



PROJECT MANUAL

CITY OF SAULT STE. MARIE

PULLAR BOILER

REPLACEMENT

Prepared By:
UP Engineers & Architects, Inc.
December , 2023

CITY OF SAULT STE. MARIE

PULLAR BOILER REPLACEMENT

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CITY OF SAULT STE. MARIE, MI

NOTICE TO BIDDERS

Sealed Bid Proposals marked **“PULLAR BOILER REPLACEMENT”** will be accepted at the office of the Purchasing Agent, City Hall, 225 E. Portage Avenue, Sault Ste. Marie, Michigan, 49783 until 2:00 P.M. on January 10, 2024, at which time and place all Bid Proposals will be opened and publicly read. The Bid Proposals will be for furnishing the following:

The project consists of removal and replacement of two natural gas, steam fired boilers and associated electrical work per drawings and documents contained in the project manual.

A walk thru meeting is being held at the Pullar Stadium on December 14, 2023, at 10:00 a.m. All interested contractors are encouraged to attend.

Questions regarding this project should be directed to jgagnon@upea.com.

Specifications, bid forms, and additional information may be obtained at the office of the Engineer, U.P. Engineers & Architects, Inc. 707 Ashmun Street, Sault Ste. Marie, MI 49783 for a non-refundable fee of \$25.00 for a hard copy or \$10.00 for a pdf. All Bid Proposals shall be submitted in sealed envelopes marked as to the Bidder and the contents therein and submitted to the purchasing agent stated above.

The CITY reserves the right to reject any or all Bid Proposals, waive irregularities in any Proposal and make the award in the best interest of the City.

Robin R. Troyer, MMC
Deputy City Manager



INFORMATION FOR BIDDERS

1. PROPOSALS

Each Proposal shall be made on a form prepared therefore by the CITY and included as one of the Contract Documents, and shall be submitted, in a sealed envelope bound together with the other Contract Documents that are specified to be returned with the Bid Proposal, except the Plans, bearing the title of the Project and the name of the Bidder. The Plans may be returned in a separate package but are not required to be returned.

The Bid Proposal shall be legibly prepared in ink or typewritten. All Unit Price or Lump Sum entries made on the Schedule of Items page in the Bid Proposal by the Bidder in the "Unit Price" column and the "Bid Amount" column shall be handwritten in ink or typed in place.

Where a LUMP SUM (LS) is called for, it shall be entered only in the "Bid Amount" column.

The unit prices, as stated, will govern in determining the correct total of the Bid Proposal. In case of a difference between the stipulated amounts in the Proposal written in words and the stipulated amount written in figures, the stipulated amounts in written words shall govern.

If a unit price or a lump sum already entered by the Bidder on the Bid Proposal is to be altered, it shall be crossed out in ink. The new unit price or lump sum shall be entered above or below it and initialed in ink by the Bidder on the line of the change each time the unit price or lump sum is altered.

The Bid Proposal shall be legally signed, and the complete address of the Bidder given where requested.

Proposals shall be delivered by the time and to the place stipulated in the Advertisement. It is the sole responsibility of any Bidder to see that his Proposal is received in proper time. Any Proposal received after the scheduled time for opening of Proposals shall be returned to the Bidder unopened.

Proposals will be opened and publicly read aloud at the time and place set forth in the Advertisement.

Any Bidder may withdraw his Proposal, either personally or by telegraphic or written request, at any time prior to the scheduled time for opening of Proposals.

Proposals shall not contain any recapitulations of the work to be done. Alternate proposals will not be considered unless expressly requested. Oral proposals or modifications will not be considered.

Any financial or propriety information submitted in response to this Bid Proposal will become a public record subject to disclosure under the Freedom of Information Act. THE INFORMATION WILL NOT BE TREATED AS CONFIDENTIAL.

2. EXAMINATION OF DOCUMENTS AND VISIT TO SITE

Before submitting a Proposal, Bidders shall carefully examine the Plans, read the elements of the Contract Documents, shall visit the site of the work, and shall fully inform themselves as to all existing conditions to be encountered, the nature of the ground, the difficulties and limitations involved in completing the Project and all other factors affecting the work proposed on this Project.

It is the intent of the Contract Documents to provide that the Project to be constructed under this Proposal shall be complete and ready for use, in every respect. Any minor items not specifically called for in the Plans or Specifications, but which are clearly necessary, are to be included, at no increase in the Contract Price.

The Proposal shall include a sum to cover the cost of all items of work to be performed such that the Project to be constructed under this Proposal shall be complete and ready for use in every respect.

The Bidder to whom this Project is awarded will not be entitled to any additional compensation or extension of time by reason of his failure to fully acquaint himself with the conditions at the site or by his failure to fully examine the Contract Documents.

3. SUBCONTRACTS; MATERIAL AND EQUIPMENT QUOTATIONS

The Bidder to whom an award is made will not be entitled to additional compensation or extension of time by reason of his failure to fully understand all sub-proposals or quotations.

The Bidder is responsible for all coordination between Subcontractors and suppliers during the bidding and construction so that a complete Project is furnished for the Contract Price and within the Contract Time. The completed Project includes the furnishing of all equipment, accessories, and appurtenances necessary for the proper operation and maintenance of the Project.

4. AWARD OR REJECTION

The Contract will be awarded to the lowest and/or best qualified and responsible Bidder complying with these instructions and with the Advertisement. The CITY reserves the right to reject any or all Proposals or to waive any irregularities or technicality in any Proposal in the best interest of the CITY.

5. INTERPRETATION OF DOCUMENTS

Interpretations of the meaning of the Plans, Specifications or other elements of the Contract Documents will not be valid if made orally to any Bidder. Oral interpretations, if given, shall be at the Bidder's risk and responsibility.

If any person contemplating submitting a Proposal is in doubt as to the true meaning of any part of the Contract Documents or finds discrepancies in or omissions from the Contract Documents, he shall request a written interpretation or corrections thereof, from the CITY.

Every request for such interpretation must be in writing, and to receive consideration, must be delivered to the CITY at least five (5) days prior to the date fixed for the opening of Proposals.

Any and all such interpretations and any other supplemental instructions will be in the form of written addenda to the Contract Documents which, if issued, will be mailed by certified mail with return receipt requested to all prospective Bidders at the addresses furnished for such purpose, not later than three days prior to the date fixed for the opening of Proposals. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligations under his Proposal as submitted.

The CITY will not be responsible for any other explanations or interpretations of the Contract Documents.

Any addenda issued during the time of bidding or forming a part of the Contract Documents shall be included in the Proposal and shall be made a part of the Contract Documents. Receipt of each Addendum shall be acknowledged in the Proposal.

6. TIME

Time is of the essence in the performance of this Contract. The work to be done shall be started upon receipt of the Notice to Proceed and shall be prosecuted expeditiously for completion at the earliest possible date prior to the completion date or dates so specified in the contract documents.

7. PROPOSAL GUARANTY

Each Proposal shall be accompanied by a cashier's check, certified check, money order or a bid bond by a recognized surety company, in an amount of five percent (5%) of the total amount of the Proposal, payable to the CITY. In the event a Bid Bond is used, it must be on the form prescribed by the City of Sault Ste. Marie. The prescribed "Bid or Proposal Bond" form may be obtained by calling (906) 632-5730; it is also found within these bid documents. The Proposal guaranty may be forfeited to the CITY in case of failure on the part of the successful Bidder to enter into the attached form of Agreement to do the work covered by the Proposal at the price and within the time stated therein.

In the event a Certified or Cashier's Check is used for the Bid Bond amount and dated more than 10 days prior to the Bid Opening (Letting) date, the Bid Proposal may be held unresponsive and result in rejection of the Bid Proposal.

8. QUALIFICATIONS OF BIDDERS

It is the intention of the CITY to award this Contract to the Bidder most fully capable, both financially and as regards to experience, to perform and complete all work in a satisfactory manner. Evidence of such competency must be furnished, if desired, including a listing of similar projects which the Bidder has satisfactorily undertaken and completed.

9. REQUIREMENT FOR SIGNING PROPOSALS

Proposals which are not signed by the individual making them shall have attached thereto a power of attorney evidencing authority to sign the Proposal in the name of the person for whom it is signed.

Proposals which are signed by a partnership shall be signed by all of the partners or by an attorney-in-fact. If signed by an attorney-in-fact, there shall be attached to the Proposal a power of attorney evidencing authority to sign the Proposal, executed by the partners.

Proposals which are signed for a corporation shall have the correct corporate name thereof and the signatures of the president or other authorized officers of the corporation manually written below the corporate name following the word "By". If such a Proposal is manually signed by an officer other than the president of the corporation, a certified copy of a resolution of the Board of Directors evidencing the authority of such an official to sign the Proposal shall be attached to it. Such a Proposal shall also bear the attested signature of the secretary of the corporation and the impression of the corporate seal.

All Bidders shall complete the enclosed form entitled "Legal Status of Bidder". (See P-2)

10. EXECUTION OF AGREEMENT

The Bidder to whom an award is made will be required to enter into a written Agreement in the form hereto annexed, within twenty (20) days, Sundays and legal holidays excepted, after being notified of the acceptance of his Proposal and receipt by him of copies of the Contract Documents to be executed.

In case of failure to comply with this requirement, he shall be considered to have abandoned all rights and interest in the award, his Proposal guaranty may be declared forfeited to the CITY and the Contract may be awarded to another.

11. INSURANCE AND BONDS

The successful Bidder will be required to carry insurance in the amounts and kinds specified in Section I 1-2 of the Bid Documents. Such insurance must be with companies and in a form satisfactory to the CITY and the MDOT, and certificates of such insurance must be attached to each copy of the executed Contract Documents. The insurance certificates provided for this project shall include the City of Sault Ste. Marie and also the Michigan Department of Transportation as insured parties under this project.

The successful Bidder will be required to furnish for each set of the executed Contract Documents and conformed copies thereof, an original conformed Performance Bond and Labor and Material (Payment) Bond on the form attached hereto with a surety acceptable to the CITY, as follows:

- a. Performance Bond, Labor and Material (Payment) Bond each in the amount of One Hundred percent (100%) of the Contract Price to insure the completion of the entire Project according to the Contract Documents and to secure Payment of all labor, materials and Subcontractors according to the statutes of the State at that time in effect.

12. PERMITS AND LOCAL CODES

The successful Bidder shall obtain, at his expense, all required local and state construction permits and shall comply with all local and state building, electrical and plumbing codes and inspection requirements as applicable to this project.

13. NONDISCRIMINATION

Contracts for work under this Proposal will obligate the contractors and subcontractors not to discriminate in employment practices.

Bidders must, if requested, submit a compliance report concerning their employment practices and policies in order to maintain their eligibility to receive the award of the contract.

Successful Bidders must, if requested, submit a list of all subcontractors who will perform work on the project and written signed statements from authorized agents of the labor pools with which they will or may deal for employees on the work together with supporting information to the effect that said labor pools practices and policies are in conformity with Executive Order No. 11246, as amended, and that said labor pools will affirmatively cooperate in or offer no hindrance to the recruitment, employment, and equal treatment of employees seeking employment and performing work under the contract or, a certification as to what efforts have been made to secure such statements when such agents or labor pools have failed or refused to furnish same prior to the award of the contract.

14. HEALTH AND SAFETY

The successful Bidder shall comply with the Health and Safety Regulations, Chapter XVII of Title 29 CFR, Part 1926, as promulgated by the Department of Labor, and/or applicable state and local Safety and Health Regulations. All questions regarding compliance and enforcement, as well as requests for the Regulations should be directed to the Department of Labor and/or local agencies.

15. EXISTING INFORMATION

Any notations shown on the plans are for general information purposes only and are not intended to relieve the Contractor of his responsibility of investigating all local conditions affecting the work. Such locations of public utilities as are shown on the plans are taken from sources believed to be reliable. The CITY will not be responsible for any omissions of, or variations from, the indicated location of existing utilities which may be encountered in the work.

No plea of ignorance of conditions which exist, or which may hereafter exist, or of any difficulties which may be encountered will be accepted as the basis for any failure or omission on the part of the Contractor to fulfill all of the requirements of this Contract, nor will such failure or omission be accepted as the basis for any claims of any nature for extra compensation or extension of time. The submission of a bid shall be considered as prima facie evidence of compliance with this section.

16. EMPLOYMENT OF LOCAL LABOR

In accordance with the goal of the City to increase employment opportunities wherever possible within our community, Bidders should be aware that one factor in considering bid award shall be the amount of local (Chippewa County) labor to be hired by the contractor and subcontractor. Each bidder is required to estimate the total man hours to be expended on the "on-site" construction of the project, and the percentage of those man hours which will involve local labor. Penalties for non-compliance will be agreed to prior to bid award.

The payrolls maintained by the CONTRACTOR shall include address, and shall be furnished to the City of Sault Ste. Marie upon request in order to assure compliance.

Bidders estimate as to total man hours to be expended in "on-site"

Construction. _____Man Hours

Bidders estimate as to man hours which will involve local

Labor _____%

(INFBID-C 04/02/03)

STATEMENT OF CONTRACTOR'S QUALIFICATIONS
FOR ALL CONTRACTS

This form, completely filled in and with attachments, shall be submitted upon request to the City Engineering Department by 10 a.m. on the second business day following date of bid opening. Failure to submit this form may be grounds for rejection of bid.

1. Date of Organization/Incorporation: _____
2. Type of Organization (Corporation, Partnership, etc.): _____
3. Officers/Principals
(Titles and Names): _____

4. States in which Organization is legally
qualified to do business: _____

5. What is your current bonding capacity? _____
6. Name of proposed bonding company for
this Project: _____
- Address and telephone number of agent: _____
7. Attach Financial Statement, including latest Balance Sheet, Income Statement, and Retained Earnings. (To be furnished if requested by City prior to bid award.)
8. List, on an attachment, three completed projects that best represent the building type, type of construction, and dollar amount similar to the project being contemplated. Also provide dates, names, addresses and telephone numbers for references.
.
9. List, on an attachment, all projects currently in progress, including type of work, contract amount, percentage of completion, name, and telephone number of the Owner(s) or their representatives, and Engineer/Architect.

10. List, on an attachment, all projects completed within the last five years, including the type of work, contract amount, and percentage of contract performed by your own forces.
11. During the last five years, what was your largest and average size project amounts in dollars: \$ _____ (Largest)
\$ _____ (Average)
12. Has your organization ever failed to complete any projects? If yes, list when, where and why on an attachment. _____
13. Has your organization or any predecessor or affiliate thereof been involved in bankruptcy, reorganization, insolvency, or receivership proceedings under federal or state law within the past ten years? If yes, describe the date and nature of the proceedings and court involved on an attachment. _____
14. Has your organization been involved in any lawsuits with Owners, Engineers/Architects, or other Contractors involving any projects within the last five years? If yes, describe the date and nature of the proceedings and court involved on an attachment. _____
15. Are there any outstanding liens filed against your organization? If yes, explain on an attachment. _____
16. List the type of work normally performed by your own forces.

17. List the names of the project manager and project Superintendent proposed for this project. Attach resumes.

I hereby certify the accuracy and completeness of all information on this form and attachments. The discovery of deliberate misinformation given herein shall be considered as grounds for contract termination.

Organization:

Signature/Title:

Date:

CITY OF SAULT STE. MARIE PULLAR BOILER REPLACEMENT

Project Summary

The project consists of removal and replacement of two natural gas, steam fired boilers and associated electrical work per drawings and documents contained in the project manual.

Name of Bidder: _____

BID FORM
FOR
Pullar Boiler Replacement
FOR
CITY OF SAULT STE. MARIE, MICHIGAN

To the City of Sault Ste. Marie (herein referred to as CITY):

The undersigned as Bidder hereby declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that he/she has read and examined the Advertisement, Information for Bidders, Agreement, Forms for Bonds (where applicable), Specifications and plans, as prepared by the CITY, and understands all of the same; that he/she or his/her representative has informed himself/herself fully with regard to the conditions to be met in the execution of the Contract, and the undersigned proposes to furnish all labor, materials, tools, power, transportation and construction equipment necessary for completing this project as herein specified for the CITY and perform related work in full accordance with aforesaid Contract Documents, including any and all Addenda officially issued; the receipt of which is hereby acknowledged:

Addendum No.	Date	Signature
_____	_____	_____
_____	_____	_____
_____	_____	_____

Bid Price: The Bidder agrees to complete the Work required for this construction project in accordance with the Contract Documents for the following unit prices and or lump sums as indicated starting on page BF-3.

**NAME, ADDRESS, LEGAL STATUS,
AND SIGNATURE OF BIDDER**

This Bid is submitted in the name of:

(Print) _____

The undersigned hereby designates below his/her business address to which all notices, directions or other communications may be served or mailed:

Street _____

City _____

State _____ Zip Code _____

The undersigned hereby declares that he/she has the legal status checked below:

☐ INDIVIDUAL

☐ INDIVIDUAL DOING BUSINESS UNDER AN ASSUMED NAME

☐ CO-PARTNERSHIP

The Assumed Name of the Co-Partnership is registered in

The County of _____, Michigan

☐ CORPORATION INCORPORATED UNDER THE LAWS OF THE STATE OF _____, The Corporation is,

☐ LICENSED TO DO BUSINESS IN MICHIGAN

☐ NOT NOW LICENSED TO DO BUSINESS IN MICHIGAN

The names, titles and home addresses of all persons who are officers or Partners in the organization are as follows:

NAME AND TITLE

HOME ADDRESS

_____	_____
_____	_____
_____	_____

BID FORM
CITY OF SAULT STE. MARIE, MICHIGAN
Project Title: Pullar Boiler Replacement
Location: Pullar Stadium



<u>Item No.</u>	<u>Item Code</u>	<u>Item Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>TOTAL (\$)</u>
1	BASE BID	General Conditions	1	LS	\$	\$
2	BASE BID	Boilers	2	EA	\$	\$
3	BASE BID	Electrical Work	1	LS	\$	\$
					TOTAL	\$

DESCRIPTION OF WORK:

The project consists of removal and replacement of two natural gas, steam fired boilers and associated electrical work per drawings and documents contained in the project manual.

The BIDDER agrees to complete all work as described herein and as shown on the plan sheets and specifications for the total sum of:

_____ Dollars (\$ _____)

(Amounts shall be shown in both words and figures; in case of discrepancy, the amount shown in words shall govern. Total will be checked using units & unit prices shown above.)

GENERAL NOTES

Measurement and payment shall be at the Contract Unit Price per pay item in the Proposal.

The undersigned as BIDDER, hereby declares that this Proposal is made in good faith, without fraud or collusion with any person bidding on the same contract.

The undersigned CONTRACTOR and CITY acknowledge for certain public agency construction contracts

Michigan Statutes (Act No. 524, Public Acts of 1980) require the payment of interest on retainage. The parties hereto agree however, to waive the requirements of Act No. 524 (MCLA 125.1561) if a contract is entered into between them to perform the construction improvements. In lieu of application of the Statute, the parties adopt the retainage terms and conditions contained in these contract General Conditions for their mutual convenience. The CITY agrees to pay and the CONTRACTOR agrees to accept the applicable sum as indicated in the following table as a stipulated interest on the retained amounts under the terms and conditions of this contract pursuant to the applicable Statute mentioned above. Such sums shall be paid at completion of the project and will be included in the last payment applicable to the project:

ORIGINAL CONTRACT AMOUNT	STIPULATED INTEREST ON RETAINAGE (\$)
\$0 TO 49,999	25
50,000 to 99,999	50
100,000 to 249,000	100
250,000 to 499,999	150
500,000 to 749,999	250
750,000 to 999,999	400
1,000,000 and Over	Act No 524 will apply

The undersigned has examined the specifications and other contract documents, and the location of the work described herein and on the drawings and is fully informed as to the nature of the work and the conditions relating to its performance and understands that the quantities shown are approximate only and are subject to either increase or decrease.

The undersigned hereby proposes to furnish all necessary equipment, perform all the work including traffic control, furnish all the materials and for the unit prices named in the Bid Form, to complete the work as herein described in accordance with the project plans, specifications (referenced or included), the contract Special Provisions and Supplemental Specifications. All materials used will be in strict conformity with the requirements of the specifications and such other supplemental specifications and Special Provisions as may be a part of the Contract Documents.

The undersigned agrees that if the foregoing BID shall be accepted by the CITY, he/she will within ten (10) days (Sundays and legal holidays excepted) after receiving Notice of Award, enter into a Contract Agreement and will complete the project ready for use, at the prices and within the time stated in this Bid Form, and that he/she will furnish the CITY with satisfactory certificates of insurance coverage, Payment Bond, and Performance Bond in amounts as herein specified.

The undersigned further agrees that should this Bid be accepted by the CITY, he/she may commence work April 15, 2024. The base bid work shall be complete by September 1, 2024.

The “completed by” dates as specified have been set with the understanding that the Contract Award is approved through the city commission meeting to be held on **Monday, February 5, 2024.**

The undersigned also agrees that for each and every calendar day that he/she may be in default of substantial completion of the work, within the time specified in this Proposal or within the time to which said time of completion may be extended for good cause shown, the CITY will suffer a damage of Two Hundred and/100 Dollars (\$200.00) per day, and said CITY shall be compensated therefore at that rate as liquidated damages in accordance with the Agreement Form.

In submitting this Bid, it is understood that the CITY reserves the right to accept or reject any or all Bids, waive irregularities in any Bid and make the award in any manner deemed for the best interest of the CITY.

Dated and signed at _____, this the _____ day of _____, 2023.

Bidders Name

Official Address

By

Signature

Title

Telephone

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, _____ as Principal, and _____ as Surety, are hereby held and firmly bound unto THE CITY OF SAULT STE. MARIE, MICHIGAN as Owner in the penal sum of (5% of Proposal at a minimum) for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this _____ day of _____, 20_____.

The Condition of the above obligation is such that whereas the Principal has submitted to THE CITY OF SAULT STE. MARIE, MICHIGAN a certain Bid, attached hereto and hereby made a part hereof to enter into a contract in writing, for the:

Pullar Boiler Replacement.

NOW THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid,

then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulated and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extensions of the time within which the CITY OF SAULT STE. MARIE may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____(L.S.)
Principal

Surety

By: _____

IMPORTANT - Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Michigan.

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

(Name of Contractor)

(Address of Contractor)

a (Corporation, Partnership or Individual) hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto:

THE CITY OF SAULT STE. MARIE, MICHIGAN

225 E. Portage Avenue, Sault Ste. Marie, Michigan 49783

hereinafter called OWNER, in the penal sum of: \$_____ in lawful money of the United States, for the payment of which sum well and truly to be made, we the Principal and Surety, bind ourselves, our heirs, executors, administrators and successors, to be liable jointly and severally for the performance of the contract defined below in accordance with the plans, specifications, and terms thereof. The Surety is liable for the costs of correcting and completing the Principal's work above the contract balance and shall be liable for liquidated or actual damages caused by the Principal's default or non-performance. This bond is for the protection of the Owner. The balance due on the contract shall be paid to the Surety upon its undertaking of the work for the Principal. Upon demand of Owner, Surety shall undertake the work of the Principal and prosecute the work with diligence to completion. If Surety shall fail to do this within 15 days of Owner's demand, Owner may proceed to enforce any remedy under the contract available to Owner.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the OWNER dated the _____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

Pullar Boiler Replacement.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER with or without notice to the Surety, and if the Principal shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise Surety shall make such payments or perform such obligations and this obligation to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts each one of which shall be deemed an original, this the _____ day of _____, 20 ____ .

(Principal)

By: _____

Its: _____

(Surety)

By: _____

Its: _____

(Witness to Surety)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute the Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list as amended and be authorized to transact business in the State of Michigan.

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that

(Name of Contractor)

(Address of Contractor)

a (Corporation, Partnership or Individual) hereinafter called Principal, and

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto:

THE CITY OF SAULT STE. MARIE, MICHIGAN

225 E. Portage Avenue, Sault Ste. Marie, Michigan 49783

hereinafter called OWNER, in the penal sum of: \$_____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the OWNER dated the ____ day of _____, 20____, a copy of which is hereto attached and made a part hereof for the construction of:

The project consists of removal and replacement of two natural gas, steam fired boilers and associated electrical work per drawings and documents contained in the project manual.

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modifications thereof, including all amounts due for materials, lubricants, oil, gasoline, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void, otherwise Surety shall make such payments and this obligation to remain in full force and effect.

PROVIDED, FURTHER, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER with or without notice to the Surety, and if the Principal shall satisfy all claims and demand incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise Surety shall make such payments and this obligation to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work or to the specifications.

PROVIDED, FURTHER, that no final settlement between the OWNER and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts each one of which shall be deemed an original, this the _____ day of _____, 20__.

(Principal)

By: _____

Its: _____

(Surety)

By: _____

Its: _____

(Witness to Surety)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute the Bond.

IMPORTANT: Surety companies executing Bonds must appear on the Treasury Department's most current list as amended and be authorized to transact business in the State of Michigan.

CITY OF SAULT STE. MARIE

AGREEMENT

THIS AGREEMENT, made as of the 5th day of February 2024, by and between the CITY OF SAULT STE. MARIE, MICHIGAN, hereinafter called the OWNER OR CITY, and _____, hereinafter called the CONTRACTOR.

- WITNESSETH, that whereas the CITY intends to contract for the exterior upgrades per drawings and documents contained in the project manual and presented at the walk through, within the City of Sault Ste. Marie. The project title is "Pullar Boiler Replacement."
 - NOW, THEREFORE, THE CITY AND CONTRACTOR for the considerations hereinafter set forth, agree as follows: The project consists of installation of a new kitchen hood and associated electrical and carpentry work per drawings and documents contained in the project manual.
- I. THE CONTRACTOR AGREES to furnish all the necessary labor, materials, equipment, tools and services necessary to perform and complete, in a workmanlike manner, all work required for the complete construction the above described work, as specified in the Proposal and in strict compliance with applicable local, state and federal codes and the Contract Documents herein mentioned, which are hereby made a part of the Contract, including the following Addenda:

ADDENDUM NO.

DATED

_____	_____
_____	_____
_____	_____

- A. Contract Time: Work under this Agreement shall be commenced upon the CONTRACTOR'S receipt of the executed Agreement signed by the CITY or upon the date as specified in the written Notice to Proceed (if such date is different from the date of the executed Agreement) and the work shall be completed according to the following schedule:

Final Completion: September 1, 2024

as specified in the Bid Form, a copy of which is attached.

a) If the CONTRACTOR refuses or fails to prosecute the work or any separate part thereof, with such diligence as will insure its completion, ready for use, within the number of consecutive calendar days specified herein, or any extension thereof, or fails to complete said work within such time, the CITY may, by written notice to the CONTRACTOR, terminate his/her right to proceed with the Project or such part of the Project as to which there has been delay. In such event, the CITY may take over the Project and prosecute the same to completion, by contract or otherwise, and the CONTRACTOR shall be liable to the CITY for any excess cost occasioned the CITY thereby. If the CONTRACTOR'S right to proceed is so terminated, the CITY may take possession of and utilize in completing the Project such materials, appliances, and plants as may be on the site of the Project and necessary therefore.

B. Liquidated Damages: The CITY and CONTRACTOR recognize that time is of the essence in fulfilling the requirements of this Agreement and also recognize that the CITY will suffer financial loss if the work is not completed within the times specified in paragraph "A" above, plus any extensions thereof allowed in accordance with Section 23 of the General Conditions. The CITY and CONTRACTOR also recognize the delays, expense and difficulties involved in proving the actual loss suffered by the CITY if the work is not completed on time.

If the CONTRACTOR shall neglect, refuse or fail to complete the required work within the time specified in Paragraph I. A. for completion and readiness for final payment or any proper extension thereof granted by the CITY, the CONTRACTOR shall pay the CITY Two Hundred Dollars (\$200.00) for each calendar day that expires after the time specified in Paragraph "A" until such time as Final Completion is attained; ready for final payment.

C. Sub-contractors: The CONTRACTOR agrees to bind every sub-contractor by the terms of the Contract Documents. The Contract Documents shall not be construed as creating any contractual relation between any Sub-contractor and the CITY.

II. THE CITY AGREES to pay, and the CONTRACTOR agrees to accept, in full payment for the performance of this Contract an amount to be determined by the actual constructed quantities and the Unit Prices and Lump Sums set forth in the attached Bid Form. - **Base Bid.** This amount is estimated to be
Dollars (\$.00)

A. Progress payments will be made in accordance with the General Conditions of the Contract.

2. The CONTRACTOR and CITY acknowledge that for certain public agency construction contracts Michigan Statutes (Act No. 524, Public Acts of 1980) require the payment of interest on retainage. The parties hereto agree however, to waive the requirements of Act No. 524 (MCLA 125.1561) if a contract is entered into between them to perform the construction improvements. In lieu of application of the Statute, the parties adopt the retainage terms and conditions contained in these contract General Conditions for their mutual convenience. The CITY agrees to pay and the CONTRACTOR agrees to accept the applicable sum as indicated in the following table as a stipulated interest on the retained amounts under the terms and conditions of this contract pursuant to the applicable Statute mentioned above. Such sums shall be paid at completion of the project and will be included in the last payment applicable to the project:

ORIGINAL CONTRACT AMOUNT	STIPULATED INTEREST ON RETAINAGE (\$)
\$0 TO 49,999	25
50,000 to 99,999	50
100,000 to 249,000	100
250,000 to 499,999	150
500,000 to 749,999	250
750,000 to 999,999	400
1,000,000 and Over	Act No 524 will apply

- III. **CONTRACT DOCUMENTS:** The Contract comprises the Contract Documents listed in the General Conditions of the Contract. In the event that any provision of one Contract Document conflicts with the provision of another Contract Document, the provision in the contract Document first listed below shall govern, except as otherwise specifically stated.
- A. Agreement (this instrument)
 - B. Addenda to Contract Documents
 - C. Legal and Procedural Documents
 - 1. Bid Form
 - 2. Information for Bidders
 - 3. Advertisement
 - D. Detailed Special Provisions and Supplemental Specifications
 - E. General Conditions of the Contract
 - F. Project Drawings
 - G. Bonds
 - 1. Bid Bond
 - 2. Payment Bond
 - 3. Performance Bond
- IV. **AUTHORITY AND RESPONSIBILITY OF THE CITY:** The CITY shall decide all questions which may arise relating to the quality and acceptability of materials furnished and work performed, the manner of performance and the rate of progress of the work, all questions which may arise as to the interpretations of the Plans and Specifications; and all questions as to the acceptable fulfillment of the terms of the Contract. The CITY shall decide all questions as to the rights of different Contractors on the Project.
- V. **SUCCESSORS AND ASSIGNS:** This Agreement and all of the covenants hereof shall inure to the benefit of and be binding upon the CITY and the CONTRACTOR respectively and his/her partners, successors, assigns and legal representatives. Neither the CITY nor the CONTRACTOR shall have the right to assign, transfer or sublet his/her interests or obligations hereunder without written consent of the other party.
- VI. **SPECIAL PROVISIONS:** The CITY and the CONTRACTOR mutually agree that this Agreement shall be subject to the included Special Provisions, if any, which shall supersede other conflicting provisions of this Agreement.

IN WITNESS WHEREOF, the parties have made and executed this Agreement, the day and year first above written.

BY: _____ (SIGNATURE)	BY: _____ (SIGNATURE)
_____ (PRINT)	_____ (PRINT)
TITLE: _____ (PRINT)	TITLE: _____ (PRINT)

CITY OF SAULT STE. MARIE, MICHIGAN _____
--

CITY OF SAULT STE. MARIE

CONTRACTOR INSURANCE REQUIREMENTS

The Contractor shall not commence work under this contract until he/she has obtained the insurance required as outlined following this paragraph. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan. All coverage shall be with insurance carriers acceptable to the City of Sault Ste. Marie, Michigan.

1. Workers' Compensation Insurance: The Contractor shall procure and maintain during the life of this contract, Workers' Compensation and Employers Liability Coverage, in accordance with all applicable Statutes of the State of Michigan. Limits of liability for Employers Liability shall be:

\$500,000 Bodily Injury each accident
\$500,000 Disease policy limit and
\$500,000 Disease each employee.

2. Commercial General Liability and Umbrella Liability Insurance: The Contractor shall procure and maintain during the life of this contract, Commercial General Liability Insurance on an "Occurrence Basis" with the following limits:

General Aggregate (other than Products/Completed Operations)	\$3,000,000
Products/Completed Operations Aggregate	\$3,000,000
Personal and Advertising Injury Limit	\$1,000,000
Each Occurrence	\$1,000,000
Fire Damage Limit	\$500,000
Medical Expense	\$5,000

Coverage shall include the following:

- (A) Contractual Liability;
- (B) Products and Completed Operations;
- (C) Independent Contractors Coverage;
- (D) Broad Form General Liability Extensions or equivalent;
- (E) Explosion, Collapse and Underground (XCU) shall not be excluded.
- (F) Coverage shall be Primary and Noncontributory.

3. Business Auto and Umbrella Liability Insurance: The Contractor shall procure and maintain during the life of this contract Business Auto Liability Insurance, including Michigan No-Fault Coverage, and if necessary, umbrella liability, with limits of liability of not less than \$1,000,000.00 per occurrence combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles (Symbol 1).
4. Additional Insured: Commercial General Liability Insurance, as described above, shall include an endorsement stating the following shall be "Additional Insureds": the City of Sault Ste. Marie, all elected and appointed officials, all employees and volunteers, all boards, commissions and/or authorities and board members, including employees and volunteers thereof. (CG 20 10 04 13 and CG 20 01 04 13 or equivalent)

5. Cancellation Notice: Workers' Compensation Insurance, Commercial General Liability Insurance and Business Auto Liability Insurance and Umbrella Liability Insurance, as described above, shall include an endorsement stating the following: "It is understood and agreed that Thirty (30), Twenty One for Workers Compensation, days Advance Written Notice of Cancellation, Non-Renewal, Reduction and/or Material Change shall be sent to:

City Clerk
City of Sault Ste. Marie
225 E. Portage Avenue
Sault Ste. Marie, Michigan 49783

6. Owners' & Contractors' Protective Liability: The Contractor shall procure and maintain during the life of this contract, Owners' & Contractors' Protective Liability with limits of liability not less than \$ 1,000,000.00 per occurrence and/or aggregate, combined single limit, Personal Injury, Bodily Injury and Property Damage. The City of Sault Ste. Marie shall be "Named Insured" on said coverage. Thirty (30) days Notice of Cancellation shall apply to this policy.
7. Proof of Insurance Coverage: **The Contractor shall provide the City of Sault Ste. Marie at the time the contracts are returned by him/her for execution, certificates and policies as listed below:**
- a. Two (2) copies of Certificate of Liability Insurance (ACORD 25) for Workers' Compensation Insurance, Commercial General Liability Insurance, Business Auto Liability Insurance and Umbrella Liability Insurance. This Certificate shall cite the specific endorsement(s) relative to the "Additional Insured" and "Cancellation Notice" as required above.
 - b. Original Policy, or original Binder pending issuance of policy, for Owners' & Contractors' Protective Liability Insurance;
 - c. If so requested, Certified Copies of all policies mentioned above will be furnished.

If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and/or policies to the City of Sault Ste. Marie at least ten (10) days prior to the expiration date.

The Contractor shall not cancel or reduce the coverage of any insurance without providing prior written notice to the City. The Contractor shall cease operations immediately on the occurrence of any such reduction or cancellation, and shall not resume operations until new insurance, approved by the City, is in force.

Contractors on City projects shall furnish certificates of insurance **before** work is begun.

(Spec-ins. 01/2014)

CITY OF SAULT STE. MARIE

GENERAL CONDITIONS INDEX

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3.	Progress & Submission Schedules, Preconstruction Conference, Time of Starting the Work
4.	Correlation, Interpretation and Intent of Contract Documents
5.	Ownership & Copies of Documents, Record Documents
6.	Work by Others
7.	Subcontracts
8.	Materials, Equipment & Labor; Substitute Material or Equipment
9.	Patent Fees & Royalties
10.	Permits, Laws, Taxes & Regulations
11.	Availability of Lands; Physical & Subsurface Conditions; Reference Points
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19.	Access to the Work; Uncovering Finished Work
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41.	Contractor's Right to Stop Work or Terminate
42.	Office Space
43.	Arbitration
44.	Miscellaneous

GENERAL CONDITIONS

SECTION 1 - DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

AGREEMENT - The written agreement between the CITY and the CONTRACTOR covering the Work to be performed, including the CONTRACTOR'S Bid and the Bonds.

APPLICATION FOR PAYMENT - The form furnished by the CITY which is to be used by the CONTRACTOR in requesting progress payments and which is to include the schedule of values required by Section 26 and an affidavit of the CONTRACTOR that progress payments theretofore received from the CITY on account of the Work have been applied by the CONTRACTOR to discharge in full all of the CONTRACTOR'S obligations incurred in connection with the Work covered by all prior Applications for Payment.

BID - The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

BIDDER - Any person, firm or corporation submitting a Bid for the Work to the CITY.

BONDS - Bid, performance and payment bonds and other instruments of security, furnished by the CONTRACTOR and his surety in accordance with the Contract Documents.

CHANGE ORDERS - A written order to the CONTRACTOR signed by the CITY authorizing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time issued after execution of the Agreement.

CONTRACT DOCUMENTS - The complete bound book describing the Work to be done by the CONTRACTOR, including the Agreement, Specifications, Plans, Addends (whether issued prior to opening of bids or execution of the Agreement) and Modifications.

CONTRACT PRICE - The total moneys payable to the CONTRACTOR under the Contract Documents.

CONTRACT TIME - The number of calendar days stated in the Agreement for the completion of the Work.

CONTRACTOR - The person, firm, or corporation with whom the CITY has executed the Agreement.

FIELD ORDER - A written order issued by the CITY which clarifies or interprets the Contract Documents in accordance with Section 14 or orders minor changes in the Work in accordance with Section 20.

MODIFICATION - (a) a written amendment of the Contract Documents signed by the CITY and the CONTRACTOR, (b) a Change Order, (c) a written clarification or interpretation issued by the CITY in accordance with Section 14 or (d) a written order for a minor change or alteration in the work issued by the CITY pursuant to Section 20. A modification may only be issued after execution of the Agreement.

CITY - The Municipality of Sault Ste. Marie, Michigan.

PLANS - The drawings and plans which show the character and scope of the Work to be performed and which have been prepared or approved by the CITY and are referred to in the Contract Documents.

PROJECT - The entire construction to be performed as provided in the Contract Documents.

PROJECT REPRESENTATIVE - The authorized representative of the CITY who is assigned to the Project or any part thereof.

SHOP DRAWINGS - All plans, drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a Subcontractor, manufacturer, supplier or distributor and which illustrate the equipment, material or some portion of the Work.

SPECIFICATIONS - The Information for Bidders, these General Conditions, Detailed Specifications, Special Conditions and Technical Provisions.

SUBCONTRACTOR - An individual, firm or corporation having a direct contract with the CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

SUBSTANTIAL COMPLETION - The date, as certified by the CITY, when the construction of the Project or a specified part thereof is sufficiently completed in accordance with the Contract Documents, so that the Project or specified part can be utilized for the purposes for which it was intended; or if there is on such certification, the date when final payment is due in accordance with Section 30.

WORK - Any and all obligations, duties, and responsibilities necessary to the successful completion of the Project assigned to or undertaken by the CONTRACTOR under the Contract Documents, including the furnishing of all labor, materials, tools, equipment and other incidentals.

SECTION 2 - AWARD, EXECUTION OF DOCUMENTS, DELIVERY OF BONDS, ETC.

- 2.1 The award of the contract, if it is awarded, will be to the lowest responsible Bidder whose qualifications indicate the award will be in the best interest of the CITY and whose proposal complies with all the prescribed requirements. No award will be made until the CITY has concluded such investigations as it deems necessary to establish the responsibility, qualifications and financial ability of the Bidders to do the Work in accordance with the Contract Documents to the satisfaction of the CITY within the time prescribed. The CITY reserves the right to reject the Bid of any Bidder who does not pass the investigation to the CITY'S satisfaction. In analyzing Bids, the CITY may take into consideration alternates and unit prices if requested by the Bid forms. If the contract is awarded, the CITY will give the successful Bidder written notice of the award within the time set forth in the Advertisement. The notification of award will be in the form of Two (2) counterparts of the Notice of Award document that will be signed by the CITY and the CONTRACTOR.
- 2.2 At least Three (3) counterparts of the Agreement and such other Contract Documents as practicable will be signed by the CITY and the CONTRACTOR. The unsigned Agreement forms will be provided to the CONTRACTOR when the Notice of Award is issued. The CITY will identify those portions of the Contract Documents not so signed and such identification will be binding on all parties. The CONTRACTOR and the CITY will each receive an executed counterpart of the Contract Documents.
- 2.3 Simultaneously with the CONTRACTOR'S execution and delivery of the Agreement to the CITY, the CONTRACTOR will deliver to the CITY the required Bonds and Insurance. Within ten (10) days thereafter,

the CITY shall deliver one fully signed counterpart of the Agreement to the CONTRACTOR

- 2.4 Failure of the successful Bidder to execute the Agreement and deliver the required Bonds and Insurance within ten (10) days of the issuance of the Notice of Award shall be just cause for the CITY to annul the award and declare the Bid and any guarantee thereof forfeited.

SECTION 3 - PROGRESS AND SUBMISSION SCHEDULES: PRECONSTRUCTION CONFERENCE: TIME OF STARTING THE WORK

- 3.1 Within ten (10) days after the execution of the Agreement, the CONTRACTOR will submit to the CITY for approval, an estimated progress schedule indicating the starting and completion dates of the various stages of the Work, and a schedule of Shop Drawings submissions. At least ten (10) days prior to submitting the first Application for Payment he shall also submit a schedule of values as required by Section 26.
- 3.2 Before starting the Work, a Pre-construction conference will be held to review the above schedules, to establish procedures for handling shop drawings and other submittals, for processing Applications for Payment, to establish a working understanding between the parties, and to discuss the construction safety requirements of the project. Present at the conference will be delegated representatives of the CONTRACTOR, the CITY, and, when possible, other interested parties. The Preconstruction conference will be scheduled by the CITY as soon as possible after the issuance of the Notice of Award to the CONTRACTOR.
- 3.3 Prior to starting the Work the CONTRACTOR will furnish the CITY certificates of insurance as required by Section 34.
- 3.4 The CONTRACTOR will start the Work on the date on which the Agreement is executed by the CITY and delivered, or on such other date, if any, as may be specified in the Agreement. However at the time of the execution and delivery of the Agreement the CITY may give the CONTRACTOR a written notice to proceed, stating the different date on which it is expected that the CONTRACTOR will start the Work, but such date shall not be more than thirty (30) days after the date of execution and delivery of the Agreement. No work shall be done prior to the date on which the work is to start.
- 3.5 The Contract Time shall commence to run on the date when the Work is to start as provided in Section 3.

SECTION 4 - CORRELATION, INTERPRETATION AND INTENT OF CONTRACT DOCUMENTS

- 4.1 It is the intent of the Specifications and Plans to describe a complete Project to be constructed in accordance with the Contract Documents.
- 4.2 The Contract Documents comprise the entire Agreement between the CITY and the CONTRACTOR. They may be altered only by a Modification.
- 4.3 The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If the CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, he will call it to the CITY'S attention in writing before proceeding with the work affected thereby except at his (CONTRACTOR'S) own risk and expense. In resolving such conflicts, errors, and discrepancies, the documents shall be given precedence in the following order: Agreement, Specifications, Plans. Within the Specifications the order of precedence shall be as follows: Special Conditions, Information for Bidders, General Conditions, Detailed Specifications, Technical Provisions. Figure dimensions on Plans shall

govern over scale dimensions, and detailed Plans shall govern over general Plans. Any work that may reasonably be inferred from the Specifications or Plans as being required to produce the intended result shall be supplied whether or not it is specifically called for. Work, materials or equipment described in words which so applied have a well-known technical or trade meaning shall be deemed to refer to such recognized standards. The CONTRACTOR assumes full responsibility for having familiarized himself with the nature and extent of the Contract Documents, Work, locality, and local conditions that may in any manner affect the Work to be done.

SECTION 5 - OWNERSHIP AND COPIES OF DOCUMENTS: RECORD DOCUMENTS

- 5.1 All Specifications, Plans and copies thereof furnished by the CITY shall remain its property. They shall not be used on another Project, and, with the exception of those sets which have been signed in connection with the execution of the Agreement, shall be returned to them on request upon completion of the Project.
- 5.2 The CITY will furnish to the CONTRACTOR up to five (5) copies of the Specifications and Plans as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.
- 5.3 The CONTRACTOR will keep one record copy of all Specifications, Plans, Addenda, Modifications, and Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These shall be available to the CITY and shall be delivered to the same upon completion of the Project.

SECTION 6 - WORK BY OTHERS

- 6.1 The CITY may perform additional work related to the Project by itself or it may let other direct contacts therefore which shall contain General Conditions similar to these. The CONTRACTOR will afford the other contractors who are parties to such direct contracts (or the CITY, if it is performing the additional work himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of work, and shall properly connect and coordinate his Work with theirs.
- 6.2 If any part of the CONTRACTOR'S Work depends for proper execution or results upon the work of any such other contractor (or the CITY), the CONTRACTOR will inspect and promptly report to the CITY in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results. His failure so to report shall constitute an acceptance of the other work as fit and proper for the relationship of his Work except as to defects and deficiencies which may appear in the other work after the execution of his Work.
- 6.3 The CONTRACTOR will do all cutting, fitting and patching of his Work that may be required to make its several parts come together properly and fit it to receive or be received by such other work. The CONTRACTOR will not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with written consent of the CITY.
- 6.4 If the performance of additional work by other contractors or the CITY is not noted in the Contract Documents prior to the award of the contract, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional work. If the CONTRACTOR believes that the performance of such additional work by the CITY or others involves him in additional expense or entitles him to an extension of the Contract Time, he may make a claim therefore as provided in Sections 21 and 23.

SECTION 7 - SUBCONTRACTS

- 7.1 Prior to the execution and delivery of the Agreement, the successful Bidder will submit to the CITY for acceptance a list of the names of Subcontractors and such other persons and organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for those portions of the Work as to which the identity of the Subcontractors and other persons and organizations must be submitted as specified in the Contract Documents. Prior to the execution and delivery of the Agreement, the CITY will notify the successful Bidder in writing if the CITY, after due investigation, has reasonable objection to any Subcontractor, person or organization on such list. The failure of the CITY to make objection to any Subcontractor, person or organization on the list prior to the execution and delivery of the Agreement shall constitute an acceptance of such Subcontractor, person or organization. Acceptance of any such Subcontractor, person or organization shall not constitute a waiver of any right of the CITY to reject defective Work, material or equipment, or Work, material or equipment not in conformance with the requirements of the Contract Documents.
- 7.2 If, prior to the execution and delivery of the Agreement, the CITY has reasonable objection to and refuses to accept any Subcontractor, person, or organization on such list, the successful Bidder shall prior to such execution and delivery, submit an acceptable substitute without an increase in his Bid Price. If, after the execution and delivery of the Agreement, the CITY refuses to accept any Subcontractor, person or organization on such list, the CONTRACTOR will submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate
- Change Order shall be issued; however, no such increase in the Contract Price shall be allowed in respect of any substitution unless the CONTRACTOR has acted promptly and reasonably in submitting a name of the Subcontractor prior to the execution and delivery of the Agreement.
- 7.3 The CONTRACTOR will not employ any Subcontractor (whether initially or as a substitute) against whom the CITY may have reasonable objection, nor will the CONTRACTOR be required to employ any Subcontractor against whom he has reasonable objection. The CONTRACTOR will not make any substitution for any Subcontractor who has been accepted by the CITY unless the CITY determines that there is good cause for doing so.
- 7.4 The CONTRACTOR will be fully responsible for all acts and omissions of his Subcontractors and of persons directly or indirectly employed by them and of persons for whose acts any of them may be liable to the same extent that he is responsible for the acts and omissions of persons directly employed by him. Nothing in the Contract Documents shall create any contractual relationship between any Subcontractor and the CITY or any obligation on the part of the CITY to pay or to see to the payment of any moneys due any Subcontractor, except as may otherwise be required by law. The CITY may furnish to any Subcontractor, to the extent practicable, evidence of amounts paid to the CONTRACTOR on account of specific work done in accordance with the schedule of values.
- 7.5 The divisions and sections of the Specifications and the identifications of any Plans shall not control the CONTRACTOR in dividing the Work among Subcontractors or delineating the Work to be performed by any trade.
- 7.6 The CONTRACTOR agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents. Every Subcontractor, by undertaking to perform any of the Work, will thereby automatically be deemed to be bound by such terms and conditions.

- 7.7 All work performed for the CONTRACTOR by a subcontractor shall be pursuant to an appropriate agreement between the CONTRACTOR and the Subcontractor which shall contain provisions that waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by insurance provided in accordance with Section 36, except such rights as they may have to the proceeds of such insurance held by the CITY as trustee under Section 36. The CONTRACTOR will pay each Subcontractor a just share of any insurance moneys received by the CONTRACTOR under Section 36.

SECTION 8 - MATERIALS, EQUIPMENT AND LABOR: SUBSTITUTE MATERIAL OR EQUIPMENT

- 8.1 The CONTRACTOR will provide and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the Work.
- 8.2 All materials and equipment shall be new. If required by the CITY, the CONTRACTOR will furnish satisfactory evidence as to the kind and quality of materials and equipment.
- 8.3 If it is indicated in the Specifications that the CONTRACTOR may furnish or use a substitute that is equal to any material or equipment specified, and if the CONTRACTOR wishes to furnish or use a proposed substitute, he shall promptly after the award of the contract, make written application to the CITY for approval of such a substitute certifying in writing that the proposed substitute will perform adequately the duties imposed by the general design, be similar and of equal substance to that specified and be suited to the same use and capable of performing the same function as that specified. No substitute shall be ordered or installed without the written approval of the CITY who shall be the judge of equality.
- 8.4 All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise specifically provided in the Contract Documents.

SECTION 9 - PATENT FEES AND ROYALTIES

- 9.1 The CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use of any invention, design, process or device which is the subject of patent rights or copyrights held by others. He will indemnify and hold harmless the CITY and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorney's fees) arising out of any infringement of such rights during or after completion of the Work, and shall defend all such claims in connection with any alleged infringement of such rights.

SECTION 10 - PERMITS, LAWS, TAXES AND REGULATIONS

- 10.1 The CONTRACTOR will secure and pay for all construction permits and licenses and will pay all governmental and public utility charges and inspection fees necessary for the prosecution of the Work.
- 10.2 The CONTRACTOR will give all notices and comply with all laws, ordinances, rules and regulations applicable to the Work. If the CONTRACTOR observes that the Specifications or Plans are at variance therewith, he will give the CITY prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate Modification. If the CONTRACTOR performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the CITY, he will bear all costs arising therefrom.

- 10.3 The CONTRACTOR will pay all State Sales, Use and other Taxes that are lawfully assessed against the CONTRACTOR on materials and equipment to be incorporated in the Work.
- 10.4 In the event that the Work involved with this contract specifies that the CITY will furnish certain materials that are to be installed by the CONTRACTOR, the CONTRACTOR shall be responsible for payment of any State of Michigan User Tax for such materials. The original cost of such materials shall be used as the basis for computing the User Tax based upon current State of Michigan rates. The CITY will provide such cost information during the bidding phase of the project and will include an allowance in the bid Proposal for the full amount of User Tax for CITY furnished materials. When the costs of any CITY furnished materials are not known during the bidding phase of the project, the CITY will issue a Change Order to the CONTRACTOR to include the amount of such specific User Tax as required based upon the costs of materials, when such costs are subsequently determined. In any event, the CONTRACTOR will be responsible for the payment of the User Tax to the State of Michigan and documentation of the CONTRACTOR'S payment of the User Tax shall be furnished to the CITY.

SECTION 11 - AVAILABILITY OF LANDS: PHYSICAL AND SUBSURFACE CONDITIONS: REFERENCE POINTS

- 11.1 The CITY shall endeavor to provide as indicated in the Contract Documents, not later than the date when needed by the CONTRACTOR, the land upon which the Work is to be done, rights of way for access thereto, and such other lands which are designated for the use of the CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be secured and paid for by the CITY unless otherwise specified in the Contract Documents. If the CONTRACTOR believes that any delay in the CITY'S furnishing these lands or providing such easements entitles him to an extension of the Contract Time, he may make a claim therefore as provided in Section 23. The CONTRACTOR will provide all additional lands and access thereto that may be required for temporary construction facilities or storage of material and equipment. The CONTRACTOR shall confine his operations, equipment and material to lands on which the CITY or the CONTRACTOR has secured the right to perform the Work. Trespassing on private property shall be the sole responsibility of the CONTRACTOR.
- 11.2 The CITY will, upon request, furnish to the CONTRACTOR copies of all available boundary surveys and subsurface tests.
- 11.3 Any soil borings, if taken, are located as indicated on the plans and Test Boring Reports, for general informational purposes only are included under "Test Boring Reports". These Test Boring Reports shall not relieve the CONTRACTOR of his responsibility in investigating all local conditions affecting the work. The CONTRACTOR shall obtain such additional information as he deems necessary before bidding, as no claims for extra work or damage will be considered if it is found during construction that the actual soil or material conditions vary from those shown on the plans or in the Test Boring Reports.
- 11.4 The CITY will establish such general reference points as in its judgment will enable the CONTRACTOR to proceed with the Work. The CONTRACTOR will be responsible for the layout of the Work and will protect and preserve the established reference points and will make no changes or relocations without the prior written approval of the CITY. He will report to the CITY whenever any reference point is lost or destroyed or requires relocations because of necessary changes in grades or locations. The CONTRACTOR will replace and accurately relocate all reference points so lost, destroyed or moved.

- 11.5 All elevations shown on the Plans or referred to herein are in feet above mean sea level datum as established by the United States Geological Survey, unless otherwise noted. The CONTRACTOR shall verify all the existing structure locations and elevations at points of connection or possible interference between his work and the existing structures and shall report at once to the CITY any interferences or discrepancies discovered.

SECTION 12 - USE OF PREMISES

- 12.1 The CONTRACTOR will confine his equipment, the storage of materials and equipment, and the operations of his workmen to areas permitted by law, ordinances, permits, or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with materials or equipment.
- 12.2 The CONTRACTOR will not load nor permit any part of the structure to be loaded with weights that will endanger the structure, nor will he subject any part of the Work to stresses or pressures that will endanger it.
- 12.3 The CONTRACTOR shall use every reasonable precaution to prevent injury to the new structures being constructed hereunder. He shall be responsible for the correction of all injury or damage resulting from his operations and/or occurring while the Project is under his supervisory control. He shall furnish and install such guards, coverings and other protection as may be needed to insure that the structures remain undamaged prior to completion of the entire Project. In the event damage does occur to the finished portions of the Project, or to the work in progress, the CONTRACTOR shall take such corrective action and measures as may be necessary to repair the damage to the satisfaction of the CITY.
- 12.4 The CONTRACTOR shall be solely responsible for any damage to any existing underground services, utilities, or structures, or to structures, utilities and roadways above the ground caused by his operations or those of his Subcontractors and/or suppliers.

SECTION 13 - CITY'S STATUS DURING CONSTRUCTION

- 13.1 The CITY shall be the representative during the construction period. All instructions of the CITY to the CONTRACTOR shall be issued through the CITY'S REPRESENTATIVE. The duties and responsibilities and the limitations of authority of CITY during construction are set forth in Sections 1 through 42 of these General Conditions.
- 13.2 The CITY'S REPRESENTATIVE will make periodic or infrequent visits to the site to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. He will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work nor will he be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions incident thereto. His efforts will be directed toward providing assurance for the CITY OF SAULT STE. MARIE that the completed Project will conform to the requirements of the Contract Documents, but he will not be responsible for the CONTRACTOR'S failure to perform the Work in accordance with the Contract Documents. On the basis of his on-site observations as an experienced and qualified design professional, he will keep informed of the progress of the Work and will endeavor to guard against defects and deficiencies in the Work of contractors.
- 13.3 The CITY'S REPRESENTATIVE will have authority to disapprove of or reject Work which is defective; i.e., it is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of the Contract Documents or does not meet the requirements of any

inspection, test or approval referred to in Section 16. He will also have authority to require special inspection or testing of the Work as provided in Section 19, whether or not the Work is fabricated, installed or completed.

- 13.4 The CITY'S REPRESENTATIVE shall have permissive authority over the work which is proposed to be done during the winter months. The CONTRACTOR shall provide adequate weather protection, temporary heating and take any other measures which are necessary to insure that the work performed during the winter months is properly installed and protected against damage from freezing. When and if temporary heating is used, the CONTRACTOR shall take every precaution to insure that the hazard of fire is reduced to a minimum, and the CONTRACTOR shall bear full responsibility for any damage which may result from the use of temporary heating devices.
- 13.5 Neither the CITY REPRESENTATIVE'S authority to act under this Section 13 nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the CITY to the CONTRACTOR, any Subcontractor, any of their agents or employees or any other person performing any of the Work.

SECTION 14 - CITY'S INTERPRETATIONS AND DECISIONS

- 14.1 The CITY REPRESENTATIVE will issue with reasonable promptness such written clarifications or interpretations (in the form of plans or otherwise) as he may determine necessary for the proper execution of the Work, such clarifications and interpretations to be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the CONTRACTOR believes that a written clarification and interpretation entitles him to an increase in the Contract Price, he may make a claim therefore as provided in Section 21.
- 14.2 The CITY REPRESENTATIVE will be the initial interpreter of the terms and conditions of the Contract Documents and the judge of the performance thereunder. In his capacity as interpreter and judge he will exercise his best efforts to insure faithful performance by the CONTRACTOR. He shall not be liable for the result of any interpretation or decision rendered in good faith. Claims, disputes and other matters relating to the execution and progress of the Work or the interpretation of or performance under the Contract Documents shall be referred to the CITY'S REPRESENTATIVE for decision, which he shall render in writing within a reasonable time.
- 14.3 Either the CITY or CONTRACTOR may demand arbitration with respect to any such claim, dispute or other matter that has been referred to the CITY, except any which may have been waived by the making or acceptance of final payment as provided in Section 31. Such arbitration to be in accordance with Section 42. However, no request for arbitration of any such claim, dispute or other matter shall be made until either (a) the date on which the CITY has rendered its decision or (b) the 10th day after the parties have presented their evidence to the CITY if it has not rendered its written decision before that date, whichever should occur first. No request for arbitration shall be made later than thirty (30) days after the date on which the CITY rendered its written decision in respect of the claim, dispute or other matter as to which arbitration is sought; and the failure to request arbitration within said thirty (30) days' period shall result in the CITY'S decision being final and binding upon the CITY and CONTRACTOR. If the CITY renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned.

SECTION 15 - SHOP DRAWINGS AND SAMPLES

- 15.1 The CONTRACTOR shall submit to the CITY for review, all required shop drawings with such promptness as to cause no delay in the Work under this contract. After checking and verifying all field measurements, the CONTRACTOR will submit to the CITY for review, in accordance with the accepted schedule of Shop Drawing submissions, five (5) copies (or at the CITY'S option, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of the CONTRACTOR and identified as the CITY may require. The data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction, brochures, layout and installation drawings, manufacturer, pertinent catalog numbers and the use for which intended and the like to enable the CITY to review the information as required.
- 15.2 The CONTRACTOR will also submit to the CITY for review, with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the CONTRACTOR, identified clearly as to material, manufacturer, and pertinent catalog numbers and the use for which intended.
- 15.3 At the time of each submission, the CONTRACTOR will in writing call the CITY'S attention to any deviations that the Shop Drawings or sample may have from the requirements of the Contract Documents.
- 15.4 The CITY will review with reasonable promptness Shop Drawings and samples, but its review shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The review of a separate item as such will not indicate approval of the assembly in which the item functions. The CONTRACTOR will make any corrections required by the CITY and will return the required number of corrected copies of Shop Drawings and resubmit new samples. The CONTRACTOR shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the CITY on previous submissions.
- 15.5 No work requiring a Shop Drawing or sample submission shall be commenced until the submission has been reviewed by the CITY.
- 15.6 The CITY'S review of Shop Drawings or samples shall not relieve the CONTRACTOR from his responsibility for any deviations from the requirements of the Contract Documents unless the CONTRACTOR has in writing called the CITY'S attention to such deviations at the time of submission and the CITY has given written approval to the specific deviations, nor shall any review by the CITY relieve the CONTRACTOR from responsibility for errors or omissions in the Shop Drawings.

SECTION 16 - TESTS AND INSPECTIONS

- 16.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the CITY timely notice of readiness therefore. The CONTRACTOR will furnish the CITY the required certificates of inspection, testing or approval. All such tests will be in accordance with the methods prescribed by the American Society for Testing and Materials or such other applicable organization as may be required by law or the Contract Documents. If any such Work required so to be inspected, tested or approved is covered up without written approval or consent of the CITY, it must, if directed by the CITY, be uncovered for observation at the CONTRACTOR'S EXPENSE. The cost of all such inspections, tests and approvals shall be borne by the CONTRACTOR unless otherwise provided.
- 16.2 Any work which fails to meet the requirements of any such test, inspection or approval and any Work which

meets the requirements of any such test or approval but does not meet the requirements of the Contract Documents shall be considered defective. Such defective Work may be rejected, corrected or accepted as provided for in Section 25.

- 16.3 Neither observations by the CITY nor inspections, tests, or approvals by persons other than the CONTRACTOR shall relieve the CONTRACTOR from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

SECTION 17 - CONTRACTOR'S SUPERVISION AND SUPERINTENDENCE

- 17.1 The CONTRACTOR shall supervise and direct the Work efficiently and with his best skill and attention. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. Before undertaking the Work he will carefully study and compare the Contract Documents. He will at once report in writing to the CITY any conflict, error or discrepancy which he may discover. The CONTRACTOR will be responsible to see that the finished Work complies accurately with the Contract Documents.
- 17.2 The CONTRACTOR will keep on the Work at all times during its progress a resident superintendent satisfactory to the CITY. The superintendent shall not be replaced without the consent of the CITY except under extraordinary circumstances. The superintendent will be the CONTRACTOR'S representative at the site and shall have authority to act on behalf of the CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR.
- 17.3 The CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the work and to perform construction as required by the Contract Documents. He will, at all times, maintain discipline and order among his employees and workmanlike conditions at the site.
- 17.4 The CITY will not be responsible for the acts or omissions of the CONTRACTOR, or any Subcontractors, or any of his or their agents or employees, or any other persons performing any of the Work.

SECTION 18 - SAFETY AND PROTECTION: EMERGENCIES

- 18.1 The CONTRACTOR shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. This is to include all signing, barricades and safety devices related to this Project at the CONTRACTOR'S expense. He will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to:
- a) All employees on the Work and other person(s) who may be affected thereby,
 - b) All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and
 - c) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation or replacement in the course of construction.
- 18.2 The CONTRACTOR shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss. The CONTRACTOR will erect and maintain, at his own expense, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection, including posting danger signs and other warnings against hazards and promulgating safety regulations. He will notify owners of adjacent utilities when prosecution of the work may affect them. When the use of storage of explosives or other hazardous materials is necessary for the prosecution of the Work, the CONTRACTOR will exercise the utmost care and will carry on such activities under the supervision of properly qualified personnel. All

damage, injury or loss to any property referred to in Section 18 caused, directly or indirectly, in whole or in part, by the CONTRACTOR, any Subcontractor of anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, will be remedied by the CONTRACTOR.

- 18.3 The CONTRACTOR will designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the CONTRACTOR'S superintendent unless otherwise designated in writing by the CONTRACTOR to the CITY.
- 18.4 In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the CITY is obligated to act, at his discretion to prevent threatened damage, injury or loss. If at any time, the CONTRACTOR or his authorized representative cannot be contacted to correct an emergency or deficiency affecting the safety of persons or the Work or property at the site or adjacent thereto, the CITY shall correct the emergency or deficiency and charge the costs incurred thereto against the CONTRACTOR. He will give the CITY prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved. If the CONTRACTOR believes that additional work done by him in an emergency which arose from causes beyond his control entitles him to an increase in the Contract Price or an extension of the Contract Time, he may make a claim therefore as provided in Sections 21 and 23.

SECTION 19 - ACCESS TO THE WORK: UNCOVERING FINISHED WORK

- 19.1 The CITY and his representatives will at all times have access to the Work. The CONTRACTOR will provide proper facilities for such access and observations of the Work and also for any inspection, or testing thereof by others.
- 19.2 If any Work is covered contrary to the request of the CITY, it must, if requested by the CITY, be uncovered for its observation and replaced at the CONTRACTOR'S expense.
- 19.3 If any Work has been covered which the CITY has not specifically requested to observe prior to its being covered, or if the CITY considers it necessary or advisable that covered work be inspected or tested by others, the CONTRACTOR, at the CITY'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the CITY may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is defective or does not meet the requirements of the Contract Documents, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate Change Order shall be issued deducting all such costs from the Contract Price. If, however, such work is found to be non-defective and meet the requirements of the Contract Documents, the CONTRACTOR will be allowed an increase in the Contract Price or extension of the Contract Time directly attributable to such uncovering, exposure, observation, inspection and testing if he makes a claim therefore as provided in Sections 21 and 23.

SECTION 20 - CHANGES IN THE WORK

- 20.1 Without invalidating the Agreement, the CITY may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, the CONTRACTOR will proceed with the Work involved. All such work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, and equitable adjustment will be made as provided in Sections 21 or 23. The CITY reserves the right to decrease the contract quantities up

to twenty five percent (25%) without penalty. The CITY may authorize minor changes or alterations in the Work not involving extra cost and not inconsistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order. If the CONTRACTOR believes that any minor change or alteration authorized by the CITY entitles him to an increase in the Contract Price, he may make a claim therefore as provided in Section 21.

- 20.2 Additional work performed by the CONTRACTOR without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in Section 18 and except as provided in Sections 16, 19, and 20.
- 20.3 The CITY reserves final approval authority on any Change Order prepared covering changes in the Work to be performed as provided in Section 11 and Work performed in an emergency as provided for in Section 18 and any other claim of the CONTRACTOR for a change in the Contract Time or the Contract Price.
- 20.4 It is the CONTRACTOR'S responsibility to notify his surety of any changes affecting the general scope of the Work or change in the Contract Price and the amount of the applicable Bonds shall be adjusted accordingly. The CONTRACTOR will furnish proof of such adjustment to the CITY.

SECTION 21 - DISPUTED CLAIMS FOR EXTRA COMPENSATION

- 21.1 Any and all claims for extra compensation, whether on behalf of the CONTRACTOR or SUBCONTRACTOR, shall be signed and made directly by the CONTRACTOR. Failure of the CONTRACTOR to file a claim within the following time frames and according to both the CITY's written claim procedures in effect at the time that the CONTRACTOR files the claim and the following process shall constitute waiver of the claim regardless of whether it can be proven that the CITY was prejudiced. When the CONTRACTOR claims extra compensation, which is disputed by the ENGINEER, the following process applies:
 - 1) Notice of Claim. All notices of intent to file a claim for extra compensation shall be signed by the CONTRACTOR. If the CONTRACTOR intends to seek extra compensation for any reason not specifically covered elsewhere in the contract, the time requirements for notification shall be as follows:
 - 1. The CONTRACTOR shall notify the ENGINEER in writing before beginning the work or upon or encountering a circumstance on which the CONTRACTOR intends to base a claim.
 - 2. The CONTRACTOR shall notify the ENGINEER in writing within two business days after the commencement of a delay, for which the CONTRACTOR intends to seek compensation. Failure of the CONTRACTOR to give written notification will constitute a waiver of the claim for extra compensation except to the extent that claims are both substantiated by records created by the CITY as to liability and amount, and are for extra costs that were unforeseeable. The determination of extra compensation made by the CITY'S claims process, where the CONTRACTOR has failed to give proper written notice of its claim for extra compensation as provided herein or has failed to afford the ENGINEER proper information for keeping strict account of actual costs, shall be final and binding on the CONTRACTOR.

Neither the refusal of the CONTRACTOR to sign a written Contract Modification or Work Order, nor the CONTRACTOR'S signing a Contract Modification or Work Order under protest, shall constitute the notice required.

- 2) Keeping Records. If a CONTRACTOR files a notice of intent to file a claim, the CONTRACTOR shall keep accurate records of all costs of the work or delay and shall afford the ENGINEER all needed information for keeping costs of the work or delay that is the subject matter of the claim. The CONTRACTOR and ENGINEER shall compare records and bring them into agreement at the end of each day.
- 3) Validity of Claim. The validity of a claim shall not be established either by the filing of notice of intent to file a claim by a CONTRACTOR or the keeping of the cost records by the ENGINEER.
- 4) Timing for Filing of Claim. In addition to filing a timely notice of intent to file a claim, the CONTRACTOR shall file with the ENGINEER every claim for extra compensation within the following time frames (whichever comes first):
 1. No later than 90 days after the work involved in the claim is completed, or the delay, loss of efficiency, loss of productivity, or similar event is terminated; or
 2. No later than 60 days after the contract work is completed.
- 5) No extension of arbitration demand time. The time allowed for filing a claim shall not extend the time allowed for requesting arbitration of a dispute.
- 6) Content of the Claim. The CONTRACTOR'S claim shall include:
 1. All facts which gave rise to the claim;
 2. A copy of the specific provisions of the contract which support the claim; and
 3. When practical, the dollar amount of the claim with an explanation of how the amount was calculated.

The ENGINEER will review timely filed claims pursuant to the CITY'S written claim procedures in effect at the time the claims are filed.

SECTION 22 - CHANGE OF CONTRACT PRICE

- 22.1 The Contract Price constitutes the total compensation payable to the CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the CONTRACTOR shall be at his expense without change in the Contract Price.
- 22.2 The Contract Price may only be changed by Change Order. If the CONTRACTOR shall claim compensation or extension of time for any losses, damages or delays sustained by reason of the acts of the CITY, or its agents or other causes he shall make a written statement of the nature of the loss, damage or delay sustained to the CITY under Section 21 of the General Conditions. At the time of delivery and as a part of the Application for Payment as hereinafter provided, the CONTRACTOR shall file with the CITY an itemized statement of the details and amount of loss, damage, or delay and unless these statements shall be made as thus required, the CONTRACTOR'S claim for compensation or extension of time shall be forfeited and invalidated, and he shall not be entitled to payment or extension of time on account of any such loss, damage, or delay. Any change resulting from any such claim shall be incorporated in a Change Order.
- 22.3 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:
 - a) Where the Work involved is covered by unit prices contained in the Contract Documents, by

- application of unit prices to the quantities of the items involved.
- b) By mutual acceptance of a lump sum.
 - c) By cost and a mutually acceptable fixed amount for overhead and profit.
 - d) If none of the above methods is agreed upon, the value shall be determined on the basis of costs and a percentage for overhead and profit. Costs shall include only labor (payroll, payroll taxes, fringe benefits, workmen's compensation, etc.), materials, equipment and other incidentals directly related to the Work involved. The maximum percentage which shall be allowed for CONTRACTOR'S combined overhead and profit, shall be as follows:
 - e) For all such Work done by his own organization, the CONTRACTOR may add up to ten percent (10%) of his actual net increase in cost, and
 - f) For all such Work done by Subcontractors, each Subcontractor may add up to ten percent (10%) of his actual net increase in costs for combined overhead and profit and the CONTRACTOR may add up to five percent (5%) of the Subcontractor's total for his combined overhead and profit; provided that no overhead or profit shall be allowed on costs incurred in connection with premiums for public liability insurance or other special insurance directly related to such Work.
- 22.4 In such case and also under paragraph 21c the CONTRACTOR will submit in form prescribed by the CITY an itemized cost breakdown together with supporting data.
- 22.5 The amount of credit to be allowed by the CONTRACTOR to the CITY for any such change which results in a net decrease in cost will be the amount of the actual net decrease as determined by the CITY. When both additions and credits are involved in any one change, the combined overhead and profit shall be figured on the basis of the net increase, if any. The CITY reserves the right to decrease the contract quantities up to ten percent (10%) without penalty.

SECTION 23 - CASH ALLOWANCES

- 23.1 The CONTRACTOR shall include in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such suppliers or Subcontractors and for such sums as the CITY may approve. Upon final payment the Contract Price shall be increased or decreased, as required and an appropriate Change Order issued for changes in the Contract Price to cover the difference in cost between the work provided in the allowance and the actual work performed. The CONTRACTOR agrees that the original Contract Price includes such sums as he deems proper for overhead and profit on account of cash allowances. No demand for additional overhead or profit in connection therewith will be allowed.

SECTION 24 - CHANGE OF THE CONTRACT TIME

- 24.1 The Contract Time may only be changed by a Change Order. If the CONTRACTOR is entitled by the Contract Documents to make a claim for an extension in the Contract Time, his claim shall be in writing delivered to the CITY within ten (10) days of the occurrence of the event giving rise to the claim. All claims for adjustment in the Contract Time shall be determined by the CITY. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.
- 24.2 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the CONTRACTOR if he makes a claim therefore as provided in Section 23. Such delays shall include, but not be restricted to acts of neglect by any separate contractor employed by the CITY, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

- 24.3 All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Section 23 shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

SECTION 25 - NEGLECTED WORK

- 25.1 If the CONTRACTOR should neglect to prosecute the Work in accordance with the Contract Documents, including any requirements of the progress schedule, the CITY after three (3) days' written notice to the CONTRACTOR may, without prejudice to any other remedy he may have, make good such deficiencies and the cost thereof (including compensation for additional professional services) shall be charged against the CONTRACTOR, in which case a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due the CONTRACTOR are not sufficient to cover such amount, the CONTRACTOR will pay the difference to the CITY.

SECTION 26 - WARRANTY AND GUARANTEE: CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

- 26.1 The CONTRACTOR warrants and guarantees to the CITY that all materials and equipment will be new unless otherwise specified and that all work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents and of any inspections, tests or approvals referred to in Section 16. All unsatisfactory Work, all faulty or defective Work and all Work not conforming to the requirements of the Contract Documents or of such inspections, tests or approvals shall be considered defective. Prompt notice of all defects shall be given to the CONTRACTOR. All defective Work, whether or not in place, may be rejected.
- 26.2 If required by the CITY prior to approval of final payment, the CONTRACTOR will promptly, without cost to the CITY, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the CITY, remove it from the site and replace it with non-defective Work. If the CONTRACTOR does not correct such defective Work or remove and replace such rejected Work within a reasonable time, all as required by written notice from the CITY, the CITY may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services shall be paid by the CONTRACTOR, and an appropriate Change Order shall be issued deducting all such costs from the Contract Price.
- 26.3 The CONTRACTOR will also bear the expenses of making good all work of others destroyed or damaged by his correction, removal or replacement of his defective Work.
- 26.4 If, after the approval of final payment and prior to the expiration of one year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective the CONTRACTOR will, promptly without cost to the CITY and in accordance with the CITY'S written instructions, either correct such defective work, or, if it has been rejected by the CITY, remove it from the site and replace it with non-defective Work. If the CONTRACTOR does not promptly comply with the terms of such instructions, the CITY may have the defective Work corrected or the rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, will be paid by the CONTRACTOR. If, instead of requiring correction or removal and replacement of defective Work, the CITY prefers to accept it, it may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; or, if

the acceptance occurs after approval in the Contract Price; or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by the CONTRACTOR.

SECTION 27 - APPLICATIONS FOR PROGRESS PAYMENTS

- 27.1 At least ten (10) days prior to submitting the first Application for Payment, the CONTRACTOR will submit a schedule of values of the Work including quantities and unit prices, aggregating the Contract Price. This schedule shall be satisfactory in form and substance to the CITY and shall subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Upon approval of the schedule of values by the CITY, it shall be incorporated into the form of Application for Payment furnished by the CITY.
- 27.2 At least ten (10) days before each progress payment will be requested (but not more often than once a month), the CONTRACTOR will submit to the CITY for review the Application for Payment and Certificate of the CONTRACTOR filled out and signed by the CONTRACTOR covering the Work performed as of the date of the Application and supported by any such data as the CITY may reasonably require. Ten percent (10%) of all Applications for Payment will be retained until final completion and acceptance of the Work. If Payment is requested on the basis of material and equipment not incorporated in the Work but delivered and suitably stored at the site or at the locations agreed to in writing, the Application for Payment shall also be accompanied by such supporting data satisfactory to the CITY as will establish the CITY'S title to the materials and equipment and protect its interest therein including applicable insurance.
- 27.3 The CONTRACTOR and CITY acknowledge that for certain public agency construction contracts Michigan Statutes (Act No. 524, Public Acts of 1980) require the payment of interest on retainage. The parties hereto agree however, to waive the requirements of Act No. 524 (MCLA 125.1561) if a contract is entered into between them to perform the construction improvements. In lieu of application of the Statute, the parties adopt the retainage terms and conditions contained in these contract General Conditions for their mutual convenience. The CITY agrees to pay and the CONTRACTOR agrees to accept the applicable sum as indicated in the following table as a stipulated interest on the retained amounts under the terms and conditions of this contract pursuant to the applicable Statute mentioned above. Such sums shall be paid at completion of the project and will be included in the last payment applicable to the project.

ORIGINAL CONTRACT AMOUNT	STIPULATED INTEREST ON RETAINAGE (\$)
\$ 0 to 99,999	50
100,000 to 249,999	100
250,000 to 499,999	150
500,000 to 749,999	250
750,000 to 999,999	400
1,000,000 and Over	Act No. 524 will apply

- 27.4 The CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by an Application for Payment, whether incorporated in the Project or not, will have passed to the CITY prior to the making of the Application for Payment, free and clear of all liens, claims, security interests and

encumbrances and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the CONTRACTOR or by any other person performing the Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the CONTRACTOR or such other person.

- 27.5 The CITY will, within ten (10) days after receipt of each Application for Payment, either indicate in writing its recommendation for payment or return the Application to the CONTRACTOR indicating in writing its reasons for refusing to recommend payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the Application. The CITY will, within thirty (30) days of presentation to it of a CITY recommended Application for Payment, pay the CONTRACTOR the amount recommended.

SECTION 28 - RECOMMENDATION OF PAYMENTS

- 28.1 The CITY'S recommendation of any payment requested in an Application for Payment shall be based on the CITY'S on-site observations of the Work in Progress with an experienced and qualified design department and on its review of the Application for Payment and the supporting data, that the Work has progressed to the point indicated; that, to the best of its knowledge, information and belief, the equality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning Project upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and any qualifications stated in its recommendation); and that the CONTRACTOR is entitled to payment of the amount approved. However, by recommending any such payment the CITY shall not thereby be deemed to have represented that it made exhaustive or continuous on-site inspections to check the quality or the quantity of the Work, or that it has reviewed the means, methods, techniques, sequences, and procedures of construction or that it has made any examination to ascertain how or for what purpose the CONTRACTOR has used the moneys paid or to be paid to him on account of the Contract Price.
- 28.2 The CITY'S recommendation of final payment shall constitute that the conditions precedent to the CONTRACTOR'S being entitled to final payment as set forth in Section 30 have been fulfilled.
- 28.3 The CITY may refuse the whole or any part of any payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in its opinion to protect the CITY from loss because:
- a) The Work is defective,
 - b) Claims have been filed or there is reasonable evidence indicating the probably filing thereof,
 - c) The Contract Price has been reduced because of Modifications.
 - d) The CITY has been required to correct defective Work or complete the Work in accordance with Section 24, or
 - e) Unsatisfactory prosecution of the Work, including failure to clean up as required by Section 37.

SECTION 29 - SUBSTANTIAL COMPLETION

- 29.1 Prior to final payment, the CONTRACTOR may, in writing to the CITY, certify that the entire Project is substantially complete and request that the CITY issue a Certificate of Substantial Completion. Within a reasonable time thereafter, the CITY and CONTRACTOR will make an inspection of the Project to determine the status of completion. If the CITY does not consider the Project substantially complete, it will notify the CONTRACTOR in writing, giving its reasons therefore. If the CITY considers the Project substantially complete, it will prepare a tentative Certificate of Substantial Completion which shall fix the date of Substantial Completion and the responsibilities between the CITY and the CONTRACTOR for

maintenance, heat and utilities. There shall be attached to the certificate a tentative list (PUNCH LIST) of items to be completed or corrected before final payment, and the certificate shall fix the time within which such items shall be completed or corrected, said time to be within the Contract Time.

- 29.2 The CITY shall have the right to exclude the CONTRACTOR from the Project after the date of Substantial Completion, but the CITY will allow the CONTRACTOR reasonable access to complete or correct items on the tentative list.

SECTION 30 - PARTIAL UTILIZATION

- 30.1 Prior to final payment, the CITY may request the CONTRACTOR in writing to permit it to use a specified part of the Project which it believes it may use without significant interference with construction of the other parts of the Project. If the CONTRACTOR agrees, he will certify to the CITY that said part of the Project is substantially complete and request the CITY to issue a certificate of Substantial Completion for that part of the Project. Within a reasonable time thereafter the CITY and the CONTRACTOR will make an inspection of that part of the Project to determine its status of completion. If the CITY does not consider that it is substantially complete, it will notify the CONTRACTOR in writing giving its reasons therefore. If the CITY considers that part of the Project to be substantially complete, it will execute and deliver to the CONTRACTOR a certificate to that effect, fixing the date of Substantial Completion as to that part of the Project, attaching thereto a tentative list (PUNCH LIST) of items to be completed or corrected before final payment and fixing the responsibility between the CITY and CONTRACTOR for maintenance, heat and utilities as to that part of the Project.
- 30.2 The CITY shall have the right to exclude the CONTRACTOR from any part of the Project which the CITY has so certified to be substantially complete, but the CITY will allow the CONTRACTOR reasonable access to complete or correct items on the tentative list.

SECTION 31 - FINAL PAYMENT

- 31.1 Upon written notice from the CONTRACTOR that the project is complete, the CITY will make a final inspection with the CONTRACTOR and will notify the CONTRACTOR in writing of any particulars in which this inspection reveals that the Work is defective. The CONTRACTOR shall immediately make such corrections as are necessary to remedy such defects.
- 31.2 After the CONTRACTOR has completed any such corrections to the satisfaction of the CITY and delivered all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection and other documents - all as required by the Contract Documents, he may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by such supporting data as the CITY may require, together with complete and legally effective releases or waivers (satisfactory to the CITY) of all claims arising out of the Contract Documents and the labor and services performed and the material and equipment furnished thereunder. In lieu thereof and as approved by the CITY, the CONTRACTOR may furnish receipts or releases in full; an affidavit of the CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a claim could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which the CITY or its property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If the Subcontractor or supplier fails to furnish a release or receipt in full, the CONTRACTOR may furnish a bond satisfactory to the CITY to indemnify it against claims.
- 31.3 If, on the basis of its observation and review of the Work during construction, its final inspection and its

review of the final Application for Payment - all as required by the Contract Documents, the CITY is satisfied that the Work has been completed and the CONTRACTOR has fulfilled all of his obligations under the Contract Documents, it will, within ten (10) days after receipt of the final Application for Payment, indicate in writing its recommendation of payment. Otherwise, it will return the Application to the CONTRACTOR, indicating in writing its reasons for refusing to recommend final payment, in which case the CONTRACTOR will make the necessary corrections and resubmit the Application. The CITY will, within thirty (30) days of presentation to it of a CITY recommended final Application for Payment, pay the CONTRACTOR the amount recommended.

- 31.4 If after Substantial Completion of the Work final completion thereof is materially delayed through no fault of the CONTRACTOR, and the CITY so confirms, the CITY shall, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for work not fully completed or corrected is less than the retainage stipulated, and if Bonds have been furnished as required in Section 33, 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 the CONTRACTOR to the CITY prior to certification of 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.

SECTION 32 - WAIVERS OF CLAIMS AND CONTINUING OBLIGATIONS

- 32.1 The CONTRACTOR'S obligations to perform the Work and complete the Project in accordance with the Contract Documents shall be an absolute. Neither recommendation of any progress or final payment by the CITY, nor the issuance of a certificate of Substantial Completion, nor any payment by the CITY to the CONTRACTOR under the Contract Documents nor any use or occupancy of the Project or any part thereof by the CITY, nor any act of acceptance by the CITY nor any failure to do so, nor any correction of faulty or defective work by the CITY shall constitute an acceptance of Work not in accordance with the Contract Documents.
- 32.2 The making and acceptance of final payment shall constitute:
- a) A waiver of all claims by the CITY against the CONTRACTOR other than those arising from unsettled claims for labor or materials furnished in the Project, for faulty or defective work appearing after Final Payment or from failure to comply with the requirements of the Contract Documents or the terms of any special guarantees specified therein. Neither Final Payment or partial or entire occupancy of the premises by the CITY shall relieve the CONTRACTOR of negligence or faulty materials or workmanship and upon written notice he shall repair any defects or deficiencies due thereto and pay for any damages due to other work resulting therefrom which shall appear within one year after Substantial Completion and acceptance.
 - b) A waiver of all claims by the CONTRACTOR against the CITY other than those previously made in writing and still unsettled.

SECTION 33 - INDEMNIFICATION

- 33.1 The CONTRACTOR shall indemnify and hold harmless the CITY and its agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) 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 and (b) is caused in whole or in part by any negligent act or omission of the CONTRACTOR, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is

caused in part by a party indemnified hereunder.

- 33.2 If any and all claims against the CITY or any of its agents or employees by any employee of the CONTRACTOR, and Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Section 32 shall not be limited in any way by any limitation in the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any Subcontractor under workman's compensation acts, disability benefit acts or other employee benefit acts.

SECTION 34 - CONTRACT BONDS

- 34.1 The CONTRACTOR will furnish performance and payment Bonds as security for the faithful performance and payment of all his obligations under the Contract Documents. These Bonds shall be in amounts at least equal to the Contract Price and in such form and with such sureties as are acceptable to the CITY. Prior to execution of the Contract Documents the CITY may require the CONTRACTOR to furnish such other Bonds, in such form and with such sureties as it may require. If such Bonds are required by written instructions given prior to opening of Bids, the premiums shall be paid by the CONTRACTOR; if subsequent thereto, they shall be paid by the CITY. Bonds required as specified in the Information For Bidders will not be paid for as a contract item.

SECTION 35 - CONTRACTOR'S LIABILITY INSURANCE

- 35.1 The CONTRACTOR shall not commence work under this Contract until he has obtained all the insurance required under this Section and such insurance has been approved by the CITY, nor shall the CONTRACTOR allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been so obtained and approved.
- 35.2 The CONTRACTOR shall procure and shall maintain during the life of this Contract Workmen's compensation Insurance for all of his employees to be engaged in Work on the Project under this Contract. In case such work is sublet, the CONTRACTOR shall require the Subcontractor similarly to provide insurance for all of the latter's employees to be engaged in such work unless such employees are covered by the protection afforded by the CONTRACTOR'S Workman's Compensation Insurance. In case any class of employees engaged in hazardous work on the Project under this Contract is not protected under the Workmen's Compensation statute, the CONTRACTOR shall provide and shall cause each Subcontractor to provide adequate insurance for the protection of such of his employees not otherwise protected.
- 35.3 The CONTRACTOR shall procure and shall maintain during the life of this Contract, Insurance coverages as specified in Section I-1 of the Bid Documents.
- 35.4 The CONTRACTOR shall either (a) require each of his Subcontractors to procure and to maintain during the life of his Subcontract, Subcontractor's Public Liability Property Damage and Vehicle Liability Insurance of the type and amount specified in the above paragraphs of this Section hereof or, (b) insure the activities of his Subcontractors in his policy, specified in the above paragraphs of this Section hereof.
- 35.5 The insurance required under the above paragraphs of this section hereof shall provide adequate protection for the CITY against damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by him. This paragraph is construed to require the procurement of CONTRACTOR'S protective insurance (or Contingent Public Liability and Property Damage Policies) by a CONTRACTOR, whose Subcontractor has employees

working on the Project, unless the General Public Liability and Property Damage Policy (or rider attached thereto) of the CONTRACTOR provides adequate protection against claims arising from operations by anyone indirectly employed by him.

SECTION 36 - CITY'S LIABILITY COVERAGE

- 36.1 The CONTRACTOR shall procure, as a rider on his liability insurances, additional coverage to protect the CITY against claims which may arise from operations under the Contract Documents.

SECTION 37 - PROPERTY INSURANCE

- 37.1 Unless otherwise provided, the CONTRACTOR will purchase and maintain property insurance upon the Project to the full insurable value thereof. The insurance shall include the interests of the CITY, the CONTRACTOR and Subcontractors, in the Work and shall insure against the perils of Fire, Extended Coverage, Vandalism and Malicious Mischief.
- 37.2 The CITY upon notification from the CONTRACTOR that such facilities are operative, purchase and maintain such steam boiler and machinery insurance as may be required by the Contract Documents or by law. This insurance shall include the interest of the CITY, the CONTRACTOR and Subcontractors in the Work.
- 37.3 Any insured loss under the policies of insurance required by Section 36, is to be adjusted with the CITY and made payable to the CITY as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clauses.
- 37.4 The CONTRACTOR will file a copy of all policies with the CITY before an exposure to loss may occur.
- 37.5 If the CITY requests in writing that other special insurance be included in the property insurance policy, the CONTRACTOR will, if possible, include such insurance, and the cost thereof shall be charged to the CITY by appropriate Change Order.
- 37.6 The CITY and CONTRACTOR waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this Section 36, except such rights as they may have to the proceeds of such insurance held by the CITY as trustee. The CONTRACTOR shall require similar waivers by Subcontractors in accordance with Section 7.
- 37.7 The CITY as trustee will have power to adjust and settle any loss with the insurers.

SECTION 38 - CLEANING UP

- 38.1 The CONTRACTOR will keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work and at the completion of the Work he will remove all his materials, rubbish and debris from and about the premises as well as all tools, construction equipment and machinery, and surplus materials, and will leave the site clean and ready for occupancy by the CITY. The CONTRACTOR will restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

SECTION 39 - CITY'S RIGHT TO STOP OR SUSPEND WORK

- 39.1 If the Work is defective, or the CONTRACTOR fails to supply sufficient skilled workmen, or suitable materials or equipment, or if the CONTRACTOR fails to make prompt payments to the Subcontractors, or

for labor, materials or equipment, the CITY may order the CONTRACTOR to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

- 39.2 The CITY may, at any time and without cause, suspend the work or any portion thereof for a period of not more than ninety (90) days by notice in writing to the CONTRACTOR which shall fix the date on which Work shall be resumed. The CONTRACTOR will resume the Work on the date so fixed. The CONTRACTOR may be allowed an increase in the Contract Price or an extension of the Contract Time directly attributable to any suspension making a claim therefore as provided in Section 21 and 23.

SECTION 40 - CITY'S RIGHT TO TERMINATE

- 40.1 If the CONTRACTOR is adjudged a bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he files a petition to take advantage of any debtors' act, or to reorganize under the bankruptcy or similar laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to Subcontractors, or for labor, materials, or equipment or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or if he disregards the authority of the CITY, or if he otherwise violates any provision of the Contract Documents, then the CITY may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his surety seven (7) days' written notice, terminate the services of the CONTRACTOR and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, and finish the Work by whatever method it may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the CITY. Such costs incurred by the CITY will be determined and incorporated into a Change Order.
- 40.2 Where the CONTRACTOR'S services have been so terminated by the CITY, said termination shall not affect any rights of the CITY against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys by the CITY due the CONTRACTOR will not release the CONTRACTOR from liability.
- 40.3 Upon seven (7) days' written notice to the CONTRACTOR the CITY may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Agreement. In such case, the CONTRACTOR shall be paid for all work executed and any expense sustained plus a reasonable profit.

SECTION 41 - CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE

- 41.1 If, through no act or fault of the CONTRACTOR, the Work is suspended for a period of more than ninety (90) days by the CITY or under an order of court or other public authority, or the CITY fails to pay the CONTRACTOR any sum approved or awarded by arbitrators within ninety (90) days of its approval and presentation, then the CONTRACTOR may, upon seven (7) days' written notice to the CITY, terminate the Agreement and recover from the CITY payment for all Work executed and any expense sustained plus a reasonable profit.

SECTION 42 - (NOT APPLICABLE TO THIS CONTRACT)

SECTION 43 - ARBITRATION

- 43.1 All claims, disputes and other matters in question arising out of or relating to this Agreement except claims which have been waived by the making or acceptance of final payment as provided in Section 31 shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. Any award rendered hereunder shall be final and judgment may be entered based upon said award in accordance with the Michigan Statutes and General Court Rules pertaining thereto. Any award rendered hereunder may be vacated solely upon the grounds specified in said statute and court rules and in addition on the basis that the award is contrary to law.
- 43.2 Notice of the request for arbitration shall be filed in writing with the CITY (and any other party to the Agreement) and with the American Arbitration Association. The request for arbitration shall be made within the thirty (30) day period specified in Paragraph 14.3 where applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall it be made after six (6) months from that date. The location for any such mediation or arbitration shall be the City of Sault Ste. Marie.
- 43.3 CONTRACTOR shall continue to perform the Work and maintain the progress schedule during the pendency of any claim or dispute which may be subject to arbitration and during the pendency of any arbitration proceedings, unless otherwise agreed between the CITY and CONTRACTOR in writing, which agreement shall not extend the delay beyond the time when the arbitrator shall have an opportunity to determine whether the Work shall continue to be suspended.
- 43.4 The CITY may also include the CITY'S consultant(s) involved with the design and/or construction engineering of the project, as a third party defendant in any mediation or arbitration process regarding any claims, disputes or other matters in question related to this project.

SECTION 44 - MISCELLANEOUS

- 44.1 Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an office of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to him who gives the notice.
- 44.2 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder, and, in particular, but without limitation, the warranties, guarantees and obligations imposed upon the CONTRACTOR by Sections 25 and 32 and the rights and remedies available to the CITY thereunder, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or other provisions of the Contract Documents.
- 44.3 Should the CITY or the CONTRACTOR suffer injury or damage to its persons or property because of any error, omission or act of the other or of any of his employees or agents or others for whose acts he is legally liable, claim shall be made in writing to the other party within a reasonable time of the first observance of such injury or damage.
- 44.4 The Contract Documents shall be governed by the law of the place of the Project.
- 44.5 The CONTRACTOR shall not assign the whole or any part of this Contract or any moneys due or to

become due hereunder without written consent of the CITY. In case the CONTRACTOR assigns all or any part of any moneys due or to become due under this Contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to the CONTRACTOR shall be subject to prior liens of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Contract.

CITY OF SAULT STE. MARIE, MICHIGAN

SUPPLEMENTAL CONDITIONS

City of Sault Ste. Marie

General

The CONTRACTOR shall furnish all labor, materials, equipment, tools, transportation and necessary supplies, and shall perform all operations required to complete the work included in this project in accordance with the project plans, contract provisions and the following SPECIAL PROVISIONS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, as applicable.

The CONTRACTOR shall be responsible for obtaining all necessary permits for this construction project including the applicable permit and plan review fees.

Conditional Requirements

1. Before bid opening, the Bidder must have paid all current water, sewer, personal property taxes, and other charges owed to the City of Sault Ste. Marie on any account no matter how arising. Any Bidder who at the time of opening the bid is not current on all such charges may be rejected by the City as ineligible to bid. In the alternative, if the City of Sault Ste. Marie chooses to award the bid notwithstanding such delinquency, the Contract payments shall be set off in an amount sufficient to pay all such accounts. The method and time of such set off shall be at the discretion of the City Manager.

NOTICE OF AWARD

To: _____

PROJECT NAME: Pullar Boiler Replacement

The OWNER has considered your BID dated _____ for the above referenced project. You are hereby notified that your bid has been accepted for the WORK described as: Pullar Boiler Replacement, in the total sum of \$ _____.

You are required to execute the Agreement and furnish the required CONTRACTOR'S certificates of Insurance coverage, Payment Bond, and Performance Bond in the amount specified in the contract documents within ten (10) calendar days from the date of this Notice. Three (3) unsigned copies of the Agreement, prepared for your signature, will be sent to you within 3 business days of this Notice of Award. The NOTICE TO PROCEED will not be issued until the CITY receives the required Bonds, Insurance and executed Agreement from the CONTRACTOR and until such documents are in accordance with the contract requirements and are approved by the CITY.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this _____ day of _____, 2023

Owner: City of Sault Ste. Marie

BY: _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged

this _____ day of _____, 2023

By: _____
(SIGNATURE)

(PRINT)

Title: _____

NOTICE TO PROCEED

TO: _____ DATE: _____

PROJECT: Pullar Boiler Replacement

You are hereby notified to commence WORK in accordance with the Agreement _____, on or before _____, and you are to complete the WORK in accordance with the Agreement to ensure that the project is completed by **September 1, 2024**.

You are required to return an acknowledged copy of this NOTICE TO PROCEED to the OWNER.

CITY OF SAULT STE. MARIE, MICHIGAN

Owner

BY:

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by

(CONTRACTORS COMPANY NAME)

this the _____ day of _____, **2023**

BY: _____

(SIGNATURE)

(PRINT)

TITLE: _____

(PRINT)

SECTION 23 05 29

HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Pipe hangers and supports.
 - 2. Hanger rods.
- B. Related Sections:
 - 1. Section 23 22 13 - Steam and Condensate Heating Piping: Execution requirements for placement of hangers and supports specified by this section.

1.2 REFERENCES

- A. American Society of Mechanical Engineers:
 - 1. ASME B31.9 - Building Services Piping.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data:
 - 1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
- C. Design Data: Indicate load carrying capacity of trapeze, multiple pipe, and riser support hangers. Indicate calculations used to determine load carrying capacity of trapeze, multiple pipe, and riser support hangers.
- D. Manufacturer's Installation Instructions:
 - 1. Hangers and Supports: Submit special procedures and assembly of components.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- F. Maintain one copy of each document on site.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing Work of this section with minimum 3 years experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and damage, by storing in original packaging.

1.6 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for pipe hangers and supports.

PART 2 PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

- A. Manufacturers:
 - 1. ERICO International Corporation.
 - 2. Hilti, Inc.
 - 3. NIBCO INC.
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Steam and Steam Condensate Piping:
 - 1. Conform to ASME B31.1.
 - 2. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
 - 3. Hangers for Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
 - 4. Hangers for Pipe Sizes 6 inches and Larger: Adjustable steel yoke, cast iron roll, double hanger.
 - 5. Multiple or Trapeze Hangers for Pipe Sizes 4 inches and Smaller: Steel channels with welded spacers and hanger rods.
 - 6. Multiple or Trapeze Hangers for Pipe Sizes 6 inches and Larger: Steel channels with welded spacers and hanger rods; cast-iron roll and stand.
 - 7. Wall Support for Pipe Sizes 3 inches and Smaller: Cast iron hooks.
 - 8. Wall Support for Pipe Sizes 4 to 5 inches: Welded steel bracket and wrought steel clamp.
 - 9. Wall Support for Pipe Sizes 6 inches and Larger: Welded steel bracket and wrought steel clamp; adjustable steel yoke and cast iron roll.
 - 10. Vertical Support: Steel riser clamp.
 - 11. Floor Support for Pipe Sizes 4 inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
 - 12. Floor Support for Pipe Sizes 6 inches and Larger: Adjustable cast iron roll and stand steel screws, and concrete pier or steel support.
 - 13. Copper Pipe Support: Copper-plated carbon-steel ring.

2.2 ACCESSORIES

- A. Hanger Rods: Mild steel threaded both ends, threaded on one end, or continuous threaded.

PART 3 EXECUTION

3.1 INSTALLATION - PIPE HANGERS AND SUPPORTS

- A. Install in accordance with ASME B31.1.
- B. Support horizontal piping as scheduled.
- C. Install hangers with minimum 1/2 inch space between finished covering and adjacent work.
- D. Place hangers within 12 inches of each horizontal elbow.
- E. Use hangers with 1-1/2 inch minimum vertical adjustment.
- F. Support vertical piping at every floor.
- G. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.
- H. Support riser piping independently of connected horizontal piping.
- I. Provide copper plated hangers and supports for copper piping.
- J. Design hangers for pipe movement without disengagement of supported pipe.
- K. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
- L. Provide clearance in hangers and from structure and other equipment for installation of insulation. Refer to Section 22 07 00.

3.2 FIELD QUALITY CONTROL

- A. Section 01 40 00 - Quality Requirements: Requirements for inspecting, testing.

3.3 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting finished Work.
- B. Protect adjacent surfaces from damage by material installation.

3.4 SCHEDULES

- A. Copper and Steel Pipe Hanger Spacing: per applicable code.

END OF SECTION

SECTION 23 05 53

IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Nameplates.
 - 2. Tags.
 - 3. Stencils.
 - 4. Pipe markers.
 - 5. Labels.

1.2 REFERENCES

- A. American Society of Mechanical Engineers:
 - 1. ASME A13.1 - Scheme for the Identification of Piping Systems.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Shop Drawings: Submit list of wording, symbols, letter size, and color coding for mechanical identification and valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- C. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of tagged valves; include valve tag numbers.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years experience.

PART 2 PRODUCTS

2.1 NAMEPLATES

- A. Manufacturers; Name Plates:
 - 1. Seton Identification Products
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Laminated three-layer plastic with engraved black letters on light contrasting background color.

2.2 TAGS

- A. Manufacturers; Plastic Tags:
 - 1. Seton Identification Products
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
 - 3. Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inches diameter.
- B. Manufacturers; Metal Tags:
 - 1. Seton Identification Products
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
 - 3. Brass with stamped letters; tag size minimum 1-1/2 inches diameter with finished edges.
- C. Manufacturers; Information Tags:
 - 1. Seton Identification Products
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
 - 3. Clear plastic with printed "Danger," "Caution," or "Warning" and message; size 3-1/4 x 5-5/8 inches with grommet and self-locking nylon ties.

2.3 PIPE MARKERS

- A. Color and Lettering: Conform to ASME A13.1.
- B. Manufacturers; Pipe Marker:
 - 1. Seton Identification Products
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
 - 3. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.
- C. Manufacturers; Plastic Tape Pipe Marker:
 - 1. Seton Identification Products
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
 - 3. Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

PART 3 EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.

3.2 INSTALLATION

- A. Install identifying devices after completion of coverings and painting.
- B. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.
- C. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.
- D. Install tags using corrosion resistant chain. Number tags consecutively by location.
- E. Identify air handling units, pumps, heat transfer equipment, tanks, and water treatment devices with plastic nameplates. Identify in-line pumps and other small devices with tags.
- F. Identify control panels and major control components outside panels with plastic nameplates.
- G. Identify valves in main and branch piping with tags.
- H. Identify air terminal units and radiator valves with numbered tags.
- I. Identify piping, concealed or exposed, with plastic pipe markers. Use tags on piping 3/4 inch diameter and smaller. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.
- J. For exposed natural gas lines other than steel pipe, attach yellow pipe labels with "GAS" in black lettering, at maximum 5 foot spacing.

END OF SECTION

SECTION 23 05 93

TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Testing adjusting, and balancing of steam systems.

1.2 REFERENCES

- A. Testing Adjusting and Balancing Bureau:
 - 1. TABB - International Standards for Environmental Systems Balance.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Prior to commencing Work, submit proof of latest calibration date of each instrument.
- C. Test Reports: Indicate data on forms prepared following ASHRAE 111. Submit data in S.I. units.
- D. Field Reports: Indicate deficiencies preventing proper testing, adjusting, and balancing of systems and equipment to achieve specified performance.
- E. Submit draft copies of report for review prior to final acceptance of Project.
- F. Furnish reports in soft cover, letter size, 3-ring binder manuals, complete with table of contents page and indexing tabs, with cover identification at front and side. Include set of reduced drawings with air outlets and equipment identified to correspond with data sheets, and indicating thermostat locations.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of balancing valves and rough setting.
- C. Operation and Maintenance Data: Furnish final copy of testing, adjusting, and balancing report inclusion in operating and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ASHRAE 111.
- B. Maintain one copy of each document on site.

- C. Prior to commencing Work, calibrate each instrument to be used.

1.6 QUALIFICATIONS

- A. Agency: Company specializing in testing, adjusting, and balancing of systems specified in this section with minimum three years experience certified by TABB.

1.7 SEQUENCING

- A. Section 01 10 00 - Summary: Work sequence.
- B. Sequence balancing between completion of systems tested and Date of Substantial Completion.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Verify systems are complete and operable before commencing work. Verify the following:
 - 1. Systems are started and operating in safe and normal condition.
 - 2. HVAC control systems are installed complete and operable.
 - 3. Proper thermal overload protection is in place for electrical equipment.
 - 4. Final filters are clean and in place. If required, install temporary media in addition to final filters.
 - 5. Hydronic systems are flushed, filled, and vented.
 - 6. Pumps are rotating correctly.
 - 7. Proper strainer baskets are clean and in place or in normal position.
 - 8. Service and balancing valves are open.

3.2 ADJUSTING

- A. Section 01 70 00 - Execution and Closeout Requirements: Testing, adjusting, and balancing.
- B. Verify recorded data represents actual measured or observed conditions.
- C. Permanently mark settings of valves, dampers, and other adjustment devices allowing settings to be restored. Set and lock memory stops.
- D. After adjustment, take measurements to verify balance has not been disrupted. If disrupted, verify correcting adjustments have been made.
- E. Report defects and deficiencies noted during performance of services, preventing system balance.

- F. Leave systems in proper working order, replacing belt guards, closing access doors, closing doors to electrical switch boxes, and restoring thermostats to specified settings.

3.3 SCHEDULES

- A. Partial list of Equipment Requiring Testing, Adjusting, and Balancing:
 - 1. Combustion air
- B. Report Forms
 - 1. Title Page:
 - a. Name of Testing, Adjusting, and Balancing Agency
 - b. Address of Testing, Adjusting, and Balancing Agency
 - c. Telephone and facsimile numbers of Testing, Adjusting, and Balancing Agency
 - d. Project name
 - e. Project location
 - f. Project Architect
 - g. Project Engineer
 - h. Project Contractor
 - i. Project altitude
 - j. Report date
 - 2. Summary Comments:
 - a. Design versus final performance
 - b. Notable characteristics of system
 - c. Description of systems operation sequence
 - d. Summary of outdoor and exhaust flows to indicate building pressurization
 - e. Nomenclature used throughout report
 - f. Test conditions
 - 3. Combustion Test:
 - a. Manufacturer
 - b. Model number
 - c. Serial number
 - d. Firing rate
 - e. Overfire draft
 - f. Gas meter timing dial size
 - g. Gas meter time per revolution
 - h. Gas pressure at meter outlet
 - i. Gas flow rate
 - j. Heat input
 - k. Burner manifold gas pressure
 - l. Percent carbon monoxide (CO)
 - m. Percent carbon dioxide (CO₂)
 - n. Percent oxygen (O₂)
 - o. Percent excess air
 - p. Flue gas temperature at outlet
 - q. Ambient temperature
 - r. Net stack temperature
 - s. Percent stack loss
 - t. Percent combustion efficiency
 - u. Heat output

END OF SECTION

SECTION 23 11 23

FACILITY NATURAL-GAS PIPING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Natural gas piping above grade.
 - 2. Unions and flanges.
 - 3. Valves.
 - 4. Pipe hangers and supports.
 - 5. Strainers.
 - 6. Natural gas pressure regulators.
 - 7. Natural gas pressure relief valves.
- B. Related Sections:
 - 1. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for pipe hangers and supports [and firestopping] for placement by this section.
 - 2. Section 23 05 53 - Identification for HVAC Piping and Equipment: Product requirements for valve and pipe identification for placement by this section.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI Z21.15 - Manually Operated Gas Valves for Appliances, Appliance Connector Valves and Hose End Valves.
- B. American Society of Mechanical Engineers:
 - 1. ASME B16.3 - Malleable Iron Threaded Fittings.
 - 2. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes.
 - 3. ASME B16.33 - Manually Operated Metallic Gas Valves for Use in Gas Piping Systems Up to 125 psig (sizes 1/2 - 2).
 - 4. ASME B31.9 - Building Services Piping.
 - 5. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.
- C. ASTM International:
 - 1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 2. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
 - 3. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
 - 4. ASTM B280 - Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service.
 - 5. ASTM B749 - Standard Specification for Lead and Lead Alloy Strip, Sheet, and Plate Products.
 - 6. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers.

- D. American Welding Society:
 - 1. AWS D1.1 - Structural Welding Code - Steel.
- E. American Water Works Association:
 - 1. AWWA C105 - American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems.
- F. Manufacturers Standardization Society of the Valve and Fittings Industry:
 - 1. MSS SP 58 - Pipe Hangers and Supports - Materials, Design and Manufacturer.
 - 2. MSS SP 67 - Butterfly Valves.
 - 3. MSS SP 69 - Pipe Hangers and Supports - Selection and Application.
 - 4. MSS SP 78 - Cast Iron Plug Valves, Flanged and Threaded Ends.
 - 5. MSS SP 89 - Pipe Hangers and Supports - Fabrication and Installation Practices.
 - 6. MSS SP 110 - Ball Valves Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
- G. National Fire Protection Association:
 - 1. NFPA 54 - National Fuel Gas Code.
- H. Underwriters Laboratories Inc.:
 - 1. UL 842 - Valves for Flammable Fluids.

1.3 SYSTEM DESCRIPTION

- A. Where more than one piping system material is specified, provide compatible system components and joints. Use non-conducting dielectric connections when joining dissimilar metals in systems.
- B. Provide flanges, unions, or couplings at locations requiring servicing. Use unions, flanges, or couplings downstream of valves and at equipment connections. Do not use direct welded or threaded connections to valves, equipment.
- C. Provide pipe hangers and supports in accordance with ASME B31.9.
- D. Use plug, or ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data:
 - 1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturers catalog information.
 - 2. Piping Specialties: Submit manufacturers catalog information including capacity, rough-in requirements, and service sizes for the following:
 - a. Strainers.
 - b. Natural gas pressure regulators.
 - c. Natural gas pressure relief valves.

- C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of valves, piping system, and system components.
- C. Operation and Maintenance Data: Submit for gas pressure regulators installation instructions, spare parts lists, and exploded assembly views.

1.6 QUALITY ASSURANCE

- A. Perform natural gas Work in accordance with NFPA 54.
- B. Perform Work in accordance with ASME B31.9 code for installation of piping systems and ASME Section IX for welding materials and procedures.
- C. Furnish shutoff valves complying with ASME B16.33 or ANSI Z21.15.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- C. Protect piping and fittings from soil and debris with temporary end caps and closures. Maintain in place until installation. Furnish temporary protective coating on cast iron and steel valves.

1.9 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Do not install underground piping when bedding is wet or frozen.

1.10 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.11 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

PART 2 PRODUCTS

2.1 NATURAL GAS PIPING, ABOVE GRADE

- A. Steel Pipe: ASTM A53/A53M Schedule 40 black.
 - 1. Fittings: ASME B16.3, malleable iron, or ASTM A234/A234M forged steel welding type.
 - 2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

2.2 REGULATOR VENT PIPING, ABOVE GRADE

- A. Indoors: Same as natural gas piping, above grade.
- B. Outdoors: PVC pipe, tubing, and fittings, UL 651.

2.3 UNIONS AND FLANGES

- A. Unions for Pipe 2 inches and Smaller:
 - 1. Ferrous Piping: Class 150, malleable iron, threaded.
 - 2. Copper Piping: Class 150, bronze unions with soldered.
 - 3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
- B. Flanges for Pipe 2-1/2 inches and Larger:
 - 1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
 - 2. Copper Piping: Class 150, slip-on bronze flanges.
 - 3. Gaskets: 1/16 inch thick preformed neoprene gaskets.

2.4 BALL VALVES

- A. Manufacturers:
 - 1. Milwaukee Valve Company Model.
 - 2. NIBCO, Inc. Model.
 - 3. Substitutions: Section 01 60 00 - Product Requirements.
- B. 1/4 inch to 1 inch: MSS SP 110, Class 125, two piece, threaded ends, bronze body, chrome plated bronze ball, reinforced teflon seats, blow-out proof stem, lever handle, UL 842 listed for flammable liquids and LPG, full port.
- C. 1-1/4 inch to 3 inch: MSS SP 110, Class 125, two piece, threaded ends, bronze body, chrome plated bronze ball, reinforced teflon seats, blow-out proof stem, lever handle, UL 842 listed for flammable liquids and LPG, conventional port.

2.5 PLUG VALVES

- A. Manufacturers:
 - 1. DeZURIK, Unit of SPX Corp. Model.
 - 2. Homestead Valve Model.
 - 3. Substitutions: Section 01 60 00 - Product Requirements
- B. 2 inches and Smaller: MSS SP 78, Class 150, semi-steel construction, round port, regular opening, pressure lubricated, teflon packing, threaded ends. Furnish one plug valve wrench for every ten plug-valves with minimum of one wrench.
- C. 2-1/2 inches and Larger: MSS SP 78, Class 150, semi-steel construction, round port, regular opening, pressure lubricated, teflon packing, flanged ends. Furnish wrench-operated.

2.6 PIPE HANGERS AND SUPPORTS

- A. Manufacturers:
 - 1. Glope Pipe Hanger Products Inc. Model.
 - 2. Michigan Hanger Co. Model.
 - 3. Superior Valve Co. Model.
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Conform to NFPA 54,.
- C. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
- D. Hangers for Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.
- E. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.
- F. Wall Support for Pipe 3 inches and Smaller: Cast iron hook.
- G. Vertical Support: Steel riser clamp.
- H. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- I. Copper Pipe Support: Carbon steel ring, adjustable, copper plated.
- J. Sheet Lead: ASTM B749, 2.5 lb/sq ft inch thick.

2.7 STRAINERS

- A. Manufacturers:
 - 1. Spirax Sarco, Inc. Model.
 - 2. Substitutions: Section 01 60 00 - Product Requirements.

- B. 2 inch and Smaller: Screwed brass or iron body for 175 psig working pressure, Y pattern with 1/32 inch stainless steel perforated screen.
- C. 2-1/2 inch to 4 inch: Flanged iron body for 175 psig working pressure, Y pattern with 3/64 inch stainless steel perforated screen.
- D. 5 inch and Larger: Flanged iron body for 175 psig working pressure, basket pattern with 1/8 inch stainless steel perforated screen.

2.8 UNDERGROUND PIPE MARKERS

- A. Manufacturers:
 - 1. Pipemarker; Brimar Industries, Inc..
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
- B. Plastic Detectable Ribbon Tape: Bright colored, continuously printed, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service. Magnetic and detectable, imprinted with "Natural Gas Service" in large letters.

PART 3 EXECUTION

3.1 EXAMINATION

- A. 01300 - Administrative Requirements: Coordination and project conditions.
- B. Verify excavations are to required grade, dry, and not over-excavated.

3.2 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.3 INSTALLATION - PIPE HANGERS AND SUPPORTS

- A. Install hangers and supports in accordance with ASME B31.9.
- B. Support horizontal piping hangers as scheduled.
- C. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
- D. Place hangers within 12 inches of each horizontal elbow.
- E. Install hangers to allow 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.

- F. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
- G. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.
- H. Install pipe hangers and supports in accordance with Section 23 05 29.

3.4 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Where gas appliance will be damaged by test pressure, disconnect appliance and cap piping during pressure test. Reconnect appliance after pressure test and leak test connection.
- C. Where gas appliance is designed for operating pressures equal to or greater than piping test pressure, provide gas valve to isolate appliance or equipment from gas test pressure.
- D. Pressure test natural gas piping in accordance with NFPA 54.
- E. Where new branch piping is extended from existing system, pressure test new branch piping only. Leak test joint between new and existing piping with noncorrosive leak detection fluid or other approved method.
- F. When pressure tests do not meet specified requirements, remove defective work, replace and retest.
- G. Immediately after gas is applied to a new system, or a system has been restored after gas service interruption, check pipe for leakage.
 - 1. Where leakage is detected, shut off gas supply until necessary repairs are complete.
- H. Do not place appliances in service until leak testing and repairs are complete.

3.5 SCHEDULES

- A. Pipe Hanger Spacing:

PIPE SIZE Inches	STEEL PIPE MAXIMUM HANGER SPACING Feet	STEEL PIPE MINIMUM HANGER ROD DIAMETER Inches
1/2	6	3/8
3/4	7	3/8
1	7	3/8
1-1/4	7	3/8
1-1/2	9	3/8

2	10	3/8
2-1/2	10	1/2
3	10	1/2

END OF SECTION

SECTION 23 22 13

STEAM AND CONDENSATE HEATING PIPING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Low pressure steam piping.
 - 2. Low pressure steam condensate piping.
 - 3. Equipment drains and over flows.
 - 4. Unions and flanges.
 - 5. Pipe hangers and supports.
 - 6. Valves.
- B. Related Sections:
 - 1. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment: Product requirements for pipe hangers and supports, sleeves, [and firestopping] for placement by this section.
 - 2. Section 23 05 53 - Identification for HVAC Piping and Equipment: Product requirements for pipe identification for placement by this section.
 - 3. Section 23 22 16 - Steam and Condensate Piping Specialties: Product and execution requirements for piping specialties used in steam piping systems.

1.2 REFERENCES

- A. American Society of Mechanical Engineers:
 - 1. ASME Section IX - Boiler and Pressure Vessel Code - Welding and Brazing Qualifications.
- B. ASTM International:
 - 1. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 2. ASTM A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High- Temperature Service.
 - 3. ASTM A234/A234M - Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
- C. American Welding Society:
 - 1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
 - 2. AWS D1.1 - Structural Welding Code - Steel.

1.3 SYSTEM DESCRIPTION

- A. Where more than one piping system material is specified, provide compatible system components and joints. Use non-conducting dielectric connections whenever jointing dissimilar metals in open systems.

- B. Provide flanges, union, and couplings at locations requiring servicing. Use unions, flanges, and couplings downstream of valves and at equipment or apparatus connections. Do not use direct welded or threaded connections to valves, equipment or other apparatus.
- C. Provide pipe hangers and supports in accordance with ASME B31.1, and MSS SP 89.
- D. Use gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- E. Use globe valves for throttling services.
- F. Use spring loaded check valves on discharge of condensate pumps.
- G. Use horizontal swing check valves discharge of steam traps.
- H. Use 3/4 inch gate valves with cap for blow downs at strainers.
- I. Use 3/4 inch gate valves with cap for drains at main shut-off valves, low points of piping, bases of vertical risers, and at equipment.
- J. Flexible Connectors: Use at or near pumps motor driven equipment and where piping configuration does not absorb vibration.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data:
 - 1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturers catalog information.
 - 2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.
 - 3. Hangers and Supports: Submit manufacturers catalog information including load capacity.
- C. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures and isolation.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- E. Welders' Certificate: Include welders' certification of compliance with ASME Section IX.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Project Record Documents: Record actual locations of valves, equipment and accessories.
- C. Operation and Maintenance Data: Submit instructions for installation and changing components, spare parts lists, exploded assembly views.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with ASME B31.1 code for installation of piping systems and ASME Section IX for welding materials and procedures.
- B. Perform Work in accordance with AWS D1.1 for welding hanger and support attachments to building structure.

1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience, and with service facilities within 50 miles of Project.
- B. Fabricator or Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.8 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.
- B. Convene minimum one week prior to commencing work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.
- B. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

1.10 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.11 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for valves excluding packing.

PART 2 PRODUCTS

2.1 LOW PRESSURE STEAM PIPING, ABOVE GROUND (15 PSIG MAXIMUM)

- A. Steel Pipe: ASTM A53/A53M, Schedule 40, 0.375 inch wall for sizes 12 inch and larger, black.
 - 1. Fittings: ASME B16.3 malleable iron Class 125, or ASTM A234/A234M forged steel Class 125.
 - 2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

2.2 LOW PRESSURE STEAM CONDENSATE PIPING, ABOVE GROUND

- A. Steel Pipe: ASTM A53/A53M, Schedule 80, 0.375 inch wall for sizes 12 inch and larger, black.
 - 1. Fittings: ASME B16.3 malleable iron Class 125, or ASTM A234/A234M forged steel Class 125.
 - 2. Joints: Threaded for pipe 2 inch and smaller; welded for pipe 2-1/2 inches and larger.

2.3 EQUIPMENT DRAINS AND OVERFLOWS

- A. Steel Pipe: ASTM A53/A53M Schedule 40, galvanized.
 - 1. Fittings: ASME B16.3, malleable iron or ASME B16.4, cast iron.
 - 2. Joints: Threaded for pipe 2 inch and smaller; flanged for pipe 2-1/2 inches and larger.

2.4 UNIONS AND FLANGES

- A. Unions for Pipe 2 inches and Smaller:
 - 1. Ferrous Piping: Class 150, malleable iron, threaded.
 - 2. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
- B. Flanges for Pipe 2-1/2 inches and Larger:
 - 1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
 - 2. Copper Piping: Class 150, slip-on bronze flanges.
 - 3. Gaskets: 1/16 inch thick preformed neoprene gaskets.

2.5 GATE VALVES

- A. Manufacturers:
 - 1. Apollo Flow Controls
 - 2. Crane
 - 3. DeZURIK
 - 4. Milwaukee Valve Company
 - 5. NIBCO, Inc
 - 6. Zurn Industries
 - 7. Substitutions: Section 01 60 00 - Product Requirements.
- B. 2 inches and Smaller: MSS SP 80, Class 125, bronze body, bronze trim, threaded bonnet, non-rising stem, hand-wheel, inside screw with back-seating stem, solid wedge disc, alloy seat rings, threaded ends.

- C. 2-1/2 inches and Larger: MSS SP 70, Class 125, cast iron body, bronze trim, bolted bonnet, rising stem, hand-wheel, outside screw and yoke, solid wedge disc with bronze seat rings, flanged ends. Furnish chain-wheel operators for valves 6 inches and larger mounted over 8 feet above floor.

2.6 GLOBE VALVES

- A. Manufacturers:
 - 1. Apollo Flow Controls
 - 2. Crane
 - 3. DeZURIK
 - 4. Milwaukee Valve Company
 - 5. NIBCO, Inc
 - 6. Zurn Industries
- B. 2 inches and Smaller: MSS SP 80, Class 125, bronze body, bronze trim, threaded bonnet, hand wheel, Buna-N composition disc, threaded ends.
- C. 2-1/2 inches and Larger: MSS SP 85, Class 125, cast iron body, bronze trim, hand wheel, outside screw and yoke, flanged ends. Furnish chain-wheel operators for valves 6 inches and larger mounted over 8 feet above floor.

2.7 BALL VALVES

- A. Manufacturers:
 - 1. Apollo Flow Controls
 - 2. Crane
 - 3. DeZURIK
 - 4. Milwaukee Valve Company
 - 5. NIBCO, Inc
 - 6. Zurn Industries
- B. 2 inches and Smaller: MSS SP 110, Class 150, bronze, three piece body, chrome plated bronze ball, regular port, teflon seats, blow-out proof stem, threaded ends, lever handle extended lever handle with balancing stops.
- C. 2 inches and Smaller: MSS SP 110, Class 150, bronze, two piece body, type 316 stainless steel ball with vent hole, full port, reinforced teflon seats, stainless steel stem, threaded ends, lever handle with balancing stops.

2.8 CHECK VALVES

- A. Horizontal Swing Check Valves:
 - 1. Manufacturers:
 - a. Crane
 - b. Milwaukee Valve Company
 - c. NIBCO, Inc
 - d. Substitutions: Section 01 60 00 - Product Requirements

2. CK-1 2 inches and Smaller: MSS SP 80, Class 150, bronze body and cap, bronze seat, Buna-N disc, threaded ends.
3. 2-1/2 inches and Larger: MSS SP 71, Class 125, cast iron body, bolted cap, bronze or cast iron disc, flanged ends.

B. Spring Loaded Check Valves:

1. Manufacturers:
 - a. Crane
 - b. Milwaukee Valve Company
 - c. NIBCO, Inc
 - d. Substitutions: Section 01 60 00 - Product Requirements
2. 2 inches and Smaller: MSS SP 80, Class 250, bronze body, in-line spring lift check, silent closing, Buna-N disc, integral seat, threaded ends.
3. 2-1/2 inches and Larger: MSS SP 71, Class 125, wafer style, cast iron body, bronze seat, center guided bronze disc, stainless steel spring and screws, flanged ends.

2.9 PIPE HANGERS AND SUPPORTS

A. Manufacturers:

1. Hilti, Inc.
2. NIBCO Inc
3. nVent – Caddy
4. Globe Pipe Hanger Products
5. Substitutions: Section 01 60 00 - Product Requirements.

B. Conform to ASME B31.1,.

C. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.

D. Hangers for Hot Pipe Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.

E. Hangers for Hot Pipe Sizes 6 inches and Larger: Adjustable steel yoke, cast iron roll, double hanger.

F. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

G. Multiple or Trapeze Hangers for Hot Pipe Sizes 6 inches and Larger: Steel channels with welded spacers and hanger rods, cast iron roll.

H. Vertical Support: Steel riser clamp.

I. Floor Support for Hot Pipe 4 inches and Smaller: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

J. Floor Support for Hot Pipe Sizes 6 inches and Larger: Adjustable cast iron roll and stand, steel screws, and concrete pier or steel support.

- K. Copper Pipe Support: Carbon steel rings, adjustable, copper plated.
- L. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.
- M. Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare piping connections to equipment with flanges or unions.
- D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.

INSTALLATION - PIPE HANGERS AND SUPPORTS

- E. Install in accordance with ASME B31.9 and MSS SP 89.
- F. Support horizontal piping as scheduled.
- G. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
- H. Place hangers within 12 inches of each horizontal elbow.
- I. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
- J. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
- K. Where installing several pipes in parallel and at same elevation, provide multiple pipe hangers or trapeze hangers.
- L. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
- M. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- N. Install pipe hangers and supports in accordance with Section 23 05 29.

3.2 INSTALLATION - ABOVE GROUND PIPING SYSTEMS

- A. Install steam supply and steam condensate return piping in accordance with ASME B31.1.
- B. Route piping parallel to building structure and maintain gradient.
- C. Install piping to conserve building space, and not interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Sleeve pipe passing through partitions, walls and floors. Refer to Section 23 05 29.
- F. Install pipe identification in accordance with Section 23 05 53.
- G. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. Refer to Section 23 05 16.
- H. Provide access where valves and fittings are not exposed.
- I. Slope steam supply piping one inch in 40 feet in direction of flow. Use eccentric reducers to maintain bottom of pipe aligned.
- J. Slope steam condensate piping one inch in 40 feet. Use eccentric reducers to maintain bottom of pipe aligned.
- K. Provide drip trap assembly at low points, risers, changes in elevation and before control valves.
- L. Run condensate lines from trap to nearest condensate receiver. Provide loop vents over trapped sections.
- M. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welds.
- N. Prepare unfinished pipe, fittings, supports, and accessories, ready for finish painting. Refer to Section 09 90 00.
- O. Install valves with stems upright or horizontal, not inverted.

3.3 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Test low pressure steam supply piping low pressure steam condensate piping in accordance with ASME B31.9.

3.4 SCHEDULES

- A. Pipe Hanger Spacing:

PIPE SIZE Inches	COPPER TUBING MAXIMUM HANGER SPACING Feet	STEEL PIPE MAXIMUM HANGER SPACING Feet	COPPER TUBING HANGER ROD DIAMETER Inches	STEEL PIPE HANGER ROD DIAMETER Inches
1/2	5	7	3/8	3/8
3/4	5	7	3/8	3/8
1	6	7	3/8	3/8
1-1/4	7	7	3/8	3/8
1-1/2	8	9	3/8	3/8
2	8	10	3/8	3/8
2-1/2 (Note 1)	9	11	1/2	1/2
3	10	12	1/2	1/2
4	12	14	1/2	5/8
5	13	16	1/2	5/8
6	14	17	5/8	3/4
8	16	19	3/4	3/4
10	18	22	3/4	7/8
12	19	23	3/4	7/8
14	22	25	7/8	1
16	23	27	7/8	1
18	25	28	1	1
20	27	30	1	1-1/4
24	28	32	1-1/4	1-1/4

B. Note 1: Refer to manufacturer's recommendations for grooved end piping systems.

END OF SECTION

SECTION 23 22 16

STEAM AND CONDENSATE PIPING SPECIALTIES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Flexible connectors.
 - 2. Pressure gages.
 - 3. Pressure gage taps.
 - 4. Strainers.
 - 5. Steam traps.
 - 6. Steam air vents.
 - 7. Flash tanks.
 - 8. Pressure-reducing valves.
 - 9. Steam safety valves.
 - 10. Steam condensate meters.
- B. Related Sections:
 - 1. Section 23 22 13 - Steam and Condensate Heating Piping: Execution requirements for piping connections to products specified by this section.

1.2 REFERENCES

- A. American Society of Mechanical Engineers:
 - 1. ASME B40.1 - Gauges - Pressure Indicating Dial Type - Elastic Element.
 - 2. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.
- B. ASTM International:
 - 1. ASTM A105/A105M - Standard Specification for Carbon Steel Forgings for Piping Applications.
 - 2. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - 3. ASTM A216/A216M - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service.
 - 4. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures.
- C. Underwriters Laboratories Inc.:
 - 1. UL 393 - Indicating Pressure Gauges for Fire-Protection Service.
 - 2. UL 404 - Gauges, Indicating Pressure, for Compressed Gas Service.

1.3 PERFORMANCE REQUIREMENTS

- A. Steam Traps:
 - 1. Select to handle minimum of two times maximum condensate load of apparatus served.

2. Pressure Differentials:
 - a. Low Pressure Systems (5 psi and less): 1/4 psi.
 - b. Low Pressure Systems (15 psi maximum): 2 psi.
 - c. Medium Pressure Steam (25 psi maximum): 5 psi.
 - d. Medium Pressure Steam (40 psi maximum): 10 psi.
 - e. Medium Pressure Steam (60 psi maximum): 15 psi.
 - f. High Pressure Steam (100 psi maximum): 30 psi.
 - g. High Pressure Steam (150 psi maximum): 40 psi.

1.4 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.
- B. Product Data: Submit for manufactured products and assemblies used in this Project.
 1. Manufacturer's data and list indicating use, operating range, total range, accuracy, and location for manufactured components.
 2. Submit product description, model, dimensions, component sizes, rough-in requirements, service sizes, and finishes.
 3. Submit schedule indicating manufacturer, model number, size, location, rated capacity, load served, and features for each piping specialty.
 4. Submit electrical characteristics and connection requirements.
- C. Manufacturer's Installation Instructions: Submit hanging and support methods, joining procedures, application, selection, and hookup configuration. Include pipe and accessory elevations.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit instructions for calibrating instruments, installation instructions, assembly views, servicing requirements, lubrication instruction, and replacement parts list.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

- B. Accept piping specialties on site in shipping containers with labeling in place. Inspect for damage.
- C. Provide temporary protective coating on cast iron and steel valves.
- D. Protect systems from entry of foreign materials by temporary covers, caps and closures, completing sections of the work, and isolating parts of completed system until installation.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Section 01 60 00 - Product Requirements.
- B. Do not install instruments when areas are under construction, except rough in, taps, supports and test plugs.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements before fabrication.

1.10 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer warranty for piping specialties.

PART 2 PRODUCTS

2.1 FLEXIBLE CONNECTORS

- A. Manufacturers:
 - 1. Flex-Hose Co.
 - 2. Flex-Weld, Inc.
 - 3. Substitutions: Section 01 60 00 - Product Requirements.
- B. Corrugated stainless steel hose with single layer of stainless steel exterior braiding, minimum 9 inches long with copper tube ends; for maximum working pressure 500 psig.

2.2 PRESSURE GAGES

- A. Manufacturers:
 - 1. Watts
 - 2. Zurn Industries
 - 3. Substitutions: Section 01 60 00 - Product Requirements.
- B. Gage: ASME B40.1, UL 393 with bourdon tube, rotary brass movement, brass socket, front calibration adjustment, black scale on white background.
 - 1. Case: Steel.
 - 2. Bourdon Tube: Brass.

3. Dial Size: 2 inch diameter.
4. Mid-Scale Accuracy: One percent.
5. Scale: Both psi and kPa.

2.3 PRESSURE GAGE TAPS

- A. Manufacturers:
 1. Hayward Flow Control
 2. Substitutions: Section 01 60 00 - Product Requirements.
- B. Needle Valve: Brass, 1/4 inch NPT for minimum 300 psi.
- C. Ball Valve: Brass, 1/8 inch NPT for 250 psi.
- D. Pulsation Damper: Pressure snubber, brass with 1/4 inch NPT connections.
- E. Siphon: Steel, Schedule 40 Brass, 1/4 inch NPT angle or straight pattern.

2.4 STRAINERS

- A. Manufacturers:
 1. Hayward Flow Control
 2. NIBCO Inc.
 3. Zurn Industries
 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Size 2 inch and Smaller:
 1. Screwed brass or iron body for 175 psig working pressure, Y pattern with 1/32 inch stainless steel perforated screen.
- C. Size 2-1/2 inch to 4 inch:
 1. Flanged iron body for 175 psig working pressure, Y pattern with 3/64 inch stainless steel perforated screen.
- D. Size 5 inch and Larger:
 1. Flanged iron body for 175 psig working pressure, basket pattern with 1/8 inch stainless steel perforated screen.

2.5 INVERTED BUCKET TRAPS

- A. Manufacturers:
 1. Armstrong International
 2. Sterling
 3. Watts
 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. Trap:

1. Construction: ASTM A126, Cast iron or semi-steel body with bolted cover, brass or stainless steel bucket, stainless steel seats and plungers, and stainless steel lever mechanism with knife edge operating surfaces.
2. Rating: 60 psig WSP.
3. Features: Access to internal parts without disturbing piping, top test plug, bottom drain plugs.
4. Accessories: Integral inlet strainer of brass or stainless steel Integral inlet check valve integral bimetal air vent.

2.6 FLOAT AND THERMOSTATIC TRAPS

A. Manufacturers:

1. Armstrong International
2. Sterling
3. Watts
4. Substitutions: Section 01 60 00 - Product Requirements.

B. Trap:

1. Construction: ASTM A126, cast iron or semi-steel body and bolted cover, stainless steel or bronze bellows type air vent, stainless steel or copper float, stainless steel lever and valve assembly
2. Rating: 15 psig WSP.
3. Features: Access to internal parts without disturbing piping, bottom drain plug.
4. Accessories: Gage glass with shut-off cocks.

2.7 THERMOSTATIC TRAPS

A. Manufacturers:

1. Armstrong International
2. Sterling
3. Watts
4. Substitutions: Section 01 60 00 - Product Requirements.

B. Pressure Balanced:

1. Trap: ASTM A395/A395M cast iron ASTM A216/A216M WCB cast steel body and bolted or screwed cover and integral ball joint union for 125 psig WSP. Phosphor bronze bellows, stainless steel valve and seat; integral stainless steel strainer.

C. Freeze Proof:

1. Trap: Cast iron body for 300 psig WSP, bronze bellows, stainless steel valve and seat, external adjustment.

D. Bimetallic:

1. Trap: ASTM A105/A105M forged steel body and cover, for 300 psig WSP, bimetal element with stainless steel components, integral Type 304 stainless steel strainer screen, 1/4 inch blow down valve.

2.8 STEAM AIR VENTS

- A. Manufacturers:
 - 1. Armstrong International;
 - 2. Watts
 - 3. Spirax Sarco Limited
 - 4. Substitutions: Section 01 60 00 - Product Requirements.
- B. 125 psig WSP:
 - 1. Balanced Pressure Type: Cast brass body and cover; access to internal parts without disturbing piping; stainless steel bellows, stainless steel valve and seat.
- C. 225 psig WSP:
 - 1. Balanced Pressure Type: ASTM A126 cast iron body and cover; access to internal parts without disturbing piping; phosphor bronze bellows, stainless steel valve and seat.

2.9 PRESSURE REDUCING VALVES

- A. Manufacturers
 - 1. Armstrong International;
 - 2. Spirax Sarco Limited
 - 3. Substitutions: Section 01 60 00 - Product Requirements.
- B. Bronze or cast iron body, stainless or chrome steel valve spring, stem, and trim, phosphor bronze diaphragm, direct acting, threaded 2 inches and smaller, flanged 2 inches and larger.

PART 3 EXECUTION

3.1 INSTALLATION - GAGES

- A. Install pressure gages with pulsation dampers. Provide needle valve or ball valve to isolate each gage. Extend nipples to allow clearance from insulation.
- B. Provide instruments with scale ranges selected according to service with largest appropriate scale.
- C. Install gages in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.
- D. Adjust gages to final angle, clean windows and lenses, and calibrate to zero.

3.2 INSTALLATION - STEAM SYSTEM SPECIALTIES

- A. Steam Traps:
 - 1. Provide minimum 3/4 inch size on steam mains and branches.
 - 2. Install with union or flanged connections at both ends.
 - 3. Provide gate valve and strainer at inlet, and gate valve and check valve at discharge.
 - 4. Provide minimum 10 inch long, line size dirt pocket between apparatus and trap.

- B. Install thermostatic steam traps on the following pieces of equipment:
 - 1. Steam radiation units.
 - 2. Convectors.
 - 3. Unit ventilators.
 - 4. Other similar terminal heating units.
- C. Install float and thermostatic steam traps on the following pieces of equipment:
 - 1. Unit heaters.
 - 2. Unit ventilators.
 - 3. Heat exchangers.
 - 4. Heating coils.
 - 5. Steam separators.
 - 6. Flash tanks.
 - 7. Steam jacketed equipment.
 - 8. Direct steam injected equipment.
 - 9. De-aerators.
 - 10. Absorption chillers.
 - 11. Process equipment.
 - 12. Main headers.
 - 13. Branch lines.
- D. Install inverted bucket steam traps on the following pieces of equipment:
 - 1. Main headers.
 - 2. Branch lines.
 - 3. Steam jacketed equipment.
 - 4. Direct steam injected equipment.
 - 5. De-aerators.
 - 6. Absorption chillers.
- E. In high pressure and medium pressure mains, install 3/4 inch nipple in bottom of main, extending 3/4 inch into and above bottom of pipe. Provide dirt pocket with 1/2 inch high pressure thermostatic trap.
- F. Install pressure-reducing stations with pressure reducing valve, bypass with valve, strainer and pressure gage on upstream side, relief valve and pressure gage on downstream side of pressure reducing valve.
- G. Provide one stage pressure-reducing station producing flat reduced pressure curve over range of capacity.
- H. Rate relief valves for pressure upstream of pressure reducing station, for full operating capacity. Set relief at maximum 20 percent above reduced pressure.

3.3 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for protecting installed construction.

- B. Remove thermostatic elements from steam traps during temporary and trial usage, and until system has been operated and dirt pockets cleaned of sediment and scale.
- C. Do not install steam pressure gauges until after systems are pressure tested.

END OF SECTION

SECTION 23 52 23 - CAST-IRON BOILERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cast-iron boilers.
 - 2. Boiler controls.
 - 3. Steam boiler trim.
 - 4. Natural gas fired burner.
- B. Related Sections:
 - 1. Section 23 11 23 - Facility Natural-Gas Piping: Execution requirements for natural gas piping connections to boilers specified in this section.
 - 2. Section 23 22 13 - Steam and Condensate Heating Piping: Execution requirements for steam piping for piping connections to boilers specified in this section.
 - 3. Section 23 51 00 - Breechings, Chimneys, and Stacks: Execution requirements for breeching, chimney, and stack connections to boilers specified in this section.

1.2 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI Z21.13 - Gas-fired Low Pressure Steam and Hot Water Boilers.
- B. American Society of Heating, Refrigerating and Air-Conditioning Engineers:
 - 1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
- C. American Society of Mechanical Engineers:
 - 1. ASME Section I - Boiler and Pressure Vessel Code - Power Boilers.
 - 2. ASME Section IV - Boiler and Pressure Vessel Code - Heating Boilers.
 - 3. ASME Section VIII - Boiler and Pressure Vessel Code - Pressure Vessels.
- D. Hydronics Institute:
 - 1. H.I. Heating Boiler Standard - Testing and Rating Standard for Heating Boilers.
- E. National Electrical Manufacturers Association:
 - 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- F. National Fire Protection Association:
 - 1. NFPA 54 - National Fuel Gas Code.
- G. Underwriters Laboratories Inc.:
 - 1. UL 726 - Oil-Fired Boiler Assemblies.

1.3 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures: Submittal procedures.

- B. Product Data: Submit capacities and accessories included with boiler. Include general layout, dimensions, size and location of, steam, fuel, electric and vent connections, electrical characteristics, weight and mounting loads.
- C. Test Reports: Indicate boilers meet or exceed specified performance and efficiency. Submit results of combustion test.
- D. Manufacturer's Installation Instructions: Submit assembly, support details, connection requirements, and include start-up instructions.
- E. Manufacturer's Certificate: Certify products meet or exceed specified requirements.
- F. Manufacturers Field Reports: Indicate condition of equipment after start-up including control settings and performance chart of control system.

1.4 CLOSEOUT SUBMITTALS

- A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
- B. Operation and Maintenance Data: Submit manufacturer's descriptive literature, operating instructions, cleaning procedures, replacement parts list, and maintenance and repair data.

1.5 QUALITY ASSURANCE

- A. Conform to ASME Section IV for construction of boilers. Provide boilers registered with National Board of Boiler and Pressure Vessel Inspectors.
- B. Boiler Performance Requirements: Conform to minimum efficiency prescribed by ASHRAE 90.1 when tested in accordance with H.I. Heating Boiler Standard.
- C. Unit Certification: AGA certified.
- D. Conform to applicable code for internal wiring of factory wired equipment.
- E. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., as suitable for purpose specified and indicated.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing Work of this section with minimum three years experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Product storage and handling requirements.

- B. Accept boilers and accessories on site in factory shipping packaging. Inspect for damage.
- C. Protect boilers from damage by leaving packing in place until installation.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.9 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Product warranties and product bonds.
- B. Furnish five year manufacturer's warranty for boilers.

PART 2 PRODUCTS

2.1 CAST-IRON BOILERS

- A. Manufacturers"
 - 1. Weil McLain
 - 2. Substitutions: Section 01 60 00 - Product Requirements.
- B. Product Description: Steam boilers with natural draft, insulated jacket, sectional cast-iron heat exchanger, gas burning system, refractory and, controls, and boiler trim.
- C. Boiler Fabrication:
 - 1. Assembly: Cast iron sections with 15 psig steam ASME Section IV rating, assembled with draw rods and sealed watertight.
 - 2. Furnish access for flue passages for cleaning and flame observation ports.
 - 3. Provide with sufficient tapings to install required controls.
- D. Steam Boiler Trim:
 - 1. High Pressure limit control (15 PSI maximum allowable steam pressure).
 - 2. Additional high pressure limit control with manual reset. (15 PSI maximum allowable steam pressure)
 - 3. Operating pressure limit control.
 - 4. Low water cut-off (LWCO). LWCO shall be float-mechanism type capable of shutting down the boiler in event of a low water situation.
 - 5. Additional low water cut-off (LWCO) with manual reset. LWCO shall be electrode type capable of shutting down the boiler in event of a low water situation.
 - 6. Steam compound pressure-vacuum gauge. Dial clearly marked and easy to read.
 - 7. A.S.M.E. certified pressure relief valve, set to relieve at 15 PSIG. Side outlet discharge type; installer to pipe outlet to floor drain or near floor.
 - 8. Gauge glass with gauge cocks and guards.
 - 9. Transformer rated for 75VA.
 - 10. Forced condensate return boiler(s) only: Low water cut-off (LWCO) and pump control.
 - a. LWCO with pump control must be specified when order is placed

- b. LWCO with pump control shall be float mechanism type capable of shutting down the boiler in event of a low water situation.
 - c. LWCO with pump control shall have a minimum full load pump circuit rating of 7 amperes at 120 VAC.
 - d. LWCO with pump control shall have a set of alarm contacts with a minimum rating of 1 ampere at 120 VAC.
- E. Boiler Fuel Burning System:
 - 1. Controls: Pre-wired, factory assembled electronic controls in control cabinet with flame scanner or detector, programming control, relays, and switches. Furnish pre-purge and post-purge ignition and shut down of burner in event of ignition pilot and main flame failure with manual reset.
- F. Electronic Control System – ASME CSD-1:
 - 1. The boilers shall be furnished with electronic control systems with factory pre-wired control panel for each base assembly.
 - 2. The electronic control systems shall incorporate pilot proving and main flame proving control modules to provide intermittent electronic pilot ignition with proven low-fire-start, high-fire-run mode of operation.
 - 3. The electronic control systems shall provide nominal fifteen 15 second flame response timing. The electronic control systems shall incorporate a manual reset lockout function in the event of either two (2) consecutive pilot flame failures or a single main flame failure. In the event of a lockout condition, the electronic control systems shall illuminate a red indicator light.
 - 4. The electronic control systems shall include contacts rated for 15 amps at 250 VAC for a remote alarm.
 - 5. The electronic control systems safety pilot burner for each boiler-base assembly shall be intermittent burning and electrically ignited. The safety pilot burner and main burner flames shall be electronically supervised by flame rectification.
- G. Boiler Performance:
 - 1. Capacity: As indicated on Drawings

PART 3 EXECUTION

3.1 INSTALLATION

- A. Assemble boiler from knockdown configuration after transporting into boiler room. Perform pressure test on boiler after assembly in accordance with the following:
 - 1. Pressure test before connecting natural gas piping, electrical connections, and controls.
 - 2. Install boiler drain and pressure gage.
 - 3. Plug remaining openings.
 - 4. Fill boiler with water and vent air.
 - 5. Pressure test to 45 to 55 psi for steam boilers for 10 minutes with no leaks.
 - 6. Repair leaks and retest.
 - 7. After successful test, drain and remove plugs from openings to be used for piping connections and controls.

- B. Install boilers plumb and level, to plus or minus **1/16 inch** over boiler base.
- C. Maintain manufacturer's recommended clearances around and over boilers.
- D. Install boiler on concrete housekeeping pad, minimum **3-1/2 inches** high and **6 inches** larger than boiler base on each side.
- E. Install boiler on vibration isolators.
- F. Connect natural gas piping in accordance with NFPA 54.
- G. Connect natural gas piping to boiler, full size of boiler gas train inlet. Arrange piping with clearances for burner removal and service.
- H. Connect steam piping to supply and return boiler connections.
- I. Install the following piping accessories on natural gas piping connections.
 - 1. Strainer.
 - 2. Pressure gage.
 - 3. Shutoff valve.
 - 4. Check valve.
 - 5. Pressure reducing valve.
- J. Install discharge piping from relief valves and drain valves to nearest floor drain.
- K. Install circulator and diaphragm expansion tank on boiler.
- L. Install boiler trim and accessories furnished loose for field mounting.
- M. Install electrical devices furnished loose for field mounting.
- N. Install control wiring between boiler control panel and field mounted control devices.
- O. Connect flue to boiler outlet, full size of outlet.

3.2 FIELD QUALITY CONTROL

- A. Section 01 70 00 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.
- B. Perform combustion test including boiler firing rate, over fire draft, gas flow rate, heat input, burner manifold gas pressure, percent carbon monoxide, percent oxygen, percent excess air, flue gas temperature at outlet, ambient temperature, net stack temperature, percent stack loss, percent combustion efficiency, and heat output. Perform test at minimum, mid-range, and high fire.
- C. Arrange with local authorities having jurisdiction for inspection of boiler, piping, and for certificate of operation.

3.3 MANUFACTURER'S FIELD SERVICES

- A. Section 01 40 00 - Quality Requirements: Requirements for manufacturer's field services.
- B. Start-up boilers according to manufacturer's start-up instructions and in presence of boiler manufacturer's representative. Test controls and demonstrate compliance with requirements. Adjust burner for maximum burning efficiency. Replace damaged or malfunctioning controls and equipment.

3.4 CLEANING

- A. Flush and clean boilers upon completion of installation, in accordance with manufacturer's start-up instructions.

3.5 DEMONSTRATION

- A. Demonstrate operation and maintenance procedures.
- B. Furnish services for manufacturer's technical representative for one 8 hour day to instruct Owner's personnel in operation and maintenance of boilers. Schedule training with Owner, provide at least 7 days notice to Architect/Engineer of training date.

END OF SECTION