replace motor starters and/or disconnect switches if and as required.
 31. The Administration Building's pumps, boilers, air handler, nearby RTU's related controls systems, panels, I/O Modules and controls components are to be installed within the Administration Building's Third Floor Mechanical Room. Verify existing I/O modules, communications connections and integration configurations with the existing DDC controls vendor.
 32. Verify locations of all rooftop HVAC equipment sensors. If new hard-wired sensors cannot be feasibly installed then utilize wireless DDC compatible sensors and wireless remote receivers/controllers installed at locations of existing. Field verify all types, locations, configurations, etc., coordinate with the Owner's Representative.

G. BASIC CONTROLS SEQUENCE OF OPERATION

1. The basic sequence of operation of all systems and equipment as noted herein shall be considered as performance-based. Any and/or all OEM equipment or control vendor recommended sequence for the specific type of equipment shall be considered as proprietary. That shall include (but not be limited to) boilers, chiller, air handlers, rooftop HVAC units, dampers, control valves, pumps and their respective controllers whether specified herein or with OandM manual provided by the equipment manufacturers and/or vendors.
2. Sequence of operation is hereby defined to mean the manner in which and methods by which the specified equipment and controls functions.
3. All sequences shall provide for safe and effective start and stop routines.
4. Per the controls performance specifications, all equipment and controllers shall be capable of appropriate sequence with interface to a primary BACnet communications system protocol with Modbus, LonWorks or other system communications interface thru existing Niagara framework as well as the Campus and Building Host DDC software/graphics systems.
5. All setpoints shown are suggested initial values only and to be confirmed and adjusted as required during the controllers and DDC systems final design, commissioning and specified one-year monitoring warranty.
6. Basic DDC sequence shall include the following:
 - a. Start/stop control: heating, ventilating, and air conditioning equipment as listed herein shall be programmed to start and stop at predetermined times for optimal operation of the building. Provide individual start/stop function of the following equipment:
 - 1) Chillers;
 - 2) Boilers;
 - 3) Pumps and Pump Controllers;
 - 4) Administration Building Air Handling Unit and Existing Building Pressure Controlled Exhaust Fans;
 - 5) New Rooftop HVAC Units.
 - b. Smoke Detectors: All new packaged rooftop HVAC units and Administration Building's air handling unit and fans shall be provided with new smoke detectors. Each air handling unit and fan shall be stopped by the fire alarm system whenever its fire alarm zone is activated. Consult with Mentor's

existing fire alarm Contractor for fire alarm and communication system for requirements.

- c. Automatic Control Valves – Provide any new required control valves and actuators compatible with the DDC controller sequence as described herein, per OEM and as required.
 - d. Variable Frequency Drives (VFD) Operation: In the normal (auto) mode, when the sequence description requires a motor to be operated automatically through the FMS, motor controls shall be through the VFD. VFD'S shall be provided with manual bypass for override of auto sequences. Fire alarm and/or safety devices/circuits shall override all automatic sequences.
 - e. Hand-Off-Auto Switch Operation: Where the use of VFD's are not indicated, each motor controller shall be provided with a 120 Volt control power transformer and a "HAND-OFF-AUTO" selector switch. When the sequence description requires a motor to be operated by automatic devices, sequence shall occur only when the selector switch is in the "AUTO" position. The "HAND" position may be used to operate the motor at any time, regardless of the functioning of the automatic device or circuit. All automatic functions such as damper opening, valve actuation, interlocks, etc., shall occur as described whether the motor is started and stopped in the "auto" position or manually by use of the "HAND" and "OFF" positions. Safety devices and circuits such as low limit thermostats, high limit thermostats, fire alarm contacts, etc., however, shall operate as described regardless of the position of the H-O-A switch.
 - f. Control Power Source: In general, all control circuits whenever possible shall originate from emergency power circuits provided (and tagged DDC or pilot duty power) to respective motor controller control power transformers. Confirm that each control power transformer and control fuse is adequately sized for all relays, coils etc., and connected to the circuit. Provide all necessary interlock and circuit isolation relays required to perform the sequence of operation specified. Coordinate all requirements with all trades.
7. Contractor shall note that all interfaces to the existing DDC host shall be included for primary and/or software interfaced “supervisory secondary control” sequence of all equipment.
8. Police Building Domestic Water Heating System Sequence Of Operation - The new domestic water heater shall operate firing, venting, etc. per OEM. The facility operates on a 24-hour 365 day per year basis and requires domestic hot water for Police showering.
9. Police Building Boiler Operation:

- a. The existing Police building's air handling systems currently include variable air volume with reheat (VAVRH) systems, which requires hydronic heat throughout the winter, intermediate heat/cool and occasionally in the summer cooling seasons.
- b. The existing hot water distribution system includes a primary pumping system serving the air handlers' minimum heat as well as for VAVRH terminal units and hydronic unit heaters. The existing air handlers have been recently modified for DDC controls. Future projects ultimately will upgrade the VAVRH units as to not require intermediate and/or cooling season operation of the hydronic heating systems' equipment.
- c. The DDC controls systems vendor(s) shall take into consideration any possible available boiler/heating energy management functions necessary, and recommend optimized comfort and to minimize boiler required heat on a year-round basis. Such shall include no space heating boiler operation in the cooling seasons.
- d. The boiler OEM "Smart Touch" status screen displays boiler status, cascade addresses, outlet water temperature, inlet water temperature, boiler primary loop system temperature, and domestic hot water tank temperature. The OEM boiler control screen details screen and main menu screen can be accessed by pressing the appropriate button. Limited DDC interface via Modbus shall also provide similar monitoring and controls functions.
- e. The DDC control system shall enable boiler for space heating when the outdoor air temperature is below 54 to 56 Deg F (DDC adjustable).
- f. The boiler pumps are to be sized per OEM to maintain a 30 to 35 Deg F temperature difference through the boiler primary loops with a maximum discharge water temperature of 185 Deg F. The building HW loop is to be designed for 178 to 182 Deg F water temperature, which shall be reset based on outdoor air temperature and load conditions.
- g. On a DDC call for heat from the existing basement air handlers, DDC shall communicate with pump controller to start appropriate lead/lagged equal runtime main hot water loop pump. Pump controller's VFD shall ramp-up pump speed as required to maintain a nominal of 20 Deg F supply and return water temperature difference (adjustable and resettable based on demand, outdoor temperature, etc.).
- h. DDC shall monitor hot water return temperature sensors to send supervisory control commands to the lead-boiler to maintain loop temperatures with a nominal 20 Deg F supply/return water.

- i. The DDC system shall include adaptive temperature difference (adjustable) to meet heating demand based on heating loads and outdoor air temperatures, with adaptive reset as required.
- j. When space heating is required from the air handler loops and/or VAV reheat loop, the DDC control energizes system and boiler pumps for a space heating call. DDC shall signal pump controller and shall confirm start main of hot water circulating pump as scheduled, ramp up to minimum required flow, prove flow and pressure for a minimum of three (3) minutes) before starting the boiler.
- k. The DDC system signals the boiler controller to enable. The boiler control confirms that the low water cutoff and flow switch contacts are closed. After a boiler is signaled to start, the "on" status shall be verified within specified time delay (seconds), or an alarm signal initiates. The boiler control starts the blower and closes the louver contacts to begin the pre-purge cycle. The boiler control confirms that the blower comes up to the desired speed, the flap valve opens, and the air pressure switch, gas pressure switch (optional), louver proving switch (optional), and blocked drain switch contacts close. Once the pre-purge cycle is complete, the control lowers the blower speed, initiates sparking of the ignition electrode, and opens the gas valve. After a short wait, the control stops sparking and checks for the presence of flame current through the spark and flame sense electrodes. If the control does not detect flame current, the control will lockout indefinitely, until the reset button on the touch screen LCD is pressed. If the control detects flame current, the control will hold the blower speed constant for a few seconds to allow the flame to stabilize, and then begin modulating the firing rate in order to maintain the controlling sensor to the desired set point temperature.
- l. If the first heat exchanger in the boiler is unable to maintain the desired set point temperature, the second heat exchanger in the boiler will be started, using much of the same sequences as described above. Once both heat exchangers are firing, the controls will work in synchronization to maintain the desired set point temperature. If the heat load should decrease sufficiently, the second heat exchanger will be shut down, much like the sequences described below.
- m. Energize the second boiler whenever DDC controls system commands such. Boilers shall be controlled for lead/lag and equal run-time.
- n. The DDC shall provide supervisory control of boiler OEM controller to modulate the burner valve to maintain boiler hot water temperature. The DDC shall reset the boiler temperature in response to any hot water control valve signal from any of the AHU's and/or VAV reheat hw loop with the most demand. When any hot water control valve reaches maximum open

position, the boiler hot water temperature setpoint will be reset higher (maximum adjustable temperatures = 185 Deg F, minimum temperature = 120 Deg F).

- o. Boiler safeties circuit shall generate an alarm signal if any safety switches trips to the OEM boiler control console. The Modbus communications shall advise the DDC system with appropriate alarms.
- p. See Police Building Existing Air Handling Unit Sequence of Operation, Number 11. For additional information and requirements regarding DDC signaling to and from air handlers resulting in pump operations, flows and temperatures.
- q. Both boilers' OEM communications to be interfaced together (master and slave) and with DDC, staging gas valve modulation and boilers based on demand. A single boiler shall be operated for up to 50% of demand load before the second boiler is initiated. Boilers shall run at low loads and equal run-time modulating the burner until at full loads as required. Boilers to be lead/lag controlled for equal run-time.
- r. Once all calls for heat are satisfied, the control will turn off the gas valve and begin the post-purge cycle. Any boiler and other system pumps that are operating will begin their respective pump delay-off cycles.

10. Administration Building Space Heating Boiler Sequence Of Operation:

- a. Year-round boiler operation is currently required due to the existing/current system scenario utilizing constant volume hot/deck air handling and existing zones constant volume dual duct terminal units (CVDD) throughout the building. Perimeter heating systems shall be disabled anytime the outdoor air temperatures are above 55 Deg F (DDC adjustable). In the future, these systems are to be converted to dual duct variable air volume (DDVAV) with nominal and/or no heat and respective boiler and pumps' operation.
- b. The DDC controls systems vendor(s) shall take into consideration any possible available heating energy management functions necessary and/or recommended to optimize comfort and to minimize boiler required heat on a year-round basis.
- c. The boiler OEM "Smart Touch" status screen displays boiler status, cascade addresses, outlet water temperature, inlet water temperature, boiler primary loop system temperature, and domestic hot water tank temperature. The OEM boiler control screen details screen and main menu screen can be accessed by pressing the appropriate button. Limited DDC interface via Modbus shall also provide similar monitoring and controls functions.

- d. The DDC control system shall enable boiler for space heating when the outdoor air temperature is below 54 to 56 Deg F (DDC adjustable).
- e. The boiler pumps are to be sized per OEM to maintain a 30 to 35 Deg F temperature difference through the boiler primary loops with a maximum discharge water temperature of 185 Deg F. The building HW loop is to be designed for 178 to 182 deg f water temperatures, which shall be reset based on outdoor air temperature and load conditions.
- f. On a DDC call for heat from the existing third floor dual-duct air handler, basement air handler and/or building finned tube heating loop, DDC shall communicate with the pump lead/lag controller to start appropriate hot water loop pump(s).
- g. Each HW loop's 3-way mixing valve shall be controlled by the DDC to reset each loop's temperature based on return water temperature, load, outdoor ambient conditions and time of day schedule.
- h. DDC shall monitor all HWS and HWR temperature sensors to send control commands to DDC and the boiler(s) to maintain loop temperatures with a nominal 20 Deg F supply/return water temperature difference (adjustable) to meet heating demand based on heating loads and outdoor air temperatures via adaptive reset as required.
- i. The DDC system signals the boiler controller to enable. The boiler control confirms that the low water cutoff and flow switch contacts are closed. The control confirms both blowers come up to the desired speed both blower proving switches close and the air pressure switch is closed. Once the pre-purge cycle is complete, the control lowers the blower speeds, initiates sparking of the ignition electrode and opens gas valve 1. If the control detects flame current, the control will hold the blower speed constant for a few seconds to allow the flame to stabilize then begin modulating the firing rate in order to maintain the controlling sensor to the desired set point temperature. After a boiler is signaled to start, the "on" status shall be verified within specified time delay (seconds), or an alarm signal initiates. The boiler control starts the blower and closes the louver contacts to begin the pre-purge cycle. Once the pre-purge cycle is complete, the control lowers the blower speed, initiates sparking of the ignition electrode, and opens the gas valve. After a short wait, the control stops sparking and checks for the presence of flame current through the spark and flame sense electrodes. If the control does not detect flame current, the control will lockout indefinitely, until the reset button on the touch screen LCD is pressed. If the control detects flame current, the control will hold the blower speed constant for a few seconds to allow the flame to stabilize. Afterward begin modulating

the firing rate in order to maintain the controlling sensor to the desired set point temperature.

- j. The DDC system signals the boiler controller to enable. The boiler control confirms that the low water cutoff and flow switch contacts are closed. After a boiler is signaled to start, the "on" status shall be verified within specified time delay (seconds), or an alarm signal initiates. The boiler control starts the blower and closes the louver contacts to begin the pre-purge cycle. The boiler control confirms that the blower comes up to the desired speed, the flap valve opens, and the air pressure switch, gas pressure switch (optional), louver proving switch (optional), and blocked drain switch contacts close. Once the pre-purge cycle is complete, the control lowers the blower speed, initiates sparking of the ignition electrode, and opens the gas valve. After a short wait, the control stops sparking and checks for the presence of flame current through the spark and flame sense electrodes. If the control does not detect flame current, the control will lockout indefinitely, until the reset button on the touch screen LCD is pressed. If the control detects flame current, the control will hold the blower speed constant for a few seconds to allow the flame to stabilize, and then begin modulating the firing rate in order to maintain the controlling sensor to the desired set point temperature.
- k. If the first heat exchanger in the boiler is unable to maintain the desired set point temperature, the second heat exchanger in the boiler will start, using much of the same sequences as described above. Once both heat exchangers are firing, the controls will work in synchronization to maintain the desired set point temperature. If the heat load should decrease sufficiently, the second heat exchanger will shut down, as in the sequences described below.
- l. The second boilers shall energize whenever DDC controls system commands such from the perimeter and/or air handlers heating systems' demands. Boilers shall be controlled for lead/lag and equal run-time.
- m. The DDC shall provide supervisory control of boiler OEM controller to modulate the burner valve to maintain boiler hot water temperature. The DDC shall reset the boiler temperature in response to any hot water control valve signal from any of the AHU's and/or VAV reheat hw loop with the most demand. When any hot water control valve reaches maximum open position, the boiler hot water temperature setpoint will be reset higher (maximum adjustable temperatures = 185 Deg F, minimum temperature = 120 Deg F).
- n. Boiler safeties circuit shall generate an alarm signal if any safety switches trips to the OEM boiler control console. The Modbus communications shall advise the DDC system with appropriate alarms.

- o. See the Administration Building air handling units' sequence of operation for additional information and requirements regarding DDC signaling "to" and "from" air handlers resulting in pump operation, flow and temperatures.
 - p. Both boilers' OEM communications to be interfaced together (master and slave) and with DDC staging of gas valve modulation and boilers based on demand. A single boiler shall be operated for up to 50% of demand load before second boiler is initiated; boilers shall run at low loads and equal run-time modulating the burner until at full loads as required. Boilers to be lead/lag controlled for equal run-time.
 - q. Once all calls for heat are satisfied, the control will turn off the gas valve and begin the post-purge cycle. Any boiler and other system pumps that are operating will begin their respective pump delay-off cycles
2. Police Building Chiller Controls and Basic Sequence Of Operation shall be as follows:
- a. The new chiller shall include an OEM BACNET controller to be supervisory controlled by the DDC to accept signals for operation based on air handler demand for cooling, season, outdoor air temperatures, time of day, chiller water loop and air handler's secondary water loop temperatures. The control logic shall be designed to maximize operating efficiency and equipment life with protections for operation under usual and/or unusual conditions and to provide a history of operating conditions. The system shall intelligently stage the unit to sustain leaving water temperature precision and stability while minimizing compressor cycling.
 - b. The Police Building's chiller remote evaporator and condenser shall communicate temperatures, pressures, flows, etc. as required via the chiller's DDC BACnet or via the chiller's OEM controls.
 - c. The chiller's evaporator water flow rate shall be controlled to mix/divert main loop water to the evaporator based on system demand and chiller water reset temperatures via a 2-way control valve sized by the Engineer for 0% to 100% flow within minimum pressure drop.
 - d. Police Building's existing VAV air handlers are to provide 55 Deg F to 60 Deg F (DDC resettable) leaving air temperatures on a year-round basis. The existing air handlers also contain enthalpy controlled economizer systems for space cooling when outdoor air temperatures are below 55 Deg F (adjustable).
 - e. DDC shall enable chiller for building cooling air handlers' distribution system when the outdoor air temperature is above 54 to 56 Deg F (DDC adjustable). The chiller shall be set to meet and maintain a 42 to 44 Deg F leaving water

temperature with the highest possible temperature difference (10 to 15 Deg F range).

- f. The chiller's OEM digital control board and status screen displays chiller status, addresses, outlet water temperature, inlet water temperature and chiller primary loop system temperature. The OEM chiller control screen details screen and main menu screen can be accessed by pressing the appropriate button. Limited DDC interface via BACnet shall also provide similar monitoring and controls functions.
- g. If the DDC system signals for a call for cooling from any air handler, when the outdoor air temperature is above 55 Deg F (adjustable), the chilled water system shall be enabled.
- h. The DDC shall signal the chiller pump controller to ramp-up and prove operation for a minimum of five (5) minutes (adjustable) and start appropriate scheduled chiller water system pump. Depending on which air handling system requires cooling, the respective pump loop shall also ramp-up delayed or simultaneously with chiller pump.
- i. The chiller's integral BACnet controller shall operate per OEM sequence. See chiller schedule, chiller specifications and OandM manuals for additional information and requirements regarding chiller's OEM controlled compressors, condenser fans, unloading, start-up, etc. OEM and supervisory DDC chiller controls sequence and operations shall jointly be per the latest ASHRAE Standard 90.1 which includes mandatory requirements for minimum chiller performance.
- j. Chiller's OEM BACnet controller shall signal the DDC for OEM required sequence and shall readout of the following temperature and pressure readings:
 - 1) Entering and leaving chilled water temperature;
 - 2) Saturated evaporator refrigerant temperature and pressure;
 - 3) Saturated condenser temperature and pressure;
 - 4) Outside air temperature;
 - 5) Suction line, liquid line, and discharge line temperatures – calculated superheat for discharge and suction lines oil pressure;
 - 6) Signaling for the automatic control of primary and standby chilled water pumps. The control will start one of the pumps (based on lowest run-hours) when the unit is enabled to run (not necessarily running on a

call for cooling) and when the water temperature reaches a point of freeze possibility.

- 7) Two levels of security protection against unauthorized changing of setpoints and other control parameters.
 - 8) Warning and fault diagnostics to inform operators of warning and fault conditions in plain language. All events and alarms are time and date-stamped for identification of when the fault condition occurred. In addition, the operating conditions that existed just prior to an alarm shutdown can be recalled to aid in isolating the cause of the problem.
 - 9) Remote input signals for chilled water reset, demand limiting, and unit enable;
 - 10) Test mode to allow the service technician to manually control the controllers' outputs and can be useful for system checkout;
 - 11) Pressure transducers for direct reading of system
 - 12) Evaporator pressure conditions and high discharge temperature and pressure to take corrective action prior to a fault trip;
- k. The OEM controls access panel shall include emergency switch relay de-energizes control power circuits when activated, causing an immediate compressor and fan shutdown. The red emergency button switch is located on the bottom front of the control panel door.
- l. The chiller may be disabled via the unit switch, the remote switch, the keypad enable setting, or the DDC. In addition, the chiller will be disabled if all circuits are disabled, or if there is a unit alarm. If the chiller is disabled, the unit status display will reflect this and also show why it is disabled.
- m. The OEM low ambient lockout will prevent the chiller from starting even if it is otherwise enabled. When this lockout is active, the unit status will be off; low OA temperature lock-out.
3. Packaged Cooling Only Rooftop HVAC Unit #RTU-1:
- a. RTU-1 is a packaged cooling-only unit and has been utilized and manually operated by personnel when existing zone cannot meet and maintain setpoint temperatures.

- b. Provide new space temperature sensor with DDC system monitored communications to include unit manual on/off and temperature setpoint control to operate unit per OEM. Wireless sensor is acceptable and preferred.
 - c. Unit shall have integrated enthalpy economizer outdoor air control, 0-100% OA/RA. Unit shall have compressive cooling lockout to prevent compressive operation below 50 Deg F.
4. Packaged Heating and Cooling Rooftop Units RTU-2, 4, and 5:
- a. Units shall operate fan, heating and cooling cycles per OEM.
 - b. Provide units with compatible BACnet DDC controller interfaced into existing DDC building automation system.
 - c. Provide new space temperature sensor with DDC system monitored communications to include unit manual on/off and temperature setpoint control to operate unit per OEM. Wireless sensor is acceptable and preferred.
 - d. Fans shall be operated continuously during occupied hours, intermittently when unoccupied if setback space temperatures call for heating or cooling.
 - e. Units shall have integrated enthalpy economizer outdoor air control, 0-100% low-leakage OA/RA dampers and modulating actuators.
 - f. Unit shall have compressive cooling lockout to prevent compressive operation below 50 Deg F outdoor temperatures.
 - g. Units' heating controls shall be per OEM and shall incorporate all safeties, controls systems overrides, alarms, etc.
 - h. Provide DDC supervised adaptive morning warm-up and cool-down.
 - a. Furnish and install OEM CO2 sensor in unit's return as "demand controlled ventilation" to control outdoor air/ventilation based on a maximum setting of 2500 PPM (adjustable range from 1,200 to 3,000 PPM) for 8 to 10 hours daily occupied settings. Demand controlled ventilation shall override minimum heating or cooling and/or override enthalpy controlled economizer cooling when outdoor conditions are above 50 Deg F or below 57 Deg F (adjustable).
 - i. The RTU's keypad interface shall allow convenient navigation and access to all control functions. All control settings shall be password protected against unauthorized changes. The display format shall be English language readout. Coded formats with look-up tables will not be accepted. The user interaction

with the display and DDC interface shall provide the following information as a minimum:

- (1) Return air temperature
- (2) Discharge air temperature
- (3) Outdoor air temperature
- (4) Space air temp
- (5) Outdoor enthalpy, high/low
- (6) Compressor suction temperature and pressure
- (7) Compressor head pressure and temperature
- (8) Expansion valve position
- (9) Condenser fan speed
- (10) Inverter compressor speed
- (11) Dirty filter indication
- (12) Airflow verification
- (13) Cooling status
- (14) Control temperature (Changeover)
- (15) Cooling status/capacity
- (16) Unit status
- (17) All time schedules
- (18) Active alarms w/time and date
- (19) Previous alarms with time and date
- (20) Optimal start
- (21) Supply fan speed
- (22) System operating hours

5. Packaged Cooling-Only Rooftop Unit RTU-3 :

- a. RTU-3 is a VAV unit for ventilation and cooling only. Unit shall operate fan, ventilation and cooling per OEM. Existing zones' heating systems are via remote VAV terminal units with hot water heat/reheat.
- b. Areas served by RTU-3 normally operate on a 24-hour/day schedule and requires constant operation. Verify any other schedules required by the Police Building administrators.
- c. Provide unit with compatible BACnet DDC controller interfaced into existing DDC building automation system.
- d. Provide new VAV systems sensors with DDC system monitored control points.
- e. An electronic variable frequency drive shall be provided for the supply air fan. Drive shall be factory installed with the OEM conditioned cabinet. Drives shall meet UL Standard 95-5V. The completed unit assembly shall be listed by a recognized safety agency, such as ETL. Drives are to be accessible through a

hinged door assembly. Mounting arrangements that expose drives to high temperature unfiltered ambient air are not acceptable. The supply air fan drive output shall be controlled by the factory installed main unit control system and drive status and operating speed shall be monitored and displayed at the main unit control panel. Fan's speed shall automatically adjust based on cooling demand, system static pressure and upper floor building pressure.

- f. Unit cooling to be controlled via discharge air temperature and humidity sensing system to reset discharge air temperature to a minimum of 54 Deg F and a maximum of 60 Deg F dry bulb temperatures depending on outdoor temperatures and building's respective loads.
- g. Fan shall be operated continuously during occupied hours, intermittently if and when unoccupied to meet and maintain set-up/set-back temperatures.
- h. Provide DDC supervised adaptive morning warm-up and cool-down.
- i. Units shall have integrated enthalpy economizer outdoor air control, 0-100% OA/RA. Unit shall have compressor cooling lockout to prevent compressive operation below 50 Deg F outdoor temperatures.
- j. Furnish and install OEM CO2 sensor in unit return as "demand controlled ventilation" to control outdoor air/ventilation based on a maximum setting of 2500 PPM (adjustable range from 1,200 to 3,000 PPM) for 8 to 10 hours daily occupied settings. Demand controlled ventilation shall override minimum heating or cooling and/or override enthalpy controlled economizer cooling when outdoor conditions are above 50 Deg F or below 57 Deg F (adjustable).
- k. The RTU's keypad interface shall allow convenient navigation and access to all control functions. All control settings shall be password protected against unauthorized changes. The display format shall be English language readout. Coded formats with look-up tables will not be accepted. The user interaction with the display and DDC interface shall provide the following information as a minimum:
 - (1) Return air temperature
 - (2) Discharge air temperature
 - (3) Outdoor air temperature
 - (4) Space air temp
 - (5) Outdoor enthalpy, high/low
 - (6) Compressor suction temperature and pressure
 - (7) Compressor head pressure and temperature
 - (8) Expansion valve position
 - (9) Condenser fan speed
 - (10) Inverter compressor speed

- (11) Dirty filter indication
- (12) Airflow verification
- (13) Cooling status
- (14) Control temperature (Changeover)
- (15) VAV box output status
- (16) Cooling status/capacity
- (17) Unit status
- (18) All time schedules
- (19) Active alarms w/time and date
- (20) Previous alarms with time and date
- (21) Optimal start
- (22) Supply fan speed
- (23) System operating hours
- (24) Duct and building static pressure; the control Contractor is responsible for providing and installing sensing tubes.
- (25) Supply fan and return fan status and airflow verification.
- (26) Supply fan VFD speed.

- 6. All new rooftop HVAC equipment shall be furnished with OEM recommended filters; provide three (3) sets of spares and turn-over to the owner at completion of construction.
- 7. Demand controlled ventilation shall be monitored and controlled by the air handlers and rooftop units' integral return air CO₂ sensors communicating with the units' BACnet controllers and the DDC as follows:
 - a. Economizer Control - The CO₂ sensor should provide control to the air handler outside air damper whenever the outdoor air economizer cannot be utilized. If outdoor air is suitable for free cooling, and there is a demand for cooling, the economizer shall have priority.
 - b. Minimum position for CO₂ control - The system shall be configured to provide a base ventilation rate to the space to control non-occupant related sources in the space. This base ventilation rate is 20-30% of the design ventilation rate (DVR) for the space (see air handler schedules for outdoor air flow rates or DVR). This base DVR level of ventilation shall be provided during all occupied hours. The OA damper to be 100% closed during unoccupied hours.
 - c. Maximum position for CO₂ control - the maximum position of the damper during CO₂ control should be set to equal the DVR for the scheduled air handler with a maximum of 50% OA/RA damper positioning until normal levels are met and maintained. See specific air handler for heating discharge air temperature setpoint control when in the maximum CO₂ position.

- d. The outside air damper shall be modulated between the minimum position described above and the maximum position described above necessary to provide the DVR to the space based on CO₂ concentrations via proportional damper control approach to modulate the damper based on CO₂ readings between a lower and upper control limit. The lower control limit proportional control strategy would position the damper in the minimum position until indoor levels exceed a certain CO₂ threshold above outside levels. Typically, this threshold should be set at 150 to 200 PPM CO₂ above outside levels of 550 to 600 PPM. Assuming that the Mentor area is normally in the 400 to 500 PPM range, the lower limit shall be set for approximately 1,200 PPM. The upper control limit shall be a maximum of 1,500 PPM and OA/RA dampers shall react accordingly to meet and maintain normal low control limits.

8. Duplex Lead/Lag Pump Controllers Basic Sequence Of Operation

- a. The duplex lead/lag pump controllers shall sequence and operate per OEM, per Industry Standards and as described herein. The pump controllers to be capable of both hard-wired and serial communications with the DDC system using Modbus and/or the option of a compatible gateway to communicate using BACnet or TCP/IP protocols. Verify with controls vendor and pump controller manufacturer.
- b. Pump controllers' HOA switch shall normally be in the auto position. When in the auto mode, controller commands shall be communicated by receiving a signal from the DDC controller.
- c. For remote start of the pumps, the HOA switch to be in the auto position. The pumps shall not start manually if controller is on remote mode and shall send a run signal to the primary lead pump.
- d. Through a signal from the DDC, the pump controller shall start the lag primary pump in case the lead primary pump has failed. In stand-by configuration, the control panel shall be capable of alternating the lead and lag primary and secondary pumps manually and automatically based on hours of operation.
- e. Differential Pressure (DP) or flow switches across primary and secondary pumps to prove differential pressure developed by pump (pump running). Verify configurations with the controls vendor.
- f. The pump controllers shall automatically start secondary lag pump upon failure of lead pump, an alarm will be displayed showing pump/drive fault. Lag pump shall run for a minimum of 15 minutes (adjustable) once started.

- g. Upon failure, the controller will send a system failure alarm and each pump can be started manually. Secondary pump operation can be switched manually acknowledged locally as well as at the DDC monitoring and controls system.
 - h. The transmitter signals shall be analogue 4-20 ma to the controller.
 - i. Pump controller shall stage on secondary lag pump and start a timed sequence of events once DP set-point cannot be met by lead pump.
 - j. The controller will maintain secondary pump minimum speed of 30% (adjustable).
 - k. Primary pump run feedback to IPS controller confirming primary pump operation.
 - l. Pump controller shall be capable of staging and de-staging secondary pumps when running on bypass.
 - m. In event that there is an overload trip on that pump across the line, automatically alternate to start the stand-by pump.
 - n. Automatically disable any differential pressure signals that are not within limits and alert the operator of a possible transmitter failure. The controller shall scan and analyze the remaining transmitters (if available).
 - o. Controller shall have run-out protection of the pumps using either a DP sensor as the standard method or using a flow sensor as an option.
 - p. Staging and de-staging speeds shall be programmed in the controller and/or DDC controller and adjusted on site or off-site.
 - q. See pump and equipment schedules for flow rates and head pressures. Verify all flow and pressure settings with actual installed equipment.
9. Administration Building Third Floor Mechanical Room Air Handler Basic Sequence Of Operation:
- a. Unit currently operates as a constant volume dual duct hot and cold deck air handler with enthalpy controlled economizer for outdoor/return air control (separate roof exhaust fan relief). The unit 15,000 CFM hot deck currently is maintained year-round for 110 Deg F discharge; the unit's 30,000 CFM cold deck is currently maintained at 55 Deg F discharge.

- b. The existing dual duct system serves pneumatically controlled constant volume dual-duct mixing box terminals (CVDD) remotely mounted throughout the Administration Building. It is assumed (to be confirmed by the Design Build Engineer) that some CVDD terminals may have been converted to dual duct variable air volume (DDVAV). Under separate projects/contracts in the future, the CVDD terminals will be converted to variable air volume dual duct terminals (VAVDD).

- c. AHU Fan Control - An existing variable frequency drive (VFD) has been controlling the unit's airflow based on static pressure and other possible currently unknown control parameters. New DDC system control parameters shall be as follows:
 - 1) The Air handler fan shall operate continuously and DDC determined speed/airflow during occupied hours and duty-cycled "on" at 50% when unoccupied for fifteen (15) minutes every hour nights, weekend and holidays. Fan operation schedules and speeds/airflows shall be DDC adjustable via operator and/or adaptive control.
 - 2) Adaptive heating season morning warm-up shall ramp-up fan to 100% speed (DDC adjustable) until return air temperature is at 65 to 68 Deg F, hot deck supply air temperature of 110 Deg F is achieved and building master heating thermostat occupied setpoint of 70 Deg F (DDC adjustable) temperature setpoints are met and maintained.
 - 3) Adaptive cooling season morning cool-down shall ramp-up fan to 100% speed (DDC adjustable) until return air temperature is at or below 80 Deg F, cold deck supply air temperature of 55 Deg F is achieved and building master cooling thermostat occupied setpoint of 70 Deg F (DDC adjustable) temperature setpoints are met and maintained.
 - 4) Normal daytime operation of the air handler fan speed/airflow control shall be accomplished via static pressure control to maintain 1.50" positive duct static pressure. Contractor shall provide also provide new duct static sensors (differential to duct and common area space) on the first and second floors' main air distribution trunks. Design/Build contractor to verify exact locations and configurations.

- d. Outdoor and return air damper control shall be as follows:
 - 1) When unoccupied, outdoor air damper shall be modulated 100% closed, the return air damper shall modulate to 100% open unless demand controlled ventilation controller requires ventilation.
 - 2) The building relief exhaust fans' new VFD shall control speed and respective airflow for a maximum of 0.02" positive building pressure.
 - 3) If in either the unoccupied or occupied mode and the demand-controlled ventilation system's return air carbon dioxide (CO₂) sensor signals readings above setpoints, the AHU fan be energized; the outside air and

return air damper shall be proportionally modulated between the minimum and the maximum positions as required to provide the DVR to the space until normal levels are met and maintained.

- 4) If outdoor air temperature is below 50-55 Deg F (DDC adjustable), enthalpy-controlled economizer shall modulate the outdoor/return air dampers as required to maintain DDC resettable discharge air temperature (55 Deg F summer, 55-60 Deg F winter). The Building's static pressure control shall energize existing roof relief exhaust fans and control fan speed/air quantity as required to maintain maximum building positive pressure (0.02"±, DDC adjustable).

e. Heating/hot deck control shall be as follows:

- 1) On a call for heat from either the new master heating thermostat and/or from the hot deck discharge air temperature sensor, DDC shall signal the boiler(s) and integral pumps to start; boiler shall start sequence per OEM. DDC shall then start the air handler pump and position the control valve, based on the minimum/maximum temperatures (reset) required to maintain minimum/maximum hot deck discharge air temperatures (reset).
- 2) Air handler's secondary loop and 3-way mixing control valve shall be DDC controlled for adaptive reset based on schedule, outdoor/indoor conditions and history.
- 3) Air handler's hot deck discharge air temperature to be reset as required based on schedule, outdoor/indoor conditions and history.

f. Cooling control shall be as follows:

- 1) If the outdoor temperatures is below 50 Deg F, enthalpy controlled economizer shall modulate outdoor/return air dampers as required to maintain 55 Deg F discharge air temperature as sensed at the mixed-air section and/or cold deck cooling discharge air temperature.
- 2) If the outdoor air temperature is above 50 Deg F, and the air handler's mixed air temperature is above 55 Deg F, the DDC shall enable the rooftop condenser unit(s) and stage coil's cooling per OEM as required to maintain 55 Deg F cold deck cooling discharge air temperature.
- 3) Air handler's cold deck discharge air temperature to be reset as required based on schedule, outdoor/indoor conditions and history.

10. All VFD Duplex Lead/Lag Pump Controllers Basic Sequence Of Operation

- a. The VFD duplex lead/lag pump controllers shall sequence and operate per OEM, per Industry Standards and as described herein. The pump controllers to be capable of both hard-wired and serial communications with the DDC system using Modbus and/or the option of a gateway to communicate using BACnet or

TCP/IP protocols. Verify with controls vendor and pump controller manufacturer.

- b. The pump controller HOA switch shall normally be in the auto position. When in the auto mode, controller commands shall be communicated by receiving a signal from the DDC controller. For remote start of the pumps, the HOA switch to be in the auto position. The pumps shall not start manually if controller is on remote mode and shall send a run signal to the primary lead pump.
- c. Through a signal from the DDC, the pump controller shall, start the lag primary pump in case the lead primary pump has failed. In stand-by configuration, the control panel shall be capable of alternating the lead and lag primary and secondary pumps manually and automatically based on hours of operation.
- d. Differential pressure (DP) or flow switches across primary and secondary pumps to prove differential pressure developed by pump (pump running). Verify configurations with the controls vendor.
- e. The pump controllers shall automatically start secondary lag pump and its VFD upon failure of lead pump, an alarm will be displayed showing pump/drive fault. Lag pump shall run for a minimum of 15 minutes (adjustable) once started.
- f. Upon failure of all drives the controller will send a system failure alarm and each pump can be started manually across the line (constant speed). Secondary pump operation can be switched manually to bypass the drive using the VFD-off-bypass switch of each pump and acknowledged locally as well as at the DDC monitoring and controls system.
- g. The transmitter signals shall be analogue 4-20 ma to the controller.
- h. Each pump controller shall have its own field adjustable differential pressure set point in the controller. DP and/or flow transmitter shall have its own field adjustable differential pressure range in the controller.
- i. The controller shall analyze the signals and select the zone that has deviated the most from its set point to be the controlling signal to the VFD.
- j. When the controlling zone set point has been satisfied, the VFD shall maintain the speed it is running at. If the controlling zone becomes less loaded, the controller shall reduce the pump speed to conserve energy while satisfying all remote zone DP set-points.
- k. Pump controller shall stage on secondary lag pump and start a timed sequence of events once DP set-point cannot be met by lead pump.

- l. The controller will maintain secondary pump minimum speed of 30% (adjustable).
- m. The controller's VFD automatic bypass as an option (if selected): in the event of a system failure due to VFD fault, the plc shall automatically start the pump across the line. In the event that the controlling zone is not satisfied with one pump across the line, the second pump will be started.
- n. Controller shall signal VFD automatic bypass feedback the pump controller and DDC confirming VFD bypass operation.
- o. An alarm shall be displayed on the operator's interface indicating VFD failure.
- p. Primary pump run feedback to IPS controller confirming primary pump operation.
- q. Pump controller shall be capable of staging and de-staging secondary pumps when running on bypass.
- r. In event that there is an overload trip on that pump across the line, automatically alternate to start the stand-by pump on VFD mode.
- s. Automatically disable any zone differential pressure signals that are not within limits and alert the operator of a possible transmitter failure. Should a zone DP sensor fail the minimum speed will be increased to 95% FS (adjustable). The controller shall scan and analyze the remaining transmitters (if available).
- t. Motor speed shall be switched to manual at speed set by the operator if all transmitters failed.
- u. Controller shall have run out protection of the pumps using either a DP sensor as the standard method or using a flow sensor as an option.
- v. The pump shall be capable of staging and de-staging secondary pumps upon increase of system demands based on either maximum pump speed, pump BEP or wire-to-water efficiency program as an option.
- w. Controller shall be capable of displaying wire-water efficiency (requires DP, flow and KW sensors).
- x. Staging and de-staging speeds shall be programmed in the controller and/or DDC controller and adjusted on site or off-site.

- y. Pump optimization shall also be achieved by staging and de-staging the pumps by inputting the percentage of speed to start and stop the pumps via pump controller and DDC.
- z. See pump and equipment schedules for flow rates and head pressures. Verify all flow and pressure settings with actual installed equipment.

H. ELECTRIC SYSTEM BASIC SCOPE AND MATERIALS

1. All electrical work shall be designed and completed as a sub-contract to the Mechanical Prime. Include all labor, material, equipment, services and permits necessary for the proper completion of all electrical work shown. Items omitted, but necessary, to make the electrical system complete and workable shall be understood to form part of the work.
2. It is the purpose of the criteria drawings to indicate the approximate location of all equipment, devices, etc. Ascertain exact locations and arrange work accordingly, coordinated through the mechanical. The right is reserved to effect reasonable changes in the location of devices up to the time of roughing-in, without additional cost to the Owner. Changes in location of devices or equipment necessitated by interference with the work of other trades shall be made only with the consent of the Owner's Representative, and at no additional cost. Changes in location of devices resulting from the Contractor's failure to comply with drawing or specification requirements shall be made at no additional cost to the Owner.
3. The required electrical design and installations shall be based on the National Electrical Code (NEC). The Electrical Contractor shall include the cost of installing materials and equipment necessary to satisfy local, state and regional Codes.
4. The party or parties performing the work under this section of the specifications, hereinafter referred to as the electrical, shall furnish all labor, materials, equipment and services necessary for, and incidental to, the proper completion of all work shown on the drawings and hereinafter specified. The work included under this section shall include, but not be limited to, the following:
 - a. Temporary electrical service for construction;
 - b. Temporary lighting and power distribution equipment for construction;
 - c. Extension of the existing power distribution system;
 - d. Power distribution equipment, switchboards, panelboards, loadcenters, transformers, conduits and feeders as required for new equipment;
 - e. Temporary wiring to maintain existing electrical systems during construction if,

where and as required;

- f. Removal of existing electrical equipment, conduit and wiring not to be reused;
 - g. Wiring devices, wire and cable;
 - h. Branch circuit conduit and wiring;
 - i. DDC communications data conduits and boxes, including pullwires;
 - j. Junction boxes, pullboxes and cabinets;
 - k. Coordination with Mechanical of all excavation, concrete and backfill work required for electrical work exclusively;
 - l. Re-connections to existing and new equipment furnished by the Mechanical Contractor, including conduit and wiring;
 - m. Disconnect switches, motor starters and fuses;
 - n. Extension of the existing fire alarm system to new smoke detectors;
 - o. Standard electrical system testing;
 - p. Surface raceways;
5. Work required for equipment furnished by others shall include the following:
- a. Temperature and interlock controls shall be provided and wired by a mechanical and/or his sub-controls' Contractor. Electrical Contractor shall provide necessary 120 Volt power, terminated at junction boxes.
 - b. Line voltage (120 Volt or higher) control devices, such as thermostats and aquastats, which control fractional horsepower, 120 Volt motors shall be provided by the division 15 Contractor, and shall be wired by the division 16 Contractor. The exact wiring requirements shall be as recommended by the manufacturer of the equipment.
 - c. The electrical sub-contractor shall wire items normally associated with equipment supplied by others such as line voltage (120 Volt or higher) limit switches and motor operated dampers. Starters supplied as an integral part of the equipment shall be provided under the division furnishing the equipment. All other disconnect switches and starters shall be provided and wired by the division 16 Contractor.
 - d. Disconnect switches and variable frequency drives or other line voltage devices shall be wired.

6. Coordination with Other Trades:

- a. Consult the drawings, product data and shop drawings covering the work for various other trades, the field layouts of the Contractors for the trade and make adjustments accordingly in laying out the electrical work.
- b. Keep fully informed of the progress of the general construction. Install work that is to be concealed within the building construction in sufficient time to secure proper location without delay to the work of other trades. All conduit and outlet boxes concealed in masonry construction shall be installed during wall construction. Attend electrical work during the progress of building-in to prevent misalignments and damages to the electrical work.
- c. Examine the work of other trades when the work comes in contact with, or is covered by work in this division. Do not attach to, cover up, finish against any defective work, or install work in a manner which will prevent proper installation of the work of other trades.
- d. If, where and as required, new outlets, switches and receptacles shall be centered with regard to paneling, trim equipment, etc., and shall line up with either bottom or top of masonry courses. Changes to the specified mounting heights of any device shall be approved by the Owner's representative before rough-in.
- e. Take all field measurements necessary and assume responsibility for their accuracy.

7. Guarantee and Warranties:

- a. Warrant that equipment and all work is designed and installed in accordance with good engineering practice and that all equipment will meet the requirements specified. Any equipment failing to perform or function as specified shall be replaced with complying equipment without cost to the Owner.
- b. Guarantee against defects in workmanship and materials; repair or replace any defective work, material or equipment within one year from date of formal written acceptance by the Owner. Longer product warranties provided by individual equipment manufacturers shall supersede this one (1) year guarantee; however, the Contractor shall maintain the one (1) year workmanship and materials guarantee for installation of such equipment. Coordinate guarantee and warranty requirements with the Mechanical.

8. Service Shutdowns:

- a. The existing electrical and telecommunications services, and all existing low voltage

communication systems within the building shall be maintained throughout the construction period. This includes any interruption of service to the existing essential electrical system (emergency power system). The Contractor shall schedule shutdowns and interruptions of the service and essential electrical system with the Owner and shall be done at a time directed by the Owner in order to minimize the time that any system is down. The Contractor shall post fire watches if necessary during shutdown of the essential electrical system at no additional cost to the Owner. No additional compensation shall be allowed for these shutdown periods even though premium time work may be required. Provide temporary service to equipment or systems that cannot be shut down, and as determined by Owner, and as described elsewhere in these specifications.

- b. Provide a minimum of one week's notice to the Owner before any service shutdown is scheduled.

9. Electrical Demolition:

- a. Electrical demolition is to be shown on design/build generated drawings. Equipment indicated on the generated demolition drawings shall indicate the extent of demolition and must ultimately be a record drawing of the final actual conditions. The drawings and specifications establish the minimum standards for workmanship and materials. If additional interpretation is required regarding the scope demolition intent, contact the engineer prior to bid. Include all design, labor, materials, equipment, services, and permits necessary for completion of the demolition work. Provide protection for all adjacent areas before, during and after execution of the demolition work.
- b. "Electrical equipment" when referring to demolition items shall refer to all power and low voltage communication system components.

10. Materials and Equipment:

- a. Materials and equipment furnished under this Contract shall be listed by Underwriters Laboratories Inc. Equipment that is listed by other testing agencies shall not be acceptable. Equipment shall satisfy OSHA requirements, if applicable.
- b. Materials and equipment installed under this Contract shall be new and of the quality herein specified. Each class of materials shall be of the same type and make throughout the building.
- c. Provide material and labor which is neither drawn nor specified, but which is obviously a component part of, and necessary to complete work and which is customarily a part of work of similar character.

- d. Electrical equipment and materials for the construction shall be the responsibility of the Contractor and shall be protected by same until formally accepted by the Owner.
- e. All manufacturers of electrical equipment shall verify to the satisfaction of the Contractor and his engineer(s) that their equipment will function properly under the conditions of use, as shown on the drawings and as specified herein. Dimensions, weights, operating characteristics and all other related appurtenances shall be verified before submittal of shop drawings.

11. Submittals:

- a. Prepare electrical designs, shop drawings and product data for electrical equipment with adequate details and scales as necessary to clearly illustrate construction as indicated in previous sections of this specification and per EJCDC Documents. Indicate operating characteristics for each required item and design conditions for each. Clearly identify each item on the drawings with designation, location and use. Contractor shall review each submittal prior to submission, and check for compliance with the Contract documents. Corrections shall be noted. Mark with approval stamp prior to submission. Submittals that do not bear the Contractor's approval stamp will be returned without action.
- b. The submittals will be reviewed only for general compliance and not for dimensions, quantities, etc. The submittals that are returned shall may be used for procurement if all parties agree on acceptance of such. The responsibility of correct procurement remains solely with the Contractor. The submittal review shall not relieve the Contractor of responsibility for errors or omissions and deviations from the Contract requirements.

12. Equipment Identification:

- a. Provide nameplates on all equipment of the type listed in the following schedule:

- (1) Panelboards;
- (2) Distribution equipment;
- (3) Safety switches;
- (4) Motor starters;
- (5) System distribution junction boxes and pullboxes;
- (6) System control panels;
- (7) Individual overcurrent protection devices in distribution type panelboards;
- (8) Spare conduits/conduit stubs – identify system and/or purpose at source, if possible, and at termination end. Also at termination end, indicate location of conduit origination;
- (9) Receptacle coverplates;
- (10) Metering equipment;

- (11) Install arc fault labels on power distribution equipment as supplied by the equipment manufacturer.
 - b. Unless otherwise indicated on the drawings, lettering shall include the name or designation of equipment, horsepower, voltage rating and service designation.
 - c. Nameplates for panels and other distribution equipment shall be laminated phenolic with a black surface and white core. Nameplates may be attached to wall adjacent to equipment if area for attachment is too small. Nameplates for receptacles, boxes, conduit, etc., shall be high quality adhesive tape or permanent marker. Identification with a dymo type instrument is not permissible.
 - d. If, where and as applicable, nameplates for emergency power systems shall be red with a white core.
 - e. Cabinet and panel doors shall be marked with the identification numbers used on the drawings. Recessed panel doors shall be marked on the inside of door. Surface panels and distribution equipment shall be marked on the exterior trim near the top of the cabinet.
 - f. The inside cover of all new receptacle coverplates, pullboxes, junction boxes, etc. shall be permanently marked to indicate the panel and circuit number of the receptacle. The outside of the coverplates for all junction boxes shall be permanently marked to indicate the system (including the designation normal/emergency, voltage, panel and circuit number, or system designation if it is for voice and data, fire alarm, cable television, sound/paging, security, etc.). Identification shall be on the inside of coverplates for all junction boxes if they are located in finished areas.
 - g. Identification of all existing and or new HVAC system components branch circuits shall be typewritten on directory cards placed in the cardholder on the door. Spare circuits shall be left blank for further identification.
 - h. Provide new typewritten directory cards with updated schedules for all existing panels with new or modified circuits.
13. Selective Electrical Demolition:
- a. Provide materials and equipment for completion of the demolition work as described within the Contract documents. Include all mechanical equipment power wiring.
 - b. Materials and equipment shall be new and U.L. labeled for the application.
14. Electrical service and power distribution - The electrical service to the existing areas shall remain and shall be extended as required to new equipment and systems.

15. DDC/BAS Communications service building shall remain. Coordinate new networking installations with the existing Mentor IT Department and current DDC controls vendor.
16. Grounding:
 - a. Ground all new and/or existing electrical system conduits, raceways, motors, panels, cabinets, fixtures, metal boxes, and other exposed non-current carrying metal parts of electrical equipment in accordance with all provisions of the National Electrical Code, State Building Code and Local or Regional Codes.
 - b. Grounding of the electrical system shall be by means of an insulated grounding conductor installed with feeder and branch circuit conductors in all conduits. Grounding conductors shall be sized in accordance with NEC Article 250.122 and shall run from the grounding bus of serving panel to the grounding bus of served panel, to the grounding screws of receptacles, to lighting fixture housings, to the grounding screws of light switches, to metal boxes and to the metal enclosures of service equipment.
 - c. Install bonding jumpers across all building expansion joints, and across all conduit and busway expansion fittings.
 - d. Where grounding conductors are subject to mechanical damage, protect such conductors by encasement in concrete or installation in a rigid metallic raceway.
 - e. All terminations of the grounding conductors shall be by means of solderless connections. Connector products utilized shall be listed for their intended use and manufactured by Erico, IlSCO, Utilico, or equal.
 - f. Ground all new transformers in accordance with NEC Article 250.30 for grounding separately derived alternating current systems. The bonding jumper shall be directly connected to a grounding electrode. The transformer case shall be bonded to the grounding electrode conductor, but shall not be used as the grounding electrode. The grounding electrode conductor shall be protected within rigid metallic conduit. Neutral conductors shall not be used for equipment grounding. A bonding jumper shall not be provided in panelboards.
 - g. The grounding system shall be tested as documented in IEEE 142-1991 and IEEE 1100-1992. The impedance established as a result of this testing cannot exceed a maximum of 5 ohms. Should the grounding system exceed the desired impedance after installing the grounding system as designed on the drawings, appropriate measures shall be taken to reduce the impedance to that specified herein. The testing agency shall be a member company of the National Electrical Testing Association (NETA). Provide test results.
17. New HVAC Equipment Branch Circuit Breaker Panelboards, if required:

- a. Furnish and install branch circuit breaker panelboards equipped with circuit breakers, with frame and trip ratings listed on the drawings.
- b. Circuit breakers shall be thermal-magnetic, molded case bolt-on type. Circuit breakers shall be single pole or multi-pole with an integral crossbar to assure simultaneous opening of all poles. Circuit breakers shall have an over center, trip-free, toggle-type operating mechanism with quick-make, quick-break action and positive handle indication. Handles shall have "on", "off" and "tripped" positions. Circuit breakers shall be installed in the panelboard without requiring additional mounting hardware. Circuit breakers shall be UL listed in accordance with UL standard 489 and shall be rated 240 volts AC maximum with continuous current ratings as noted on the drawings.
- c. Circuit breakers serving HVAC loads shall be "HACR" rated.
- d. Panelboard bus structure and main lugs or main circuit breaker shall have current ratings as shown on the drawings. Such ratings shall be established by heat rise tests, conducted in accordance with UL Standard 67. Bus structure shall be insulated. Bus bar connections to the branch circuit breakers shall be the "distributed phase" or phase sequence type and shall accept bolt-on circuit breakers. All current carrying parts of the bus structure shall be copper. Each panelboard shall be fully bussed, ready to accept future devices. Each panelboard shall contain a grounding bus. Each panelboard shall contain a 100% rated neutral bus.
- e. The panelboard bus assembly shall be enclosed in a steel cabinet. The rigidity and gauge of steel shall be as specified in UL Standard 50 for cabinets. Wiring gutter space shall be in accordance with UL Standard 67 for Panelboards. The box shall be fabricated from galvanized steel or equivalent rust resistant steel. A circuit directory frame and card with a clear plastic covering shall be provided on the inside of the door.
- f. Fronts shall have "door-within-door" trim, hinged box to front type with screws opposite outer hinge. Fronts shall have an inner door over the branch circuit disconnect area secured with one latch with lock. Doors shall be mounted with completely concealed steel hinges. Fronts shall not be removable with door in the locked position.
- g. Locks shall be flush cylinder tumbler type with catch and spring loaded door pull. All panelboard locks shall be keyed alike.
- h. Each panelboard, as a complete unit, shall have a minimum symmetrical short circuit current rating of 10,000 amperes for 208Y/120 Volt rated panelboards or 240 volt rated panelboards and 14,000 amperes for 480Y/277 volt rated panelboards, unless otherwise noted on the drawings. This rating shall be established by testing with the

overcurrent devices mounted in the panelboard in accordance with Underwriters Laboratories Standard UL 67. Panelboards shall be marked with their maximum short circuit current rating at the supply voltage.

- i. New circuit breakers shall be fully rated. Series ratings are not permitted unless otherwise indicated on the drawings.
- j. Each new panelboard served directly by a transformer secondary shall have a main circuit breaker or other main overcurrent protection, sized in accordance with Article 240 of the National Electrical Code.
- k. Panelboards shall be listed by Underwriters Laboratories and bear the UL Label. When required, panelboards shall be suitable for use as service equipment. Panelboards shall be as manufactured by Square D, Siemens/ITE, General Electric or Cutler Hammer/Westinghouse.

18. Boxes:

- a. Contractor shall provide junction boxes with covers to accommodate branch circuiting as required and to comply with the NEC.
- b. All boxes shall be rigidly supported from the building structure independent of the conduit system. Boxes cast into masonry or concrete are considered to be rigidly supported. Box stabilizers shall be utilized to properly support boxes in metal stud construction.
- c. Flush device boxes in masonry walls shall be masonry boxes designed for the purpose, or 4" square boxes with raised coverplates designed for masonry. Flush boxes in other walls shall have raised coverplates suitable for the wall material.
- d. Wiring device boxes for surface conduit work shall be FS series cast boxes as required by Code. Otherwise, stamped steel boxes suitable for their applications are acceptable.
- e. Exterior boxes shall be cast aluminum type. If outdoor weatherproof receptacles are installed, then weatherproof gasketing shall be provided.
- f. All junction boxes and pullboxes shall be 4" x 4" x 2" deep minimum or sized in accordance with the NEC, and shall have coverplates suitable for their intended use. Provide identification on the coverplates as described elsewhere in these specifications.
- g. All junction boxes, coverplates, and fittings for new smoke alarm system wiring shall be red, either coated by manufacturer or field painted by Contractor.

19. Conduits:

- a. Conduit shall be heavy wall rigid galvanized steel or intermediate grade steel (in exterior masonry walls), (in masonry walls below grade), (in crawl spaces), (in concrete floors walls or slabs) and (in damp or wet locations). Exposed conduits in high traffic areas where conduits are subject to physical abuse shall be heavy wall rigid galvanized steel to a level of eight (8) feet above the finished floor. All other interior conduits shall be electrical metallic tubing (EMT), unless otherwise noted on the drawings or within these specifications. Conduits shall be 3/4" trade size, minimum, unless otherwise noted on the drawings or within these specifications. If sizes are not shown then conduits shall be required to accommodate the number and type of conductors in accordance with the National Electrical Code Wiring Tables but shall not be smaller than 3/4".
- b. Heavy wall rigid galvanized steel conduits shall have threaded fittings. Heavy wall rigid galvanized steel conduit couplings and hubs shall have no less than five (5) threads of conduit engaged and screwed tight. Cold-rolled steel double set screw fittings (compression type fittings) shall be used for all EMT conduits.
- c. All new branch circuit homerun conduits to the panelboards shall be EMT conduit. Metal clad (type MC) cable, armored (Type AC) cable or manufactured wiring systems may be utilized in lieu of branch circuit EMT conduit in fully concealed and inaccessible spaces. Areas above lay-in ceilings are not considered inaccessible. Installation of mc cable shall comply with Article 330 of the National Electrical Code. Installation of ac cable shall comply with Article 320 of the National Electrical Code. Installation of manufactured wiring systems shall comply with Article 604 of the National Electrical Code. A green equipment grounding conductor shall be provided in all EMT conduit, MC Cable, AC cable and manufactured wiring systems. The conduit or metal sheath shall itself qualify as an equipment grounding path in accordance with NEC 250.118.
- d. Conduit connections to motors, transformers, and other vibrating equipment, whether equipped with vibration isolators or not, shall be flexible metal "SEAL-TITE" Type "UA" conduit (or equal) as manufactured by the American Brass Company or equivalent and shall be of the same size as the feeder conduit. Such connections shall be as short as practical. Transition to flexible conduit shall occur at a junction box or a disconnect switch.
- e. Conduit for smoke detector/fire alarm cabling shall be red. Products such as fire alarm EMT by Allied Tube conduit are acceptable, or Contractor shall neatly spray-paint or powder coat in field as recommended by conduit manufacturer.
- f. New conduits that stub through the roof shall be supplied with pipe seals as manufactured by the Pate Co. and shall be installed as recommended by the manufacturer. Pipe seals shall be one (1) piece aluminum base types with five inch

sloped roof surface flanges, graduated stepped PVC boots and adjustable stainless steel clamps. RPS Corporation and Thycurb Corporation are approved equivalent manufacturers. The Electrical Contractor shall coordinate and verify exact requirements with the roofing Contractor before procurement and installation of the pipe seals.

- g. New conduits that stub through the foundation walls shall be supplied with pipe seals as manufactured by Link-Seal, or by equivalent method as approved by the Owner's Representative. Pipe seals shall be EPDM (black) with stainless steel hardware. The Electrical Contractor shall coordinate and verify exact requirements with the Owner's Representative before procurement and installation of the pipe seals.
- h. New exterior underground conduit shall be Schedule 40 PVC. Such conduit shall be encased in concrete under drives or roadways, with a 3" envelope, minimum. Interior underground conduit shall be Schedule 40 or 80 PVC. Such interior underground conduit shall be protected from damage during construction. All PVC conduits shall conform to the NEMA Standard TC2 and UL 651.
- i. The Contractor shall verify all service conduit sizes, routing, quantities, and stub-up locations shown on the drawings with the local utilities. All service conduit requirements shall be provided as directed by the local utilities. Such coordination with the local utilities shall occur prior to commencing conduit installation.

20. Wiring Devices:

- a. All main control power from circuit breakers and/or multiple control power feeds shall be fed to controller(s) and protected by Cooper Bussmann, (or equal) fusible handy-box mounted switch with integral fuse holders. Contractor shall verify fuse sizes with the controls vendor.
 - b. Where required, local toggle switches shall be 20 ampere, 120/277 volts, ac specification grade, with grounding terminal:
 - c. Single pole - Hubbell HBL 1221;
 - d. Illuminated toggle – Hubbell HBL 1221-IL (light on with load off);
 - e. Momentary – Hubbell HBL 1557 (single pole, double throw, center off);
21. New duplex service receptacles near control panels shall be 20a, 125v, 2 pole, 3 wire grounding. General purpose "specification grade" duplex receptacles: Hubbell #5352.
22. Special purpose single receptacles, if required, shall be indicated on the drawings. Verify the proper NEMA configuration of such receptacles with the equipment to be served, before installation. Receptacles shall be manufactured by Hubbell, Pass and Seymour, or

Leviton or unless otherwise noted on the drawings.

23. Outdoor weatherproof duplex receptacles, or indoor duplex receptacles where required by Code, shall have integral ground fault circuit interrupter (GFCI) protection and shall be 20a, 125v, 2 pole, 3 wire grounding equal to Hubbell #GF5352. GFCI receptacles shall not be through-wired. Provide individual duplex GFCI receptacles in all wet locations and/or where required by Code.
24. All receptacles shall be provided with a self-grounding clip at the mounting screw.
25. Weatherproof receptacle covers shall be single gang, GFCI duplex type, latching type, die cast aluminum, vertical mounting, UL Listed for Wet Locations while in use.
26. Weatherproof switch covers shall be clear bubble plate type for use with AC toggle switches.
27. All switches, dimmers, and receptacles shall be grey unless otherwise indicated within these specifications. Verify color with the Owner prior to procurement of the devices. All coverplates shall be #302 stainless steel. In unfinished areas and surface mounted applications, use cadmium plated, round corner, steel coverplates for surface mounted outlet boxes. In corrosive areas, provide aluminum coverplates. Both the wiring devices and the coverplates shall be by the same manufacturer.
28. Manual motor starters shall be Westinghouse type "MS" series or equivalent, with pilot light, overloads and on/off switch; flush mounted in finished areas. Manual motor starters shall be manufactured by Square D, General Electric, Siemens/ITE or Cutler Hammer/Westinghouse. Each manual motor starter shall be listed as "suitable as motor disconnect".
29. Wire and Cable:
 - a. Wire and cable for branch circuits and for feeders, 600 volt and below shall be 90°C., 600 volt, type THHN/THWN, copper only, unless otherwise indicated on the drawings. Type XHHW shall also be acceptable for feeders. All wiring 600 volt wiring shall be in conduit. Conduit shall be as specified elsewhere in this section.
 - b. If wire size is not indicated on the drawings then use ampacity ratings of 60°C for wire 100 amperes and below, and 75°C for wire above 100 amperes, as listed in Table 310-16 of the National Electrical Code.
 - c. Minimum size for power and lighting branch circuits shall be #12. Wire sizes #10 and smaller shall be solid or stranded. Wire sizes #8 and larger shall be stranded.
 - d. Control wires shall be #14 stranded THWN copper. All control wiring shall be terminated with fork type "STA-KON" type connectors.

- e. Power cords furnished by the Contractor for connections to portable equipment or where indicated on the drawings, shall be 600 volt, heat resistant, rubber insulated cable with neoprene jacket; type "so" or approved equal.

30. Safety Switches:

- a. Safety switches shall be designed, furnished and installed at all locations required by the OEM and/or Code.
- b. Safety switches shall be heavy duty fusible or nonfusible type as indicated on the engineered drawings, and shall be suitable for the voltage and current ratings shall be shown on the drawings. Safety switches shall be UL listed for their application.
- c. Switches shall have switch blades which are visible in the "off" position when the door is open. Switches shall have removable arc suppressors, where necessary, to permit easy access to the line side lugs. All current carrying parts shall be plated.
- d. Switches shall have an integral quick-make, quick-break operating handle mechanism. Switches shall have a dual cover interlock to prevent opening of the switch door in the "on" position or to prevent closing of the switch mechanism with the door open. Handle position shall indicate if the switch is "*On*" or "*Off*".
- e. Fuse holders shall accept only Class J, R or L fuses.
- f. Indoor enclosures shall be NEMA 1. Exterior enclosures shall be NEMA 3R. NEMA 1 enclosures shall be Code gauge UL 98 sheet steel, treated with rust inhibiting phosphate primer and finished in gray baked enamel. Enclosures shall be provided with padlocking provisions.
- g. Acceptable manufacturers are: Square D, General Electric, Eaton, or Siemens/ITE.

31. Fuses:

- a. Fuses shall not be installed until equipment is ready to be energized. All fuses shall be of the same manufacturer to assure selective coordination. Provide three (3) sets of spare fuses for each device, turn-over to the Owner upon completion of the construction.
- b. The Electrical Contractor shall furnish and install a complete set of fuses for all fusible equipment on the project. Unless otherwise indicated, all fuses shall be UL Listed, current limiting with 200,000 RMS amperes interrupting capacity.
- c. The Electrical Contractor shall supply spare fuses amounting to 20% (minimum of three) of each type and rating shall be supplied by the Electrical Contractor. These

shall be turned over to Owner upon project completion (fuses shall be contained and cataloged within an appropriate number of spare fuse cabinets located adjacent to the switchboard or panelboard, or as located on the drawings).

- d. Fuses rated 601 amperes to 6,000 amperes, 600 volts or less serving all loads shall be U.L. Class I, bolt type Bussmann "HI-CAP", Type KRP-C, or approved equivalent.
- e. Fuses rated 600 amperes or less, 600 volts or less, serving all loads shall be UL Class RK-1, Bussmann dual element, time delay "low peak", Type LPN-RK (250 volt) or type LPS-RK (600 volt), or approved equivalent. Type J fuses are also acceptable, if necessary, for dual switch applications only.
- f. Motor protection dual element fuses installed in individual circuits shall be sized at 125% of motor nameplate current rating or the next standard fuse size. Where excessive ambient temperature, high inertia motor loads of frequent "on-off" cycling require larger fuses, consult the electrical engineer. Use fuse reducers where fuse gaps are larger than fuse dimension. Exact fuse type required for motor protection shall be provided as recommended by the starter manufacturer.
- g. Field verify the exact fuse size required for all mechanical and building equipment with the nameplate data of the equipment.
- h. Reliance Fuses of equivalent overload and short-circuit interrupting performance; as manufactured by Ferraz-Shawmut, Littelfuse, General Electric or S and C are acceptable.

32. Motor Starters:

- a. All motor starters shall be combination type, unless otherwise noted on the drawings. Starters shall include a fusible safety switch, a starter with three overload devices, and a control circuit transformer. The enclosure shall be NEMA Type 1, unless otherwise indicated on the drawings. Combination starters shall be manufactured in accordance with the latest published NEMA Standards, sizes and horsepower ratings, size 0 minimum. Combination starters shall be full voltage, non-reversing, designed for across the line operation unless otherwise indicated on the drawings.
- b. The fusible safety switch shall feature visible blade construction and shall have fuse holders. The switch handle shall control the disconnecting device with the door open or closed. The switch handle shall clearly indicate whether the disconnect device is "on" or "off". The switch handle shall permit locking in the "off" position.
- c. The starter coil shall be of molded construction. Each starter shall have one melting alloy type overload relay per phase, sized according to NEMA standards for the motor type, horsepower and voltage applied. The thermal elements shall be of one-piece construction and interchangeable. The starter shall be inoperative if a thermal

unit is removed.

- d. Each combination starter shall include a control circuit transformer with a 120 Volt secondary connection unless otherwise indicated on the drawings. One side of the secondary winding shall be fused and the other side grounded. Both primary windings shall be fused.
- e. The enclosure door shall be closed to permit operation of the safety switch. A defeater screw shall permit opening of the door with the switch "on".
- f. Starters shall have a green running pilot light, a hand-off-automatic selector switch and a minimum of two normally open and closed auxiliary contacts, ready for control wiring connections. Verify the exact type and number of additional auxiliary contacts necessary.
- g. The voltage, phase, and horsepower of motors requiring motor starters are indicated on the drawings. Verify the characteristics of each motor with the division 15 Contractor before installation. Fuse size shall be as indicated on the drawings.
- h. Starters shall be as manufactured by Square D, General Electric, Siemens/ITE, or Cutler Hammer/Westinghouse.
- i. If a combination starter is required as a reversing type or 2-speed type unit, the unit shall contain a decelerating relay to impose a timing delay during transfer from forward to reverse or from a higher speed to a lower speed. Additionally in the 2-speed starters, a compelling relay shall be installed which will require the motor to be started in low speed.
- j. Provide single-phase combination starters if indicated on the drawings. Single-phase combination starters shall have similar characteristics as specified for three phase starters, as applicable.
- k. Provide remote 2-button start/stop pushbuttons with pilot lights as shown on the drawings and as recommended by starter manufacturer.

33. Access Doors:

- a. The Contractor shall furnish steel access doors and frames applicable for such locations in walls, partitions, ceilings, etc., requiring access to concealed junction boxes, devices and equipment for service or inspection. The Electrical Contractor shall not be responsible for installation of such access doors, however, the cost of installation shall be included in the bid.
- b. Exact location, type, size and number of access doors shall be determined by the Contractor to suit equipment requirements but in all cases, the minimum door size shall be 16" x 20".

- c. The respective Contractor, as designated by the Owner's Representative, shall install the required access doors and frames in designated locations after such locations are approved by Owner's Representative.
 - d. Access doors shall be flush type, manufactured from No. 14 gauge steel; complete with flush flange type frames, manufactured from No. 16 gauge steel; and shall be provided with anchors.
 - e. Access doors located in fire-rated walls, floors, ceilings or shafts shall be fire rated access doors, Underwriters Laboratories, Inc., listed and labeled.
 - f. Access doors shall be completely primed, including the frame assembly, before leaving the factory.
 - g. Access doors and frames shall be similar to and equal to those as manufactured by Inryco, Newman Brothers Inc., Birmingham Ornamental Iron Co., or Miami-Carey.
34. Surface Mounted Raceways:
- a. Surface mounted raceways for power distribution feeders shall be sized as required by the National Electrical Code. Raceways shall be totally enclosed and shall be provided with connections, fittings, adapters and hangers as required for a complete installation. Raceways shall be steel, finished in enamel and shall have accessible screw on covers.
 - b. As specified on the drawings, surface mounted raceways for branch power and communication wiring shall be provided. Both metallic and non-metallic products shall be listed by Underwriters Laboratories for their intended use and shall be provided complete with all fittings, barriers, covers and mounting accessories as recommended by the manufacturer.
35. Fire/Smoke Alarm System:
- a. Furnish and install devices for a complete extension of the existing fire/smoke alarm system from all new air handling systems over 2,000 CFM. Include sufficient wiring, conduit, terminations, electrical boxes, and all other necessary material. Contractor shall verify catalog numbers for new devices with the existing system supplier(s) for the buildings. New devices shall be compatible with the existing system devices. The existing system alarm operation shall be maintained.
36. Communications wiring for the DDC controls system shall be coordinated and provided as directed by the controls vendor and the City Mentor's Information Technology Department.

SECTION 9
CRITERIA DRAWINGS

HVAC, ALTERATIONS AND MODIFICATIONS

Mentor Municipal Center

8500 Civic Center Boulevard

Mentor Ohio 44060

- Kenneth J. Filplok, City Manager
- Tony Zampetro, Assistant City Manager
- David Malinowski, Director of Finance
- Scott J. Mann, President of Council
- Ray Kirchner, Vice President of Council
- Robert M. Shiner, Ward 1
- Carolyn P. Bucey, Ward 2
- Bruce R. Landeg, Ward 3
- Janet A. Dowling, Councilwoman-at-Large
- Robert Martin, Director of Parks, Recreation & Public Facilities
- David B. Ritz, Facilities Manager

PROJECT DESCRIPTION

THE CITY OF MENTOR HAS UNDERTAKEN THIS PROJECT IN WHICH THE EXISTING MAIN HVAC SYSTEMS ARE BEING UPGRADED AND REPLACED WITH NEW STATE-OF-THE-ART EQUIPMENT AND TOWERS. THIS INCLUDES REPLACEMENT OF THE EXISTING BOILERS, CHILLERS, COOLING TOWERS, ROOFTOP AIR CONDITIONING EQUIPMENT AND THE REPLACEMENT OF THE MAIN AIR HANDLER IN THE ADMINISTRATION BUILDING.

NEW HIGH EFFICIENCY BOILERS WILL REPLACE THE EXISTING BOILERS IN THE POLICE AND ADMINISTRATION BUILDING WHICH DISTRIBUTES HEATING WATER TO EXISTING EQUIPMENT. IN THE POLICE AND COURTS BUILDING, HEATING HOT WATER WILL BE RE-DISTRIBUTED TO EXISTING AIR HANDLERS AND VARIABLE VOLUME TERMINAL UNITS WITH RE-HEAT. IN THE ADMINISTRATION BUILDING, THE NEW BOILER (AND A REMAINING EXISTING BOILER) WILL DISTRIBUTE HEATING HOT WATER TO PERIMETER FINED TUBE RADIATION SYSTEMS, TO EXISTING AIR HANDLER IN THE BASEMENT AND TO A NEW ROOFTOP HEATING AIR DISTRIBUTION UNIT SERVING DUAL-DUCT CONSTANT VOLUME TERMINAL UNITS.

THE EXISTING BUILDING COOLING SYSTEMS' WATER CHILLERS IN THE BASEMENT OF THE POLICE BUILDING AND THE ROOFTOP REFRIGERATION/DX CONDENSING UNITS IN THE ADMINISTRATION BUILDING WILL BE REPLACED WITH A CENTRAL PLANT SINGLE CHILLER WITH MULTIPLE STAGES AND INTEGRAL REDUNDANCY. CHILLED WATER PIPING WILL BE DISTRIBUTED FROM THE CHILLER INTO THE BASEMENT OF THE POLICE STATION, BE REDISTRIBUTED AND PIPED TO EXISTING POLICE STATION AIR HANDLERS, ONTO THE ROOF TO NEW REPLACEMENT ROOFTOP CHILLED WATER AIR HANDLERS FOR THE POLICE, COURTS AND ADMINISTRATION BUILDINGS.

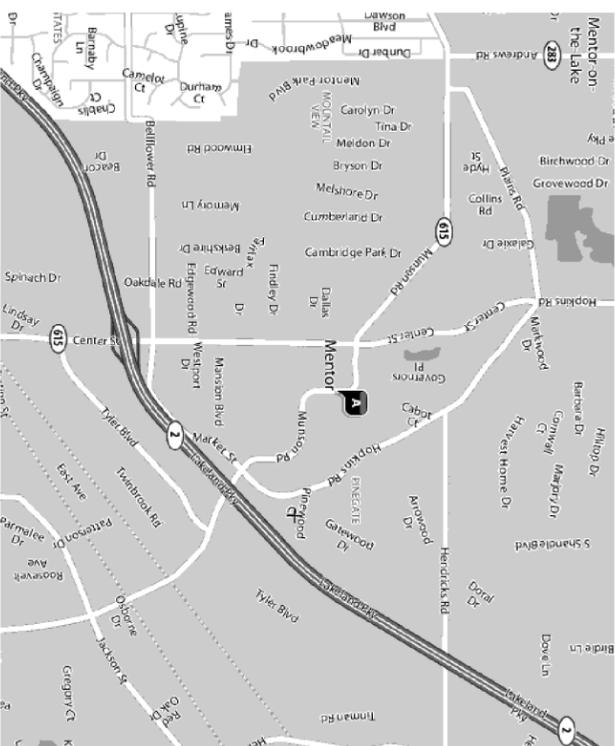
SEVEN (7) OF THE EXISTING PACKED DIRECT-EXPANSION PACKAGED COOLING EQUIPMENT ON THE ROOF ARE TO BE REPLACED WITH ROOFTOP NEW CHILLED WATER AIR HANDLERS; THREE (3) EXISTING AIR HANDLING UNITS WITH NATURAL GAS HEAT WILL BE REPLACED WITH NEW HIGH-EFFICIENCY NATURAL GAS FURNACE SECTIONS.

THE EXISTING PNEUMATIC CONTROLS SYSTEMS SERVING THE POLICE AND ADMINISTRATION BUILDING CHILLERS, BOILERS AND AIR HANDLERS ARE TO BE REPLACED WITH A NEW WEB-BASED DIRECT DIGITAL CONTROLS (DDC) BUILDING AUTOMATION SYSTEM (BAS). THE DDC BAS SYSTEM WILL MONITOR AND CONTROL ALL NEW EQUIPMENT AND WILL ALSO INCLUDE EXPANDABILITY TO CONTROL THE EXISTING VAV REHEAT AND DUAL-DUCT CONSTANT VOLUME TERMINAL UNITS CONTROLLING ZONES THROUGHOUT THE BUILDINGS IN THE FUTURE. THE CONTROLS SYSTEMS WILL HAVE FUTURE LIGHTING CONTROL, DEMAND LIMITING AND ALL STATE-OF-THE-ART ENERGY MANAGEMENT FUNCTIONS.

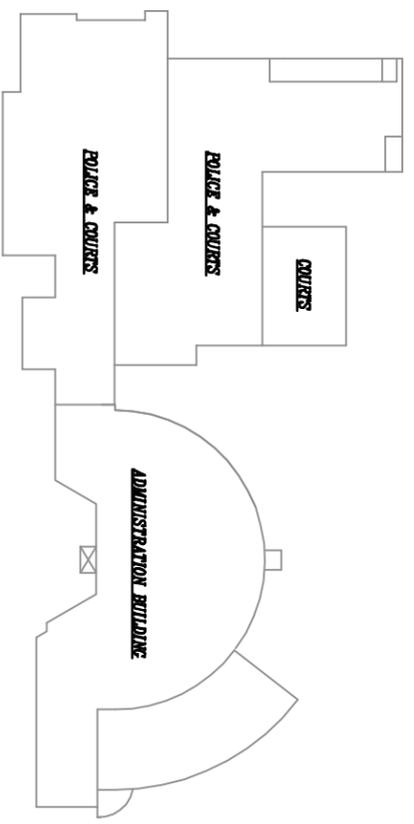
AN ELECTRICAL UPGRADE IN THE BASEMENT OF THE EXISTING POLICE STATION IS INCLUDED TO PROVIDE ADEQUATE POWER FOR THE NEW CHILLER, NEW PUMPS AND ANCILLARY EQUIPMENT, EXISTING EQUIPMENT MONITORING AND CONTROL INCLUDING AIR HANDLERS & EXHAUST FANS.

THE DESIGN AND INSTALLATION WORK SHALL BE IN COMPLIANCE WITH THE CURRENT EDITIONS OF THE STATE OF OHIO CODES IN EFFECT AS OF NOVEMBER, 2011 AND AS FOLLOWS:

- 2011 OHIO BUILDING CODE (FIRST PRINTING)
- 2011 OHIO PLUMBING CODE (FIRST PRINTING)
- 2011 OHIO FIRE CODE (2009 IFC)
- 2011 OHIO MECHANICAL CODE (FIRST PRINTING)
- 2009 INTERNATIONAL ENERGY CONSERVATION CODE (SIXTH PRINTING) & ASHRAE 90.1-07-2009
- 2011 OHIO FUEL GAS CODE (2009 IFGC)
- 2011 NATIONAL ELECTRICAL CODE (NEC) - NFPA 70



SITE MAP
NO SCALE



KEY PLAN
NO SCALE

CRITERIA DRAWING INDEX

DRAWING NO.	DRAWING DESCRIPTION
TP	TITLE PAGE
1	MASTER ROOF PLAN
2	POLICE BUILDING MECHANICAL ROOM NEW WORK
3	POLICE BUILDING MECHANICAL HEATING DIAGRAM
4	POLICE BUILDING MECHANICAL COOLING DIAGRAM
5	ADMIN BUILDING 3rd FL. MECHANICAL ROOM NEW WORK PLAN
6	ADMIN BUILDING MECHANICAL HEATING DIAGRAM
7	ADMIN BUILDING 3rd FLOOR AHU DIAGRAM
8	CONTROL COMMUNICATIONS NETWORKING DIAGRAM
-	-

HVAC UPGRADES
for
MENTOR MUNICIPAL CENTER
8500 Civic Center Boulevard Mentor, Ohio 44060

CITY OF
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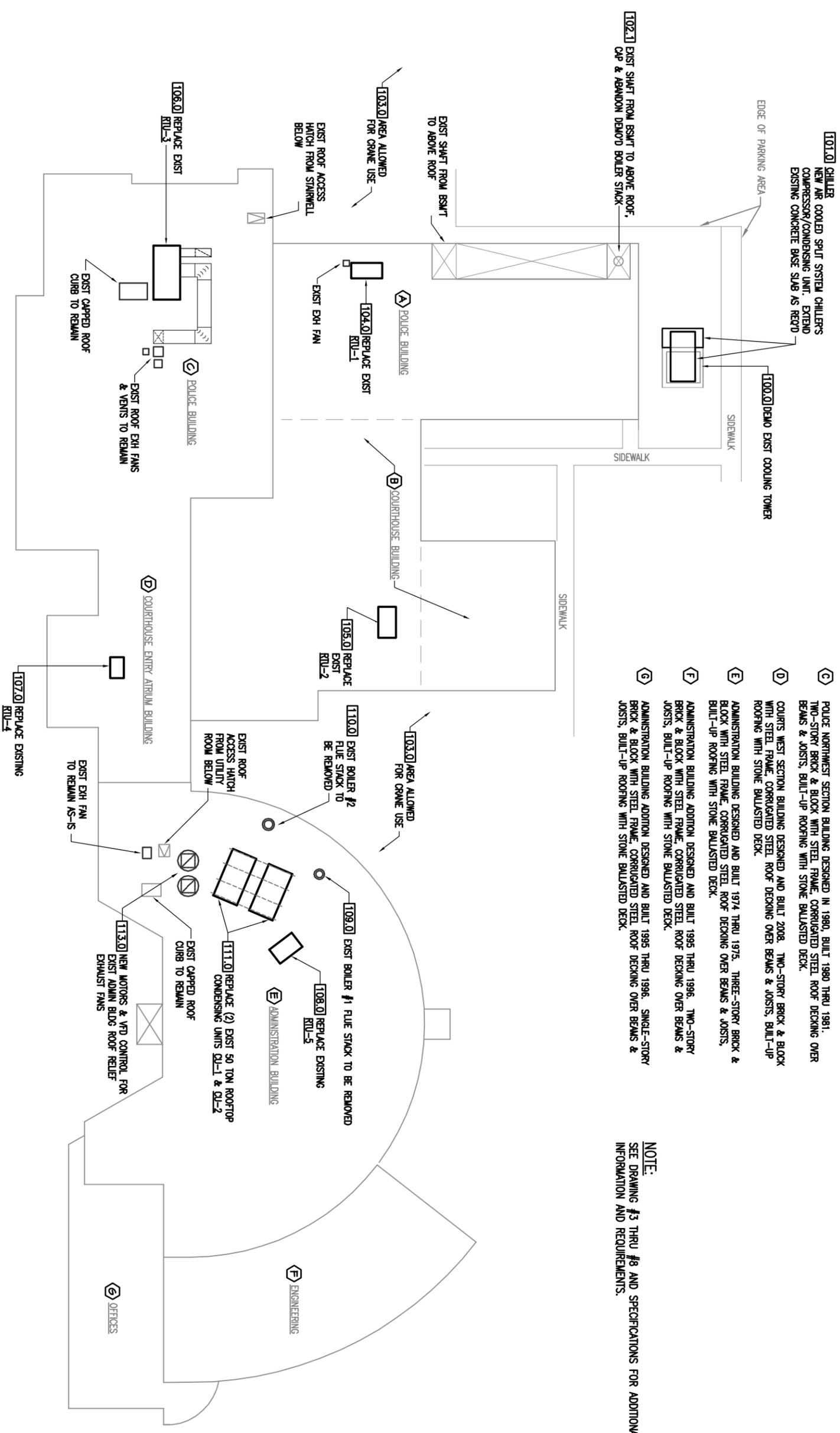
ISSUE	DATE	DESCRIPTION
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DATE: 11-06-13
DRAWN BY: MKB
SHEET TITLE: PROJECT TITLE PAGE
SHEET NO.: TP

BUILDING KEYED NOTES:

- (A) POLICE EAST SECTION BUILDING DESIGNED IN 1980, BUILT 1980 THRU 1981. SINGLE-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH NEW "TREMCO" ROOFING MATERIALS OVER EXISTING WITH WHITE STONE BALLASTED DECK.
- (B) COURTHOUSE EAST SECTION BUILDING DESIGNED IN 1980, BUILT 1980 THRU 1981. SINGLE-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH NEW "TREMCO" ROOFING MATERIALS OVER EXISTING WITH WHITE STONE BALLASTED DECK.
- (C) POLICE NORTHWEST SECTION BUILDING DESIGNED IN 1980, BUILT 1980 THRU 1981. TWO-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH STONE BALLASTED DECK.
- (D) COURTS WEST SECTION BUILDING DESIGNED AND BUILT 2008. TWO-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH STONE BALLASTED DECK.
- (E) ADMINISTRATION BUILDING DESIGNED AND BUILT 1974 THRU 1975. THREE-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH STONE BALLASTED DECK.
- (F) ADMINISTRATION BUILDING ADDITION DESIGNED AND BUILT 1995 THRU 1996. TWO-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH STONE BALLASTED DECK.
- (G) ADMINISTRATION BUILDING ADDITION DESIGNED AND BUILT 1995 THRU 1996. SINGLE-STORY BRICK & BLOCK WITH STEEL FRAME, CORRUGATED STEEL ROOF DECKING OVER BEAMS & JOISTS, BUILT-UP ROOFING WITH STONE BALLASTED DECK.

NOTE:
SEE DRAWING #3 THRU #8 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



MUNICIPAL CENTER ROOF PLAN
SCALE: 1/8" = 1'-0"

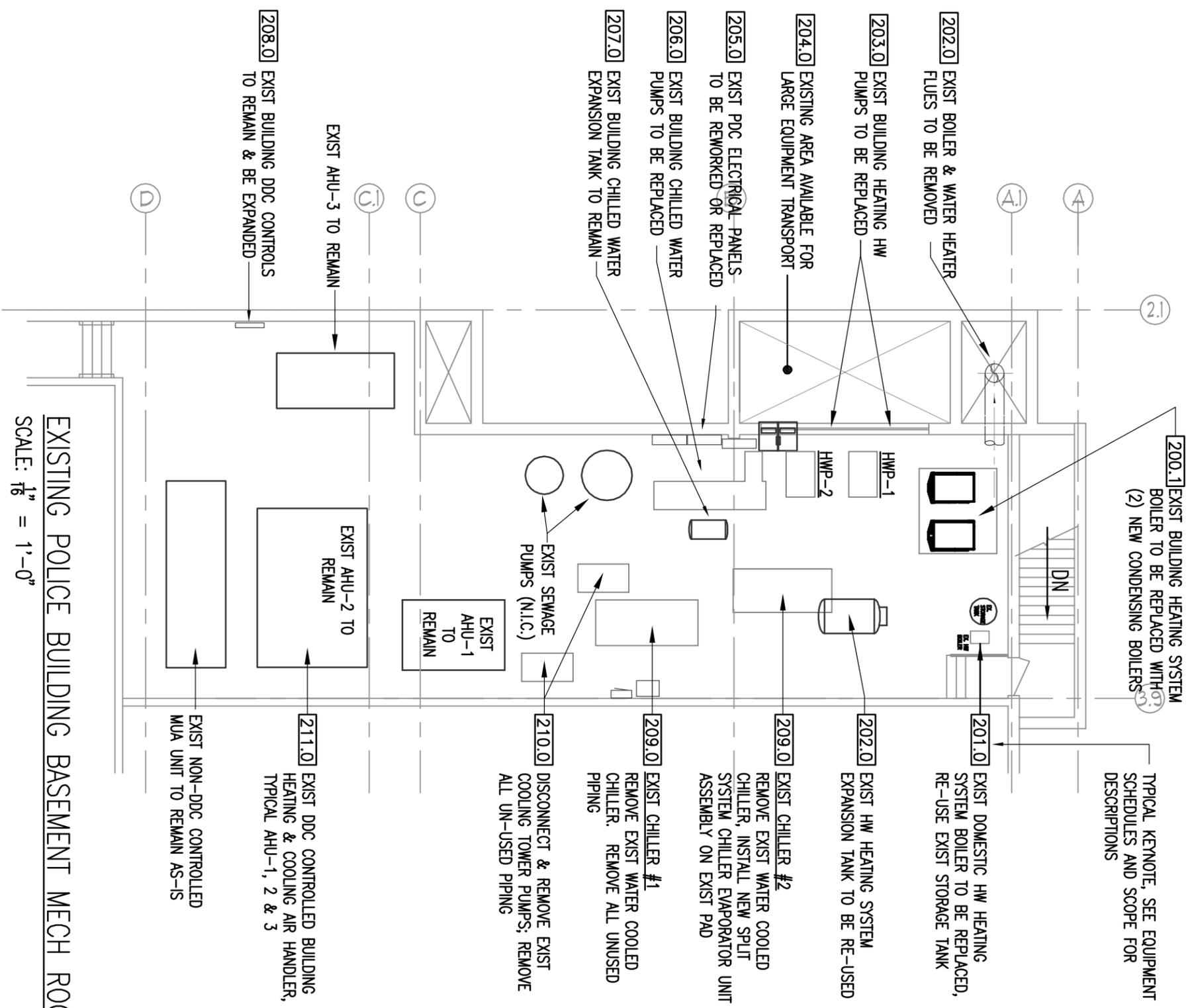
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8500 Civic Center Boulevard Mentor, Ohio 44060

DATE: 11-06-13
DRAWN BY: MKB
SHEET TITLE: MASTER ROOF PLAN
SHEET NO.: 1



[200.1] EXIST BUILDING HEATING SYSTEM BOILER TO BE REPLACED WITH (2) NEW CONDENSING BOILERS

TYPICAL KEYNOTE, SEE EQUIPMENT SCHEDULES AND SCOPE FOR DESCRIPTIONS

[202.0] EXIST BOILER & WATER HEATER FLUES TO BE REMOVED

[201.0] EXIST DOMESTIC HW HEATING SYSTEM BOILER TO BE REPLACED, RE-USE EXIST STORAGE TANK

[203.0] EXIST BUILDING HEATING HW PUMPS TO BE REPLACED

[202.0] EXIST HW HEATING SYSTEM EXPANSION TANK TO BE RE-USED

[204.0] EXISTING AREA AVAILABLE FOR LARGE EQUIPMENT TRANSPORT

[209.0] EXIST CHILLER #2 REMOVE EXIST WATER COOLED CHILLER, INSTALL NEW SPLIT SYSTEM CHILLER EVAPORATOR UNIT ASSEMBLY ON EXIST PAD

[205.0] EXIST PDC ELECTRICAL PANELS TO BE REMORKED OR REPLACED

[209.0] EXIST CHILLER #1 REMOVE EXIST WATER COOLED CHILLER. REMOVE ALL UNUSED PIPING

[206.0] EXIST BUILDING CHILLED WATER PUMPS TO BE REPLACED

[207.0] EXIST BUILDING CHILLED WATER EXPANSION TANK TO REMAIN

[210.0] DISCONNECT & REMOVE EXIST COOLING TOWER PUMPS; REMOVE ALL UN-USED PIPING

EXIST AHU-1 TO REMAIN

EXIST AHU-3 TO REMAIN

EXIST AHU-2 TO REMAIN

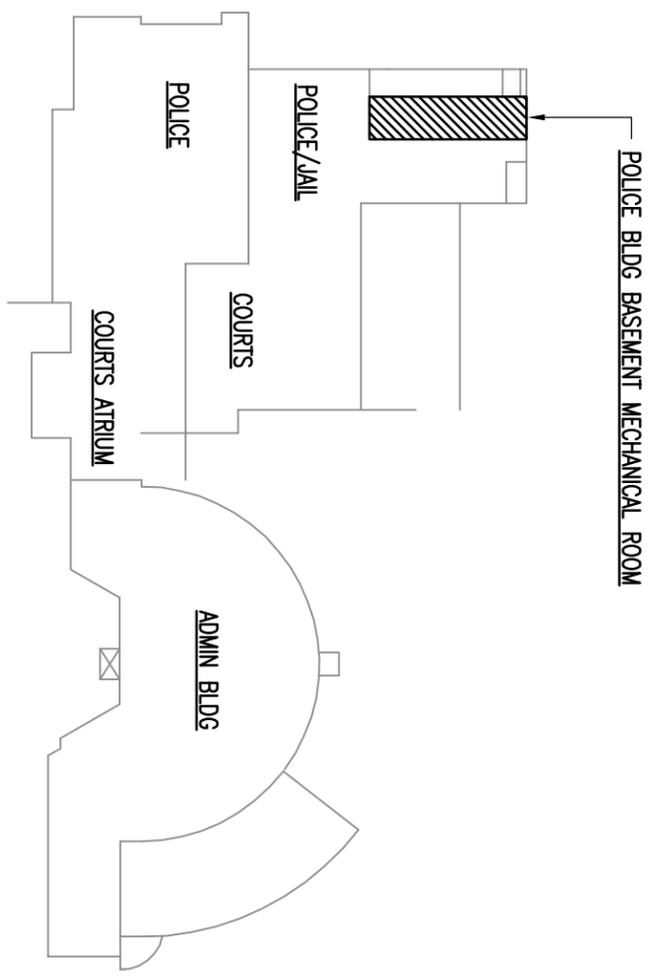
[211.0] EXIST DDC CONTROLLED BUILDING HEATING & COOLING AIR HANDLER, TYPICAL AHU-1, 2 & 3

EXIST NON-DDC CONTROLLED MUA UNIT TO REMAIN AS-IS

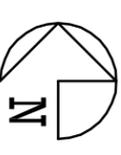
[208.0] EXIST BUILDING DDC CONTROLS TO REMAIN & BE EXPANDED

- NOTES:**
1. SEE DRAWING #3 FOR POLICE BUILDING BASEMENT MECHANICAL AREA HEATING BOILER SYSTEM DIAGRAM.
 2. SEE DRAWING #4 FOR POLICE BUILDING BASEMENT MECHANICAL AREA COOLING/CHILLER SYSTEM DIAGRAM.
 3. SEE DRAWING #8 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

EXISTING POLICE BUILDING BASEMENT MECH ROOM PLAN
SCALE: $\frac{1}{16}'' = 1'-0''$



KEY PLAN
NO SCALE



ISSUE	DATE	DESCRIPTION
11-06-13	A	FOR BIDDING
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DATE: 11-06-13
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SHEET TITLE: POLICE BUILDING MECH ROOM NEW WORK
SHEET NO.: 2

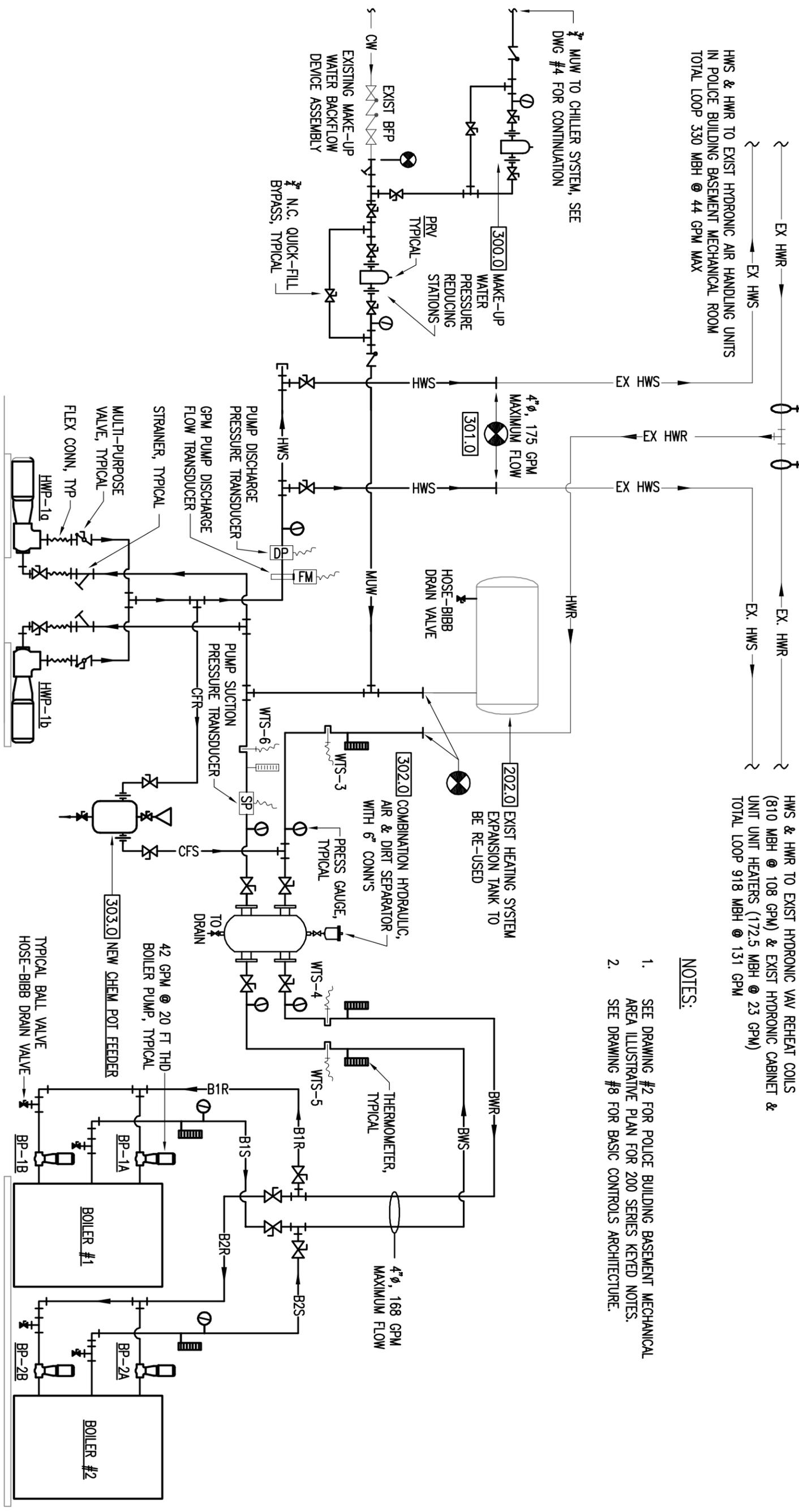
NEW STRAP-ON WATER TEMPERATURE SENSORS,
VERIFY LOCATIONS AND CONFIGURATIONS

WTS-1
WTS-2

HWS & HWR TO EXIST HYDRONIC VALV REHEAT COILS
(810 MBH @ 108 GPM) & EXIST HYDRONIC CABINET &
UNIT UNIT HEATERS (172.5 MBH @ 23 GPM)
TOTAL LOOP 918 MBH @ 131 GPM

NOTES:

1. SEE DRAWING #2 FOR POLICE BUILDING BASEMENT MECHANICAL AREA ILLUSTRATIVE PLAN FOR 200 SERIES KEYPED NOTES.
2. SEE DRAWING #8 FOR BASIC CONTROLS ARCHITECTURE.



[203.0] 175 GPM @ 70 FT THD BUILDING HEATING
SYSTEM CIRCULATING PUMPS WITH VFD AND
LEAD/LAG CONTROLS
1312.5 MBH @ 15 DEG F DIFF

[201.0] NEW CONDENSING BOILERS
LEAD/LAG OPERATED 941 MBH, 42 GPM MIN,
84 GPM MAXIMUM SINGLE BOILER, 22.5° TEMP
RISE WITH 160° F EWT, 183° F MAX LWT

POLICE BUILDING BASEMENT MECHANICAL ROOM HEATING SYSTEM FLOW DIAGRAM
NO SCALE

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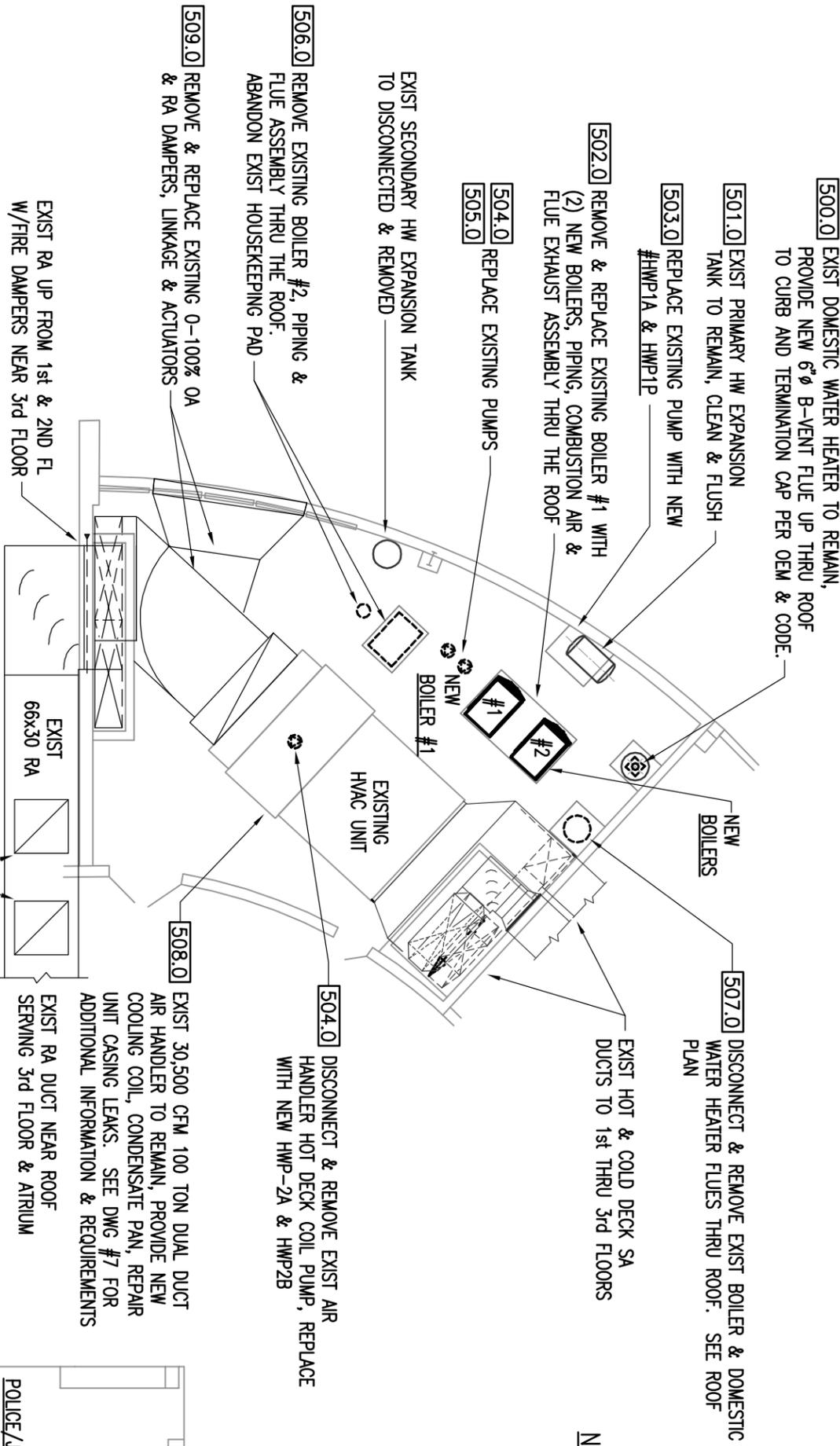
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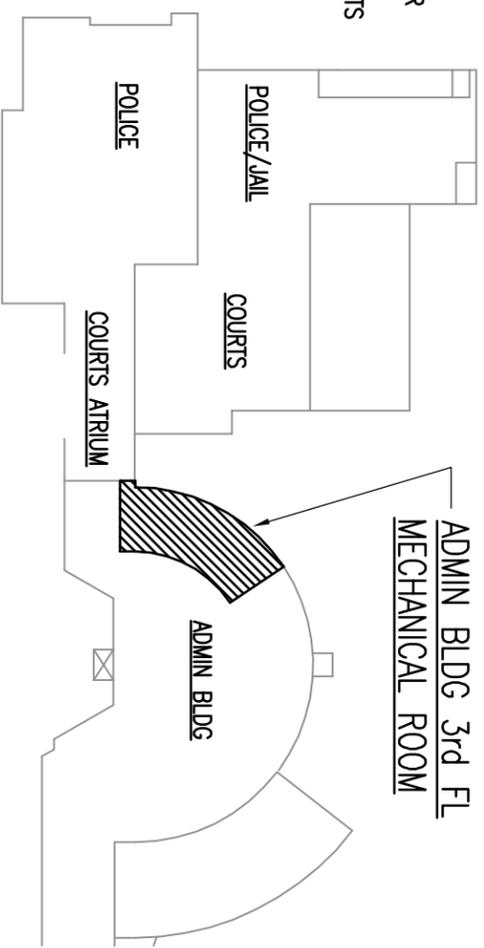
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8500 Civic Center Boulevard Mentor, Ohio 44060

SHEET TITLE:
POLICE BUILDING MECH
HEATING DIAGRAM
SHEET NO.:
3

DATE: 11-06-13
DRAWN BY: MKB



- NOTES:
1. SEE DRAWINGS #6, #7 & #8 AND RELATED NOTES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



ADMIN BLDG 3rd FL MECHANICAL ROOM PLAN

SCALE: 1/8" = 1'-0"



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HVAC UPGRADES

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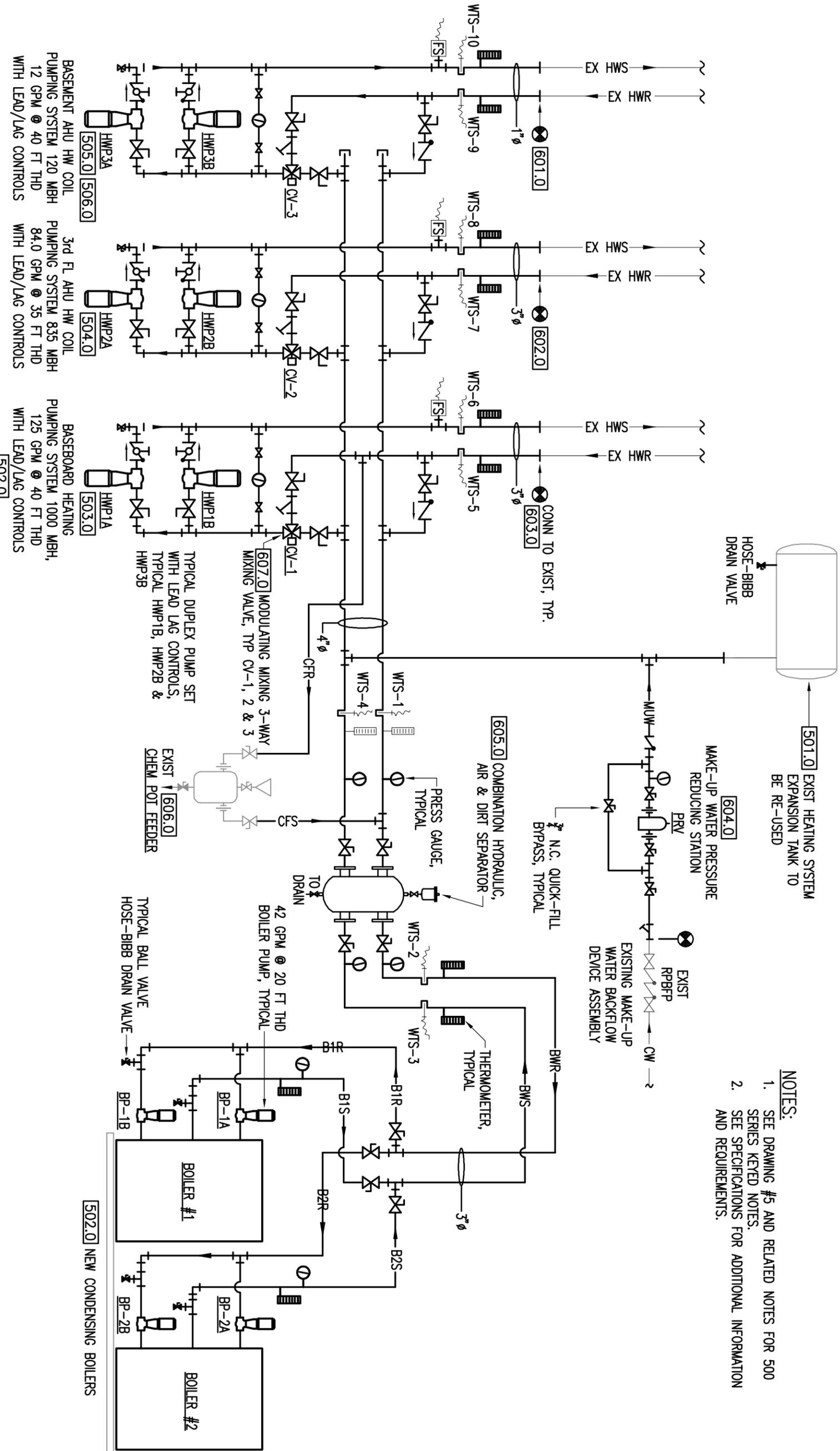
8500 Civic Center Boulevard Mentor, Ohio 44060

DATE: 11-06-13

DRAWN BY: MKB

SHEET TITLE: ADMIN BUILDING 3rd FL MECHANICAL ROOM PLAN

SHEET NO.: 5



- NOTES:**
1. SEE DRAWING #5 AND RELATED NOTES FOR 500 SERIES KEYED NOTES.
 2. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

ADMIN BUILDING 3rd FLOOR MECHANICAL ROOM HEATING SYSTEM FLOW DIAGRAM

NO SCALE

BASEMENT AHU HW COIL
PUMPING SYSTEM 120 MBH
12 GPM @ 40 FT THD
WITH LEAD/LAG CONTROLS

3rd FL AHU HW COIL
PUMPING SYSTEM 835 MBH
84.0 GPM @ 35 FT THD
WITH LEAD/LAG CONTROLS

BASEBOARD HEATING
PUMPING SYSTEM 1000 MBH,
125 GPM @ 40 FT THD
WITH LEAD/LAG CONTROLS

502.0

DATE: 11-06-13
DRAWN BY: MKB

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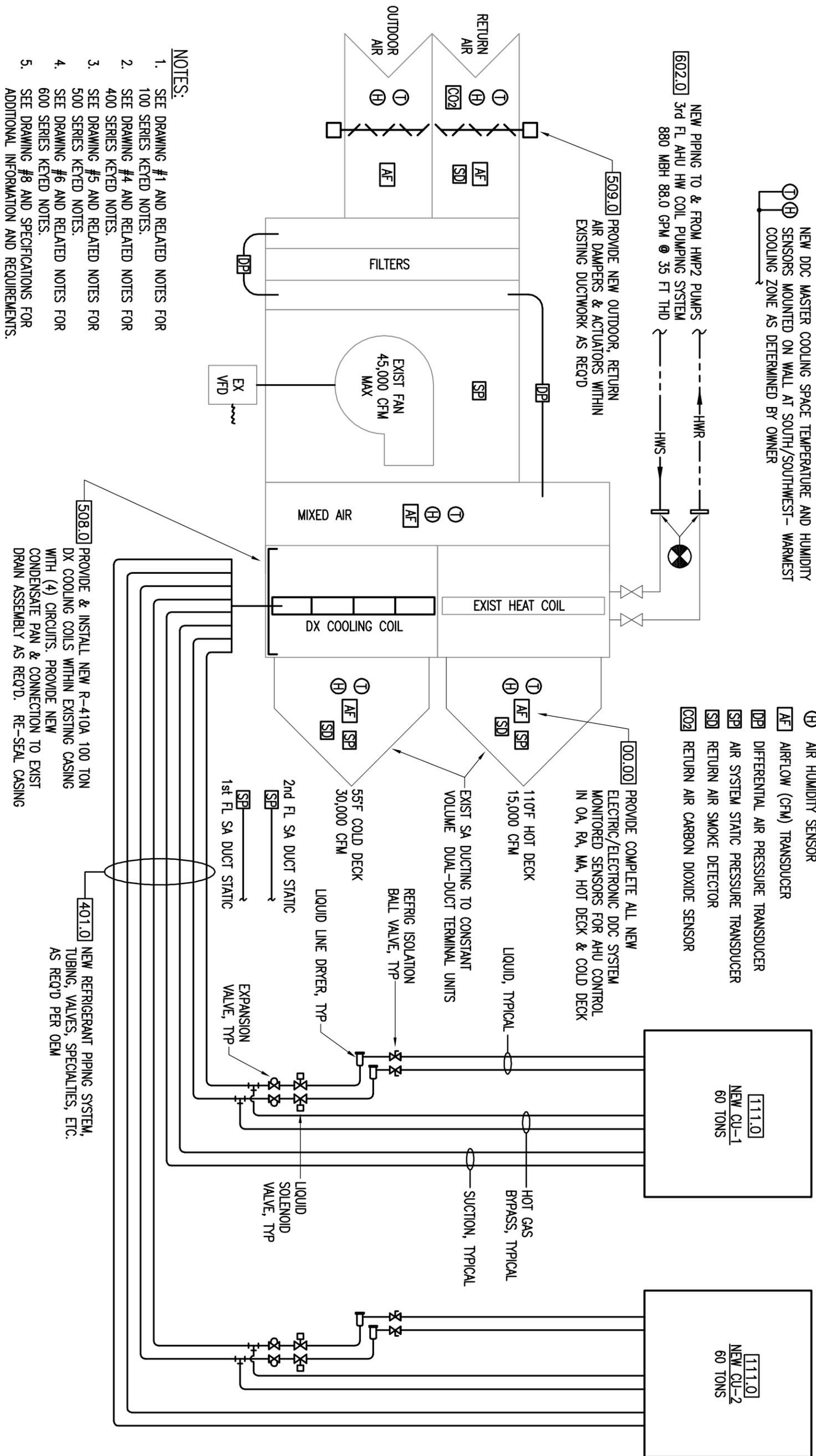
ISSUE	DATE	DESCRIPTION
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NEW DDC MASTER HEATING SPACE TEMPERATURE AND HUMIDITY SENSORS MOUNTED ON WALL AT NORTHWEST-COLDEST HEATING ZONE AS DETERMINED BY OWNER

NEW DDC MASTER COOLING SPACE TEMPERATURE AND HUMIDITY SENSORS MOUNTED ON WALL AT SOUTH/SOUTHWEST- WARMEST COOLING ZONE AS DETERMINED BY OWNER

NEW AHU SENSOR LEGEND

- Ⓜ AIR TEMPERATURE SENSOR
- Ⓜ AIR HUMIDITY SENSOR
- Ⓜ AIRFLOW (CFM) TRANSDUCER
- Ⓜ DIFFERENTIAL AIR PRESSURE TRANSDUCER
- Ⓜ AIR SYSTEM STATIC PRESSURE TRANSDUCER
- Ⓜ RETURN AIR SMOKE DETECTOR
- Ⓜ RETURN AIR CARBON DIOXIDE SENSOR



NEW PIPING TO & FROM HWP2 PUMPS
 3rd FL AHU HW COIL PUMPING SYSTEM
 880 MBH 88.0 GPM @ 35 FT THD

509.0 PROVIDE NEW OUTDOOR, RETURN AIR DAMPERS & ACTUATORS WITHIN EXISTING DUCTWORK AS REQ'D

00.00 PROVIDE COMPLETE ALL NEW ELECTRIC/ELECTRONIC DDC SYSTEM MONITORED SENSORS FOR AHU CONTROL IN OA, RA, MA, HOT DECK & COLD DECK

EXIST SA DUCTING TO CONSTANT VOLUME DUAL-DUCT TERMINAL UNITS

55F COLD DECK 30,000 CFM

2nd FL SA DUCT STATIC
 1st FL SA DUCT STATIC

401.0 NEW REFRIGERANT PIPING SYSTEM, TUBING, VALVES, SPECIALTIES, ETC. AS REQ'D PER OEM

- NOTES:**
- SEE DRAWING #1 AND RELATED NOTES FOR 100 SERIES KEYED NOTES.
 - SEE DRAWING #4 AND RELATED NOTES FOR 400 SERIES KEYED NOTES.
 - SEE DRAWING #5 AND RELATED NOTES FOR 500 SERIES KEYED NOTES.
 - SEE DRAWING #6 AND RELATED NOTES FOR 600 SERIES KEYED NOTES.
 - SEE DRAWING #8 AND SPECIFICATIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

700.0 ADMIN BUILDING 3rd FLOOR MECHANICAL ROOM AIR HANDLING SYSTEM ILLUSTRATIVE DIAGRAM

NO SCALE

ISSUE	DATE	DESCRIPTION
11-06-13	A	FOR BIDDING
-	-	-
-	-	-
-	-	-
-	-	-

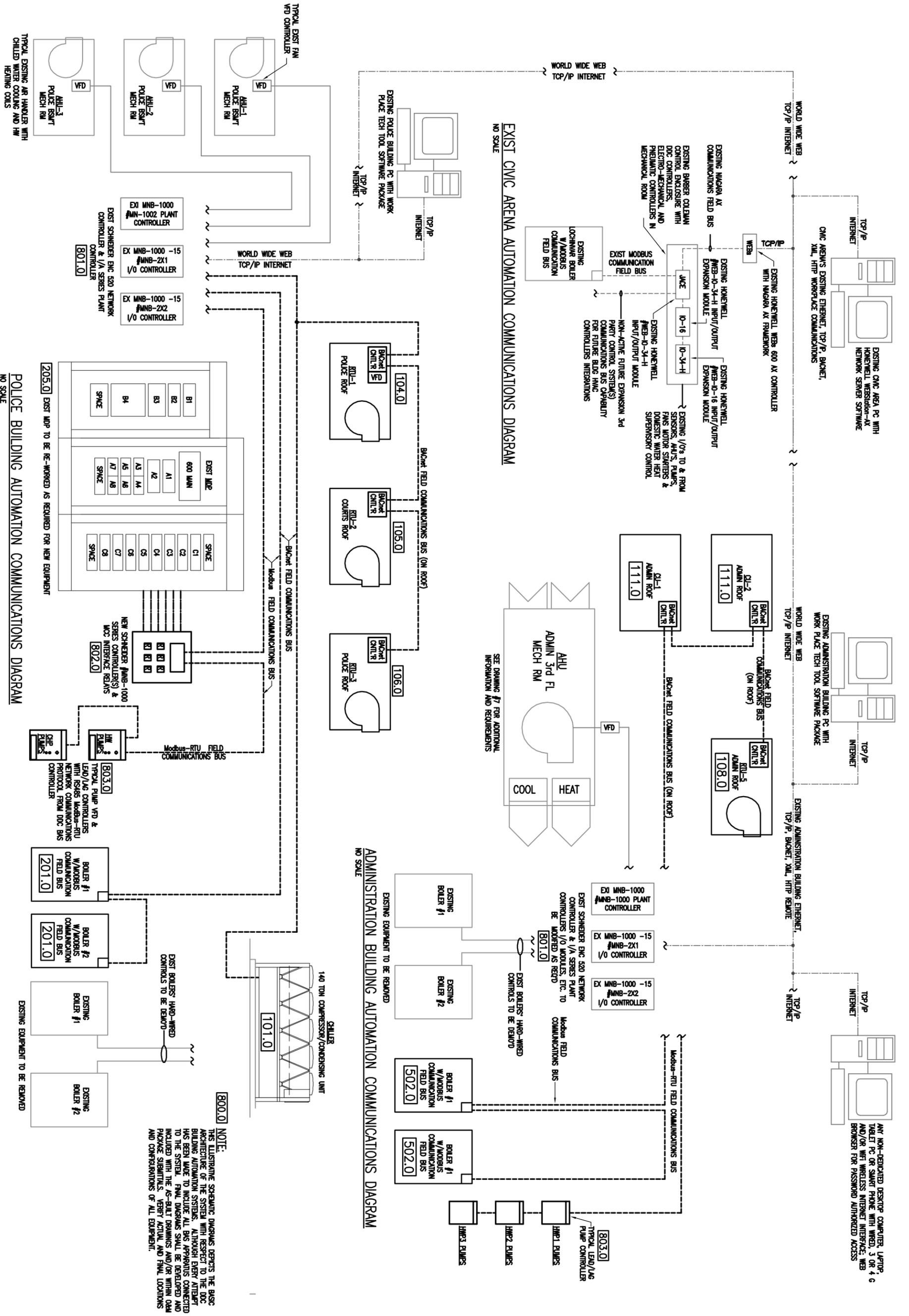
Bellman Design Services Company
 33038 Lake Road
 Avon Lake, Ohio 44012
 Office 440.328.4701

DESIGN/DEVELOPMENT
 Plumbing, HVAC, Electrical & Controls
 BellmanDesign@oh.rr.net

CITY OF
mentor
 OHIO

HVAC UPGRADES
 for
MENTOR MUNICIPAL CENTER
 8500 Civic Center Boulevard Mentor, Ohio 44060

DATE: 11-06-13
 DRAWN BY: MKB
 SHEET TITLE: ADMIN BUILDING 3rd FL AHU DIAGRAM
 SHEET NO.: 7



EXIST CIVIC ARENA AUTOMATION COMMUNICATIONS DIAGRAM
NO SCALE

ADMINISTRATION BUILDING AUTOMATION COMMUNICATIONS DIAGRAM
NO SCALE

800.0 NOTE:
THIS ILLUSTRATIVE SCHEMATIC DIAGRAM DEPICTS THE BASIC ARCHITECTURE OF THE SYSTEM WITH RESPECT TO THE DOC BUILDING AUTOMATION SYSTEMS. ALTHOUGH EVERY ATTEMPT HAS BEEN MADE TO INCLUDE ALL BUS APPARATUS CONNECTED TO THE SYSTEM, FINAL DIAGRAMS SHALL BE DEVELOPED AND INCLUDED WITH THE AS-BUILT DRAWINGS AND/OR WITHIN O&M PACKAGE SUBMITTALS. VERIFY ACTUAL AND FINAL LOCATIONS AND CONFIGURATIONS OF ALL EQUIPMENT.

HVAC UPGRADES
for
MENTOR MUNICIPAL CENTER
8500 Civic Center Boulevard Mentor, Ohio 44060



Bellman Design Services Company
39038 Lake Road
Avon Lake, Ohio 44012
Office 440.328.4701
DESIGN/DEVELOPMENT
Plumbing, HVAC, Electrical & Controls
BellmanDesign@oh.rr.net

ISSUE	DATE	DESCRIPTION
11-06-13	A	FOR BIDDING
-	-	-
-	-	-
-	-	-
-	-	-

CONTROL COMMUNICATIONS NETWORKING DIAGRAM
SHEET NO.: **8**

SECTION 10
PREVAILING WAGE

Prevailing Wage Determination Cover Letter

County: 
 Determination Date: 12/20/2013
 Expiration Date: 03/20/2014

THE FOLLOWING PAGES ARE PREVAILING RATES OF WAGES ON PUBLIC IMPROVEMENTS FAIRLY ESTIMATED TO BE MORE THAN THE AMOUNT IN O.R.C. SEC. 4115.03 (b) (1) or (2), AS APPLICABLE.

Section 4115.05 provides, in part: "Where contracts are not awarded or construction undertaken within ninety days from the date of the establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wages before the contract is awarded." The expiration date of this wage schedule is listed above for your convenience only. This wage determination is not intended as a blanket determination to be used for all projects during this period without prior approval of this Department.

Section 4115.04, Ohio Revised Code provides, in part: "Such schedule of wages shall be attached to and made a part of the specifications for the work, and shall be printed on the bidding blanks where the work is done by contract..."

The contract between the letting authority and the successful bidder shall contain a statement requiring that mechanics and laborers be paid a prevailing rate of wage as required in Section 4115.06, Ohio Revised Code.

The contractor or subcontractor is required to file with the contracting public authority upon completion of the project and prior to final payment therefore an affidavit stating that he has fully complied with Chapter 4115 of the Ohio Revised Code.

The wage rates contained in this schedule are the "Prevailing Wages" as defined by Section 4115.03, Ohio Revised Code (the basic hourly rates plus certain fringe benefits). These rates and fringes shall be a minimum to be paid under a contract regulated by Chapter 4115 of the Ohio Revised Code by contractors and subcontractors. The prevailing wage rates contained in this schedule include the effective dates and wage rates currently on file. In cases where future effective dates are not included in this schedule, modifications to the wage schedule will be furnished to the Prevailing Wage Coordinator appointed by the public authority as soon as prevailing wage rates increases are received by this office.

"There shall be posted in a prominent and accessible place on the site of work a legible statement of the Schedule of Wage Rates specified in the contract to the various classifications of laborers, workmen, and mechanics employed, said statement to remain posted during the life of such contract." Section 4115.07, Ohio Revised Code.

Apprentices will be permitted to work only under a bona fide apprenticeship program if such program exists and if such program is registered with the Ohio Apprenticeship Council.

Section 4115.071 provides that no later than ten days before the first payment of wages is due to any employee of any contractor or subcontractor working on a contract regulated by Chapter 4115, Ohio Revised Code, the contracting public authority shall appoint one of his own employees to act as the prevailing wage coordinator for said contract. The duties of the prevailing wage coordinator are outlined in Section 4115.071 of the Ohio Revised Code.

Section 4115.05 provides for an escalator in the prevailing wage rate. Each time a new rate is established, that rate is required to be paid on all ongoing public improvement projects.

A further requirement of Section 4115.05 of the Ohio Revised Code is: "On the occasion of the first pay date under a contract, the contractor shall furnish each employee not covered by a collective bargaining agreement or understanding between employers and bona fide organizations of Labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing

wage Coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed.”

Work performed in connection with the installation of modular furniture may be subject to prevailing wage.

**THIS PACKET IS NOT TO BE SEPARATED BUT IS TO REMAIN COMPLETE AS IT IS SUBMITTED TO YOU.
(Reference guidelines and forms are included in this packet to be helpful in the compliance of the
Prevailing Wage law.)**

wh1500



**Department
of Commerce**

Division of Industrial Compliance

PREVAILING WAGE THRESHOLD LEVELS IMPORTANT NOTICE

Before advertising for bids, contracting, or undertaking construction with its own forces to construct a public improvement, the Public Authority shall have the Ohio Department of Commerce-Division of Industrial Compliance Bureau of Wage and Hour Administration determine the prevailing rates of wages for workers employed on the public improvement. The wage determination must be included in the project specifications and printed on the bidding blanks where work is done by contract.

As of September 29, 2012:

“New” construction threshold level has been adjusted to :	\$200,000
--	------------------

“Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting” threshold level has been adjusted to:	\$60,000
---	-----------------

A) The threshold for new construction will increase to: \$250,000 beginning September 29, 2013.

B) The threshold for reconstruction will increase to: \$75,000 beginning September 29, 2013.

As of January 1, 2012:

“New” construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction threshold level has been adjusted to:	\$82,137
--	-----------------

“Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting” that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction threshold level has been adjusted to:	\$24,609
--	-----------------

A) Thresholds are to be adjusted biennially by the Director of the Ohio Department of Commerce.

B) Biennial adjustments to threshold levels are made according to the Price Deflator for Construction Index, United States Department of Commerce, Bureau of the Census*, but may not increase or decrease more than 3% for any year.

*Please note, in the absence of a published Price Deflator for Construction Index, the threshold adjustment is calculated using the Building Cost for Skilled Labor Index published by McGraw-Hill’s Engineering News-Record.

If there are questions concerning this notification, please contact:

Ohio Department of Commerce
Division of Industrial Compliance
Bureau of Wage and Hour Administration
6606 Tussing Road, PO Box 4009
Reynoldsburg, Ohio 43068-9009
614-644-2239
TTY/TDD: 1-800-750-0750
www.com.ohio.gov



Department of Commerce

Division of Industrial Compliance

John R. Kasich, Governor
David Goodman, Director

PREVAILING WAGE CONTRACTOR RESPONSIBILITIES

This is a summary of prevailing wage contractors' responsibilities. For more detailed information, please refer to Chapter 4115 of the Ohio Revised Code

General Information

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than \$200,000 for new construction or \$60,000 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting.

- a) The threshold for new construction will increase to \$250,000 beginning September 29, 2013.
- b) The threshold for reconstruction will increase to \$75,000 beginning September 29, 2013.

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than \$82,137 for new construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction or \$24,609 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting of a public improvement that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction.

- a) Thresholds are to be adjusted biennially by the Administrator of Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration
- b) Biennial adjustments to threshold levels are made according to the Price Deflator for Construction Index, United States Department of Commerce, Bureau of the Census*, but may not increase or decrease more than 3% for any year. (**Please note, in the absence of a published Price Deflator for Construction Index, the threshold adjustment is calculated using the Building Cost for Skilled Labor Index published by McGraw-Hill's Engineering News-Record.*)

Penalties for violation Violators are to be assessed the wages owed, plus a penalty of 100% of the wages owed.

Intentional Violations

If an intentional violation is determined to have occurred, the contractor is prohibited from contracting directly or indirectly with any public authority for the construction of a public improvement. Intentional violation means "a willful, knowing, or deliberate disregard for any provision" of the prevailing wage law and includes but is not limited to the following actions:

- Intentional failure to submit payroll reports as required, or knowingly submitting false or erroneous reports.
- Intentional misclassification of employees for the purpose of reducing wages.
- Intentional misclassification of employees as independent contractors or as apprentices.
- Intentional failure to pay the prevailing wage.
- Intentional failure to comply with the allowable ratio of apprentices to skilled workers as required by the regulations established by Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration.
- Intentionally employing an officer, of a contractor or subcontractor, that is known to be prohibited from contracting, directly or indirectly, with a public authority.

Responsibilities

- A. Pay the prevailing rate of wages as shown in the wage rate schedules issued by the Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration, for the classification of work being performed.
 - 1. Wage rate schedules include all modifications, corrections, escalations, or reductions to wage rates issued for the project.
 - 2. Overtime must be paid at time and one-half the employee's base hourly rate. Fringe benefits are paid at straight time rate for all hours including overtime.
 - 3. Prevailing wages must be paid in full without any deduction for food, lodging, transportation, use of tools, etc.; unless, the employee has voluntarily consented to these deductions in writing. The public authority and the Director of Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration - must approve these deductions as fair and reasonable. Consent and approval must be obtained before starting the project.

- B. Use of Apprentices and Helpers cannot exceed the ratios permitted in the wage rate schedules.
 - 1. Apprentices must be registered with the U.S. Department of Labor Bureau of Apprenticeship and Training.
 - 2. Contractors must provide the Prevailing Wage Coordinator a copy of the Apprenticeship Agreement for each apprentice on the project.

- C. Keep full and accurate payroll records available for inspection by any authorized representative of the Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration or the contracting public authority, including the Prevailing Wage Coordinator. Records should include but are not limited to:
 - 1. Time cards, time sheets, daily work records, etc.
 - 2. Payroll ledger\journals and canceled checks\check register.
 - 3. Fringe benefit records must include program name, address, account number, and canceled checks.
 - 4. Records made in connection with the public improvement must not be removed from the State for one year following the completion of the project.
 - 5. Out-of-State Corporations must submit to the Ohio Secretary of State the full name and address of their Statutory Agent in Ohio.

- D. Prevailing Wage Rate Schedule must be posted on the job site where it is accessible to all employees.

- E. Prior to submitting the initial payroll report, supply the Prevailing Wage Coordinator with your project dates to schedule reporting of your payrolls.

- F. Supply the Prevailing Wage Coordinator a list of all subcontractors including the name, address, and telephone number for each.
 - 1. Contractors are responsible for their subcontractors' compliance with requirements of Chapter 4115 of the Ohio Revised Code.

- G. Before employees start work on the project, supply them with written notification of their job classification, prevailing wage rate, fringe benefit amounts, and the name of the Prevailing Wage Coordinator for the project. A copy of the completed signed notification should be submitted to the Prevailing Wage Coordinator.

- H. Supply all subcontractors with the Prevailing Wage Rates and changes.

- I. Submit certified payrolls within two (2) weeks after the initial pay period. Payrolls must include the following information:
1. Employees' names, addresses, and social security numbers.
 - (a) Corporate officers/owners/partners and any salaried personnel who do physical work on the project are considered employees. All rate and reporting requirements are applicable to these individuals.
 2. Employees' work classification.
 - (a) Be specific about the laborers and/or operators (Group)
 - (b) For all apprentices, show level/year and percent of journeyman's rate
 3. Hours worked on the project for each employee.
 - (a) The number of hours worked in each day and the total number of hours worked each week.
 4. Hourly rate for each employee.
 - (a) The minimum rate paid must be the wage rate for the appropriate classification. The Department's Wage Rate Schedule sets this rate.
 - (b) All overtime worked is to be paid at time and one-half for all hours worked more than forty (40) per week.
 5. Where fringes are paid into a bona fide plan instead of cash, list each benefit and amount per hour paid to program for each employee.
 - (a) When the amount contributed to the fringe benefit plan and the total number of hours worked by the employee on all projects for the year are documented, the hourly amount is calculated by dividing the total contribution of the employer by the total number of hours worked by the employee.
 - (b) When the amount contributed to the fringe benefit is documented but not the total hours worked, the hourly amount is calculated by **dividing the total yearly contribution by 2080**.
 6. Gross amount earned on all projects during the pay period.
 7. Total deductions from employee's wages.
 8. Net amount paid.
- J. The reports shall be certified by the contractor, subcontractor, or duly appointed agent stating that the payroll is correct and complete; and that the wage rates shown are not less than those required by the O.R.C. 4115.
- K. Provide a Final Affidavit to the Prevailing Wage Coordinator upon the completion of the project.



INDUSTRIAL COMPLIANCE SECTIONS RESOURCES CONTACT US

INSTRUCTIONS FOR PREPARING CERTIFIED PAYROLL REPORTS

General

Contractors and subcontractors are required by law to submit certified payroll reports for work on projects covered by Ohio's Prevailing Wage Law. This form meets the reporting requirements established by Ohio Revised Code Chapter 4115. The use of this form is not mandatory, employers may submit their own forms provided that all of the required information is included. This form may be reproduced, or additional copies obtained from:

Ohio Department of Commerce Division of Industrial Compliance and Labor Bureau of Wage & Hour Administration 6606 Tussing Rd. P. O. Box 4009 Reynoldsburg, OH 43068-9009 Phone: (614) 644-2239

Certified Payroll Heading

Employer name and address: Company's full name and address. Indicate if the company is a subcontractor, if so list the name of the General or Prime. Project: Name and location of the project, including county. Contracting Public Authority: Name and address of the contracting public authority. Week Ending: Month, day, and year for last day of reporting period. Payroll #: indicates first, second, third, etc. payroll filed by the company for the project. Page indicator: number of pages included in the report. Project Number: Determined by the public authority. If there is no number leave blank.

Information by Column

- 1. Employee Name, Address and Social Security number: This information must be provided for all employees that perform physical labor on the project. Corporate officers, partners, and salaried employees are considered employees and must be paid the prevailing rate. Individual sole proprietors do not have to pay themselves prevailing rate but must report their hours on the project.
- 2. Work Class: List classification of work actually performed by employee. If unsure of work classification, consult the Ohio department of Commerce, Wage and Hour Bureau. Employees working more than one classification should have separate line entries for each classification. Indicate what year/level for Apprentices. Be specific when using laborer and operator classifications; for example, Backhoe Operator or Asphalt Laborer.
- 3. Hours Worked, Day & Date: In the first row of column 3 enter days of pay period example; M T W TH F S S. The second row is for the date that corresponds with each day for the pay period. In the employee information section enter the number of hours worked on the prevailing wage project and which day the hours were worked. Separate rows are labeled for (ST) straight time hours and (OT) overtime hours. All hours worked after 40, must be paid at the appropriate overtime rate.
- 4. Project Total Hours : Total the hours entered for pay period.
- 5. Base Rate: Enter actual rate per hour paid to the employee. The overtime hourly rate is time and one-half the base rate listed in the prevailing wage schedule plus fringe benefits at straight time rate. The prevailing wage schedule lists the base rate plus fringe benefit amounts. These amounts added together equal the total prevailing wage rate. Employers must pay this total amount in one of three ways.
 - Total rate may be paid in entirety in the base rate to the employee; in which case, the cash designation will be checked for fringe benefits.
 - Total rate may be paid as listed in prevailing wage rate schedule with total fringe amounts paid approved plans.
 - Total rate may be paid with a combination of base rate and fringe payments to approved plans in amounts other than those listed in schedule.
- 6. Project Gross: Enter total gross wages earned on the project for straight time and overtime. Project hours X base rate should equal project gross.
- 7. Fringes: If fringe benefits are paid in the hourly base rate, indicate this by marking the cash space. If fringe benefits are paid to approved plans as listed in the prevailing wage rate schedule, mark the space Approved Plans. If fringe benefits are paid partially in the base rate and partially to approved plans, mark the space Cash & Approved plans. List the hourly amount paid to approved plans for each fringe. If payments are not made on a per hour basis, calculate the hourly fringe credit by dividing the yearly employer contribution by the lesser of: hours actually worked in the year (these must be documented) or 2080. Fringe benefits include: Employer's share of health insurance, life insurance, retirement plan, bonus/profit sharing, sick pay, holiday pay, personal leave, vacation, and education/training programs.
- 8. Total Hours All Jobs: Total all hours worked during the pay period including non-prevailing wage jobs.
- 9. Total Gross All Jobs: Gross amount earned in the pay period for all hours worked.
- 10. Self explanatory.
- 11. Self explanatory.
- 12. Self explanatory.

CONTACT US

Division of Industrial Compliance & Labor
6606 Tussing Road
Reynoldsburg, OH 43068

Phone 614.644.2223

CONTRACTOR NAME: _____

ADDRESS: _____

PHONE/E-MAIL: _____

Notification of Classification

TO: _____
(Employee's Name)

RE: _____
(Project)

A requirement of Section 4115.05 Ohio Revised Code is "On the occasion of the first pay date under a contract, the contractor shall furnish each employee not covered by a collective bargaining agreement or understanding between employers and bona fide organizations of labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to the classification, separated into the hourly rate of pay and the fringe payments and the identity of the prevailing wage coordinator appointed by the public authority. The contractor or sub-contractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed."

Your job classification for the above project is: _____

The prevailing wage for that job classification is: \$ _____

Which consists of \$ _____ per hour in wages.

And \$ _____ in fringe benefit payments

The Prevailing Wage Coordinator: Veronica Fetsko
City of Mentor
8500 Civic Center Boulevard
Mentor, Ohio 44060
(440) 974-5776

The undersigned employee acknowledges receiving this Notice:

Employee Signature Date

VINTON, WARREN*, WAYNE

Special Jurisdictional Note : Butler County:(townships of Fairfield,Hanover,Liberty,Milford,Morgan,Oxford,Ripley,Ross,StClair,Union & Wayne.) (Lemon & Madison) Warren County: (townships of: Deerfield, Hamilton, Harlan, Salem, Union & Washington). (Clear Creek, Franklin, Mossie, Turtle Creek & Wayney). Ashtabula County: (post offices & townships of Ashtabula, Austinburg, Geneva, Harperfield, Jefferson, Plymouth & Saybrook) (townships of Andover, Cherry Valley, Colbrook, Canneaut, Denmark, Dorset, East Orwell, Hartsgrove, Kingville, Lenox, Monroe,Morgan,New Lyme,North Kingsville, Orwell, Pierpoint, Richmond Rock Creek, Rome, Sheffield, Trumbull, Wayne, Williamsfield & Windsor) Erie County:(post offices & townships of Berlin, Berlin Heights,Birmingham,Florence ,Huron, Milan, Shinrock & Vermilion)

Details :

Asbestos & lead paint abatement including, but not limited to the removal or encapsulation of asbestos & lead paint, all work in conjunction with the preparation of the removal of same & all work in conjunction with the clean up after said removal. The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Abatement Workers.

On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.

An Abatement Journeyman is anyone who has more than 300 hours in the Asbestos Abatement field.

up,

preparation,application,adjusting,alteration,repairing,dismantling,reconditioning,testing&maintenance of Heat & Frost Insulation such as Magnesia,Asbestos,Hair Felt,Wool Felt,Cork,Mineral Wool, Infusorial Earth,Mercurized Silk,Flax,Fiber,Fire Felt,Asbestos Paper,Asbestos Curtain,Asbestos Millboard,Fiberglass, Foam glass, Styrofoam, Polyurethane, fire stopping,smoke stopping,all recyclable material,soundproofing,all penetrations,any flexible or rigid fireproofing,all jacketing systems including metal,lead,and PVC or other material.

Prevailing Wage Rate Skilled Crafts

Name of Union: Boilermaker Local 744

Change # : CN01-2008Loc744

Craft : Boilermaker Effective Date : 07/01/2009 Last Posted : 06/30/2010

Fringe Benefit Payments										
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification										
Boilermaker	\$36.84	\$6.82	\$6.46	\$0.35	\$0.00	\$3.75	\$0.00	\$54.22	\$72.64	
Apprentice	Percent									
1st 6 months	70.00	\$25.79	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$42.92	\$55.81
2nd 6 months	72.52	\$26.72	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$43.85	\$57.20
3rd 6 months	75.00	\$27.63	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$44.76	\$58.58
4th 6 months	77.51	\$28.55	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$45.68	\$59.96
5th 6 months	80.02	\$29.48	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$46.61	\$61.35
6th 6 months	85.00	\$31.31	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$48.44	\$64.10
7th 6 months	90.00	\$33.16	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$50.29	\$66.86
8th 6 months	95.02	\$35.01	\$6.62	\$6.46	\$0.30	\$0.00	\$3.75	\$0.00	\$52.14	\$69.64
Helper	60.00	\$22.10	\$6.82	\$6.46	\$0.35	\$0.00	\$3.75	\$0.00	\$39.48	\$50.54

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

5 Journeymen to 1 Apprentice to 1 Helper

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CARROLL, COSHOCTON,
CUYAHOGA, GEAUGA, HARRISON, HOLMES,
LAKE, LORAIN, MAHONING, MEDINA, PORTAGE,
STARK, SUMMIT, TRUMBULL, TUSCARAWAS,
WAYNE

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 16

Change # : LCN01-2013fbLoc16

Craft : Bricklayer Effective Date : 05/29/2013 Last Posted : 05/29/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Bricklayer	\$31.31		\$6.67	\$6.47	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.10	\$60.75
Cement Masons	\$31.31		\$6.67	\$6.47	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.10	\$60.75
Pointer Caulker Cleaner	\$31.31		\$6.67	\$6.47	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.10	\$60.75
Plasterers	\$31.31		\$6.67	\$6.47	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.10	\$60.75
Mason Trainees												
1-90 Days	\$14.09		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.09	\$21.13
91-365 Days	\$14.09		\$6.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.76	\$27.80
366 plus days	\$15.66		\$6.67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.33	\$30.16
Apprentice												
	Percent											
1st 6 months	45.00	\$14.09	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.11	\$30.15
2nd 6 months	51.00	\$15.97	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.99	\$32.97
3rd 6 months	58.00	\$18.16	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.18	\$36.26
4th 6 months	66.00	\$20.66	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.68	\$40.02
5th 6 months	75.00	\$23.48	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.50	\$44.24
6th 6 months	85.00	\$26.61	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.63	\$48.94
7th 6 months	90.00	\$28.18	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.20	\$51.29

8th 6 months	95.00	\$29.74	\$6.67	\$1.70	\$0.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.76	\$53.64

Special Calculation Note : Improver Classification is 50% to 80% of the journeyman rate with full fringes except pension is at (\$1.00)Until such time as the joint apprentice board determines he is a qualified Journeyman, this should not exceed the Apprentice training period.Improvers may not constitute more than 20% of the work force

Ratio :

- 1-2 Journeymen to 1 Apprentice 1Trainee
- 3-4 Journeymen to 1 Apprentice 1Trainee
- 5-6 Journeymen to 2 Apprentice 2 Trainee
- 7-10 Journeymen to 3 Apprentice 2Trainee

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, GEAUGA, LAKE

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 36 Zone 1 Tile

Change # : LCN01-2013fbLoc36

Craft : Bricklayer Effective Date : 05/29/2013 Last Posted : 05/29/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECFT (*)	MISC (*)		
Classification												
Bricklayer Tile Layer	\$29.71		\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$43.01	\$57.87
Apprentice	Percent											
1st 30 days	35.00	\$10.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10.40	\$15.60
NEXT 6 months	40.00	\$11.88	\$6.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.33	\$24.28
2nd 6 months is 1st year	45.00	\$13.37	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$26.67	\$33.35
3rd 6 months	50.00	\$14.86	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$28.16	\$35.58
4th 6 months	58.00	\$17.23	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$30.53	\$39.15
5th 6 months	65.00	\$19.31	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$32.61	\$42.27
6th 6 months is 3rd year	75.00	\$22.28	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$35.58	\$46.72
7th 6 months is 3rd year	82.00	\$24.36	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$37.66	\$49.84
8th 6 months is 3rd year	90.00	\$26.74	\$6.45	\$1.61	\$0.64	\$0.00	\$4.60	\$0.00	\$0.00	\$0.00	\$40.04	\$53.41

Special Calculation Note : Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Note that the classification description is clarified after the local union number at the top of the page.

Ratio :

1-4 Journeymen to 1 Apprentice
5-11 Journeymen to 2 Apprentice
12-16 Journeymen to 3 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE,
LORAIN, MEDINA

Special Jurisdictional Note :

Details :

1-2 Journeymen to 1 Apprentice
3- 4 Journeymen to 2 Apprentices
5- 6 Journeymen to 3 Apprentices
7- 8 Journeymen to 4 Apprentices

ASHTABULA, CUYAHOGA, GEAUGA, LAKE,
LORAIN, MEDINA, PORTAGE, SUMMIT

Special Jurisdictional Note :

Details :

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work.

Terrazzo Finishers:Assisting in grinding, and handling of material whether by hand or wheel barrow, or power buggies, including sand Portland cement, resinous cement and admixtures, aggregates of marble, stone or other compositions, bonding adhesives, sealers, waxes, and coatings used for Terrazzo Mosaic work, preparing, mixing by hand or machine, and distributing (spreading) all kinds of underbed or underlayment necessary and all scratch coat used for terrazzo and mosaic work. Also the rubbing, grinding, cleaning, sealing and polishing same either by hand or machine. will assist in the installation of the sand bed, tar paper, wire lath, divider strips, and rolling procedures and acid etching of all concrete floors that require it before installation. Shall handle all materials and assist in the installation of all types of terrazzo floors whether conventional or thin-set variety.

Marble Finishers:Loading and unloading handling and distributing of marble materials including the mixing of all materials used for the installation of marble, such as cement underbeds for the floors, thin-set or epoxies including but not limited to plastic materials. Clean up and removal of all waster material of said work. Cleaning and grouting of all marble and slate, and all polishing of marble and slate floors.

Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 5 Tile & Marble Finisher

Change # : LCN02-2013fbLoc5

Craft : Bricklayer Effective Date : 06/26/2013 Last Posted : 06/26/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Bricklayer Tile Marble Finisher	\$26.63		\$6.35	\$3.89	\$0.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.45	\$50.77
Apprentice Tile Marble Finishers	Percent											
1st 6 months	60.00	\$15.98	\$6.35	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.33	\$30.32
2nd 6 months	70.00	\$18.64	\$6.35	\$3.89	\$0.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.46	\$38.78
3rd 6 months	75.00	\$19.97	\$6.35	\$3.89	\$0.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.79	\$40.78
4th 6 months	80.00	\$21.30	\$6.35	\$3.89	\$0.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.12	\$42.78
5th 6 months	85.00	\$22.64	\$6.35	\$3.89	\$0.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.46	\$44.77
6th 6 months	90.00	\$23.97	\$6.35	\$3.89	\$0.58	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.79	\$46.77

Special Calculation Note : Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.
 Note that the classification description is clarified after the local union number at the top of the page.

Ratio : _____ **Jurisdiction (* denotes special**

1-2 Journeymen to 1 Apprentice
3- 4 Journeymen to 2 Apprentice
5-6 Journeymen to 3 Apprentice
7-8 Journeymen to 4 Apprentice

jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE,
LORAIN, MEDINA, PORTAGE, SUMMIT

Special Jurisdictional Note :**Details :**

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work.

Terrazzo Finishers:Assisting in grinding, and handling of material whether by hand or wheel barrow, or power buggies, including sand Portland cement, resinous cement and admixtures, aggregates of marble, stone or other compositions, bonding adhesives, sealers, waxes, and coatings used for Terrazzo Mosaic work, preparing, mixing by hand or machine, and distributing (spreading) all kinds of underbed or underlayment necessary and all scratch coat used for terrazzo and mosaic work. Also the rubbing, grinding, cleaning, sealing and polishing same either by hand or machine. will assist in the installation of the sand bed, tar paper, wire lath, divider strips, and rolling procedures and acid etching of all concrete floors that require it before installation. Shall handle all materials and assist in the installation of all types of terrazzo floors whether conventional or thin-set variety.

Marble Finishers:Loading and unloading handling and distributing of marble materials including the mixing of all materials used for the installation of marble, such as cement underbeds for the floors, thin-set or epoxies including but not limited to plastic materials. Clean up and removal of all waster material of said work. Cleaning and grouting of all marble and slate, and all polishing of marble and slate floors.

HARRISON, HENRY, HIGHLAND,
HOCKING, HOLMES, HURON, JACKSON,
JEFFERSON, KNOX, LAKE, LAWRENCE,
LICKING, LOGAN, LORAIN, LUCAS,
MADISON, MAHONING, MARION,
MEDINA, MEIGS, MERCER, MIAMI,
MONROE, MONTGOMERY, MORGAN,
MORROW, MUSKINGUM, NOBLE,
OTTAWA, PAULDING, PERRY,
PICKAWAY, PIKE, PORTAGE, PREBLE,
PUTNAM, RICHLAND, ROSS, SANDUSKY,
SCIOTO, SENECA, SHELBY, STARK,
SUMMIT, TRUMBULL, TUSCARAWAS,
UNION, VAN WERT, VINTON, WARREN,
WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Millwright Local 1871 NE District H

Change # : LCN01-2013fbLoc1871H

Craft : Carpenter Effective Date : 09/25/2013 Last Posted : 09/25/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Carpenter Millwright	\$29.43		\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$44.92	\$59.64
Certified Welder	\$30.43		\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$45.92	\$61.14
Layout man on Monorail	\$31.18		\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$46.67	\$62.26
Apprentice	Percent											
1st 6 months	55.00	\$16.19	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$31.68	\$39.77
2nd 6 months	58.50	\$17.22	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$32.71	\$41.31
3rd 6 months	62.00	\$18.25	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$33.74	\$42.86
4th 6 months	65.50	\$19.28	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$34.77	\$44.40
5th 6 months	69.00	\$20.31	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$35.80	\$45.95
6th 6 months	72.50	\$21.34	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$36.83	\$47.50
7th 6 months	76.00	\$22.37	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$37.86	\$49.04
8th 6 months	80.00	\$23.54	\$6.32	\$5.12	\$0.45	\$0.00	\$3.60	\$0.00	\$0.00	\$0.00	\$39.03	\$50.81

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHLAND, ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, LORAIN, MEDINA, PORTAGE, RICHLAND, SUMMIT

Special Jurisdictional Note :

Details :

If certain projects warrant a larger percentage of apprentices, it will be agreed to increase the ratio of apprentices to journeymen, but Not to exceed (1) Apprentice to (4) Journeymen.

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter NE District Industrial Dock & Door

Change # : LCN01-2010jcCarpNEStatewide

Craft : Carpenter Effective Date : 10/27/2010 Last Posted : 10/27/2010

Fringe Benefit Payments											
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate		
Classification											
Carpenter	\$19.70	\$4.85	\$1.00	\$0.15	\$0.00	\$0.00	\$0.00	\$25.70	\$35.55		
Trainee	Percent										
1st Year	60.00	\$11.82	\$4.85	\$1.00	\$0.15	\$0.00	\$0.00	\$17.82	\$23.73		
2nd Year	80.20	\$15.80	\$4.85	\$1.00	\$0.15	\$0.00	\$0.00	\$21.80	\$29.70		

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

1 Journeymen to 1 Trainee

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note : Industrial Dock and Door is the installation of overhead doors, roll up doors and dock leveling equipment

Details :

10/27/10 New Contract jc

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter NE District Insulation D

Change # : LCN01-2013fbLocNEClevelanddistD

Craft : Carpenter Effective Date : 09/25/2013 Last Posted : 09/25/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Carpenter Insulation	\$31.38		\$6.32	\$4.77	\$0.45	\$0.00	\$2.05	\$0.00	\$0.00	\$0.00	\$44.97	\$60.66
Apprentice	Percent											
1st 3 months	40.00	\$12.55	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.55	\$18.83
2nd 3 months	45.00	\$14.12	\$6.32	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.89	\$27.95
2nd 6 months is 1st year	50.00	\$15.69	\$6.32	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.46	\$30.30
3rd 6 months	55.00	\$17.26	\$6.32	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.03	\$32.66
4th 6 months is 2nd year	60.00	\$18.83	\$6.32	\$0.00	\$0.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.60	\$35.01
5th 6 months	70.00	\$21.97	\$6.32	\$3.34	\$0.45	\$0.00	\$1.44	\$0.00	\$0.00	\$0.00	\$33.52	\$44.50
6th 6 months is 3rd year	75.01	\$23.54	\$6.32	\$3.58	\$0.45	\$0.00	\$1.54	\$0.00	\$0.00	\$0.00	\$35.43	\$47.20
7th 6 months	80.00	\$25.10	\$6.32	\$3.82	\$0.45	\$0.00	\$1.64	\$0.00	\$0.00	\$0.00	\$37.33	\$49.89
8th 6 month	85.00	\$26.67	\$6.32	\$4.05	\$0.45	\$0.00	\$1.74	\$0.00	\$0.00	\$0.00	\$39.23	\$52.57

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE

Special Jurisdictional Note :

Details :

3 Journeymen to 1 Apprentice

jurisdictional note) :

ASHLAND, ASHTABULA, CUYAHOGA, ERIE,
GEAUGA, HURON, LAKE, LORAIN, MEDINA,
PORTAGE, RICHLAND, SUMMIT

Special Jurisdictional Note :

Details :

If certain projects warrant a larger percentage of apprentices, it will be agreed to increase the ratio of apprentices to journeymen, but Not to exceed (1) Apprentice to (2) Journeymen. Employees working with creosoted, chemically treated or toxic materials shall receive \$.50 in addition to regular rate. Pile Drivers duties shall include but not limited to: Pile driving, milling, fashioning, joining assembling, erecting, fastening, or dismantling of all material of wood, plastic, metal, fiber, cork and composition and all other substitute materials: pile driving, cutting, fitting and placing of lagging, and the handling, cleaning, erecting, installing and dismantling of machinery, equipment and erecting pre-engineered metal buildings. Pile Drivers work but not limited to: unloading, assembling, erection, repairs, operation, signaling, dismantling and reloading all equipment that is used for pile driving including pile butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The driver and his tender work as a team and shall arrive at their own financial arrangements with the contractor. Any configuration of wood, steel, concrete or composite that is jettied, driven or vibrated onto the ground by conventional pile driving equipment for the purpose of supporting a future load that may be permanent or temporary. The construction of all wharves and docks, including the fabrication and installation of floating docks. Driving bracing, plumbing, cutting off and capping of all piling whether wood, metal, pipe piling or composite, loading, unloading, erecting, framing, dismantling, moving and handling of pile driving equipment piling used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams and erection of all sea walls and breakwaters. All underwater and marine work on bulkheads, wharves, docks, shipyards, caissons, piers, bridges, pipeline, work, viaducts, marine cable and trestles, as well as salvage and reclamation work where divers are employed. Rate shall include carpenters, acoustic and ceiling installers, drywall installers, pile drivers and floorlayers.

Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Statewide Office Systems

Change # : LCR02-2010jcJurSTWIDOfficeSystems

Craft : Carpenter Effective Date : 07/28/2010 Last Posted : 07/28/2010

Fringe Benefit Payments										
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification										
Carpenter Installers	\$16.00	\$5.47	\$1.00	\$0.08	\$0.00	\$0.00	\$0.00	\$22.55	\$30.55	
Helper	\$9.50	\$5.47	\$0.00	\$0.08	\$0.00	\$0.00	\$0.00	\$15.05	\$19.80	

Installer Trainee	Percent									
1st 6 months	59.40	\$9.50	\$5.47	\$0.00	\$0.08	\$0.00	\$0.00	\$0.00	\$15.05	\$19.81
2nd 6 Months	62.00	\$9.92	\$5.47	\$0.00	\$0.08	\$0.00	\$0.00	\$0.00	\$15.47	\$20.43
3rd 6 Months	65.00	\$10.40	\$5.47	\$0.00	\$0.08	\$0.00	\$0.00	\$0.00	\$15.95	\$21.15
4th 6 Months	67.95	\$10.87	\$5.47	\$0.79	\$0.08	\$0.00	\$0.00	\$0.00	\$17.21	\$22.65
5th 6 months	70.95	\$11.35	\$5.47	\$0.83	\$0.08	\$0.00	\$0.00	\$0.00	\$17.73	\$23.41
6th 6 Months	73.90	\$11.82	\$5.47	\$0.86	\$0.08	\$0.00	\$0.00	\$0.00	\$18.23	\$24.15
7th 6 Months	76.90	\$12.30	\$5.47	\$0.90	\$0.08	\$0.00	\$0.00	\$0.00	\$18.75	\$24.91
8th 6 Months	79.85	\$12.78	\$5.47	\$0.93	\$0.08	\$0.00	\$0.00	\$0.00	\$19.26	\$25.64
9th 6 months	82.80	\$13.25	\$5.47	\$1.00	\$0.08	\$0.00	\$0.00	\$0.00	\$19.80	\$26.42

Special Calculation Note : Helper H&W after 90 days probationary period

Ratio :

1 Installer to 1 Trainee or 1 Helper

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT,

TRUMBULL, TUSCARAWAS, UNION, VAN
WERT, VINTON, WARREN, WASHINGTON,
WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :**Details :**

Office systems is defined as modular systems with demountable units such as desks, partitions and shelving. All work in connection with the assembly, reconfiguration and repair of all work in the office system field.

INSTALLER: is defined as a qualified office systems mechanic capable of laying out, estimating and installing various office system manufactured products.

INSTALL TRAINEE: is defined as a person training in the estimating, layout and installation in all facets of the office systems industry. An installer trainee will work to assist an installer or lead installer in all installations.

He is NOT permitted to work without the assistance of lead installer

INSTALL HELPER: is defined as a person who assists in the delivery, staging and clean up of related office system work. He is NOT to be involved with the installation or layout of work related to office systems.

Receiving, unloading, unpacking, & removal of rubbish shall be done by install helpers.

at this time.

Extra \$.02 (\$.47) is for Training for Floorlayers and Floorlayers Apprentice.

Ratio :

3 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE

Special Jurisdictional Note :

Details :

Special Jurisdictional Note :**Details :**

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work.

KNOX, LAKE, LAWRENCE, LICKING, LOGAN,
LORAIN, LUCAS, MADISON, MAHONING,
MARION, MEDINA, MEIGS, MERCER, MIAMI,
MONROE, MONTGOMERY, MORGAN,
MORROW, MUSKINGUM, NOBLE, OTTAWA,
PAULDING, PERRY, PICKAWAY, PIKE,
PORTAGE, PREBLE, PUTNAM, RICHLAND,
ROSS, SANDUSKY, SCIOTO, SENECA,
SHELBY, STARK, SUMMIT, TRUMBULL,
TUSCARAWAS, UNION, VAN WERT, VINTON,
WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

HOLMES, HURON, JACKSON, JEFFERSON,
KNOX, LAKE, LAWRENCE, LICKING, LOGAN,
LORAIN, LUCAS, MADISON, MAHONING,
MARION, MEDINA, MEIGS, MERCER, MIAMI,
MONROE, MONTGOMERY, MORGAN,
MORROW, MUSKINGUM, NOBLE, OTTAWA,
PAULDING, PERRY, PICKAWAY, PIKE,
PORTAGE, PREBLE, PUTNAM, RICHLAND,
ROSS, SANDUSKY, SCIOTO, SENECA,
SHELBY, STARK, SUMMIT, TRUMBULL,
TUSCARAWAS, UNION, VAN WERT, VINTON,
WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

4 to 6 Journeymen to 4 Apprentices
7 to 9 Journeymen to 6 Apprentices

Special Jurisdictional Note : The following townships In Ashtabula County are EXCLUDED:
Orwell, Colebrook, Williamsfield, Wayne and Windsor.

In Geauga County the following townships are INCLUDED: Burton, Chardon, Claridon,
Hambden, Huntsburg, Montville, Munson, Newbury and Thompson.

Details :

High Pay: 45 feet above ground or floor shall be paid \$2.00 over Journeyman Scale.
If required to climb on steel, potain crane, etc., that is High Time.

NOTE: If approved scaffolding with handrails, toe boards, netting, bucket trucks, JLG, decks
with proper handrails are used No High Time Shall be paid.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 673 Inside Lt Commercial Northern

Change # : LCN01-2012jcLoc673in

Craft : Electrical Effective Date : 02/01/2012 Last Posted : 02/01/2012

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrician	\$32.20		\$7.51	\$6.10	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$48.51	\$64.61
Cable Splicers	\$32.45		\$7.51	\$6.11	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$48.77	\$65.00
Welders	\$33.45		\$7.51	\$6.14	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$49.80	\$66.52
Construction Electrician 3	\$22.50		\$4.15	\$0.68	\$0.81	\$0.00	\$0.68	\$0.00	\$0.00	\$0.10	\$28.92	\$40.17
Construction Electrician 2	\$17.68		\$4.15	\$0.53	\$0.81	\$0.00	\$0.53	\$0.00	\$0.00	\$0.10	\$23.80	\$32.64
Construction Electrician 1	\$16.07		\$4.15	\$0.48	\$0.81	\$0.00	\$0.48	\$0.00	\$0.00	\$0.10	\$22.09	\$30.13
Construction Wireman 4	\$14.46		\$4.15	\$0.43	\$0.81	\$0.00	\$0.43	\$0.00	\$0.00	\$0.10	\$20.38	\$27.61
Construction Wireman 3	\$12.86		\$4.15	\$0.39	\$0.81	\$0.00	\$0.39	\$0.00	\$0.00	\$0.10	\$18.70	\$25.13
Construction Wireman 2	\$11.25		\$4.15	\$0.34	\$0.81	\$0.00	\$0.34	\$0.00	\$0.00	\$0.10	\$16.99	\$22.61
Construction Wireman 1	\$11.25		\$4.15	\$0.34	\$0.81	\$0.00	\$0.34	\$0.00	\$0.00	\$0.10	\$16.99	\$22.61
Apprentice	Percent											
1st 6 months	35.00	\$11.27	\$7.51	\$0.34	\$0.60	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.72	\$25.35
2nd 6 months	40.00	\$12.88	\$7.51	\$0.39	\$0.60	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$21.38	\$27.82
2nd year	50.00	\$16.10	\$7.51	\$5.62	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$31.93	\$39.98
3rd year	60.00	\$19.32	\$7.51	\$5.71	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$35.24	\$44.90
4th year	70.00	\$22.54	\$7.51	\$5.81	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$38.56	\$49.83
5th year	85.00	\$27.37	\$7.51	\$5.96	\$0.60	\$0.00	\$2.10	\$0.00	\$0.00	\$0.00	\$43.54	\$57.23

Special Calculation Note : Pension calculation for journeymen shall be \$5.00 per hour paid plus 3% of gross. Pension calculation for Apprentices is equal to 3% for first two years then, \$5.00 per hour paid plus 3% of gross.

Ratio :

Each job site shall be allowed a ratio of
2 Apprentice for every 3
Journeymen Wireman or fraction thereof:
1 to 3 Journeymen to 2 Apprentices
4 to 6 Journeymen to 4 Apprentices
7 to 9 Journeymen to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA*, GEAUGA*, LAKE

**Construction Electrician and Construction
Wireman Ratio**

There shall be a minimum ratio of one inside
Journeyman Wireman to every (4) employees of
different classifications per jobsite. An Inside
Journeyman Wireman is required on the project
as the fifth (5th) worker or when apprentices are
used

Special Jurisdictional Note : The following townships In Ashtabula County are EXCLUDED:
Orwell, Colebrook, Williamsfield, Wayne and Windsor.

In Geauga County the following townships are INCLUDED: Burton, Chardon, Claridon,
Hambden, Huntsburg, Montville, Munson, Newbury and Thompson.

The scope of work for the light commercial agreement shall apply to the following small
medical clinics, stand-alone doctor and dentist offices with up to 600 amp service (not attached
to a hospital), gas stations/convenience stores, fast food restaurants and franchised chain
restaurants including independent bars and taverns, places of worship, funeral homes, nursing
homes, assisted living facilities and day-care facilities under 15,000 sq ft, small office,
retail/wholesale facilities under 15,000 sq ft with less than 10 units attached, storage units, car
washes, express hotels and motels (4 stories or less) without conference or restaurants
facilities, residential units (subject to Davis Bacon Rates) small stand-alone manufacturing
facilities when free standing and not part of a larger facility (less than 15,000 sq ft) solar
projects (500 panels or less) unless other wise covered under this agreement, lighting retrofits
(when not associated with remodels involving branch re-circuiting) Lighting retrofits shall be
defined as the changing of lamps and ballasts in existing light fixtures and shall also include
the one for one replacement of existing fixtures.

Details :

High Pay: 45 feet above ground or floor shall be paid \$2.00 over Journeyman Scale.
If required to climb on steel, potain crane, etc., that is High Time.

NOTE: If approved scaffolding with handrails, toe boards, netting, bucket trucks, JLG, decks
with proper handrails are used No High Time Shall be paid.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 673 Voice Data Video

Change # : LCN01-2012fbLoc673VDV

Craft : Voice Data Video Effective Date : 07/05/2012 Last Posted : 07/05/2012

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrical Installer Technician	\$24.00		\$5.23	\$0.72	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$32.50	\$44.50
Communication Technician	\$25.25		\$5.23	\$0.76	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$33.79	\$46.42
Senior Technician	\$26.25		\$5.23	\$0.79	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$34.82	\$47.95
Apprentice	Percent											
1st 6 Months 750 hrs OJT w/satisfactory progress in related training & on the job	55.00	\$13.20	\$5.23	\$0.40	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$21.38	\$27.98
2nd 6 Months 750 hrs additional OJT w/completion of first yr training	65.00	\$15.60	\$5.23	\$0.47	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$23.85	\$31.65
2nd yr 750 hrs additional OJT w/satisfactory progress in related training & on the job	75.00	\$18.00	\$5.23	\$0.54	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$26.32	\$35.32
3rd yr 750 hrs additional OJT w/completion of 2nd yr	80.00	\$19.20	\$5.23	\$0.58	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$27.56	\$37.16

training												
4th yr 750 hrs OJT w/satisfactory progress in related training & on the job	85.00	\$20.40	\$5.23	\$0.62	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$28.80	\$39.00
5th yr 750 hrs additional OJT w/completion of 3rd yr related training	90.00	\$21.60	\$5.23	\$0.65	\$0.60	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$30.03	\$40.83

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

- 1 to 3 Journeyman to 2 Apprentice
- 4 to 6 Journeyman to 4 Apprentice
- 7 to 9 Journeyman to 6 Apprentices

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA*, GEAUGA*, LAKE

Special Jurisdictional Note : In Ashtabula County the following townships are excluded: (Orwell, Colebrook, Williamsfield, Wayne and Windsor). In Geauga County the following townships are included: (Burton, Chardon, Claridon, Hambden, Huntsburg, Montville, Munson, Newbury and Thompson)

Details :

The following work is EXCLUDED from the Teledata Technician work scope:
 The installation of computer systems in industrial applications such as assembly lines, robotics, computer controller manufacturing systems.
 The installation of conduit and/ or raceways shall be installed by Inside Wireman . On sites where there is no Inside Wireman employed, the Teledata Technician may install raceway, or conduit not greater then 10 ft.
 Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit
 All HVAC control work.

*Installer Technician: Successful completion of the Installer/Technician Apprenticeship Program or have been certified by the IBEW/NECA Joint Apprenticeship and Training Program as an Installer/Technician.

*Communications Technician: At least 2 years experience as a Installer/Technician and a minimum of 12 hours continuous related education or have been certified by an IBEW/NECA Joint Apprenticeship Training Program as a Communication Technician.

at this time.

Ratio :

1 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Cleveland Commercial Projects

Change # : LCN1-2013fbLoc71Clev

Craft : Lineman Effective Date : 01/16/2013 Last Posted : 01/16/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	\$40.15		\$5.00	\$1.20	\$0.40	\$0.00	\$8.03	\$0.00	\$0.00	\$0.00	\$54.78	\$74.85
Cable Splicer	\$40.15		\$5.00	\$1.20	\$0.40	\$0.00	\$8.03	\$0.00	\$0.00	\$0.00	\$54.78	\$74.85
Equip. Operator	\$36.13		\$5.00	\$1.08	\$0.36	\$0.00	\$7.23	\$0.00	\$0.00	\$0.00	\$49.80	\$67.87
Groundman 0 to 12 months	\$24.09		\$5.00	\$0.72	\$0.24	\$0.00	\$4.82	\$0.00	\$0.00	\$0.00	\$34.87	\$46.92
Groundman 1 year plus	\$28.10		\$5.00	\$0.84	\$0.28	\$0.00	\$5.62	\$0.00	\$0.00	\$0.00	\$39.84	\$53.89
Apprentice Linemen	Percent											
1st 6 months	60.00	\$24.09	\$5.00	\$0.72	\$0.24	\$0.00	\$4.82	\$0.00	\$0.00	\$0.00	\$34.87	\$46.92
2nd 6 months	65.00	\$26.10	\$5.00	\$0.78	\$0.26	\$0.00	\$5.22	\$0.00	\$0.00	\$0.00	\$37.36	\$50.41
3rd 6 months	70.01	\$28.11	\$5.00	\$0.84	\$0.28	\$0.00	\$5.62	\$0.00	\$0.00	\$0.00	\$39.85	\$53.90
4th 6 months	75.00	\$30.11	\$5.00	\$0.90	\$0.30	\$0.00	\$6.02	\$0.00	\$0.00	\$0.00	\$42.33	\$57.39
5th 6 months	80.00	\$32.12	\$5.00	\$0.96	\$0.32	\$0.00	\$6.42	\$0.00	\$0.00	\$0.00	\$44.82	\$60.88
6th 6 months	85.00	\$34.13	\$5.00	\$1.02	\$0.34	\$0.00	\$6.83	\$0.00	\$0.00	\$0.00	\$47.32	\$64.38
7th 6 months	90.00	\$36.14	\$5.00	\$1.08	\$0.36	\$0.00	\$7.23	\$0.00	\$0.00	\$0.00	\$49.80	\$67.87

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE,
LORAIN

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Cleveland Municipal Power & Transit

Change # : LCON1-2013fbLoc71Clev

Craft : Lineman Effective Date : 01/16/2013 Last Posted : 01/16/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrical Lineman	\$38.15		\$5.00	\$1.14	\$0.38	\$0.00	\$7.63	\$0.00	\$0.00	\$0.00	\$52.30	\$71.37
Cable Splicer	\$38.15		\$5.00	\$1.14	\$0.38	\$0.00	\$7.63	\$0.00	\$0.00	\$0.00	\$52.30	\$71.37
Equip. Operator	\$34.33		\$5.00	\$1.03	\$0.34	\$0.00	\$6.87	\$0.00	\$0.00	\$0.00	\$47.57	\$64.73
Groundman 0 to 12 months	\$22.89		\$5.00	\$0.69	\$0.23	\$0.00	\$4.58	\$0.00	\$0.00	\$0.00	\$33.39	\$44.83
Groundman 1 Year or More	\$26.70		\$5.00	\$0.80	\$0.27	\$0.00	\$5.34	\$0.00	\$0.00	\$0.00	\$38.11	\$51.46
Apprentice Linemen	Percent											
1st 6 months	60.00	\$22.89	\$5.00	\$0.69	\$0.23	\$0.00	\$4.58	\$0.00	\$0.00	\$0.00	\$33.39	\$44.83
2nd 6 months	65.00	\$24.80	\$5.00	\$0.74	\$0.25	\$0.00	\$4.96	\$0.00	\$0.00	\$0.00	\$35.75	\$48.15
3rd 6 months	70.01	\$26.71	\$5.00	\$0.80	\$0.27	\$0.00	\$5.34	\$0.00	\$0.00	\$0.00	\$38.12	\$51.47
4th 6 months	75.00	\$28.61	\$5.00	\$0.86	\$0.29	\$0.00	\$5.72	\$0.00	\$0.00	\$0.00	\$40.48	\$54.79
5th 6 months	80.00	\$30.52	\$5.00	\$0.92	\$0.31	\$0.00	\$6.10	\$0.00	\$0.00	\$0.00	\$42.85	\$58.11
6th 6 months	85.00	\$32.43	\$5.00	\$0.97	\$0.32	\$0.00	\$6.49	\$0.00	\$0.00	\$0.00	\$45.21	\$61.42
7th 6 months	90.00	\$34.34	\$5.00	\$1.03	\$0.34	\$0.00	\$6.87	\$0.00	\$0.00	\$0.00	\$47.58	\$64.74

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

2 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note

) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE,
LORAIN

Special Jurisdictional Note :

Details :

A groundman when directed shall assist a Journeymen in the performance of his/her work on the ground, including the use of hand tools. Under no circumstances shall this classification climb poles, towers, ladders, or work from an elevated platform or bucket truck. This classification shall not perform work normally assigned to an apprentice lineman.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 High Tension Pipe Type Cable

Change # : LCN01-2013fbLoc7

Craft : Lineman Effective Date : 01/16/2013 Last Posted : 01/16/2013

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Electrical Lineman	\$37.30	\$5.00	\$1.12	\$0.37	\$0.00	\$7.46	\$0.15	\$0.00	\$0.00	\$51.40	\$70.05
Certified Lineman Welder	\$37.30	\$5.00	\$1.12	\$0.37	\$0.00	\$7.46	\$0.15	\$0.00	\$0.00	\$51.40	\$70.05
Certified Cable Splicer	\$37.30	\$5.00	\$1.12	\$0.37	\$0.00	\$7.46	\$0.15	\$0.00	\$0.00	\$51.40	\$70.05
Operator A	\$33.53	\$5.00	\$1.01	\$0.34	\$0.00	\$6.71	\$0.15	\$0.00	\$0.00	\$46.74	\$63.51
Operator B	\$29.77	\$5.00	\$0.89	\$0.30	\$0.00	\$5.95	\$0.15	\$0.00	\$0.00	\$42.06	\$56.95
Operator C	\$24.13	\$5.00	\$0.72	\$0.24	\$0.00	\$4.83	\$0.15	\$0.00	\$0.00	\$35.07	\$47.14
Groundman 0-12 months Exp	\$18.65	\$5.00	\$0.56	\$0.19	\$0.00	\$3.73	\$0.15	\$0.00	\$0.00	\$28.28	\$37.60
Groundman 0-12 months Exp w/CDL	\$20.51	\$5.00	\$0.62	\$0.21	\$0.00	\$4.10	\$0.15	\$0.00	\$0.00	\$30.59	\$40.85
Groundman 1 yr or more	\$20.51	\$5.00	\$0.62	\$0.21	\$0.00	\$4.10	\$0.15	\$0.00	\$0.00	\$30.59	\$40.85
Groundman 1 yr or more w/CDL	\$24.25	\$5.00	\$0.73	\$0.24	\$0.00	\$4.85	\$0.15	\$0.00	\$0.00	\$35.22	\$47.35
Equipment Mechanic A	\$29.77	\$5.00	\$0.89	\$0.30	\$0.00	\$5.95	\$0.15	\$0.00	\$0.00	\$42.06	\$56.95
Equipment Mechanic B	\$26.95	\$5.00	\$0.81	\$0.27	\$0.00	\$5.39	\$0.15	\$0.00	\$0.00	\$38.57	\$52.05
Equipment Mechanic C	\$24.13	\$5.00	\$0.72	\$0.24	\$0.00	\$4.83	\$0.15	\$0.00	\$0.00	\$35.07	\$47.14
X-Ray Technician	\$37.30	\$5.00	\$1.12	\$0.37	\$0.00	\$7.46	\$0.15	\$0.00	\$0.00	\$51.40	\$70.05

Apprentice	Percent											
1st 1000 hrs	60.00	\$22.38	\$5.00	\$0.67	\$0.22	\$0.00	\$4.48	\$0.15	\$0.00	\$0.00	\$32.90	\$44.09
2nd 1000 hrs	65.01	\$24.25	\$5.00	\$0.73	\$0.24	\$0.00	\$4.85	\$0.15	\$0.00	\$0.00	\$35.22	\$47.34
3rd 1000 hrs	70.00	\$26.11	\$5.00	\$0.78	\$0.26	\$0.00	\$5.22	\$0.15	\$0.00	\$0.00	\$37.52	\$50.57
4th 1000 hrs	75.01	\$27.98	\$5.00	\$0.84	\$0.28	\$0.00	\$5.60	\$0.15	\$0.00	\$0.00	\$39.85	\$53.84
5th 1000 hrs	80.00	\$29.84	\$5.00	\$0.90	\$0.30	\$0.00	\$5.97	\$0.15	\$0.00	\$0.00	\$42.16	\$57.08
6th 1000 hrs	85.01	\$31.71	\$5.00	\$0.95	\$0.32	\$0.00	\$6.34	\$0.15	\$0.00	\$0.00	\$44.47	\$60.32
7th 1000 hrs	90.00	\$33.57	\$5.00	\$1.01	\$0.34	\$0.00	\$6.71	\$0.15	\$0.00	\$0.00	\$46.78	\$63.57

Special Calculation Note :

Operator "A"

John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater then 25 tons and less than 45 tons).

Operator "B"

Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger-wheeled or tracked, all Tension wire Stringing equipment.

Operator "C"

Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

*All Operators of cranes 45 ton or larger shall be paid the journeyman rate of pay. \$0.15 is for Health Retirement Account.

Ratio :

1 Journeyman to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note):

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note :

Details :

Heli - Arc Welding will be paid \$.30 above Journeyman rate. Additional compensation of 10% over the Journeyman Lineman and Journeyman Technician for performing work on structures outside of buildings such as water towers, smoke stacks, radio and television towers, more than 75' above the ground.

Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Outside Utility Power

Change # : LCN01-2013fbLoc7

Craft : Lineman Effective Date : 01/16/2013 Last Posted : 01/16/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Electrical Lineman	\$35.38		\$5.00	\$1.06	\$0.35	\$0.00	\$7.08	\$0.15	\$0.00	\$0.00	\$49.02	\$66.71
Substation Technician	\$35.38		\$5.00	\$1.06	\$0.35	\$0.00	\$7.08	\$0.15	\$0.00	\$0.00	\$49.02	\$66.71
Cable Splicer	\$37.02		\$5.00	\$1.11	\$0.37	\$0.00	\$7.40	\$0.15	\$0.00	\$0.00	\$51.05	\$69.56
Operator A	\$31.82		\$5.00	\$0.95	\$0.32	\$0.00	\$6.36	\$0.15	\$0.00	\$0.00	\$44.60	\$60.51
Operator B	\$28.22		\$5.00	\$0.85	\$0.28	\$0.00	\$5.64	\$0.15	\$0.00	\$0.00	\$40.14	\$54.25
Operator C	\$22.86		\$5.00	\$0.69	\$0.23	\$0.00	\$4.57	\$0.15	\$0.00	\$0.00	\$33.50	\$44.93
Groundman 0-12 months Exp	\$17.69		\$5.00	\$0.53	\$0.18	\$0.00	\$3.54	\$0.15	\$0.00	\$0.00	\$27.09	\$35.94
Groundman 0-12 months Exp w/CDL	\$19.46		\$5.00	\$0.58	\$0.19	\$0.00	\$3.89	\$0.15	\$0.00	\$0.00	\$29.27	\$39.00
Groundman 1 yr or more	\$19.46		\$5.00	\$0.58	\$0.19	\$0.00	\$3.89	\$0.15	\$0.00	\$0.00	\$29.27	\$39.00
Groundman 1 yr or more w/CDL	\$23.00		\$5.00	\$0.69	\$0.23	\$0.00	\$4.60	\$0.15	\$0.00	\$0.00	\$33.67	\$45.17
Equipment Mechanic A	\$28.23		\$5.00	\$0.85	\$0.28	\$0.00	\$5.65	\$0.15	\$0.00	\$0.00	\$40.16	\$54.28
Equipment Mechanic B	\$25.55		\$5.00	\$0.77	\$0.26	\$0.00	\$5.11	\$0.15	\$0.00	\$0.00	\$36.84	\$49.62
Equipment Mechanic C	\$22.86		\$5.00	\$0.69	\$0.23	\$0.00	\$4.57	\$0.15	\$0.00	\$0.00	\$33.50	\$44.93
Line Truck w/uuger	\$25.18		\$5.00	\$0.76	\$0.25	\$0.00	\$5.04	\$0.15	\$0.00	\$0.00	\$36.38	\$48.97
Apprentice	Percent											
1st 1000 hrs	60.00	\$21.23	\$5.00	\$0.63	\$0.21	\$0.00	\$4.25	\$0.15	\$0.00	\$0.00	\$31.47	\$42.08

2nd 1000 hrs	65.00	\$23.00	\$5.00	\$0.69	\$0.23	\$0.00	\$4.60	\$0.15	\$0.00	\$0.00	\$33.67	\$45.17
3rd 1000 hrs	70.00	\$24.77	\$5.00	\$0.74	\$0.25	\$0.00	\$4.95	\$0.15	\$0.00	\$0.00	\$35.86	\$48.24
4th 1000 hrs	75.00	\$26.54	\$5.00	\$0.80	\$0.27	\$0.00	\$5.31	\$0.15	\$0.00	\$0.00	\$38.07	\$51.33
5th 1000 hrs	80.00	\$28.30	\$5.00	\$0.85	\$0.28	\$0.00	\$5.66	\$0.15	\$0.00	\$0.00	\$40.24	\$54.40
6th 1000 hrs	85.00	\$30.07	\$5.00	\$0.90	\$0.30	\$0.00	\$6.01	\$0.15	\$0.00	\$0.00	\$42.43	\$57.47
7th 1000 hrs	90.00	\$31.84	\$5.00	\$0.96	\$0.32	\$0.00	\$6.37	\$0.15	\$0.00	\$0.00	\$44.64	\$60.56

Special Calculation Note :

Operator "A"

John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater then 25 tons and less than 45 tons).

Operator "B"

Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger- wheeled or tracked, all Tension wire Stringing equipment.

Operator "C"

Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

Ratio :

(1) Journeyman Lineman to (1) Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

Special Jurisdictional Note : 0.15 is for Health Retirement Account.

Details :

Heli - Arc Welding will be paid \$.30 above Journeyman rate. Additional compensation of 10% over the Journeyman Lineman and Journeyman Technician for performing work on structures outside of buildings such as water towers, smoke stacks, radio and television towers, more than 75' above the ground.

intersection of Routes 82,8 and 271, follow Route 271 south to Medina County line west to Route 94, follow Route 94 south to Route 303, follow Route 303 west to Route 252, follow Route 252 south to Route 18, follow Route 18 west to Route 301, follow 301 south to Route 162, follow Route 162 west to Route 58, follow Route 58 south to the Ashland County line, follow the Ashland County line west and then north along the line to Route 18, west onto Route 20, follow Route 20 west to Route 4, follow Route 4 north to Lake Erie. Local 181 has the jurisdiction on all projects built on the property which borders on the above Routes and/or intersections, wherever a County line is the divider between Local 181 and another Union, the jurisdiction is only to the county line.

Details :

High Pay: All work is defined for the purpose of the agreement as being work which requires that the employee be supported by equipment that hangs from or suspends from the wall or roof of a building or structure. This work shall receive an additional \$1.25 per hour.

Special Jurisdictional Note : Start at the intersection of Route 305 and the eastern boundary line of Portage County. Follow Route 305 west onto Route 82, follow Route 82 west to the intersection of Routes 82,8 and 271, follow Route 271 south to Medina County line west to Route 94, follow Route 94 south to Route 303, follow Route 303 west to Route 252, follow Route 252 south to Route 18, follow Route 18 west to Route 301, follow 301 south to Route 162, follow Route 162 west to Route 58, follow Route 58 south to the Ashland County line, follow the Ashland County line west and then north along the line to Route 18, west onto Route 20, follow Route 20 west to Route 4, follow Route 4 north to Lake Erie. Local 181 has the jurisdiction on all projects built on the property which borders on the above Routes and/or intersections, wherever a County line is the divider between Local 181 and another Union, the jurisdiction is only to the county line.

Details :

High Pay: All work is defined for the purpose of the agreement as being work which requires that the employee be supported by equipment that hangs from or suspends from the wall or roof of a building or structure. This work shall receive an additional \$1.25 per hour.

Prevailing Wage Rate Skilled Crafts

Name of Union: Ironworker Local 17

Change # : LCN01jc2010Loc17

Craft : Ironworker Effective Date : 07/21/2010 Last Posted : 07/21/2010

		Fringe Benefit Payments									
		BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification											
Ironworker		\$29.65	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$47.48	\$62.31	
Apprentice	Percent										
1st 6 Months	60.00	\$17.79	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$35.62	\$44.52	
2nd 6 Months	65.00	\$19.27	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$37.10	\$46.74	
2nd Year 1st 6 Months	70.00	\$20.75	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$38.59	\$48.96	
2nd Year 2nd 6 Months	75.00	\$22.24	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$40.07	\$51.19	
3rd Year 1st 6 Months	80.00	\$23.72	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$41.55	\$53.41	
3rd Year 2nd 6 Months	85.00	\$25.20	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$43.03	\$55.63	
4th Year 1st 6 Months	90.00	\$26.68	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$44.52	\$57.86	
4th Year 2nd 6 Months	95.00	\$28.17	\$5.60	\$9.50	\$0.38	\$0.00	\$2.35	\$0.00	\$46.00	\$60.08	

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio : **Jurisdiction (* denotes special jurisdictional note) :**
 4 Journeymen to 1 Apprentice on Structural Work ASHTABULA, CUYAHOGA, ERIE, GEAUGA,
 3 Journeymen to 1 Apprentice on Rod Work HURON, LAKE, LORAIN, MEDINA, PORTAGE,
 2 Journeymen to 1 Apprentice on ALL Finishing, Steel SUMMIT
 Sash, Stairway and Ornamental Work

Special Jurisdictional Note : West Boundary Line :Sandusky, Ohio: Boundary lines between Local 17 & Local 55 are as follows: Columbus Ave north to Sandusky Bay (and/or Lake Erie): Columbus Ave South to present Route 4: Route 4 South to present Route 99: from Route 99 south to old Route 224-all territory to the west of the boundary line to be the jurisdiction of Local 55.All territory to the East of the boundary line to be the jurisdiction of Local 17.Kelly's Island to be within jurisdiction of Local 17.All bridges,tunnels,viaducts,etc, relative to these boundary lines shall be the jurisdiction of Local 17

South Boundary Line:Canton, Ohio: Boundary lines between Local 17 & Local 550 are as follows: All territory north of old Route 224 line to be the jurisdiction of Local 17. All bridges,tunnels,viaducts,signs,etc, relative to old Route 224 line to be within the jurisdiction of Local 17. All territory south of old Route 224 line is to be within the jurisdiction of Local 550, except for

everything within the city limits of Barberton which shall be the jurisdiction of Local 17.

Reading from West to East: Route old 224 line: Greenwich Ave-Wooster Road or East Ave. Route old 224 line: New 224 line including Cloverleaf: East Waterloo Road: New 224 line-Attwood Road-Old 224. This will be considered to be the old Route 224 line, except for the city limits of Barberton, Ohio which shall be the jurisdiction of Local 17

Southeast Boundary : Between local 17 and Local 207 are as follows: West of a line from Middlefield to Shalersville to Deerfield, shall be under the jurisdiction of local 17. East of a line from Middlefield, to Shalersville to Deerfield, shall be under the jurisdiction of Local 207.

Local 17 & Local 207 have agreed that the Ohio County of Ashtabula shall be as follows: Everything North of Route 6, starting at the Geauga County line, proceeding east to State Route 45, shall be under the jurisdiction of Local 17. Everything South, starting at the Geauga County line shall be under local 207.

North Boundary: The East boundary line and the West boundary line continuing North halfway across Lake Erie.

Details :

Prevailing Wage Rate

Skilled Crafts

Name of Union: Labor Local 310

Change # : LCN01-2011mmLabor310

Craft : Laborer Effective Date : 06/01/2011 Last Posted : 06/01/2011

Fringe Benefit Payments										
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification										
Laborer Group 1	\$24.53	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.08	\$51.35	
Group 2	\$25.01	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.56	\$52.07	
Group 3	\$24.78	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.33	\$51.72	
Group 4	\$21.43	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$35.98	\$46.70	
Group 5	\$18.93	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$33.48	\$42.95	
Group 6	\$21.08	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$35.63	\$46.17	
Group 7	\$25.03	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.58	\$52.10	
Group 8	\$25.18	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.73	\$52.32	
Group 9	\$19.38	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$33.93	\$43.62	
Group 10	\$15.38	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$29.93	\$37.62	
Group 11	\$24.68	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.23	\$51.57	
Group 12	\$24.93	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.48	\$51.95	
Group 13	\$26.03	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$40.58	\$53.60	
Apprentice	Percent									
1-1000 hours	60.00	\$14.72	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$29.27	\$36.63
1001-2000 hours	70.01	\$17.17	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$31.72	\$40.31
2001-3000 hours	80.00	\$19.62	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$34.17	\$43.99
3001-4000 hours	90.00	\$22.08	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$36.63	\$47.67
4001 plus	100.00	\$24.53	\$3.75	\$7.70	\$0.10	\$0.00	\$2.60	\$0.40	\$39.08	\$51.35

Special Calculation Note : Other is a Supplemental Unemployment Benefit (SUB).

Ratio :

5 Journeymen to 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

CUYAHOGA, GEAUGA, LAKE

Special Jurisdictional Note :

Details :

Group 1 - Building and construction Laborers and Tenders; Asbestos Removal - hazardous materials; unloading of furniture and fixtures.

Group 2 - Gunite Operating (Machines of all type).

Group 3 - Laborers on swinging scaffolds; air track and wagon drill.

Group 4 - Drywall stocking and handling.

Group 5 - General Landscaping.

Group 6 - Final Clean-up (must perform clean-up duties for entire work shift, and excludes demolition work).

Group 7 - Blasters, Shooters, Caissons, Well Cylinder, Cofferdams, Mine Workers without air, acid brick tenders.

Group 8 - Top man on free standing radial stack; bellman and bottom man in blast furnace and stove.

Group 9 - Sewer jet.

Group 10 - Heat tender.

Group 11 - Firebrick.

Group 12 - Mason tender handling carbon block and bottom block for blast furnace stoves, stacks etc.

Group 13 - Lansing Burners.

Waterworks, Utility, Airport, Railroad, Industrial and Building Site, Sewer Plant, Waste Water Treatment Facilities Construction

Details :

Group 1

Laborer (Construction); Plant Laborer or Yardman, Right-of-way Laborer, Landscape Laborer, Highway Lighting Worker, Signalization Worker, (Swimming) Pool Construction Laborer, Utility Man, Bridge Man, Handyman, Joint Setter, Flagperson, Carpenter Helper, Waterproofing Laborer, Slurry Seal, Seal Coating, Surface Treatment or Road Mix Laborer, Riprap Laborer & Grouter, Asphalt Laborer, Dump Man (batch trucks), Guardrail & Fence Installer, Mesh Handler & Placer, Concrete Curing Applicator, Scaffold Erector, Sign Installer, Hazardous Waste (level D), Diver Helper, Zone Person and Traffic Control.

Group 2

Asphalt Raker, Screwman or Paver, Concrete Puddler, Kettle Man (pipeline), All Machine-Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Skid Steer, Sheeting & Shoring Person, Surface Grinder Person, Screedperson, Water Blast, Hand Held Wand, Power Buggy or Power Wheelbarrow, Paint Striper, Plastic fusing Machine Operator, Rodding Machine Operator, Pug Mill Operator, Operator of All Vacuum Devices Wet or Dry, Handling of all Pumps 4 inches and under (gas, air or electric), Bottom Person, Welder Helper (pipeline), Concrete Saw Person, Cutting with Burning Torch, Pipe Layer, Hand Spiker (railroad), Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning). Tunnel Laborer (without air), Caisson, Cofferdam (below 25 feet deep), Air Track and Wagon Drill, Sandblaster Nozzle Person, Hazardous Waste (level B), Lead Abatement, Hazardous Waste (level C)

Group 3

Blast and Powder Person, Muckers (with miners), Wrencher (mechanical joints & utility pipeline), Yarner, Top Lander, Hazardous Waste (level A), Concrete Specialist, Curb Setter and Cutter, Concrete Crew in Tunnels. Utility pipeline Tappers, Waterline, Caulker, Signal Person, Grade Checker

Group 4

Miner, Welder, Gunite Nozzle Person

Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - Building Local 18 - Zone I (A)

Change # : LCN01-2013fbLoc18

Craft : Operating Engineer Effective Date : 08/07/2013 Last Posted : 08/07/2013

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Operator Class 1	\$34.78	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$48.51	\$65.90
Class 2	\$34.63	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$48.36	\$65.67
Class 3	\$33.18	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$46.91	\$63.50
Class 4	\$32.40	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$46.13	\$62.33
Class 5	\$32.08	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$45.81	\$61.85
Class 6	\$25.00	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$38.73	\$51.23
Class 7	\$35.28	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$49.01	\$66.65
Class 8	\$35.53	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$49.26	\$67.02
Class 9	\$35.78	\$7.06	\$6.00	\$0.60	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$49.51	\$67.40
Apprentice	Percent										
1st Year	59.75	\$20.78	\$7.06	\$6.00	\$0.60	\$0.00	\$0.07	\$0.00	\$0.00	\$34.51	\$44.90
2nd Year	69.69	\$24.24	\$7.06	\$6.00	\$0.60	\$0.00	\$0.07	\$0.00	\$0.00	\$37.97	\$50.09
3rd Year	79.65	\$27.70	\$7.06	\$6.00	\$0.60	\$0.00	\$0.07	\$0.00	\$0.00	\$41.43	\$55.28
4th Year	89.63	\$31.17	\$7.06	\$6.00	\$0.60	\$0.00	\$0.07	\$0.00	\$0.00	\$44.90	\$60.49

Special Calculation Note : Other: Education & Safety Fund is \$0.04 per hour.

Ratio :

For every (3) Operating Engineer Journeymen employed by the company ,there may be employed (1) Registered Apprentice. An apprentice, while employed as part of a crew per Article VIII, paragraph77, will not be subject to

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, ERIE, GEAUGA, HURON, LAKE, LORAIN, MEDINA

the apprenticeship ratios in this collective bargaining agreement.

Special Jurisdictional Note :

Details :

Note: There will be a 10% increase for the apprentices on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% increase if required to have CDL

Class 1 - " Boiler Operators, Compressor Operators, Hydraulic Pumps & Power Pacs when mounted on a crane or regardless of where said equipment is mounted (piggy-back operator)" Boom Trucks (all types); Cableways Cherry Pickers; Combination - Concrete Mixers & Towers; Concrete Pumps; Cranes (all types) Derricks (all types); Draglines Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Gradalls; Helicopter Operators; hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Hoes (All types) Hoists (with two or more drums in use): Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Engineers (Mechanic and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps, with booms, Panelboards, (all types on site); Pile Drivers; Power Shovels; Rotary Drills (all), used on caissons work, wells (all types), Geothermal work and sub-structure work; Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Tug Boats. Rough Terrain Fork-lift with Winch/Hoist (when used as a crane), Compact Cranes (all types), track or rubber over 4,000 pound capacity, self-erecting cranes:stationary,track or truck (all configurations) bucket trench machines (over 24" wide). A Frames, Robotics Equipment Operator/Mechanic. "Boiler Operators, Compressor Operators, Hydraulic Pumps & Power Pacs when mounted on a crane or regardless of where said equipment is mounted (piggy-back operator)"

Class 2 - Asphalt Pavers; Bulldozers; CMI type Equipment;; Endloaders; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Power Graders; Power Scoops; Power Scrapers; Push Cats; Vermeer Type Concrete Saw, All rotomills. Horizontal Directional Drill Locator, Horizontal Directional Drill Operator, Instrument Man.

Class 3 - Air Compressors, Pressurizing Shafts or Tunnels; All Asphalt Rollers; Power Boilers (over 15 lbs pressure); Fork Lifts ; Hoists (with one drum); House Elevators (except those automatic call button controlled); Man Lifts; Mud Jacks; Pressure Grouting; Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Trenchers (24" and under); Utility Operators. Laser Screeds and like equipment, Hydro Excavator (all types C rate) (F rate if a second person is needed) Helper rate, Portable Hydraulic Gantry (lift system C Rate) (F rate if a second person is needed).

Class 4 - Compressors, on building construction; Conveyors, used for handling building materials; Mixers, one bag capacity (side loader); Mixers, capacity more than one bag; Generators: Guniting Machines; Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Road Widening Trenchers; Rollers; Welder Operators.

Class 5 - Backfillers and Tampers, Batch Plants, Bar and Joint Installing Machines, Bull Floats, Burlap and Curing Machines, Cleaning Machine Operator (decontamination included) Clefplanes, Concrete Spreading Machines, Crushers, Deckhands, Drum Fireman (asphalt), Farm-type, Tractor, pulling attachments, Finishing Machines, Forklifts (masonry work only) Form Trenchers, High Pressure Pumps (over 1/2" discharge) Hydro Seeders, Pumps (4" and over discharge), provided it is not part of a de-watering system discharged into a common header, Self-Propelled Power Spreaders, Self-Propelled Sub Graders, Submersible Pump (4" and over discharge), provided it is not part of a dewatering system discharged into a common header, Tire Repairman Tractors, pulling sheepfoot rollers or graders, Vibratory Compactors with integral power.

Class 6 - Power Boilers (less than 15 lbs. pressure); Inboard/outboard Motor Boat Launches; Light Plant Operators; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalmen, Submersible Pumps (under 4 inch discharge). and Allen Screed Concrete Paver, Fueling & greasing (plus \$3.00), compact cranes: track or rubber under 4,000 pounds. Vac Alls, Apprentice/Helpers, Oiler, Barrier Moving Machines (additional duty, paid same rate) Bobcat-type and/or Skid Steer Loader with any and all attachments, Geodimeter, Grade Checker Grinders (all), Planners (all types), Saw (concrete vermeer type). Rob Man. Backfillers and Tampers, Batch Plants, Bar and Joint Installing Machines, Bull Floats, Burlap and Curing Machines, Cleaning Machine Operator (decontamination included) Clefplanes, Concrete Spreading Machines, Crushers, Deckhands, Drum Fireman (asphalt), Farm-type Tractor, pulling attachments, Finishing Machines, Forklifts, (masonry work only) Form Trenchers, High Pressure Pumps (over 1/2" discharge) Hydro Seeders, Pumps (4" and over discharge), provided it is not part of a de-watering system discharged into a common header, Self-Propelled Power Spreaders, Self-Propelled Sub-Graders, Submersible Pumps (4" and over discharge), provided it is not part of a dewatering system discharged into a common header, Tire Repairmen Tractors, pulling sheepfoot rollers or graders, Vibratory Compactors with integral power.

Class 7 - Master Mechinic

Class 8 - Boom & Jib 150' - 180 feet and over

Class 9 - Boom & Jib 200' and over

Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - HevHwy I

Change # : LCN01-2013fbLoc18hevhwyl

Craft : Operating Engineer Effective Date : 08/07/2013 Last Posted : 08/07/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Operator Class 1	\$33.03		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$46.58	\$63.10
Class 2	\$32.93		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$46.48	\$62.94
Class 3	\$31.89		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$45.44	\$61.39
Class 4	\$30.67		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$44.22	\$59.56
Class 5	\$25.38		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$38.93	\$51.62
Class 6	\$33.28		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$46.83	\$63.47
Class 7	\$33.28		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$46.83	\$63.47
Class 8	\$33.53		\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$47.08	\$63.85
Great Lakes Floating Agreement												
Class 1	\$38.70		\$6.66	\$5.75	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$51.75	\$71.10
Class 2A	\$37.20		\$6.66	\$5.75	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$50.25	\$68.85
Class 2B	\$37.20		\$6.66	\$5.75	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$50.25	\$68.85
Class 3	\$33.10		\$6.66	\$5.75	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$46.15	\$62.70
Class 4	\$27.55		\$6.66	\$5.75	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$40.60	\$54.38
Apprentice												
	Percent											
1st Year	50.03	\$16.52	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$30.07	\$38.34
2nd Year	60.00	\$19.82	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$33.37	\$43.28
3rd Year	70.00	\$23.12	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$36.67	\$48.23
4th Year	80.00	\$26.42	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$39.97	\$53.19
Field Mech Trainee												
1st year	49.85	\$16.47	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$30.02	\$38.25
2nd year	59.83	\$19.76	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$33.31	\$43.19
3rd year	69.80	\$23.05	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$36.60	\$48.13

4th year	79.75	\$26.34	\$6.91	\$6.00	\$0.60	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$39.89	\$53.06
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Special Calculation Note : Other: Education & Safety Fund is \$0.04 per hour.

Ratio :

For every (3) Operating Engineer Journeymen employed by the company , there may be employed (1) Registered Apprentice. An apprentice, while employed as part of a crew per Article VIII paragraph 65, will not be subject the apprenticeship ratios in this collective bargaining agreement. On jobs where maintenance engineers are to be employed, for every (2) Class 2 Mechanics there may be (1) Mechanic Trainee & so fourth. Mechanic Trainee rate is a percentage of Class 2 rate.

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, ERIE, GEAUGA, LAKE, LORAIN, MEDINA, PORTAGE, SUMMIT

Special Jurisdictional Note :

Details :

****Apprentices will receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% if required to have a CDL.**

Class 1 - Air Compressors on Steel Erection; Asphalt Plant Engineers (Cleveland District Only); Barrier Moving Machine; Boiler Operators, Compressor Operators, or Generators, when mounted on a rig; Boom Trucks (all types); Cableways; Cherry Pickers; Combination- Concrete mixers & Towers; Concrete Pumps; Concrete Plants (over 4 yd capacity); Cranes (all types); Derricks (all types); Draglines; Elevating Graders or Euclid Loaders; Gradalls; Helicopter Crew (Operator- hoist or winch); Hoes (all types); Hoisting Engines; Hoisting Engines, on shaft or tunnel work; Hydraulic Gantry (lifting system); Locomotives (standard guage); Maintenance Operators (class A); Mixers, paving (single or double drum); Piledriving Machines (all types); Power Shovels, Prentice Loader; Quad 9 (double pusher); Rail Tamper (with automatic lifting and aligning device); Refrigerating Machines (freezer operation); Rotary Drills, on caisson work; Side Booms; Slip Form Pavers; Tower Dericks; Trench Machines; Truck Mounted Concrete Pumps; Tug Boats; Tunnel Machines and /or Mining Machines; Wheel Excavators;Industrial-type tractors; Jet Engine - Dryer (D8 or D9) Diesel Tractors Mucking Machines; Multiple Scrapers; Tree Shreddes. Rough Terrain Fork-lift with Winch/Hoist; Compact Cranes,track or rubber over 4,000 pound capacity, self-erecting cranes:stationary,track or truck (all configurations) bucket trench machines (over 24 inches wide).

Class 2 - Asphalt Pavers; Automatic Subgrade Machines, self-propelled (CMI-type); Bobcat-type and /or skid steer loader with hoe attachment greater than 7000 lbs.; Boring Machine Operators (more than 48 inches); Bulldozers; ;Endloaders; Hydro Milling Machine; Kolman-type Loaders (production type-dirt); Lead Greasemen; Maintenance Operators, Class B (Portage and Summit Counties only); Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Lighting and Traffic Signal Installation Equipment includes all groups or classifications; Trench Machines

(24inch wide and under); Vermeer Type Concrete saw. Material Transfer Equipment (Shuttle buggy) Asphalt All rotomills, grinders and planers of all types. Horizontal Directional Drill (Over 50,000 ft.lbs.thrust and over).

Class 3 - A-Frames; Air Compressors, on tunnel work (low Pressure); All Asphalt Rollers; Asphalt Plant Engineers (Portage and Summit Counties only); Bobcat-type and/or skid steer loader with or without attachments; Power Boilers (15 lbs pressure and over); Highway Drills (all types); Pump Operators (installing or operating well Points); Pumps (4 inch and over discharge); Railroad Tie Inserter/Remover; Rotovator (lime-soil Stabilizer); Switch & Tie Tampers (without lifting and aligning device); Locomotives (narrow gage); Mixers, concrete (more than one bag capacity); Mixers, one bag capacity (side loader); Utilities Operators, (small equipment); Welding Machines and Generators; Material hoist/elevators. Articulating/straight bed end dumps if assigned (minus \$4.00 per hour)

Class 4 - Ballast Re-loocator; Backfillers and Tampers; Batch Plant Operators; Bar and Joint Installing Machines; Boring Machine Operators (48 inch or less); Bull Floats; Burlap and Curing Machines; Concrete Plants (capacity 4 yd and under); Conveyors (highway); Concrete Saws (multiple); Crushers; Deckhands; Farm type tractors, with attachments (highway); Finishing Machines; Hydro Hammers; Hydro Seeders; Pavement Breakers (hydraulic or cable); Plant Mixers; Post Drivers; Post Hole Diggers; Power Brush Burners; Power Form Handling Equipment; Firemen, Floating Equipment (all types); Fork Lifts (highway), except masonry; Form Trenchers; Road Widening Trenchers; Rollers (brick, grade, macadam); Self-Propelled Power Spreaders; Self-Propelled Sub-Graders; Tractors, pulling sheepsfoot rollers or graders; Steam Firemen; Vibratory Compactors, with integral power.

Class 5 - Compressors (portable, Sewer, Heavy and Highway); Generators; Inboard-Outboard Motor Boat Launches; Masonry Fork Lifts; Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalmen; Drum Fireman (in Asphalt Plant); Oil Heaters (Asphalt Plant); Tire Repairmen; VAC/ALLS; Fueling and greasing (plus \$3.00), compact cranes; track or rubber under 4,000 pounds.

Class 6 - Master Mechanic

Class 7 - Crane Boom 150ft.- 180ft

Class 8 - Crane Boom over 180 ft.

GREAT LAKES FLOATING AGREEMENT

Class 1 -Diver, Wet Tender, Engineer, (hyd. Dredge), Craft Foreman (Master Mechanic)

Class 2A - Crane Backhoe Operator, Mechanic/Welder, Assistant Engineer (Hyd. Dredge), Leverman (Hyd Dredge) Diver Tender, Tug Operator (Tug 70T and over)

Class 2B - Friction Crane, Lattice Boom, any Crane Certification

Class 3-Maintenance of Crane (over 50T capacity) or Backhoe (115,000 lbs or more) Loader/Dozer and like equipment on Barge, Breakwater Wall, Slip/Dock Scow.

Class 4 - Deck Equipment Operator, (Machineryman/Fireman)(4 equipment Units or more),
Deck Hand, Deck Tug Engineer, Crane Maintenance, 50T and under/Backhoe 115,000lbs or less,
Assistant Tug Operator, Off Road Truck,

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 505

Change # : LCN01-2012jcLoc505

Craft : Drywall Finisher Effective Date : 05/09/2012 Last Posted : 05/09/2012

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Painter Drywall Finisher	\$27.76		\$5.22	\$4.10	\$0.33	\$0.00	\$2.50	\$0.00	\$0.00	\$0.00	\$39.91	\$53.79
Apprentice	Percent											
1st 6 months	45.00	\$12.49	\$5.22	\$0.50	\$0.33	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.54	\$24.79
2nd 6 months	50.00	\$13.88	\$5.22	\$0.50	\$0.33	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.93	\$26.87
3rd 6 months	55.00	\$15.27	\$5.22	\$0.75	\$0.33	\$0.00	\$1.38	\$0.00	\$0.00	\$0.00	\$22.95	\$30.58
4th 6 months	60.00	\$16.66	\$5.22	\$0.75	\$0.33	\$0.00	\$1.50	\$0.00	\$0.00	\$0.00	\$24.46	\$32.78
5th 6 months	65.00	\$18.04	\$5.22	\$1.00	\$0.33	\$0.00	\$1.63	\$0.00	\$0.00	\$0.00	\$26.22	\$35.25
6th 6 months	70.00	\$19.43	\$5.22	\$1.00	\$0.33	\$0.00	\$1.75	\$0.00	\$0.00	\$0.00	\$27.73	\$37.45

Special Calculation Note : No special calculation for this classification.

Ratio :
1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note) :
ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN, PORTAGE*, SUMMIT*

Special Jurisdictional Note : Portage & Summit North of the East-West Turnpike.

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter/Sign Local 639 (A)

Change # : CN01-2009Loc639A

Craft : Painter Effective Date : 03/06/2009 Last Posted : 03/06/2009

Fringe Benefit Payments										
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification										
Painter-Sign Erector	\$19.98	\$4.46	\$1.00	\$0.25	\$1.68	\$0.00	\$0.00	\$27.37	\$37.36	
Serviceman	\$19.98	\$4.46	\$1.00	\$0.25	\$1.68	\$0.00	\$0.00	\$27.37	\$37.36	
Metal Sign-Frabricator-	\$19.98	\$4.46	\$1.00	\$0.25	\$1.68	\$0.00	\$0.00	\$27.37	\$37.36	
Neon Bender Pattern Maker	\$19.98	\$4.46	\$1.00	\$0.25	\$1.68	\$0.00	\$0.00	\$27.37	\$37.36	
Computer Operator	\$18.98	\$4.46	\$1.00	\$0.25	\$1.61	\$0.00	\$0.00	\$26.30	\$35.79	
Router	\$18.98	\$4.46	\$1.00	\$0.25	\$1.61	\$0.00	\$0.00	\$26.30	\$35.79	
Plastic-Wood Fabricator	\$18.98	\$4.46	\$1.00	\$0.25	\$1.61	\$0.00	\$0.00	\$26.30	\$35.79	
Vinyl Applicator	\$18.98	\$4.46	\$1.00	\$0.25	\$1.61	\$0.00	\$0.00	\$26.30	\$35.79	
Apprentice For Sign Service, Metal, Neon, Pattern	Percent									
1000 hrs	50.00	\$9.99	\$4.46	\$1.00	\$0.25	\$1.03	\$0.00	\$16.73	\$21.73	
2000 hrs	55.00	\$10.99	\$4.46	\$1.00	\$0.25	\$0.37	\$0.00	\$17.07	\$22.56	
3000 hrs	60.00	\$11.99	\$4.46	\$1.00	\$0.25	\$0.37	\$0.00	\$18.07	\$24.06	
4000 hrs	65.00	\$12.99	\$4.46	\$1.00	\$0.25	\$0.37	\$0.00	\$19.07	\$25.56	
5000 hrs	70.00	\$13.99	\$4.46	\$1.00	\$0.25	\$0.37	\$0.00	\$20.07	\$27.06	
6000 hrs	85.00	\$16.98	\$4.46	\$1.00	\$0.25	\$0.37	\$0.00	\$23.06	\$31.55	
7000 hrs	90.00	\$17.98	\$4.46	\$1.00	\$0.25	\$0.37	\$0.00	\$24.06	\$33.05	

Special Calculation Note : Apprentice Rates For: Computer Operator, Router, Plastic-Wood Fabricator Vinyl Application

- 1000 hrs 50% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.99
- 2000 hrs 55% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.37
- 3000 hrs 60% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.37
- 4000 hrs 65% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.37
- 5000 hrs 70% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.37
- 6000 hrs 85% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.37
- 7000 hrs 90% plus (\$4.46 h&w)+(\$1.00 pension)+(\$0.25 apprentice training) + vacation \$0.37

Ratio : **Jurisdiction (* denotes special jurisdictional note) :**
ASHLAND, ASHTABULA, CUYAHOGA, ERIE,
GEAUGA, LAKE, LORAIN, MEDINA, PORTAGE,
RICHLAND, STARK, SUMMIT

Special Jurisdictional Note :

Details :

Sign and display work shall include but not limited: to the making and installation of all signs and servicing of the same, lettering and pictorial work of any kind, including vinyl signs and vinyl substrates and the preparing for the finishing of same, be it by hand, brush, roller, spray, mechanical or computer aided and by any other method or process pertaining to same: they shall have control of all branches, methods and processes of screen process work: tube bending and display work such as creating, building and finishing of all display matter and its related operations used for advertising purposes, including all lettering whether it be done by hand, mechanical or computer aided or by any other method or process pertaining to same: the construction, erection and maintenance of all billboards and all communication advertising.

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LUCAS, MAHONING, MARION, MEDINA,
MERCER, MONROE, MORROW, NOBLE,
OTTAWA, PAULDING, PIKE, PORTAGE,
PUTNAM, RICHLAND, SANDUSKY, SENECA,
SHELBY, STARK, SUMMIT, TRUMBULL,
TUSCARAWAS, VAN WERT, WASHINGTON,
WAYNE, WILLIAMS, WOOD, WYANDOT

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 707

Change # : LCN01-2013jcLoc707

Craft : Painter Effective Date : 05/08/2013 Last Posted : 05/08/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Painter Brush Roll	\$27.23		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$39.47	\$53.08
Paperhanger	\$27.23		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$39.47	\$53.08
Sandblasting & Buffing	\$27.93		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$40.17	\$54.13
Spray Painting	\$27.93		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$40.17	\$54.13
REPAINT Brush Roll & Paperhanger	\$25.73		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$37.97	\$50.83
REPAINT Sandblasting & Buffing	\$26.13		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$38.37	\$51.43
REPAINT Spray Painting	\$26.43		\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$38.67	\$51.88
Apprentice - Painter	Percent											
1st 6 months	45.00	\$12.25	\$5.44	\$1.05	\$0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.04	\$25.17
2nd 6 months	50.00	\$13.62	\$5.44	\$1.05	\$0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.41	\$27.21
3rd 6 months	55.00	\$14.98	\$5.44	\$1.50	\$0.30	\$0.00	\$1.35	\$0.00	\$0.00	\$0.00	\$23.57	\$31.05
4th 6 months	60.00	\$16.34	\$5.44	\$1.50	\$0.30	\$0.00	\$1.47	\$0.00	\$0.00	\$0.00	\$25.05	\$33.22
5th 6 months	65.00	\$17.70	\$5.44	\$1.80	\$0.30	\$0.00	\$1.59	\$0.00	\$0.00	\$0.00	\$26.83	\$35.68
6th 6	70.00	\$19.06	\$5.44	\$1.80	\$0.30	\$0.00	\$1.72	\$0.00	\$0.00	\$0.00	\$28.32	\$37.85

months												
7th 6 months	75.00	\$20.42	\$5.44	\$2.50	\$0.30	\$0.00	\$1.84	\$0.00	\$0.00	\$0.00	\$30.50	\$40.71
8th 6 months	80.00	\$21.78	\$5.44	\$2.50	\$0.30	\$0.00	\$1.96	\$0.00	\$0.00	\$0.00	\$31.98	\$42.88

Special Calculation Note : Apprentice pay based on percentage of above appropriate classification.

Ratio :

1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN, PORTAGE*, SUMMIT*

Special Jurisdictional Note : Portage & Summit North of the East-West Turnpike.

Details :

Application of Catalytic materials under class 3 hazardous per MSDS - .65 per hour above the Job Classification basic hourly rate.

Application of Catalytic materials under class 4 hazardous per MSDS - 1.00 per hour above the Job Classification basic hourly rate.

Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 707 Industrial

Change # : LCN01-2013icLoc707Ind

Craft : Painter Effective Date : 05/08/2013 Last Posted : 05/08/2013

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Bridge Class 1	\$27.93	\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$40.17	\$54.13
Bridge Blaster	\$28.93	\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$41.17	\$55.63
Bridge Quality Control & Assurance, Flag Person, Equipment Operator, Boat Person, Driver Vacuum (Grit Reclamation Operator)	\$23.64	\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$35.88	\$47.70
Closed Steel Above 55 ft., Open Structural Tanks - Water Towers	\$27.93	\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$40.17	\$54.13
Fiberglass & Insulator Material	\$27.93	\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$40.17	\$54.13
Concrete Sealing	\$22.18	\$5.44	\$4.05	\$0.30	\$0.00	\$2.45	\$0.00	\$0.00	\$0.00	\$34.42	\$45.51

Apprentice - Painter	Percent											
1st 6 months	45.00	\$12.57	\$5.44	\$1.05	\$0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19.36	\$25.64
2nd 6 months	50.00	\$13.97	\$5.44	\$1.05	\$0.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$20.76	\$27.74
3rd 6 months	55.00	\$15.36	\$5.44	\$1.50	\$0.30	\$0.00	\$1.35	\$0.00	\$0.00	\$0.00	\$23.95	\$31.63
4th 6 months	60.00	\$16.76	\$5.44	\$1.50	\$0.30	\$0.00	\$1.47	\$0.00	\$0.00	\$0.00	\$25.47	\$33.85
5th 6 months	65.00	\$18.15	\$5.44	\$1.80	\$0.30	\$0.00	\$1.59	\$0.00	\$0.00	\$0.00	\$27.28	\$36.36
6th 6 months	70.00	\$19.55	\$5.44	\$1.80	\$0.30	\$0.00	\$1.72	\$0.00	\$0.00	\$0.00	\$28.81	\$38.59
7th 6 months	75.00	\$20.95	\$5.44	\$2.50	\$0.30	\$0.00	\$1.84	\$0.00	\$0.00	\$0.00	\$31.03	\$41.50
8th 6 months	80.00	\$22.34	\$5.44	\$2.50	\$0.30	\$0.00	\$1.96	\$0.00	\$0.00	\$0.00	\$32.54	\$43.72

Special Calculation Note : Apprentice pay based on percentage of above appropriate classification.

Ratio : 1 Apprentice to 1 Journeyman

Jurisdiction (* denotes special jurisdictional note) : ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN, PORTAGE*, SUMMIT*

Special Jurisdictional Note : Portage & Summit North of the East-West Turnpike.

Details :
 Painter Bridge Class 1 is Defined as; Bridge Painter, Rigger, Containment Builder
 Application of Catalytic materials under class 3 hazardous per MSDS - .65 per hour above the Job Classification basic hourly rate.
 Application of Catalytic materials under class 4 hazardous per MSDS - 1.00 per hour above the Job Classification basic hourly rate.
 * Concrete Sealing: on highway work, scaling of concrete surfaces, the treating and sealing of bridge decks, the painting and staining of concrete, including the abutments, barricades, noise barriers, lane dividers, etc.

and corrections of all fire protection and extinguishing systems; consist of handling and installing of all piping and appurtenances pertaining to sprinkler equipment including both overhead and underground water mains, fire hydrants and hydrants mains, stand pipes, hose connections, tank heaters, air lines, thermal systems and their connections; all operating and actuating lines and devices and their protective covering; all fire stopping of sprinkler piping systems; all tanks, pumps and city connections; fire protection systems using emulsify, spray, water fog, CO₂ gas, foam and other fire control agents, settling of all fire pumps and tank filling pumps, air compressors and their connections; all work related to sprinkler inspections (included but not limited to: adjustments, maintenance, repair, testing, etc.)

such as automatic feedwater and low water cut-offs, safety relief valves and gas trains; steam regulators, traps, steam valves, steam heaters, steam and hot water heating coils; feedwater lines to boilers, condensate pumps, condensate tanks and related piping to boilers, expansion tanks and controls on hot water heating systems; refrigeration and air conditioning systems that are separate from one another and are connected through piping; install, piping for heating and cooling devices; piping, pumps and controls on the fluent water system in water treatment plants; hose cabinets and automatic fire sprinkler systems; underground water supply piping and devices; all fire stopping of piping systems; to operate a pipe cutting machine, to thread pipe by machine or hand dies; to do oxyacetylene and electric welding on iron and steel pipes when required; to perform other tasks when assigned.

Prevailing Wage Rate Skilled Crafts

Name of Union: Pipefitter Local 120 Mechanical Equipment

Change # : LCN2-2013fbLoc120

Craft : Pipefitter Effective Date : 05/01/2013 Last Posted : 05/01/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Pipefitter Mechanical Equipment Service	\$27.78		\$10.10	\$8.13	\$0.62	\$0.00	\$1.75	\$0.40	\$0.00	\$0.00	\$48.78	\$62.67
Intermediate Journeymen												
Serviceman 1	\$18.58		\$9.95	\$3.01	\$0.62	\$0.00	\$1.00	\$0.40	\$0.00	\$0.00	\$33.56	\$42.85
Serviceman 2	\$20.84		\$9.95	\$3.01	\$0.62	\$0.00	\$1.00	\$0.40	\$0.00	\$0.00	\$35.82	\$46.24
Serviceman 3	\$23.38		\$9.95	\$3.01	\$0.62	\$0.00	\$1.00	\$0.40	\$0.00	\$0.00	\$38.36	\$50.05
Serviceman 4	\$26.13		\$9.95	\$3.01	\$0.62	\$0.00	\$1.00	\$0.40	\$0.00	\$0.00	\$41.11	\$54.17
MES Trainees	Percent											
1st year	59.58	\$16.55	\$0.00	\$0.00	\$0.62	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.17	\$25.45
2nd year	55.80	\$15.50	\$0.00	\$3.01	\$0.62	\$0.00	\$0.80	\$0.00	\$0.00	\$0.00	\$19.93	\$27.68
3rd year	61.74	\$17.15	\$0.00	\$3.01	\$0.62	\$0.00	\$0.80	\$0.00	\$0.00	\$0.00	\$21.58	\$30.16
4th year	65.73	\$18.26	\$0.00	\$3.01	\$0.62	\$0.00	\$0.80	\$0.00	\$0.00	\$0.00	\$22.69	\$31.82
5th year	69.69	\$19.36	\$0.00	\$3.01	\$0.62	\$0.00	\$0.80	\$0.00	\$0.00	\$0.00	\$23.79	\$33.47

Special Calculation Note : OTHER IS : SUPPLEMENTAL UNEMPLOYMENT BENEFITS

Ratio :
3 Intermediate Servicemen to 1 Serviceman

Jurisdiction (* denotes special jurisdictional note) :
ASHTABULA, CUYAHOGA, GEAUGA, LAKE,

Trainee Per Shop

MEDINA*, SUMMIT*

Special Jurisdictional Note : Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and including work within the corporate limits of the City of Medina.

Details :

Work scope but not limited to: Mechanical Service and Maintenance work normally performed by contractors, either by contracts or emergency call basis, who are equipped to handle all work relating to evacuation, charging, start-up, inspection, operating, maintenance and service call necessary to keep mechanical system and controls of a refrigeration , air conditioning, heating and/or ventilation or any other newly installed, remodeled, revamped or redesigned mechanical system in operational order; all fire stopping and piping systems. Shall include but not limited to all maintaining, cleaning, adjusting, repairing, overhauling, starting and balancing of any system or component part thereof, regardless of size or location, including all other service and maintenance work assigned to the employer by the customer. Shall also be allowed to do the following installation work: All residential humidifiers and dehumidifiers, all window type units, all residential heating and cooling systems, excluding steam and hot water, and when a building is not new construction, all refrigeration systems up to 20 tons, split air conditioning systems up to 50 tons, and package or self-contained air conditioning units up to 50 tons.

Prevailing Wage Rate Skilled Crafts

Name of Union: Plasterer Local 31

Change # : LCN02-2013fbLoc80

Craft : Plaster Effective Date : 05/29/2013 Last Posted : 05/29/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Plasterer	\$29.51		\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$44.33	\$59.09
Apprentice	Percent											
0-1000 hrs	40.00	\$11.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11.80	\$17.71
1000-2000 hrs	45.00	\$13.28	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$28.10	\$34.74
2000-3000 hrs	50.00	\$14.76	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$29.58	\$36.95
3000-4000 hrs	55.00	\$16.23	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$31.05	\$39.17
4000-5000 hrs	60.00	\$17.71	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$32.53	\$41.38
5000-6000 hrs	65.00	\$19.18	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$34.00	\$43.59
6000-7000 hrs	70.00	\$20.66	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$35.48	\$45.81
7000-8000 hrs	75.00	\$22.13	\$6.30	\$4.05	\$0.10	\$0.00	\$4.27	\$0.10	\$0.00	\$0.00	\$36.95	\$48.02

Special Calculation Note : Other is \$.10 for Substance abuse and training. No special calculations for this skilled craft wage rate are required at this time.

Ratio :
3 Journeymen to 1 Apprentice thereafter

Jurisdiction (* denotes special jurisdictional note) :
ASHTABULA, CUYAHOGA, GEAUGA, LAKE, LORAIN

Each employer shall use their best efforts to employ at least 1 certified apprentice in every shop after his first Journeyman.

Special Jurisdictional Note :

Details :

Prevailing Wage Rate Skilled Crafts

Name of Union: Plumber Local 55

Change # : LCNO-2013jcLoc55Plum

Craft : Plumber Effective Date : 05/08/2013 Last Posted : 05/08/2013

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Plumber	\$34.35	\$9.25	\$8.60	\$1.02	\$0.00	\$0.50	\$0.55	\$0.00	\$0.00	\$54.27	\$71.44
Yard Piping	\$22.82	\$6.70	\$1.50	\$0.46	\$0.00	\$0.50	\$0.55	\$0.00	\$0.00	\$32.53	\$43.94
Apprentice Initiated BEFORE 5/1/10											
2nd year	\$19.49	\$6.40	\$1.91	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$0.00	\$29.70	\$39.44
3rd year	\$21.80	\$6.40	\$2.36	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$0.00	\$32.46	\$43.36
4th year	\$24.51	\$6.40	\$2.41	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$0.00	\$35.22	\$47.48
5th year	\$26.81	\$6.73	\$2.36	\$1.05	\$0.00	\$0.50	\$0.55	\$0.00	\$0.00	\$38.00	\$51.40
Apprentice Initiated AFTER 5/1/10											
Percent											
1-6 Months	35.95	\$12.35	\$5.61	\$0.00	\$0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$18.76	\$24.93
7-12 Months	41.80	\$14.36	\$5.61	\$0.16	\$0.85	\$0.00	\$0.00	\$0.55	\$0.00	\$21.53	\$28.71
2nd year	41.78	\$14.35	\$6.26	\$1.66	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$24.17	\$31.35
3rd year	47.63	\$16.36	\$6.26	\$2.41	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$26.93	\$35.11
4th year	55.69	\$19.13	\$6.26	\$2.41	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$29.70	\$39.26
5th year	62.35	\$21.42	\$6.73	\$2.41	\$0.85	\$0.00	\$0.50	\$0.55	\$0.00	\$32.46	\$43.17

Special Calculation Note : OTHER IS: SUPPLEMENTAL UNEMPLOYMENT

Ratio :

Jurisdiction (* denotes special jurisdictional note) :

1 Apprentice for the first steadily employed journeyman, and thereafter 1 Apprentice for every 2 steadily employed journeymen

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, MEDINA*, SUMMIT*

Special Jurisdictional Note : Summit County - North of State Route 303 including work within the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and the corporate limits of the City of Medina.

Details :

The Plumber Shopman will have charge of the Employer's shop and warehouse containing plumbing and heating supplies and equipment, and perform such duties as are customarily required by a Plumber or a Plumber's Shopman, including casual delivery of tools and equipment necessary for installation of Plumbing and Heating facilities.

Prevailing Wage Rate Skilled Crafts

Name of Union: Plumber Local 55 Lawn Sprinkler/Irrigation

Change # : CN03-2006Loc55

Craft : Irrigation Mechanic Effective Date : 07/10/2006 Last Posted : 07/10/2006

		Fringe Benefit Payments									
		BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification											
Plumber Irrigation System Mechanic		\$16.46	\$0.00	\$1.30	\$0.00	\$0.00	\$0.00	\$0.00	\$17.76	\$25.99	
Apprentice	Percent										
Irrigation System Temp Helper to 3 months	55.45	\$9.13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$9.13	\$13.69	
Irrigation System Helper new to 3 months	55.50	\$9.14	\$0.00	\$0.70	\$0.00	\$0.00	\$0.00	\$0.00	\$9.84	\$14.40	
Irrigation Helper 3 to 6 months	59.35	\$9.77	\$0.00	\$0.70	\$0.00	\$0.00	\$0.00	\$0.00	\$10.47	\$15.35	
Irrigation Helper 6 to 9 months	61.30	\$10.09	\$0.00	\$0.70	\$0.00	\$0.00	\$0.00	\$0.00	\$10.79	\$15.83	
Irrigation Helper 9 to 12 months	63.25	\$10.41	\$0.00	\$0.70	\$0.00	\$0.00	\$0.00	\$0.00	\$11.11	\$16.32	
Irrigation Helper 1 to 2 years	68.85	\$11.33	\$0.00	\$0.80	\$0.00	\$0.00	\$0.00	\$0.00	\$12.13	\$17.80	
Irrigation Helper 2 to 3 years	80.69	\$13.28	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$0.00	\$14.18	\$20.82	
Irrigation Helper 3 to 4 years	82.00	\$13.50	\$0.00	\$0.90	\$0.00	\$0.00	\$0.00	\$0.00	\$14.40	\$21.15	

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

1 Temporary Helper may be hired for every 2 permanent employees

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE, MEDINA*, SUMMIT*

Special Jurisdictional Note : Summit County - North of State Route 303 including work within

the corporate limits of the City of Hudson, that portion of Medina County North of Route 18 and Smith Road and including work with the corporate limits of the City of Medina.

Details :

***TEMPORARY HELPERS DEFINED as a seasonal employee until their 120 days at which time they will be considered a regular employee.

Work defined but not limited to: The complete Installation of Irrigation systems, water falls, fountains, and ponds etc. The Installation of all sprinkling & irrigation systems for the sole purpose of landscaping maintenance. Landscaping consists of digging of head valve holes, small trenches, back filling, pulling of pipe underground, and the operation of trenches, pullers.

Special Jurisdictional Note : Lorain (The Ohio Turnpike North)

Details :

so.04 for "Other" is Drug Testing.

Prevailing Wage Rate Skilled Crafts

Name of Union: Roofer Local 44

Change # : LCN01-2013jcLoc44

Craft : Roofer Effective Date : 05/08/2013 Last Posted : 05/08/2013

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Roofer	\$29.26		\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$45.82	\$60.45
Waterproofers	\$29.26		\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$45.82	\$60.45
Applicant & Helper Trainees												
0 to 1851 hrs	\$13.00		\$0.25	\$0.25	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$13.76	\$20.26
1851 to 3350 hrs	\$16.09		\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$32.65	\$40.70
3351 to 4850 hrs	\$20.48		\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$37.04	\$47.28
4851 to 6350 hrs	\$23.41		\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$39.97	\$51.68
6351 hrs	\$26.33		\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$42.89	\$56.06
Apprentice												
	Percent											
Start of school	44.43	\$13.00	\$0.25	\$0.25	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$13.76	\$20.26
600 hrs worked/72 school hrs	45.00	\$13.17	\$0.25	\$0.25	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$13.93	\$20.51
1200 hrs worked/144 school hrs	50.00	\$14.63	\$0.25	\$0.25	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$15.39	\$22.70
1800 hrs worked/216 school hrs	55.00	\$16.09	\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$32.65	\$40.70
2400 hrs worked/ 288 school hrs	60.00	\$17.56	\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$34.12	\$42.89

3000 hrs worked/360 school hrs	70.00	\$20.48	\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$37.04	\$47.28
3600 hrs worked/432 school hrs	80.00	\$23.41	\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$39.97	\$51.67
4200 hrs worked/504 school hrs	90.00	\$26.33	\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$42.89	\$56.06
4800 hrs/576 school hrs	100.00	\$29.26	\$8.35	\$7.95	\$0.22	\$0.00	\$0.00	\$0.04	\$0.00	\$0.00	\$45.82	\$60.45

Special Calculation Note : For Apprentices Registered BEFORE 6/1/09 See 1st Sheet
 There are no special calculations for this skilled craft wage rate are required at this time.

Ratio :

2 Journeymen to 1 Apprentice
 1 Applicant/Helper Trainee

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, ERIE, GEAUGA,
 LAKE, LORAIN*, SANDUSKY

Special Jurisdictional Note : Lorain (The Ohio Turnpike North)

Details :

\$0.04 for "Other" is for Drug Testing

Prevailing Wage Rate Skilled Crafts

Name of Union: Sheetmetal Local 33 (Cleveland) Decking

Change # : CN01-2008Loc33(Clev)Deck

Craft : Sheetmetal Worker Effective Date : 10/16/2008 Last Posted : 10/16/2008

Fringe Benefit Payments										
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other	Total PWR	Overtime Rate	
Classification										
Sheetmetal Worker Decking & Siding	\$19.92	\$5.10	\$5.76	\$0.38	\$0.00	\$0.00	\$0.92	\$32.08	\$42.04	
Decking & Siding Specialty Trainees	Percent									
First 30 days	64.28	\$12.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.80	\$19.21	
2nd thru 6th month	64.28	\$12.80	\$5.10	\$5.76	\$0.00	\$0.00	\$0.00	\$23.66	\$30.07	
7th thru 12th months	64.28	\$12.80	\$5.10	\$5.76	\$0.38	\$0.00	\$0.92	\$24.96	\$31.37	
2nd year	78.55	\$15.65	\$5.10	\$5.76	\$0.38	\$0.00	\$0.92	\$27.81	\$35.63	

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio :

3 Journeymen To 1 Apprentice

Jurisdiction (* denotes special jurisdictional note) :

ASHTABULA, CUYAHOGA, GEAUGA, LAKE

Special Jurisdictional Note :

Details :

Work but not limited to: Exterior application of manufactured and/or job site fabricated metal decking, siding and exterior appurtenances thereto. The erection of pre-engineered metal buildings, pre-manufactured gas stations and appurtenances thereto. The installation of metal roofs and appurtenances. The erection and/or job site fabrication of draft or fire curtains and appurtenances thereto.

Special Jurisdictional Note :**Details :**

Tile Finishers:do all the cleaning, acid washing,grouting,by any methods or means. Also unpacking of all tiles,opening of all mastic containers,mixing of all mortar,thin-set and epoxy materials,also the distribution of it. They shall handle and distribute all materials such as sand,cement,lime,tile,all types of tile panels,prefabricated tile units, plastic materials and protective covering of all tile.Clean up and removal of always used in connection of said work.

Prevailing Wage Rate Skilled Crafts

Name of Union: Truck Driver HevHwy 436

Change # : CN02-2009Loc436

Craft : Truck Driver Effective Date : 05/29/2009 Last Posted : 05/29/2009

	Fringe Benefit Payments								Total PWR	Overtime Rate
	BHR	H&W	Pension	App Tr.	Vac.	Annuity	Other			
Classification										
Truck Driver - Straight and Dump Trucks including Asphalt-Straight Fuel - Warehousemen-Straight Fuel	\$25.60	\$4.80	\$5.55	\$0.00	\$0.00	\$0.00	\$0.00	\$35.95	\$48.75	
Semi Fuel-Semi Tractor Drivers-Darts-Tank Asphalt Spreaders-Low Boys	\$26.10	\$4.80	\$5.55	\$0.00	\$0.00	\$0.00	\$0.00	\$36.45	\$49.50	
Carryall Drivers-Rockers-Hilifts-Forklifts-Xtra long Trailers etc.	\$26.10	\$4.80	\$5.55	\$0.00	\$0.00	\$0.00	\$0.00	\$36.45	\$49.50	

Special Calculation Note : No special calculations for this skilled craft wage rate are required at this time.

Ratio : **Jurisdiction (* denotes special jurisdictional note) :**
CUYAHOGA, LAKE, GEAUGA

Special Jurisdictional Note :

Details :

Eculids include: Darts, Tank, Asphalt Spreaders, Low Boys, Carry-All Drivers, Tourna-Rockers, High-Lifts, Fork-Lifts, Extra Long Trailers and Semi-Tractor and Tri-Axle Trailer, Tandem Tractor and Tandem Trailer, Tandem Trailer and Tri-Axle Trailer, Tag Along Trailer, Expandable Trailers or towing requiring road permits. Ready-Mix (Agitator or non-agitator) Bulk Concrete Drivers, dry Batch Trucks, Articulated End Dump, Bus Drivers.

Holiday Pay = 7 holidays X (8 hours X BHR)/2080 hours per year.

This pay is only for those employee's who started driving before 1976.

To be eligible to receive holiday pay an employee must have worked at least one (1) day in the period fourteen

(14) calendar days prior to the holiday and/or in the fourteen (14) day calendar period after the holiday.