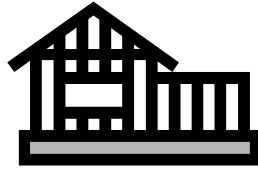


Due Date: February 8, 2023 at 2:00 p.m.

Perth Amboy Housing Authority



Project Manual and Specifications

for

Boiler and Hot Water Heater Replacements

Perth Amboy, NJ 08862



Contracting Officer:

Douglas G. Dzema, PHM, Executive Director
Perth Amboy Housing Authority
881 Amboy Avenue, P.O. Box 390
Perth Amboy, New Jersey 08862

TABLE OF CONTENTS

SECTION I

Introduction	3-4
Instructions to Bidders and Statutory Requirements.....	4
I. Submission of Bids.....	4-5
II. Bid Security and Bonding Requirements.....	5-6
III. Interpretations and Addenda.....	7
IV. Brand Names, Standards of Qualifications and Performance.....	7-8
V. Insurance and Indemnification.....	8
VI. Pricing Information for Preparation of Bids.....	9
VII. Statutory and Other Requirements.....	9-13
VIII. Method of Contract Award.....	13-14
IX. Causes for Rejecting Bids.....	14-15
X. Termination of Contract.....	15-16
XI. Payment.....	16
XII. Other Provisions.....	16-17
XIII. Qualifications.....	17-18
Public Notice-Invitation for Bid.....	19
Mandatory Equal Employment Opportunity Language.....	20-22
Americans with Disabilities Act of 1990 Language.....	23
NJ Anti Discriminations Provisions.....	24
Changed Conditions in Construction Contracts Provisions.....	25-27
Model Public Works Withdrawal of Bids Language.....	28

FORMS REQUIRING SIGNATURES

Bid Form.....	29
Consent of Surety.....	30
Affirmative Action Compliance Notice	31
Statement of Ownership Disclosure	32-33
Non-Collusion Affidavit.....	34
Acknowledgement of Receipt of Addenda.....	35
Disclosure of Investment Activities in Iran.....	36
Equipment Certification.....	37
References (Fill-in Only).....	38
Subcontractor Listing.....	39
Subcontractor Certification Form.....	40-41
Bidders or Subcontractors Qualifications.....	42-45

ADDITIONAL INFORMATION

Bid Document Checklist	46
Attachment A-Form of Contract.....	47-49

SECTION II

Section II.....	50
Technical Specifications.....	9 pages
Drawings.....	1 page

SECTION I

Perth Amboy Housing Authority

INVITATION FOR BIDS

Boiler and Hot Water Heater Replacements

I. INTRODUCTION

The Housing Authority of the City of Perth Amboy (Authority) will receive sealed bids for the Boiler and Hot Water Heater Replacements for George J. Otowski Sr. Gardens-24 units, Douglas G. Dzema Gardens-18 units, and John E. Sofield Gardens-16 units, located in Perth Amboy, NJ 08862 as per the technical specifications and drawings outlined in Section II of this Invitation for Bids (IFB). The work shall minimally include:

- a. Labor, Materials and Equipment to replace Heating Boiler and Hot Water Heater in 58 single family apartments.
- b. Demolition: Of existing boiler and hot water heater
- c. Installation[s] of new, Natural gas boiler and hot water storage tank.
- d. New Equipment venting.
- e. Minor carpentry repairs.
- f. Minor electric
- g. Work requirements:
 - a. Same day removal and replacement of equipment per apartment
 - b. No restrictions on how many apartments worked in a given day

Any prospective bidder who wishes to challenge a bid specification shall file such challenges in writing with the Authority no less than three business days prior to the opening of the bids. Challenges filed after that time shall be considered void and having no impact on the Authority unit or the award of a contract.

Sealed bids will be received until 2:00 p.m. prevailing time on Wednesday, February 8, 2023 at the Authority offices, 881 Amboy Ave., PO Box 390, Perth Amboy, NJ 08862, at which time all bids will be publicly opened and read aloud. **The pre-bid meeting** shall be on Tuesday, January 31, 2023 at 10:00 a.m. at the Perth Amboy Housing Authority, 881 Amboy Ave., Perth Amboy, NJ 08862.

All permitting fees, if any, relating to the construction of this project will be paid for by the contractor with no expense to the Authority.

All bidders must be licensed to do business in the State of New Jersey and shall have the equipment, knowledge, capability and manpower to successfully and expertly perform the work as per the specifications contained herein.

The contractor must also demonstrate through references that they, or their principles assigned to the project, have successfully completed services similar to the technical specifications section of this (IFB). Please refer to the Bidder's or Sub-Contractors Qualifications pages (included herein) for required qualifications.

The contractor must submit bids in the manner set forth in the Bid Submission section of this IFB. All applicable documents must be submitted at the Bid Opening.

Contractor must be licensed and certified and insured as required by state and federal regulations.

SCOPE OF SERVICES-The scope of services is including drawings and specifications are outlined in Section II of this bid document.

INSTRUCTION TO BIDDERS AND STATUTORY REQUIREMENTS

I. SUBMISSION OF BIDS-all Bidders shall follow the following instructions:

1. All bids must be delivered by mail or in person to the Authority, 881 Amboy Ave., PO Box 390, Perth Amboy, NJ 08862 in accordance with the public advertisement as required by law, with a copy of said notice included herein and made a part of these specifications. All late bids received by the Authority shall be returned unopened to the Bidder.
2. To ensure fair consideration for all bidders, the Authority prohibits communication to or with any employee of the Authority during the submission process. Additionally, the Authority prohibits communications initiated by a bidder to **any** Authority official or employee evaluating or considering the proposals before the time an award decision has been made. Any communication between bidder and the Authority will be initiated by the appropriate Authority official or employee in order to obtain information or clarification needed to develop a proper, accurate evaluation of the bid. Such communications initiated by a bidder may be grounds for disqualifying the offending bidder from consideration for award of the bid and/or any future bid.
3. In order to be acceptable, **the bid MUST be submitted in a sealed envelope on the outside of which shall be plainly marked "Boiler and Hot Water Heater Replacements", together with the name and address of the firm submitting the bid.** Bids will be received until **2:00 p.m.** or hand delivered no later than **2:00 p.m.** on February 8, 2023 at which time they will be publicly opened and read aloud at the offices of the Authority, 881 Amboy Ave., PO Box 390, Perth Amboy, NJ 08862.
4. It is the bidder's responsibility to present bids to the owner prior to or at the time and at the place designated. Bids may be hand delivered or mailed; however, the owner disclaims any responsibility for bids forwarded by regular or overnight mail. Bids sent by express mail or delivery service must either 1) include the designation in sub-section 3, above on the outside of the express mail or service envelope; or 2) must be in a separate envelope inside the delivery envelope and the envelope marked as required above. Bids received after the designated time and date will be returned unopened.
5. Sealed bids forwarded to the owner before the time of opening of bids may be withdrawn upon written application of the bidder who shall be required to produce evidence showing that the individual is or represents the principal or principals involved in the bid. Once bids have been opened, they shall remain firm for a period of sixty (60) calendar days.
6. More than one bid from an individual, a firm or partnership, a corporation or association under the same names shall not be considered.
7. All prices and amounts must be written in ink or preferably machine-printed. Bids containing any conditions, omissions, unexplained erasures or alterations, items not called for in the bid proposal form, attachment of additive information not required by the specifications, or irregularities of any kind, may be cause for rejection by the owner in accordance with applicable law. Any changes, whiteouts, strikeouts, etc. in the bid must be initialed in ink by the person signing the bid.
8. Each bid proposal form must give the full business address, business phone, fax, e-mail, the contact person of the bidder, and be signed by an authorized representative as follows:

- a. Bids by partnerships must be signed in the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the person signing.
- b. Bids by corporations must be signed in the legal name of the corporation, followed by the name of the State in which incorporated and must contain the signature and designation of the president, secretary or other person authorized to bind the corporation in the matter.
- c. Bids by sole-proprietorship shall be signed by the proprietor.
- d. When requested, satisfactory evidence of the authority of the officer signing shall be furnished.

9. Bidder should be aware of the following statutes that represent "Truth in Contracting" laws:

- a. N.J.S.A. 2C:21-34, et seq. governs false claims and representations by bidders. It is a serious crime for the bidder to knowingly submit a false claim and/or knowingly make material misrepresentation.
- b. N.J.S.A. 2C:27-10 provides that a public servant commits a crime if said public servant solicits or receives a benefit directly or indirectly, for an official act performed or to be performed by a public servant, which is a violation of official duty.
- c. N.J.S.A. 2C:27-11 provides that a bidder commits a crime if said person, directly or indirectly, confers or agrees to confer any benefit not allowed by law to a public servant.
- d. Bidder should consult the statutes or legal counsel for further information.

10. Pay-to-Play Disclosure - Business entities are advised of their responsibility to file an annual disclosure statement of political contributions with the New Jersey Election Law Enforcement Commission (ELEC) pursuant to N.J.S.A. 19:44A-20.27 if they receive contracts in excess of \$50,000 from public entities in a calendar year. Business entities are responsible for determining if filing is necessary. Additional information on this requirement is available from ELEC at 888-313-3532 or at www.elec.state.nj.us.

11. Official Request for Bid - Packages are available from the owner's website at www.PerthAmboyHA.org at no cost to the prospective respondents. All addenda are posted on this site. Potential respondents are cautioned that they are responding at their own risk if a third party supplied the specifications that may or may not be complete. The owner is not responsible for third party supplied documents. Respondents are urged to send their contact information to CSmolder@PerthAmboyHA.org (and receive proof that their contact information was received by the Authority) when bid documents are downloaded from the website so any addenda to these specifications can be sent to them.

12. A copy of the contract to be entered into with the successful bidder is included as Attachment "A".

II. BID SECURITY AND BONDING REQUIREMENTS-The following provisions shall be applicable to this bid and be made a part of the bid documents:

1. **Bid Guarantee**-Bidder shall submit with the bid a certified check, cashier's check or bid bond in the amount of ten percent (10%) of the total price bid, but not in excess of \$20,000, payable unconditionally to the owner. When submitting a Bid Bond, it shall contain Power of Attorney for full amount of Bid Bond from a surety company authorized to do business in the State of New Jersey and acceptable to the owner. The check or bond of the unsuccessful bidder(s) shall be returned pursuant to N.J.S.A. 40A:11-24a. The check or bond of the bidder to whom the contract is awarded shall be retained until a contract is executed and the required performance bond or other security is submitted. The check or bond of the successful bidder

shall be forfeited if the bidder fails to enter into a contract pursuant to N.J.S.A. 40A:11-21. The Bid Bond shall include a valid Power of Attorney authorizing the Attorney-in-Fact to execute the documents. Failure to submit a bid guarantee shall result in rejection of the bid.

The Bid Bond shall include a valid Power of Attorney authorizing the Attorney-in-Fact to execute the documents Failure to submit a bid guarantee shall result in rejection of the bid.

2. **Consent of Surety-** Bidder shall submit with the bid a Certificate (Consent) of Surety with Power of Attorney for full amount of bid price from a Surety Company authorized to do business in the State of New Jersey, and acceptable to the owner stating that it will provide said bidder with a Performance Bond in the full amount of the bid. This certificate shall be obtained in order to confirm that the bidder to whom the contract is awarded will furnish Performance and Payment Bonds from an acceptable surety company on behalf of said bidder, any or all subcontractors or by each respective subcontractor or by any combination thereof which results in performance security equal to the total amount of the contract, pursuant to N.J.S.A. 40A:11-22.

The Consent of Surety shall include a valid Power of Attorney authorizing the Attorney-in-Fact to execute the documents. Failure to submit a Consent of Surety form shall result in rejection of the bid.

3. **Performance Bond-**Bidder shall simultaneously with the delivery of the **executed contract**, submit an executed bond in the amount of one hundred percent (100%) of the acceptable bid as security for the faithful performance of this contract.

The performance bond provided shall not be released until final acceptance of the whole work and then only if any liens or claims have been satisfied. The surety on such bond or bonds shall be a duly authorized surety company authorized to do business in the State of New Jersey pursuant to N.J.S.A. 17:31-5. For multi-year contracts, the Performance Bond may be resubmitted each year on the Contract Anniversary Date for the amount remaining on the contract.

Failure to submit this with the executed contract shall be cause for declaring the contract null and void pursuant to N.J.S.A. 40A:11-22.

4. **Labor and Material Payment Bond-**The successful bidder shall with the delivery of the performance bond submit an executed payment bond to guarantee payment to laborers and suppliers for the labor and material used in the work performed under the contract.

Failure to submit a labor and material bond with the performance bond shall be cause for declaring the contract null and void.

5. **Maintenance Bond-**Upon acceptance of the work by the owner, the contractor shall submit a maintenance bond (N.J.S.A. 40A:11-16.3) in an amount not to exceed 100% of the project costs guaranteeing against defective quality of work or materials for the period of one year.

III. INTERPRETATIONS AND ADDENDA

1. The bidder understands and agrees that its bid is submitted on the basis of the specifications prepared by the owner. The bidder accepts the obligation to become familiar with these specifications.

2. Bidders are expected to examine the specifications and related bid documents with care and observe all their requirements. Ambiguities, errors or omissions noted by bidders should be promptly reported in writing to the appropriate official. Any prospective bidder who wishes to challenge a bid specification shall file such challenges in writing with the contracting agent no less than three business days prior to the opening of the bids. Challenges filed after that time shall be considered void and have no impact on the contracting unit or the award of a contract pursuant to N.J.S.A. 40A:11-13. In the event the bidder fails to notify the owner of such ambiguities, errors or omissions, the bidder shall be bound by the requirements of the specifications and the bidder's submitted bid.
3. No oral interpretation and or clarification of the meaning of the specifications for any goods and services will be made to any bidder. Such request shall be in writing, addressed to the owner's representative stipulated in the specification. In order to be given consideration, a written request must be received at least three (3) business days prior to the date fixed for the opening of the bid for goods and services.
4. All interpretations, clarifications and any supplemental instructions will be in the form of written addenda to the specifications and will be distributed to all prospective bidders. All addenda so issued shall become part of the specification and bid documents and shall be acknowledged by the bidder in the bid by completing the Acknowledgement of Receipt of Addenda form. The owner's interpretations or corrections thereof shall be final.

Pursuant to N.J.S.A. 40A:11-23(c)(1) when issuing addenda, the owner shall provide required notice prior to the official receipt of bids to any person who has submitted a bid or who has received a bid package. They will be sent from CSmolder@PerthAmboyHA.org. It is recommended that bidders include this address in the recipient email's contact list to ensure it is not routed to a junk email folder.

5. Discrepancies in Bids
 - a. If the amount shown in words and its equivalent in figures do not agree, the written words shall be binding. Ditto marks are not considered writing or printing and shall not be used.
 - b. In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall prevail. In the event there is an error of the summation of the extended totals, the computation by the owner of the extended totals shall govern.
6. Optional Pre-Bid Conference If stated in the Notice to Bidders: SEE INTRODUCTION.

IV. BRAND NAMES, STANDARDS OF QUALITY AND PERFORMANCE

1. Brand names and/or descriptions used in these specifications are to acquaint bidders with the types of goods and services desired and will be used as a standard by which goods and services offered as equivalent will be evaluated.
2. When a specification uses "brand name or equivalent," the listed brand name shall serve as a reference or point of comparison for the functional or operational characteristic desired for the good or service being requested. Where a bidder submits an equivalent, it shall be the responsibility of the bidder to document the equivalence claim. Failure to submit such documentation shall be grounds for rejection of the claim of equivalence.
3. In submitting its bid, the bidder certifies that the goods and services to be furnished will not infringe upon any valid patent or trademark and that the successful bidder shall, at its own expense, defend any and all actions or suits charging such infringement, and will save the owner harmless from any damages resulting from such infringement.

4. The contractor shall guarantee any or all goods and services supplied under these specifications. Defective or inferior goods shall be replaced at the expense of the contractor. The contractor will be responsible for return freight or restocking charges.

V. INSURANCE AND INDEMNIFICATION The insurance documents indicated below shall include but are not limited to the following coverages. The successful bidder shall provide coverage so that all insurance coverage must be in effect no later than 12:01 A.M. EST at the start of the day of the contract and remain in effect for the duration of the contract, including any extensions.

A. INSURANCE REQUIREMENTS

1. Worker's Compensation Insurance - Workers Compensation insurance shall be maintained in full force during the life of the contract, covering all employees engaged in performance of the contract pursuant to N.J.S.A. 34:15-12(a) and N.J.A.C. 12:235-1.6.
2. General Liability Insurance - General liability insurance shall be provided with limits of not less than \$1,000,000.00 any one person for bodily injury and \$1,000,000.00 aggregate for property damage, and shall be maintained in full force during the life of the contract.
3. Automobile Liability Insurance – Automotive Liability insurance covering contractor for claims arising from owned, hired and non-owned vehicles used on the site(s) or in connection therewith for limits of not less than \$500,000.00 for any one person and \$500,000.00 for any one accident for bodily injury and \$500,000.00 each accident for property damage, shall be maintained in full force during the life of the contract.
4. Other forms of insurance required.

B. CERTIFICATES OF THE REQUIRED INSURANCE

Certificates of Insurance for those policies required above shall be submitted with the contract. Such coverage shall be with an insurance company authorized to do business in the State of New Jersey and shall name the Authority and the project engineer / architect as an additional insured.

Self-insured contractors shall submit an affidavit attesting to their self-insured coverage. All certificates shall name the Authority and the project engineer / architect as additional insured.

C. INDEMNIFICATION

The contractor shall indemnify and hold harmless the owner, its officers, agents, servants, and employees from all claims, suits or actions, and damages or costs of every name and description to which the owner may be subjected or put by reason of injury to the person or property of another, or the property of the owner, resulting from:

- a. negligent acts or omissions on the part of the contractor, the contractor's agents, servants or subcontractors in the delivery of goods and services, or in the performance of the work under the contract; and,
- b. the use of any copyrighted or copyrighted composition, valid trademark, secret process, patented or unpatented invention or article furnished or used in the performance of this contract.

VI. PRICING INFORMATION FOR PREPARATION OF BIDS

1. A. The owner is exempt from any local, state or federal sales, use or excise tax. The owner will not pay for N.J. State Sales and Use Tax that are included in any invoices.

2. Estimated Quantities (Open-End Contracts): The owner has attempted to identify the item(s) and the estimated amounts of each item bid to cover its requirements; however, past experience shows that the amount ordered may be different than that submitted for bidding. The right is reserved to decrease or increase the quantities specified in the specifications pursuant to N.J.A.C. 5:30-11.2 and 11.10. NO MINIMUM PURCHASE IS IMPLIED OR GUARANTEED.
3. Contractor shall be responsible for obtaining any applicable permits or licenses from any government entity that has jurisdiction to require the same. All bids submitted shall have included this cost.
4. Bidders shall insert prices for furnishing goods and services required by these specifications. Prices shall be net, including any charges for packing, crating, containers, etc. All transportation charges shall be fully prepaid by the contractor, F.O.B. destination and placement at locations specified by the owner. As specified, placement may require inside deliveries. No additional charges will be allowed for any transportation costs resulting from partial shipments made for the contractor's convenience.
5. In the event of a public emergency declared at the local, state or federal level prior to the expiration of the contract, if the owner opts to extend terms and conditions of the contract, the contractor agrees to extend the terms and conditions of this specification, whether existing or expiring for no longer than six months, for goods and/or services for the duration of the emergency.

VII. STATUTORY AND OTHER REQUIREMENTS

The following are mandatory requirements of this bid and contract.

1. DOCUMENT CHECKLIST: Bidder shall complete and sign the Bid Submission Document Checklist and include it in the bid submission. For construction bids, failure to submit the checklist is a fatal defect and the bid will be rejected. This document serves as a guide to bidders of the documents that are required to be submitted with the bid.
2. THE BID FORM (included herein). Failure to submit the bid form shall result in rejection of the bid.
3. THE BID GUARANTEE with a valid Power of Attorney authorizing the Attorney-in Fact to execute the documents Failure to submit a bid guarantee shall result in rejection of the bid.
4. THE CONSENT OF SURETY with a valid Power of Attorney authorizing the Attorney-in-Fact to execute the documents. Failure to submit a Consent of Surety form shall result in rejection of the bid.
5. A SIGNED ACKNOWLEDGEMENT OF RECEIPT OF ADDENDA (included herein)-Bidders shall submit this form whether or not an addendum has been issued. Failure to submit a signed Acknowledgement of Receipt of Addenda shall result in rejection of the bid.
6. BIDDER'S AND SUBCONTRACTORS QUALIFICATIONS (included herein)-All bidders and subcontractors must fill out this form in its entirety. Failure to submit this form for the bidder and each subcontractor shall result in rejection of the bid. See section XIII for more information.
7. LISTING OF SUBCONTRACTORS/SUBCONTRACTOR CERTIFICATION FORM (included herein)-Pursuant to N.J.S.A. 40A:11-16 et. seq., a list of all subcontractors to be used for this project shall be included with the bid, including the subcontractors' business registration certificates. All subcontractors must be licensed to do business in the State of New Jersey. All subcontractors shall be expected, prior to award, to demonstrate sufficient man power and expertise to complete the applicable portion of the project in its entirety. All payments to subcontractors shall be made directly to the subcontractors who shall be expected to submit payroll certifications before payment to the subcontractor is made.

Electrical subcontractors, if applicable, must be licensed electrical contractors recognized by the New Jersey State Board of Electricians, have a current license and business permit and must submit documents proving such status.

All subcontractors not listed in this section shall be properly licensed to do business in the State of New Jersey, and shall submit proof of such licensure.

Failure to submit a listing of subcontractors and certification forms for **each** subcontractor shall result in rejection of the bid.

8. STATEMENT OF OWNERSHIP-N.J.S.A. 52:25-24.2 provide that no business organization, regardless of form of ownership shall be awarded any contract for the performance of any work or the furnishing of any goods and services, unless, **prior to the receipt of the bid or accompanying the bid** of said business organization, bidders shall submit a statement setting forth the names and addresses of all persons and entities that own ten percent or more of its stock or interest of any type at all levels of ownership. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the ten percent ownership, has been listed.

The included Statement of Ownership shall be completed and attached to the bid proposal. This requirement applies to all forms of business organizations, including, but not limited to, corporations and partnerships, publicly-owned corporations, limited partnerships, limited liability corporations, limited liability partnerships, sole proprietorship, and Subchapter S corporations. Failure to submit a disclosure document shall result in rejection of the bid as it cannot be remedied after bids have been opened.

Not-for-profit entities should fill in their name, check the not-for-profit box, and certify the form. No other information is necessary.

9. MANDATORY AFFIRMATIVE ACTION CERTIFICATION-No firm may be issued a contract unless it complies with the affirmative action provisions of N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1 et seq. as administered by the Division of Purchase & Property Contract Compliance and Audit Unit (Division) and provided below. The contract will include the language included herein.
- a. Goods, Professional Services and General Service Contracts Each contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:
 - i. A Letter of Federal Approval indicating that the vendor is under an existing federally approved or sanctioned affirmative action program. A copy of the approval letter must be provided by the vendor to the Public Agency and the Division. This approval letter is valid for one year from the date of issuance.
 - ii. A Certificate of Employee Information Report (hereafter "Certificate"), issued in accordance with N.J.A.C. 17:27 et seq. The vendor must provide a copy of the Certificate to the Public Agency as evidence of its compliance with the regulations. The Certificate represents the review and approval of the vendor's Employee Information Report, Form AA-302 by the Division.
 - iii. The successful bidder shall complete an Initial Employee Report, Form AA-302 and submit it to the Division with a check or money order for \$150.00 made payable to

“Treasurer, State of NJ” and forward a copy of the Form to the Public Agency. Upon submission and review by the Division, the Report shall constitute evidence of compliance with the regulations

10. NEW JERSEY ANTI-DISCRIMINATION-The contract for this bid shall require that the contractor agrees not to discriminate in employment and agrees to abide by all anti-discrimination laws including but not limited to N.J.S.A. 10:2-1 as included herein.
11. AMERICANS WITH DISABILITIES ACT OF 1990-Discrimination on the basis of disability in contracting for the purchase of goods and services is prohibited. If awarded the contract, the contractor is required to comply with requirements related to the Americans with Disabilities Act as provided herein. The contractor is obligated to comply with the Act and to hold the owner harmless for any violations committed under the contract.
12. PROOF OF BUSINESS REGISTRATION-Pursuant to N.J.S.A. 52:32-44, the Perth Amboy Housing Authority (“Contracting Agency”) is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s). Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

- a. the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- b. the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.
- c. the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at www.state.nj.us/treasury/revenue/busregcert.shtml.

Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

Emergency Purchases or Contracts

For purchases of an emergent nature, the contractor shall provide its Business Registration Certificate within two weeks from the date of purchase or execution of the contract or prior to payment for goods or services, whichever is earlier.

13. DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

N.J.S.A. 52:32-55 prohibits State and local public contracts with persons or entities engaging in certain investment activities in energy or finance sectors of Iran. Bidders must indicate if they comply with the law by certifying the form. Pursuant to N.J.S.A. 40A:11-2.1 the owner is required to notify the New Jersey Attorney General if it determines a false certification has been submitted.

14. AMERICAN GOODS AND PRODUCTS TO BE USED WHERE POSSIBLE

Only manufactured and farm products of the United States, wherever available, shall be used pursuant to N.J.S.A. 40A:11-18.

15. NON-COLLUSION AFFIDAVIT-

The Affidavit shall be properly executed and submitted with the bid proposal.

16. NEW JERSEY WORKER AND COMMUNITY RIGHT TO KNOW ACT

The manufacturer or supplier of chemical substances or mixtures shall label them in accordance with the N.J. Worker and Community Right to Know Law (N.J.S.A. 34:5A-1 et seq., and N.J.A.C. 8:59-1.1 et seq.). All direct use containers shall bear a label indicating the chemical name(s) and Chemical Abstracts Service number(s) of all hazardous substances in the container, and all other substances which are among the five most predominant substances in the container, or their trade secret registry number(s) pursuant to N.J.A.C. 8:59-5. "Container" means a receptacle used to hold a liquid, solid or gaseous substance such as bottles, bags, barrels, cans, cylinders, drums and cartons. (N.J.A.C. 8:59-1.3). Further, all applicable Material Safety Data Sheets (MSDS) - hazardous substance fact sheet - must be furnished. All containers which are stored at an owner's facilities by the contractor or subcontractors shall display RTK labeling. Vendors with questions concerning labeling should contact the New Jersey Department of Health and Senior Services Right to Know Program for assistance in developing proper labels. www.nj.gov/health/workplacehealthandsafety/right-to-know/

17. PREVAILING WAGE ACT

Pursuant to N.J.S.A. 34:11-56.25 et seq., contractors on projects for public work shall adhere to all requirements of the New Jersey Prevailing Wage Act. The contractor shall be required to submit a certified payroll record to the owner within ten (10) days of the payment of the wages. In the event it is found that any worker, employed by the contractor or any subcontractor has been paid a rate of wages less than the prevailing wage required to be paid, the owner may terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and the contractor and subcontractor then be required to continue the work to completion or otherwise.

The contractor is also responsible for obtaining and submitting all subcontractors' certified payroll records within the aforementioned time period. The contractor shall submit said certified payrolls in the form set forth in N.J.A.C. 12:60- 6.1(c). It is the contractor's responsibility to obtain any additional copies of the certified payroll form to be submitted by contacting the New Jersey Department of Labor and Workforce Development, Division of Workplace Standards.

Additional information is available at
http://lwd.dol.state.nj.us/labor/wagehour/wagerate/pwr_construction.html

Bidders are responsible for checking for updates to the rates, if any, to properly bid this contract, and in no way are to assume that the rates listed herein are current.

The Contractor shall be responsible for maintaining payroll records and must make such records available to the PHA and/or to HUD, on request. The Contractor may use form WH-347 available online or by request to the Authority.

18. PUBLIC WORKS CONTRACTOR REGISTRATION ACT

N.J.S.A. 34:11-56.48 et seq. requires that a general or prime contractor and any listed subcontractors named in the contractor's bid proposal shall possess a certificate at the time the bid proposal is submitted. After bid proposals are received and prior to award of contract, the successful contractor shall submit a copy of the contractor's certification along with those of all listed subcontractors. All non-listed subcontractors and lower tier sub-subcontractors shall be registered prior to starting work on the project. It is the general contractor's responsibility that all non-listed subcontractors at any tier have their certificate prior to starting work on the job.

Under the law a "contractor" is "a person, partnership, association, joint stock company, trust, corporation or other legal business entity or successor thereof who enters into a contract" which is subject to the provisions of the New Jersey Prevailing Wage Act [N.J.S.A. 34:11-56.25, et seq.] It applies to contractors based in New Jersey or in another state.

To register, a contractor must provide the State Department of Labor with a full and accurately completed application form. The form is available online at
www.state.nj.us/labor/lssc/lspubcon.html.

N.J.S.A. 34:11-56.55 specifically prohibits accepting applications for registration as a substitute for a certificate of registration.

19. EQUIPMENT CERTIFICATION Bidder shall certify on the Equipment Certification form that they control or have access to equipment necessary to do the required work if awarded the contract. If the bidder does not own or lease the equipment, a certification from the owner of the equipment that the bidder will have access to the equipment is required with the bid. (N.J.S.A. 40:11-20).

20. REFERENCES-Submit at least three references.

VIII. METHOD OF CONTRACT AWARD

The length of the contract shall be stated in the technical specifications. Pursuant to requirements of N.J.A.C. 5:30-5.1 et seq., any contract resulting from this bid shall be subject to the availability and appropriation of sufficient funds annually. Please see Section X, Termination of Contract, Sub-section E, for additional information.

If the award is to be made on the basis of a base bid only, it shall be made to that responsible bidder submitting the lowest base bid.

If the award is to be made on the basis of a combination of a base bid with selected options, it shall be made to that responsible bidder submitting the lowest net bid.

The owner may also elect to award the contract on the basis of unit prices.

The form of contract shall be submitted by the owner to the successful bidder. Terms of the specifications/bid package prevail. Bidder exceptions must be formally accepted by the owner; material exceptions shall not be approved.

Successful bidder/respondent shall complete W-9 Form and submit to the owner prior to contract award. The form is available at the following link: www.irs.gov/pub/irs-pdf/fw9.

One contract for the work shall be awarded to the lowest responsive, responsible bidder(s). Please refer to form HUD – 5370-EZ, a copy of which is included herein, for general conditions of the contract, as these will be made part of the final contract.

After the contract has been awarded, but before any work is started against the contract, the Contract Administrator shall conduct an orientation conference with the Contractor and appropriate representatives of the Authority. The purpose of the orientation conference is to aid both Authority and Contractor personnel to achieve a clear and mutual understanding of general contract requirements. However, this conference shall not relieve the Contractor of responsibility for complying with any of the terms and conditions of the contract.

In the rare event of equal bids, where two or more low bids are considered equal in all respects (including the evaluation of qualifications by the Authority's architect), the award will be decided by drawing lots in the presence of the bidders who submitted the tie bids.

If the post-award orientation is held, the Contract Administrator will provide specific details regarding the date, time, and location of the conference, and information regarding the items/topics to be discussed.

After the contract has been awarded, the Authority may at its sole discretion assign the contract, in whole or in part, to an affiliate or instrumentality of the Authority or an entity controlled by the Authority, its affiliate, or its instrumentality. Assignment of the contract by the Authority does not relieve the Contractor of responsibility for complying with any of the terms and conditions of the contract. The Authority's right to assign the contract is unilateral and does not create any assignment rights for the Contractor.

IX. CAUSES FOR REJECTING BIDS

- A. All bids pursuant to N.J.S.A. 40A:11-13.2;
- B. If more than one bid is received from an individual, firm or partnership, corporation or association under the same name;
- C. Multiple bids from an agent representing competing bidders;
- D. The bid is inappropriately unbalanced;
- E. The bidder is determined to possess, pursuant to N.J.S.A. 40A:11-4b, Prior Negative Experience; or,

F. If the successful bidder fails to enter into a contract within 21 days, Sundays and holidays excepted, or as otherwise agreed upon by the parties to the contract. In this case at its option, the owner may accept the bid of the next lowest responsible bidder. (N.J.S.A. 40A:11-24b)

X. TERMINATION OF CONTRACT

- A. If, through any cause, the contractor shall fail to fulfill in a timely and proper manner obligations under the contract or if the contractor shall violate any of the requirements of the contract, the owner shall there upon have the right to terminate the contract by giving written notice to the contractor of such termination and specifying the effective date of termination. Such termination shall relieve the owner of any obligation for balances to the contractor of any sum or sums set forth in the contract. Owner will pay only for goods and services accepted prior to termination.
- B. Notwithstanding the above, the contractor shall not be relieved of liability to the owner for damages sustained by the owner by virtue of any breach of the contract by the contractor and the owner may withhold any payments to the contractor for the purpose of compensation until such time as the exact amount of the damage due the owner from the contractor is determined.
- C. The contractor agrees to indemnify and hold the owner harmless from any liability to subcontractors/suppliers concerning payment for work performed or goods supplied arising out of the lawful termination of the contract by the owner under this provision.
- D. In case of default by the contractor, the owner may procure the goods or services from other sources and hold the contractor responsible for any excess cost.
- E. Continuation of the terms of the contract beyond the fiscal year is contingent on availability of funds in the following year's budget. In the event of unavailability of such funds, the owner reserves the right to cancel the contract.
- F. It is understood by all parties that if, during the life of the contract, the contractor disposes of his/her business concern by acquisition, novation, merger, sale and or/transfer or by any means convey his/her interest(s) to another party, all obligations are transferred to that new party. In this event, the new owner(s) will be required to submit all documentation/legal instruments that were required in the original bid/contract. Any change shall be approved by the Owner.
- G. The contractor will not assign any interest in the contract and shall not transfer any interest in the same without the prior written consent of the owner.
- H. The owner may terminate the contract for convenience by providing 60 calendar days advanced notice to the contractor.
- I. The contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.
- J. For contracts that exceed one year, each fiscal year payment obligation of the owner is conditioned upon the availability of owner funds appropriated or allocated for the payment of such an obligation. If funds are not allocated and available for the continuance of any services performed by the bidder awarded the contract (contractor) hereunder, whether in whole or in part, the owner at the end of any particular fiscal year may terminate such services. The owner will notify the contractor in writing immediately of any services that will be affected by a shortage of appropriated funds. This provision shall not be construed so as to permit the owner to terminate the contract during the term, or any service hereunder, merely in order to acquire identical services from another contractor.

- K. Neither party shall be responsible for any resulting loss or obligation to fulfill duties as specified in any of the terms or provisions of a contract if the fulfillment of any term or provision of the contract is delayed or prevented by any revolutions, insurrections, riots, wars, acts of enemies, national emergencies, strikes, floods, fires, acts of God, or by any cause not within the control of the party whose performance is interfered with which by the exercise of reasonable diligence such party is unable to prevent. Additionally, if the fulfillment of any of the terms and provisions of the contract is delayed or prevented by any court order, or action or injunction or other such agreement, the contract shall become voidable by the owner by notice to the parties.

XI. PAYMENT

The Bid Breakdown included herein shall be completed in its entirety and submitted by the bidder. Requests for periodic payments to the contractors shall be discussed before the award of the contract.

- a. No payment will be made unless duly authorized by the owner's authorized representative and accompanied by proper documentation.
- b. Payment will be made in accordance with the owner's policy and procedures. Invoices shall specify, in detail, the period for which payment is claimed, the services performed during the prescribed period, the amount claimed and correlation between the services claimed and this proposal.
- c. The owner may withhold all or partial payments on account of subsequently discovered evidence including but not limited to the following:
 1. Deliverables not complying with the project specification;
 2. Claims filed or responsible evidence indicating probability of filing claims;
 3. A reasonable doubt that the contract can be completed for the balance then unpaid.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

- d. Public funds may be used to pay only for goods delivered or services rendered. The owner shall not pay penalties and/or interest on overdue bills unless otherwise required by law. No employee is authorized to sign a letter of credit or any other document that represents a legal commitment on the part of the owner to pay additional fees.

XII. OTHER PROVISIONS

- a. Both parties agree to comply with all requirements of the Federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA") as maybe amended from time to time, and the corresponding HIPAA regulations for the confidentiality and security of medical information. If awarded the bid, the contractor shall:
 1. Not use or disclose protected health information other than as permitted or required by law
 2. Use appropriate safeguards to protect the confidentiality of the information
 3. Report any use or disclosure not permitted

The contractor, by execution of the contract, shall thereby indemnify and hold the owner harmless from any and all liabilities, claims, actions, costs and penalties which may be incurred as the result of the failure of the contractor to comply with the requirements of the

Health Insurance Portability and Accountability Act (HIPAA) or any other statute or case law protecting the privacy of persons using its services.

- b. The owner shall retain all of its rights and interest in any and all documents and property both hard copy and digital furnished by the owner to the successful bidder (contractor) for the purpose of assisting the contractor in the performance of this contract. None of the documents and/or property shall, without the written consent of the owner, be disclosed to others or used by the contractor or permitted by the contractor to be used by their parties at any time except in the performance of the resulting contract.

The contractor shall not have the right to use, sell, or disclose the total of the interim or final work products, or make available to third parties, without the prior written consent of the owner. Any information supplied to the owner may be required to be supplied on CD/DVD or USB flash drive media compatible with Microsoft Windows, and Microsoft Office Suite 2010 or greater.

- c. Under state and federal statutes, certain government records are protected from public disclosure. The owner, the contractor and any subcontractors have a responsibility and an obligation to safeguard from public access an employee's personal information with which it has been entrusted when disclosure thereof would violate the employee's reasonable expectation of privacy. All payroll, personnel and health insurance related files are confidential. Additionally, the contractor and any subcontractors may be privy to sensitive law enforcement information or investigations during their review which must remain confidential. The owner retains the right to make any public disclosure under the law. Also, among government records deemed confidential are administrative or technical information regarding computer hardware, software and networks that, if disclosed, would jeopardize computer security. The contractor and any subcontractor(s) are prohibited from the sale or distribution of all supplied information to any third party.
- d. Proof of licensure for any activity regulated by the State of New Jersey and required to do the work required under this specification, for either the firm or the person responsible for the work, shall be provided as required by the owner.
- e. Change Orders: If, during the course of work, the Contractor encounters unforeseen conditions which impact the work and which could not initially be evaluated, the Contractor shall not proceed without written authorization from an authorized Authority representative. If price is affected, the Contractor and the Authority must agree upon a change order which states an agreement between the Contractor and the Authority for:
 - 1. A change in work
 - 2. The amount of the adjustment in Contract Sum
 - 3. The amount of the adjustment in Contract Time

Once the change order has been approved and properly procured, Contractor will receive written authorization to continue. A sample Change Order Authorization Form is included herein for review.

XIII. QUALIFICATIONS

- a. Prospective bidders and all subcontractors shall complete the Bidder's or Sub-Contractor's Qualifications questionnaire included herein. Steps shall be taken as deemed necessary to determine the ability of the bidders to perform the obligations under the Contract and the bidder shall furnish to the Authority with such information and data for this purpose as the Authority may request. The right is reserved to reject any proposal where the investigation of

the evidence does not satisfy the Authority that the bidder is qualified to properly carry out the terms of the Contract.

- b. General Contractor must list (where applicable) with their bid all subcontractors who will actually be used for:
 - (a) Plumbing and Gas fitting of all kindred work.
 - (b) Steam and hot water heating and ventilating apparatus and all kindred work.
 - (c) Electrical Work
 - (d) Structural Steel and Ornamental Iron Work
- c. In addition to the requirements stated above, the General Contractor:
 - (a) Must be prepared to demonstrate that each of the listed subcontractors is qualified to perform the specific work for which they are listed in the bid. Each subcontractor must submit with the bid the Bidder's or Sub-Contractor's Qualifications questionnaire included herein.
 - (b) Must provide evidence of performance security for each subcontractor with the bid. The evidence or performance security shall, for the purpose of statutory and administrative compliance, consist of documents (such as a consent of surety) issued by a qualified surety company. Evidence of performance security may be supplied by the General Contractor on its own behalf and on behalf of any or all of its listed subcontractors, or by the respective listed subcontractors themselves, or by any combination thereof which results in evidence of performance security equaling the total amount of bid.
 - (c) May not substitute unlisted subcontractors, or use subcontractors if they are not identified in bid, following award of the contract.
 - (d) Will be held strictly accountable for proper and timely performance of work by their designated subcontractors. In the event of award, such General Contractor shall furnish the Authority with a true copy of a performance bond contract.
 - (e) The attention of all bidders is directed to the provisions of New Jersey Statutes 40A:11-16.
 - (f) All Bidders who intend to use 'in house plumbers' to perform the plumbing work on the contract, are directed to the provisions of New Jersey Statutes 45:14C-21; New Jersey Statutes 45:14C-21; and New Jersey Administrative Code 13:32-1.5(A)(2). These provisions limit and restrict the ability of a licensed master plumber to be utilized as a company employee and apply for a plumbing permit, unless that plumber holds not less than 10% of the issued corporate stock, or 10% of the partnership capital of a partnership. You are advised that the Authority is required to insist upon full compliance with these State regulations.
 - (g) In the event the General Contractor will perform work specified in paragraph B (a)(b)(c)(d) (Plumbing/Gas; HVAC; Electrical; Structural Steel/Ornamental Iron) with its own salaried non-subcontracted work force, then the General Contractor must so designate itself on bidding documents, and furnish the Authority prior to award of the contract with required information establishing qualifications in such trade(s).
 - (h) The General Contractor is advised that once they advise the Authority in their bid documents, they will perform the designated trade(s) with their own salaried force, they will not later be permitted to perform same by subcontractor or otherwise.

Thank you for your interest!
INVITATION FOR BID

PUBLIC NOTICE

Housing Authority of the City of Perth Amboy

Boiler and Hot Water Heater Replacements

The Housing Authority of the City of Perth Amboy (Authority) will receive sealed bids for the Boiler and Hot Water Heater Replacement for George J. Otlowksi Sr. Gardens-24 units, Douglas G. Dzema Gardens-18 units, John E. Sofield Gardens-16 units located in Perth Amboy, NJ 08862 as per the technical specifications and drawings outlined in Section II of the Invitation for Bids (IFB). The work shall minimally include the replacement of the boiler and hot water heater.

Sealed bids will be received until 2:00 p.m. prevailing time on Wednesday, February 8, 2023 at the Authority offices, 881 Amboy Ave., PO Box 390, Perth Amboy, NJ 08862, at which time all bids will be publicly opened and read aloud.

The pre-bid meeting shall be held on January 31, 2023 at 10:00 a.m. at the Perth Amboy Housing Authority, 881 Amboy Ave, Perth Amboy, NJ. Bidding documents including technical specifications and drawings may be obtained at no cost at the Authority website at www.PerthAmboyHA.org. Bidders are urged to check back often for addenda.

A bid guarantee in the form of a bid bond executed by the bidder and acceptable sureties, certified check or bank draft, payable to Housing Authority of the City of Perth Amboy shall be submitted with each bid. The bid guarantee shall be in an amount equal to but not less than ten percent (10%) of the total amount (not to exceed \$20,000). Bids bonds must be obtained from a New Jersey licensed company that appears on the latest edition of the US Treasury Circular Number 570, List of Approved Sureties.

Bidders must be registered with the New Jersey Department of Treasury, Division of Revenue and with the New Jersey Department of Labor as a Public Works contractor at the time the bids are received.

The Authority does not discriminate on the basis of race, religion, sex, national origin, creed, color, ancestry, age, marital status, affectional or sexual orientation, familial status, liability for service in the Armed Forces of the United States, or nationality.

The Authority invites the participation of and Minority-Owned Business Enterprises in this solicitation and reserves the right to reject any or all bids or to waive any informality in bidding. Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract.

The above and all other contract and bid requirements are described in the bid documents.

Advertised 1/18/23 and 1/25/23 in the Home News Tribune

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE

CONSTRUCTION CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such action shall include, but not be limited to the following: employment, up-grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor, where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the applicable employment goal prescribed by N.J.A.C. 17:27-7.3; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the applicable employment goal established in accordance with N.J.A.C. 17:27-7.3. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities

Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to attempt to hire or schedule minority and women workers directly, consistent with the applicable employment goal. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with the applicable employment goal, the contractor or subcontractor agrees to be prepared to hire or schedule minority and women workers directly, consistent with the applicable employment goal, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines or is so notified by the Division that the union is not referring minority and women workers consistent with the applicable employment goal.

(B) If the hiring or scheduling of a workforce consistent with the employment goal has not or cannot be achieved for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions consistent with the applicable county employment goals:

(1) To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;

(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;

(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area until such time as the workforce is consistent with the employment goal;

(5) If it is necessary to lay off some of the workers in a given trade on the construction site, to assure, consistent with the applicable State and Federal statutes and court decisions, that sufficient minority and women employees remain on the site consistent with the employment goal; and to employ any minority and women workers laid off by the contractor on any other construction site on which its workforce composition is not consistent with an employment goal established pursuant to rules implementing N.J.S.A. 10:5-31 et. seq.;

(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

(i) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall determine the qualifications of such individuals and if the contractor's or subcontractor's workforce in each construction trade is not consistent with the applicable employment goal, it shall hire or schedule those individuals who satisfy appropriate qualification standards. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.

(ii) If the contractor's or subcontractor's workforce is consistent with the applicable employment goal, the name of any interested women or minority individual shall be maintained on a waiting list for the first consideration, in the event the contractor's or subcontractor's workforce is no longer consistent with the applicable employment goal.

(iii) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Division.

(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Division and submitted promptly to the Division upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form AA 201) provided to the public agency by the Division for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Division of Contract Compliance & EEO as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Contract Compliance & EEO for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (NJAC 17:27)**.

AMERICANS WITH DISABILITIES ACT OF 1990
Equal Opportunity for Individuals with Disability

The contractor and the Perth Amboy Housing Authority, (hereafter "owner") do hereby agree that the provisions of Title 11 of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. *§121 01* et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant there unto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the owner pursuant to this contract, the contractor agrees that the performance shall be in strict compliance with the Act. In the event that the contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the contractor shall defend the owner in any action or administrative proceeding commenced pursuant to this Act. The contractor shall indemnify, protect, and save harmless the owner, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The contractor shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the owner's grievance procedure, the contractor agrees to abide by any decision of the owner which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the owner, or if the owner incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the contractor shall satisfy and discharge the same at its own expense.

The owner shall, as soon as practicable after a claim has been made against it, give written notice thereof to the contractor along with full and complete particulars of the claim. If any action or administrative proceeding is brought against the owner or any of its agents, servants, and employees, the *owner shall* expeditiously forward or have forwarded to the contractor every demand, complaint, notice, summons, pleading, or other process received by the owner or its representatives.

It is expressly agreed and understood that any approval by the owner of the services provided by the contractor pursuant to this contract will not relieve the contractor of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the owner pursuant to this paragraph.

It is further agreed and understood that the owner assumes no obligation to indemnify or save harmless the contractor, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the contractor expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the contractor's obligations assumed in this Agreement, nor shall they be construed to relieve the contractor from any liability, nor preclude the owner from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

NEW JERSEY ANTI-DISCRIMINATION PROVISIONS N.J.S.A. 10:2-1 ET SEQ.

Pursuant to N.J.S.A. 10:2-1, if awarded a contract, the contractor agrees that:

- a. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;
- b. No contractor, subcontractor, nor any person on his behalf shall, in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;
- c. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and
- d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

PROVISIONS CONCERNING CHANGED CONDITIONS IN

CONSTRUCTION CONTRACTS (N.J.S.A. 40A:11-16.7)

- (1) If the contractor encounters differing site conditions during the progress of the work of the contract, the contractor shall promptly notify the contracting unit in writing of the specific differing site conditions encountered before the site is further disturbed and before any additional work is performed in the impacted area.
- (2) Upon receipt of a differing site conditions notice in accordance with paragraph (1) of this subsection, or upon the contracting unit otherwise learning of differing site conditions, the contracting unit shall promptly undertake an investigation to determine whether differing site conditions are present.
- (3) If the contracting unit determines different site conditions that may result in additional costs or delays exist, the contracting unit shall provide prompt written notice to the contractor containing directions on how to proceed.
- (4) (a) The contracting unit shall make a fair and equitable adjustment to the contract price and contract completion date for increased costs and delays resulting from the agreed upon differing site conditions encountered by the contractor.
(b) If both parties agree that the contracting unit's investigation and directions decrease the contractor's costs or time of performance, the contracting unit shall be entitled to a fair and equitable downward adjustment of the contract price or time of performance.
(c) If the contracting unit determines that there are no differing site conditions present that would result in additional costs or delays, the contracting unit shall so advise the contractor, in writing, and the contractor shall resume performance of the contract, and shall be entitled to pursue a differing site conditions claim against the contracting unit for additional compensation or time attributable to the alleged differing site conditions.
- (5) Execution of the contract by the contractor shall constitute a representation that the contractor has visited the site and has become generally familiar with the local conditions under which the work is to be performed.
- (6) (a) As used in this subsection, "differing site conditions" mean physical conditions at the contract work site that are subsurface or otherwise concealed and which differ materially from those indicated in the contract documents or are of such an unusual nature that the conditions differ materially from those ordinarily encountered and generally recognized as inherent in the work of the character provided for in the contract.
(b) A contract subject to this section shall include the following suspension of work provisions:
 - (1) The contracting unit shall provide written notice to the contractor in advance of any suspension of work lasting more than 10 calendar days of the performance of all or any portion of the work of the contract.
 - (2) If the performance of all or any portion of the work of the contract is suspended by the contracting unit for more than 10 calendar days due to no fault of the contractor or as a consequence of an occurrence beyond the contracting unit's control, the contractor shall be entitled to compensation for any resultant delay to the project completion or additional contractor

expenses, and to an extension of time, provided that, to the extent feasible, the contractor, within 10 calendar days following the conclusion of the suspension, notifies the contracting unit, in writing, of the nature and extent of the suspension of work. The notice shall include available supporting information, which information may thereafter be supplemented by the contractor as needed and as may be reasonably requested by the contracting unit. Whenever a work suspension exceeds 60 days, upon seven days' written notice, either party shall have the option to terminate the contract for cause and to be fairly and equitably compensated therefor.

(3) Upon receipt of the contractor's suspension of work notice in accordance with paragraph (2) of this subsection, the contracting unit shall promptly evaluate the contractor's notice and promptly advise the contractor of its determination on how to proceed in writing.

(4) (a) If the contracting unit determines that the contractor is entitled to additional compensation or time, the contracting unit shall make a fair and equitable upward adjustment to the contract price and contract completion date.

(b) If the contracting unit determines that the contractor is not entitled to additional compensation or time, the contractor shall proceed with the performance of the contract work, and shall be entitled to pursue a suspension of work claim against the contracting unit for additional compensation or time attributable to the suspension. Page 39

(5) Failure of the contractor to provide timely notice of a suspension of work shall result in a waiver of a claim if the contracting unit can prove by clear and convincing evidence that the lack of notice or delayed notice by the contractor actually prejudiced the contracting unit's ability to adequately investigate and defend against the claim.

c. A contract subject to this section shall include the following change in character of work provisions:

(1) If the contractor believes that a change directive by the contracting unit results in a material change to the contract work, the contractor shall so notify the contracting unit in writing. The contractor shall continue to perform all work on the project that is not the subject of the notice.

(2) Upon receipt of the contractor's change in character notice in accordance with paragraph (1) of this subsection, the contracting unit shall promptly evaluate the contractor's notice and promptly advise the contractor of its determination on how to proceed in writing.

(3) (a) If the contracting unit determines that a change to the contractor's work caused or directed by the contracting unit materially changes the character of any aspect of the contract work, the contracting unit shall make a fair and equitable upward adjustment to the contract price and contract completion date. The basis for any such price adjustment shall be the difference between the cost of performance of the work as planned at the time of contracting and the actual cost of such work as a result of its change in character, or as otherwise mutually agreed upon by the contractor and the contracting unit prior to the contractor performing the subject work.

(b) If the contracting unit determines that the contractor is not entitled to additional compensation or time, the contractor shall continue the performance of all contract work, and shall be entitled to

pursue a claim against the contracting unit for additional compensation or time attributable to the alleged material change.

(4) As used in this subsection, “material change” means a character change which increases or decreases the contractor’s cost of performing the work, increases or decreases the amount of time by which the contractor completes the work in relation to the contractually required completion date, or both. d. A contract subject to this section shall include the following change in quantity provisions:

(1) The contracting unit may increase or decrease the quantity of work to be performed by the contractor.

(2) (a) If the quantity of a pay item is cumulatively increased or decreased by 20 percent or less from the bid proposal quantity, the quantity change shall be considered a minor change in quantity.

(b) If the quantity of a pay item is increased or decreased by more than 20 percent from the bid proposal quantity, the quantity change shall be considered a major change in quantity.

(3) For any minor change in quantity, the contracting unit shall make payment for the quantity of the pay item performed at the bid price for the pay item.

(4) (a) For a major increase in quantity, the contracting unit or contractor may request to renegotiate the price for the quantity in excess of 120 percent of the bid proposal quantity. If a mutual agreement cannot be reached on a negotiated price for a major quantity increase, the contracting unit shall pay the actual costs plus an additional 10 percent for overhead and an additional 10 percent for profit, unless otherwise specified in the original bid.

(b) For a major decrease in quantity, the contracting unit or contractor may request to renegotiate the price for the quantity of work performed. If a mutual agreement cannot be reached on a negotiated price for a major quantity decrease, the contracting unit shall pay the actual costs plus an additional 10 percent for overhead and an additional 10 percent for profit, unless otherwise specified in the original bid; provided, however, that the contracting unit shall not make a payment in an amount that exceeds 80 percent of the value of the bid price multiplied by the bid proposal quantity.

(5) As used in this subsection, the term “bid proposal quantity” means the quantity indicated in the bid proposal less the quantities designated in the project plans as “if and where directed”.

Model Public Works Bid Specification Language
Withdrawal of Bid
(N.J.S.A. 40A:11-23.3)

Permission for Bidder to Withdraw a Bid Due to a Mistake in Certain Circumstances

N.J.S.A. 40A:11-23.3 authorizes a bidder to request withdrawal of a public works bid due to a mistake on the part of the bidder. A mistake is defined by N.J.S.A. 40A:11-2(42) as a clerical error that is an **unintentional and substantial computational error or an unintentional omission of a substantial quantity of labor, material, or both, from the final bid computation.**

A bidder claiming a mistake under N.J.S.A. 40A:11-23.3 must submit a request for withdrawal, **in writing**, by certified or registered mail to:

Douglas G. Dzema, Executive Director
881 Amboy Avenue
Perth Amboy, NJ 08862

The bidder must request withdrawal of a bid due to a mistake, as defined by the law, within five business days after the receipt and opening of the bids. Since the bid withdrawal request shall be effective as of the postmark of the certified or registered mailing, the Purchasing Agent may contact all bidders, after bids are opened, to ascertain if any bidders wish to, or already have exercised a request to withdraw their bid pursuant to N.J.S.A. 40A:11-23.3.

A bidder's request to withdraw the bid **shall** contain evidence, including any pertinent documents, demonstrating that a mistake was made. Such documents and relevant written information shall be reviewed and evaluated by the public owner's designated staff pursuant to the statutory criteria of N.J.S.A. 40A:11-23.3.

The public owner will not consider any written request for a bid withdrawal for a mistake, as defined by N.J.S.A. 40A:11-2(42), by a bidder in the preparation of a bid proposal unless the postmark of the certified or registered mailing is within the five business days following the opening of bids.

Form of Bid

Boiler and Hot Water Heater Replacements

I have received the Contract Documents entitled “Boiler and Hot Water Heater Replacements” issued by the Housing Authority of the City of Perth Amboy, New Jersey. I have examined all parts of the Documents, including the Technical Specifications, Drawings, federal, state and local requirements, and all Addenda. I have visited the site and have clear understanding of the Scope of Work for which I submit the following bid. In submitting this bid, I agree:

1. To hold my bid open for **sixty (60)** days after bid opening.
2. To enter into and execute a contract, if awarded on the basis of this bid, and to furnish insurance and other requirements as stated and required in the Contract Documents.
3. To accomplish the work in accordance with the requirements of the Contract Documents.
4. To complete the work on time and to the quality required in the Contract Documents.

BASE BID: The Base Bid Cost shall include all costs necessary to complete all the required work described in the Contract Documents and any issued addenda. The Base Bid shall include all mark-up, overhead & profit, benefits, etc. No additional costs shall be incurred by the Authority. The amount written in words shall govern in case of discrepancy. I will furnish all labor, materials, equipment, tools, and other services required to construct this project for the base bid lump sum price of:

_____ dollars (\$ _____)
Words *Numbers*

The undersigned acknowledges to have familiarized himself/herself/themselves with local conditions affecting the cost of the work, and with all documents pertaining to these Contract Documents.

Signature

Contact Print Name / Title

Company Name of Bidder

Federal ID#

Street Address

City, State - Zip Code

Telephone Number / Fax Number / Email Address

Housing Authority of the City of Perth Amboy

CONSENT OF SURETY

A performance bond will be required from the successful contractor on this project, and consequently, all bidders shall submit, with their bid, a consent of surety in substantially the following form:

To: Housing Authority of the City of Perth Amboy

Re: _____
(Contractor)

(Project Description)

This is to certify that the _____
(Surety Company)

will provide to the Housing Authority of the City of Perth Amboy a performance bond in the full amount of awarded contract in the event that said contractor is awarded a contract for the above project.

(CONTRACTOR)

(Authorized Agent of Surety Company)

Date: _____

**CONSENT OF SURETY MUST BE SIGNED BY AN AUTHORIZED
AGENT OR REPRESENTATIVE OF A SURETY COMPANY
AUTHORIZED TO DO BUSINESS IN NEW JERSEY AND NOT BY THE
INDIVIDUAL OR COMPANY REPRESENTATIVE SUBMITTING THE BID.**

AFFIRMATIVE ACTION COMPLIANCE NOTICE

N.J.S.A. 10:5-31 and N.J.A.C. 17:27

GOODS AND SERVICES CONTRACTS (INCLUDING PROFESSIONAL SERVICES)

This form is a summary of the successful bidder's requirement to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.

The successful bidder shall submit to the public agency, after notification of award but prior to execution of this contract, one of the following three documents as forms of evidence:

a. A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

OR

b. A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

OR

c. A photocopy of an Employee Information Report (Form AA302) provided by the Division and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

The successful vendor may obtain the Affirmative Action Employee Information Report (AA302) from the contracting unit during normal business hours.

The successful vendor(s) must submit the copies of the AA302 Report to the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (Division). The Public Agency copy is submitted to the public agency, and the vendor copy is retained by the vendor.

The undersigned vendor certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27 and agrees to furnish the required forms of evidence.

The undersigned vendor further understands that his/her bid shall be rejected as non-responsive if said contractor fails to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.

COMPANY: _____ SIGNATURE: _____

PRINT NAME: _____ TITLE: _____ DATE: _____

Housing Authority of the City of Perth Amboy

STATEMENT OF OWNERSHIP DISCLOSURE

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

This statement shall be completed, certified to, and included with all bid and proposal submissions. Failure to submit the required information is cause for automatic rejection of the bid or proposal.

Name of Organization: _____

Organization Address: _____

Part I Check the box that represents the type of business organization:

- ☐ Sole Proprietorship (skip Parts II and III, execute certification in Part IV)
- ☐ Non-Profit Corporation (skip Parts II and III, execute certification in Part IV)
- ☐ For-Profit Corporation (any type) ☐ Limited Liability Company (LLC)
- ☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership (LLP)
- ☐ Other (be specific): _____

Part II

- ☐ The list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be. (**COMPLETE THE LIST BELOW IN THIS SECTION**)

OR

- ☐ No one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be. (**SKIP TO PART IV**)

(Please attach additional sheets if more space is needed):

Name of Individual or Business Entity	Home Address (for Individuals) or Business Address

Part III DISCLOSURE OF 10% OR GREATER OWNERSHIP IN THE STOCKHOLDERS, PARTNERS OR LLC MEMBERS LISTED IN PART II

If a bidder has a direct or indirect parent entity which is publicly traded, and any person holds a 10 percent or greater beneficial interest in the publicly traded parent entity as of the last annual federal Security and Exchange Commission (SEC) or foreign equivalent filing, ownership disclosure can be met by providing links to the website(s) containing the last annual filing(s) with the federal Securities and Exchange Commission (or foreign equivalent) that contain the name and address of each person holding a 10% or greater beneficial interest in the publicly traded parent entity, along with the relevant page numbers of the filing(s) that contain the information on each such person. **Attach additional sheets if more space is needed.**

Website (URL) containing the last annual SEC (or foreign equivalent) filing	Page #'s

Please list the names and addresses of each stockholder, partner or member owning a 10 percent or greater interest in any corresponding corporation, partnership and/or limited liability company (LLC) listed in Part II **other than for any publicly traded parent entities referenced above**. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner, and member exceeding the 10 percent ownership criteria established pursuant to N.J.S.A. 52:25-24.2 has been listed. **Attach additional sheets if more space is needed.**

Stockholder/Partner/Member and Corresponding Entity Listed in Part II	Home Address (for Individuals) or Business Address

Part IV Certification

I, being duly sworn upon my oath, hereby represent that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I acknowledge: that I am authorized to execute this certification on behalf of the bidder/proposer; that the Housing Authority of the City of Perth Amboy is relying on the information contained herein and that I am under a continuing obligation from the date of this certification through the completion of any contracts with government agencies to notify the government agency in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I am subject to criminal prosecution under the law and that it will constitute a material breach of my agreement(s) with the, permitting the government agency to declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print):		Title:	
Signature:		Date:	

Housing Authority of the City of Perth Amboy

NON-COLLUSION AFFIDAVIT

State of New Jersey
County of Middlesex

I, _____ residing in _____
(name of affiant) (name of municipality)
in the County of _____ and State of _____ of full age, being duly
sworn according to law on my oath depose and say that:

I am _____ of the firm of _____
(title or position) (name of firm)

_____ the bidder making this Proposal for the bid
entitled _____, and that I executed the said proposal with
(title of bid proposal)
full authority to do so that said bidder has not, directly or indirectly entered into any agreement, participated in any
collusion, or otherwise taken any action in restraint of free, competitive bidding in connection with the above named
project; and that all statements contained in said proposal and in this affidavit are true and correct, and made with
full knowledge that the _____ relies upon the truth of the statements contained in said
(name of contracting unit)

Proposal and in the statements contained in this affidavit in awarding the contract for the said project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure such contract
upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except bona fide
employees or bona fide established commercial or selling agencies maintained by
_____.

Subscribed and sworn to before me this day _____

Date

Signature

(Type or print name of affiant under signature)

Notary public of _____

My Commission expires _____

(Seal)

Housing Authority of the City of Perth Amboy

ACKNOWLEDGMENT OF RECEIPT OF ADDENDA

The undersigned Bidder hereby acknowledges receipt of the following Addenda:

<u>Addendum Number</u>	<u>Dated</u>	<u>Acknowledge Receipt</u> (initial)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

☐ **No addenda were received:**

Acknowledged for: _____
(Name of Bidder)

By: _____
(Signature of Authorized Representative)

Name: _____
(Print or Type)

Title: _____

Date: _____



STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE AND PROPERTY

33 WEST STATE STREET, P.O. BOX 230
TRENTON, NEW JERSEY 08625-0230

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

BID SOLICITATION #:

VENDOR/BIDDER:

PART 1

CERTIFICATION

VENDOR/BIDDER MUST COMPLETE PART 1 BY CHECKING ONE OF THE BOXES

FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of the Treasury's Chapter 25 list as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>. Vendors/Bidders **must** review this list prior to completing the below certification. **Failure to complete the certification will render a Vendor's/Bidder's proposal non-responsive.** If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

☐ A. I certify, pursuant to Public Law 2012, c. 25, that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). Disregard Part 2 and complete and sign the Certification below.

OR

☐ B. I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such information will result in the proposal being rendered as nonresponsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2

PLEASE PROVIDE ADDITIONAL INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

If you checked Box "B" above, provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, engaged in the investment activities in Iran by completing the boxes below.

ENTITY NAME:

RELATIONSHIP TO VENDOR/BIDDER:

DESCRIPTION OF ACTIVITIES:

DURATION OF ENGAGEMENT:

ANTICIPATED CESSATION DATE:

VENDOR/BIDDER CONTACT NAME:

VENDOR/BIDDER CONTACT PHONE No.:

Attach Additional Sheets If Necessary.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Signature

Date

Print Name and Title

Housing Authority of the City of Perth Amboy

EQUIPMENT CERTIFICATION

The undersigned Bidder hereby certifies as follows:

The bidder owns or controls all the necessary equipment required to accomplish the work described in the specifications.

Name of Bidder: _____

By: _____
(Signature)

Name of above: _____
(Print)

Title: _____

Date: _____

Housing Authority of the City of Perth Amboy

REFERENCES

List at least 3 references. Please fill completely.

REFERENCE #1

Company Name _____

Contact Name/Title _____

Phone Number/Fax Number _____

REFERENCE #2

Company Name _____

Contact Name/Title _____

Phone Number/Fax Number _____

Reference #3

Company Name _____

Contact Name/Title _____

Phone Number/Fax Number _____

Housing Authority of the City of Perth Amboy

SUBCONTRACTOR LISTING

Please list the names of all subcontractors and/or sub-consultants to be used on this project (add additional sheets if necessary). The subcontractor certification form must be completed for each firm listed.

All subcontractors designated by the bidding company shall be capable of doing the work and must have adequate financial resources and experience to perform the work specified. Information regarding the work experience of the designated subcontractor shall also be provided in the bid. Specifically, the bidding company shall include a listing of all relevant jobs performed by the subcontractor within the past two (2) years.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

___ Check here if the bidding company will not be using any subcontractors.

THIS FORM IS TO BE SIGNED, NOTARIZED AND SUBMITTED BY THE BIDDING COMPANY WITH THE BID.

Name of bidding company

Signature of authorized representative

Printed name of authorized representative

Title

Sworn and subscribed to me this _____ day of _____, 2023

Notary Public

(SEAL)

Housing Authority of the City of Perth Amboy

SUBCONTRACTOR CERTIFICATION FORM pg 1

All subcontractors/consultants designated by the bidding company shall be capable of doing the work and must have adequate financial resources and experience to perform the work specified.

Information regarding the work experience of the designated subcontractor shall also be provided in the bid. Specifically, the bidding company shall include a listing of all relevant jobs performed by the subcontractor within the past two (2) years.

Please print the following information legibly. NOTE: Provide this information on additional sheets, as required, in accordance with the following format.

How many years has the subcontractor been engaged in this particular field? _____ years.

Subcontractor/consultant

Firm Name _____

Address _____

Contact Person _____

Telephone # _____

Fax # _____

Trade _____

State License # _____

THIS FORM IS TO BE SIGNED, NOTARIZED AND SUBMITTED BY THE SUBCONTRACTOR WITH THE BID.

Name of company

Signature of authorized representative

Printed name of authorized representative

Title

Sworn and subscribed to me this _____ day of _____, 2023

Notary Public

(SEAL)

SUBCONTRACTOR CERTIFICATION FORM pg 2

Provide a list of relevant contracts (company/firm) completed by proposed subcontractors/consultants within the last two (2) years.

DO NOT INCLUDE WORK FOR THE PERTH AMBOY HOUSING AUTHORITY

(This form may be duplicated to include additional relevant contracts)

1.	<hr/>	<hr/>	<hr/>
	Company Name	Telephone #	Complete Date
	<hr/>	<hr/>	
	Address	Contact Person	
	<hr/>	<hr/>	
	City/State/Zip	Contract Amount	
2.	<hr/>	<hr/>	<hr/>
	Company Name	Telephone #	Complete Date
	<hr/>	<hr/>	
	Address	Contact Person	
	<hr/>	<hr/>	
	City/State/Zip	Contract Amount	
3.	<hr/>	<hr/>	<hr/>
	Company Name	Telephone #	Complete Date
	<hr/>	<hr/>	
	Address	Contact Person	
	<hr/>	<hr/>	
	City/State/Zip	Contract Amount	
4.	<hr/>	<hr/>	<hr/>
	Company Name	Telephone #	Complete Date
	<hr/>	<hr/>	
	Address	Contact Person	
	<hr/>	<hr/>	
	City/State/Zip	Contract Amount	
5.	<hr/>	<hr/>	<hr/>
	Company Name	Telephone #	Complete Date
	<hr/>	<hr/>	
	Address	Contact Person	
	<hr/>	<hr/>	
	City/State/Zip	Contract Amount	

BIDDER'S OR SUB-CONTRACTOR'S QUALIFICATIONS

Complete sets of qualification section must be submitted for each bidder and each sub-contractor. Photocopy this section as needed, and check the appropriate box to indicate bidder/subcontractor.

Bid for: Flooring Replacement at The Birchwood

BIDDER ☐

SUBCONTRACTOR ☐

Name of Bidder or
Subcontractor: _____

Address: _____

It shall be necessary for the bidder to present evidence that he is the general contractor and that he has been in business for at least 3 years in this particular field and can submit a suitable record of satisfactorily completing similar projects. In addition, he shall submit evidence that his company has the necessary equipment to carry out this type of operation.

How many years have you been or engage in construction under your present firm or trade name?
_____ Years.

How many years has your organization been performing the work required under this contract?
_____ Years.

If a corporation, answer the following:

Date of incorporation: _____

State of Incorporation: _____

President's Name: _____

Vice President's Name(s): _____

If a partnership, answer the following:

Date of Organization: _____

We normally perform _____ % of the work with our own forces. Describe the general character of work performed by your company.

What equipment do you own that is available and intended to be used on this project? Provide a description as to the quantity, size, type and capacity of this equipment along with its present condition.

What equipment to you intend to lease or purchase for use on this project should the contract be awarded to you? Provide a description of the quantity, size, type and capacity of the equipment you intend to lease or purchase.

Have you ever failed to complete any work awarded to you? If so, state the circumstances.

Has any officer or partner of your organization ever been an officer or partner of some other organization that failed to complete a construction contract? If so, state the name of the individual, the other organization and the circumstances.

Has any officer or partner in your organization ever failed to complete a construction contract handled in his own name? If so, state the name of the individual and the circumstances.

Are there any liens of any character filed against your company at this time? If so, specify the nature and amount of the lien.

In what manner have you inspected the proposed project?

The work, if awarded to you, will have the personal supervision of whom?

Do you intend to subcontract any portion of the work? If so, state which portion is to be subcontracted and complete the Subcontractor Certification Form.

Have you made contracts or received firm offers for all materials within price use regarding your proposal? Do not give names of dealers or manufacturers.

Give Trade references.

Give bank references.

Give full information concerning all of your contracts in progress, whether private or government contracts, whether prime or sub-contracts, whether in construction or awarded but not yet begun, or whether you are the low bidder pending formal award of contract.

Owner - Location - Description - Contract Amount - % Completed - Estimated Completion Date

List the most important contracts completed by your company in the last five years, stating the gross cost for each and the month and year started and completed.

Owner - Location - Description

Contract Amount - Start Date - Completion Date

AFFIDAVIT

State of _____

SS.

County of _____

_____ being first duly sworn deposes and says:
(Individual's name)

THAT he is _____,
(Owner, Officer or Partner of the firm of etc.)

the party making the foregoing proposal or bid for the Boiler and Hot Water Heater Replacements in Perth Amboy, New Jersey; that all answers to the foregoing questions and all statements contained in this questionnaire are true and correct, and that he hereby authorizes and requests any person, firm or corporation to furnish any information requested by the Housing Authority of the City of Perth Amboy in verification of the recitals contained in this questionnaire.

(Signature of Bidder)

Subscribed and sworn to before me, this ____ day of _____, 2023.

Notary Public

My Commission expires _____

BID DOCUMENT CHECKLIST*

Housing Authority of the City of Perth Amboy

Required by owner	Submission Requirement	Initial each required entry and if required submit the item
<input type="checkbox"/>	Bid Document Checklist*	
<input type="checkbox"/>	One Original of the Entire Bid	
<input type="checkbox"/>	Bid Form	
<input type="checkbox"/>	Bid Guarantee	
<input type="checkbox"/>	Consent of Surety (with Power of Attorney for full amount of Bid Price)	
<input type="checkbox"/>	Acknowledgement of Receipt of Addenda (regardless of issuance of addenda)	
<input type="checkbox"/>	Statements and Qualifications of Bidders and Subcontractors (one for each bidder and subcontractor)	
<input type="checkbox"/>	Subcontractor Listing/Certification Form(s)	
<input type="checkbox"/>	Statement of Ownership Disclosure	
<input type="checkbox"/>	<i>Evidence of Affirmative Action Compliance**</i>	
<input type="checkbox"/>	<i>Business Registration Certificate**</i>	
<input type="checkbox"/>	Disclosure of Investment Activities in Iran	
<input type="checkbox"/>	Non-Collusion Affidavit	
<input type="checkbox"/>	Public Works Contractor Certificate (Prevailing Wage) for Bidder and Each Sub-Contractor	
<input type="checkbox"/>	Equipment Certification	
<input type="checkbox"/>	References	

***Submit this form as the first page of your bid and the
Bid Form as the second page.**

****Statutorily allowed to be provided with bid OR prior to execution of contract.**

Full Name (Print):_____ **Title:**_____

Signature:_____ **Date:**_____

ATTACHMENT A-FORM OF CONTRACT-DO NOT SUBMIT

Boiler and Hot Water Heater Replacements

This AGREEMENT made this ____ day of _____ in the year ____ by and between

(Name of Contractor)
(Address)

hereinafter called the "Contractor," and the

Housing Authority of the City of Perth Amboy
881 Amboy Avenue, PO Box 390
Perth Amboy, New Jersey 08862

hereinafter called the "Authority".

WITNESSETH that the Contractor and the Authority for the consideration stated herein mutually agree as follows:

Article 1. Statement of Services. The Contractor shall furnish all labor, materials, tools and equipment and shall perform and complete all work required for the Boiler and Hot Water Heater Replacements at the George J. Otowski Sr. Gardens, Douglas G. Dzema Gardens, and John E. Sofield Gardens, all in the city of Perth Amboy, NJ 08862 as per the technical specifications and drawings outlined in Section II of the Invitation for Bids (IFB) dated February 8, 2023 which is incorporated herein by reference and made a part hereof.

Article 2. Term of Contract. The Contractor shall complete all work as specified within 180 days of Notice to Proceed.

Article 3. Scope of Work. The scope of work includes the labor, materials and equipment to perform all work per the technical specifications and drawing included in the Contract Documents which are incorporated by reference and made a part hereof.

Article 4. Performance of Work, Work Requirements and Contractor's Responsibility. The Contractor shall be responsible for furnishing all materials, equipment, labor and transportation necessary to perform the work.

The Contractor shall not sub-contract any work under this contract without express prior written approval of the Authority or as listed in the subcontractor certificate.

Contractor will schedule and perform the work between the hours of 8:00 a.m. to 4:30 p.m., Monday through Friday, unless prior written permission is granted by the Authority to perform work at other times. The Contractor shall coordinate all his activities with the Authority. The Authority may charge to the contractor any additional costs for inspections or testing.

The Contractor shall at all times keep the work area orderly and free from accumulations of waste materials. After completing the work, the Contractor shall remove all equipment materials and tools that are not the property of the Authority and leave the work area in a neat, clean and orderly condition. The Contractor shall dispose of all debris off-site in accordance with all applicable Federal, State and local statutes, ordinances and regulations.

The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence, and shall take all necessary health and safety precautions to protect the work, the workers, the public, and the property of others. The Contractor shall hold and save the Authority, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

The Contractor shall apply and pay for any applicable permits related to the work. Fees for Building permits issued through the City Code Enforcement office are waived. No final payments shall be processed without furnishing written documentation the work has been inspected and the City of Perth Amboy Code Enforcement Department has closed out the permit.

Article 5. Rates and Payments. The Authority shall pay the contractor a lump sum fee of _____ dollars and ____ cents (\$_____.____) after all (or periodic) work has been satisfactorily completed and tested. The Authority shall make payments not more frequently than monthly upon the completion of work by the Contractor and the presentation of an invoice. The invoice must be accompanied by certified payrolls for the period that is invoiced. Payment shall be due within 30 days of receipt of the invoice by the Authority. No payments shall be processed without attached certified payrolls covering payment period.

Article 6. Insurance. Before performing any work, the Contractor shall furnish the Authority with certificates of insurance showing the following insurance is in force and will insure all operations under the Contract:

1. Workers' Compensation, in accordance with New Jersey Workers' Compensation laws.
2. Commercial General Liability with a combined single limit for bodily injury and property damage of not less than \$1,000,000.00 per occurrence to protect the Contractor and the Authority against claims for bodily injury or death and damage to the property of others. This shall cover the use of all equipment, hoists, and vehicles on the site(s) not covered by Automobile Liability under (3) below. If the Contractor has a "claims-made" policy, then the following additional requirements apply: the policy must provide a "retroactive date" which must be on or before the execution date of the Contract, and the extended reporting period may not be less than five years following the completion date of the Contract.
3. Automobile Liability on owned and non-owned motor vehicles used on the site(s) or in connection therewith for a combined single limit for bodily injury and property damage of not less than \$500,000.000 per occurrence.

All Insurance shall be carried with companies, which are financially responsible and admitted to do business in the State of New Jersey. If any such insurance is due to expire during the construction period, the Contractor shall not permit the coverage to lapse and shall furnish evidence of coverage to the Authority. All certificates of insurance, as evidence of coverage, shall provide that no coverage maybe canceled or non-renewed by the insurance company until at least 30 days prior written notice has been given to the Authority.

Article 7. New Jersey Business Registration Requirements. The contractor shall provide to the Authority proof of the contractor's business registration with the New Jersey Division of Taxation before contract award. Bidders shall be registered, however, at the time of the bid opening.

The contractor shall provide written notice to its subcontractors and suppliers of the responsibility to submit proof of business registration to the contractor. The requirement of proof of business registration extends down through all levels (tiers) of the project.

Before final payment on the contract is made by the Authority, the contractor shall submit an accurate list and the proof of business registration of each subcontractor or supplier used in the fulfillment of the contract, or shall attest that no subcontractors were used.

For the term of this Agreement, the contractor and each of its affiliates and a subcontractor and each of its affiliates [N.J.S.A. 52:32-49(g)(3)] shall collect and remit to the Director, New Jersey Division of Taxation, the use tax pursuant to the Sales and Use Tax Act on all sales of tangible personal property delivered into this State, regardless of whether the tangible personal property is intended for a contract with a contracting agency.

A business organization that fails to provide a copy of a business registration as required pursuant to section 1 of P.L. 2001, c.34 (C.52:32-44 et al.) or subsection e. or f. of section 92 of P.L. 1977, c.110 (C.5:12-92), or that provides false business registration under the requirements of either of those sections, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000 for each business registration copy not properly provided under a contract with a contracting agency.

Article 9. Assignment of Contract. The Authority may at its sole discretion assign the contract, in whole or in part, to an affiliate or instrumentality of the Authority or an entity controlled by the Authority, its affiliate, or its instrumentality. Assignment of the contract by the Authority, does not relieve the Contractor of responsibility for complying with any of the terms and conditions of the contract. The Authority's right to assign the contract is unilateral and does not create any assignment rights for the Contractor.

Article 9. Contract Documents. Contract Documents shall consist of the following component parts:

1. This instrument;
2. Drawing;
3. Technical Specifications;
4. Invitation for Bids dated 2/8/23;
5. Bid submitted by the contractor dated 2/8/23;
6. Addenda (if any).

This instrument together with the document enumerated in this Article form the Contract, and they are fully a part of the Contract as if hereto attached or herein repeated. In the event that any provision in one of the component parts of the Contract conflicts with any provision of any other component part, the provision in the component part first enumerated in this Article shall govern, except as otherwise specifically stated.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed the date and year first above written.

In the presence of:

_____ by _____
(Name)
(Title)
(Company Name)
(Phone Number)

In the presence of:

_____ by _____
Douglas G. Dzema, PHM
Executive Director
Housing Authority of the City of Perth Amboy

SECTION II
TECHNICAL SPECIFICATIONS AND DRAWINGS
HABITECH ARCHITECTURE, LLC

Please direct all questions pertaining to this section to:

DSabey@PerthAmboyHA.org

AND

Lqmestres@verizon.net

The following technical specifications and drawings include:

TECHNICAL SPECIFICATIONS – 7 PAGES

GENERAL WORK ITEMS AND SPECIFICATIONS

NOTICE: THESE NOTES ARE NOT REFERENCED THROUGHOUT THE DRAWINGS. THE CONTRACTOR SHALL ASSUME THAT THE NOTES ARE GENERIC AND APPLY TO THE DESCRIBED CONDITIONS WHEREVER THEY MAY APPEAR IN THE WORK.

- o THE CONTRACTOR SHALL COORDINATE THE PHASING OF THE WORK WITH THE OWNER'S REPRESENTATIVE PRIOR TO COMMENCING THE WORK. IT IS IMPERATIVE THAT SUBSTANTIAL COMPLETION BE OBTAINED IN THE TIME ALLOTTED FOR THE WORK. PRIOR TO PERFORMING THE WORK AS OUTLINED IN THE CONSTRUCTION DOCUMENTS, THE CONTRACTOR IS TO DO A WALK THROUGH WITH THE ARCHITECT AND/OR OWNERS REPRESENTATIVE TO DISCUSS THE SCOPE OF WORK REQUIRED.
- o ALL WORK, MATERIALS AND METHODS OF CONSTRUCTION SHALL COMPLY WITH ALL CODES HAVING JURISDICTION OVER THIS WORK, INCLUDING, BUT NOT LIMITED TO, ALL APPLICABLE FEDERAL, STATE, CITY, AND COUNTY BUILDING, ZONING, AND FIRE CODES, ALL PROVISIONS OF THE NEW JERSEY CONSTRUCTION CODE, AND THE NEW JERSEY UNIFORM CONSTRUCTION CODE SHALL APPLY TO THIS CONSTRUCTION, INCLUDING, BUT NOT LIMITED TO, THE REHABILITATION SUBCODE SECTION 5.23-6.5 - "RENOVATION". CONTRACTOR SHALL VERIFY ALL CODE REQUIREMENTS BEFORE COMMENCEMENT OF CONSTRUCTION AND BRING ANY DISCREPANCIES BETWEEN CODE REQUIREMENTS AND THE CONSTRUCTION DOCUMENTS TO THE IMMEDIATE ATTENTION OF THE ARCHITECT.
- o CONTRACTOR SHALL VERIFY ALL CONDITIONS REPRESENTED AS EXISTING, INCLUDING, BUT NOT LIMITED TO, UTILITIES, GRADES, AND ELEVATIONS, BEFORE PROCEEDING WITH THIS WORK. ANY UTILITIES SHOWN ON THESE DRAWINGS ARE SCHEMATIC IN NATURE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THIS WORK. ANY AND ALL CONDITIONS FOUND TO BE DIFFERENT THAN THOSE REPRESENTED IN THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT. THE CONTRACTOR PROCEEDS AT HIS OWN RISK IN DEALING WITH UNDOCUMENTED, CONFLICTING, OR INACCURATE CONDITIONS NOT BROUGHT TO THE ATTENTION OF THE ARCHITECT AND EVALUATED. THE CONTRACTOR MAY BE REQUIRED TO REMOVE SUCH UNAPPROVED WORK AND REINSTATE MATERIALS IN ACCORDANCE WITH THE ARCHITECT'S FINAL DETERMINATION.
- o CONTRACT DOCUMENT INTERPRETATION: WHERE CONFLICTS, DISCREPANCIES, OMISSIONS, OR INCONSISTENCIES APPEAR IN THE CONTRACT DOCUMENTS, BIDDERS MUST BRING THESE ITEMS TO THE ATTENTION OF THE ARCHITECT AT LEAST TEN (10) DAYS, SATURDAYS, SUNDAYS, AND HOLIDAYS EXCEPTED, BEFORE THE BID DUE DATE. TO RECEIVE THE ARCHITECT'S INTERPRETATION, THE BIDDING CONTRACTOR MUST OBTAIN A WRITTEN DETERMINATION FROM THE ARCHITECT, APPLY THE MORE COSTLY INTERPRETATION IN TOTAL MATERIAL AND LABOR COSTS TO COMPLETE THE WORK IN PREPARING THE BID FOR THE PROJECT. INTERPRETATIONS MADE BY THE ARCHITECT FOLLOWING THE CONTRACT SIGNING REGARDING THE CONTRACT DOCUMENTS SHALL BE FINAL AND BINDING ON THE CONTRACTOR.
- o THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE REQUIRED SIZES, TYPES, ETC. OF ALL SYSTEM COMPONENTS THAT REQUIRE REPLACEMENT AND/OR SERVICE AS DESCRIBED IN THE CONTRACT DRAWINGS.
- o WHERE EXISTING MATERIALS ARE REMOVED AND NEW SIMILAR OR DISSIMILAR MATERIALS ARE CALLED FOR TO BE INSTALLED ON THE SAME SURFACE, THE CONTRACTOR SHALL PROPERLY PREPARE THE SURFACE IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES FOR THE NEW MATERIAL TO BE INSTALLED. UNDER NO CIRCUMSTANCES SHALL NEW MATERIALS BE INSTALLED OVER IMPROPERLY PREPARED SUBSTRATES OR SURFACES.
- o WHERE EXISTING MATERIALS AND STRUCTURES ARE TO BE MODIFIED, REMOVED, REPAIRED OR REPLACED SUCH CONSTRUCTION SHALL CONFORM TO THE STANDARDS AS SET FORTH IN THE DETAILS AS BEING EQUAL TO THAT OF NEW CONSTRUCTION. SUCH CONSTRUCTION SHALL LEAVE CLEAN SMOOTH SURFACES READY TO RECEIVE NEW MATERIALS AS SPECIFIED. REPLACEMENT OF EXISTING SYSTEM COMPONENTS SHALL BE ON A ONE-FOR-ONE BASIS, WHEREIN THE REPLACEMENT SHALL EQUAL THE EXISTING IN QUALITY, AND REQUIRED OPERATION FOR THE SYSTEM IT SERVES.
- o WHERE OMITTING OF EXISTING SURFACES OR REMOVAL OF EXISTING FINISHES IS REQUIRED TO PERFORM THE WORK UNDER THIS CONTRACT, AND A NEW FINISH IS NOT INDICATED, FILL RESULTING OPENINGS AND PATCH THE SURFACE AFTER DOING THE WORK, AND FINISH TO MATCH ADJACENT EXISTING SURFACES.
- o PROTECT ALL BUILDING ELEMENTS AND IMPROVEMENTS INDICATED TO REMAIN. ITEMS OF SALVAGE VALUE AND NOT INCLUDED ON THE SCHEDULE OF ITEMS TO BE REMOVED TO BE OBTAINED BY THE OWNER SHALL BE REMOVED FROM THE STRUCTURE. STORAGE OR SALE OF ITEMS AT PROJECT SITE IS PROHIBITED.
- o DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, DRIVES, MEANS OF EGRESS OR OTHER OCCUPIED OR USED SPACES OR FACILITIES WITHOUT THE WRITTEN PERMISSION OF THE OWNER AND THE AUTHORITIES HAVING JURISDICTION. DO NOT INTERRUPT UTILITIES SERVING OCCUPIED FACILITIES WITHOUT THE WRITTEN PERMISSION OF THE OWNER. IF NECESSARY, PROVIDE TEMPORARY UTILITIES, FACILITIES, AND MEANS OF EGRESS, ETC. TO ALLOW CONTINUOUS OPERATION AND USE OF THE OCCUPIED FACILITIES AS REQUIRED TO COMPLETE THE WORK. ALL TEMPORARY MEASURES SHALL BE INSTALLED AND MAINTAINED AS REQUIRED BY AND IN CONFORMANCE WITH ALL REGULATING AGENCIES.
- o ALL TRASH AND POTENTIALLY FLAMMABLE MATERIAL SHALL BE REMOVED FROM THE SITE DAILY. CONTRACTOR SHALL MAINTAIN THE SITE IN AN ORDERLY AND SAFE CONDITION DURING THE WORK. UNDER NO CIRCUMSTANCES SHALL GASOLINE, SOLVENTS OR OTHER VOLATILE OR POTENTIALLY EXPLOSIVE MATERIALS OR LIQUIDS BE BROUGHT INTO, STORED OR USED ON THE PREMISES.
- o DEMOLISHED MATERIAL SHALL BE CONSIDERED THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED FROM THE JOB SITE AND DISPOSED OF IN A SAFE AND LEGAL MANNER. THE CONTRACTOR MAY BE REQUIRED TO PRODUCE BILLS OF LADING, DUMPING OR TRANSPORTATION CERTIFICATES TO PROVE THAT MATERIALS WERE PROPERLY TRANSPORTED AND DISPOSED.
- o IN THE EVENT OF DAMAGE TO ITEMS NOT SCHEDULED FOR MODIFICATION OR DEMOLITION, PROMPTLY REPLACE SUCH ITEMS TO THE APPROVAL OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.
- o ALL UTILITIES THAT ARE NOT TO BE REINCORPORATED INTO THE NEW WORK SHALL BE PROPERLY CLOSED OFF AND CAPPED SO AS NOT TO BE AESTHETICALLY INAPPROPRIATE OR POTENTIALLY HAZARDOUS TO THE BUILDING OR ITS OCCUPANTS.
- o THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN SAFE EGRESS PASSAGE FOR THE BUILDING INHABITANTS AND TAKE ALL NECESSARY PRECAUTIONS TO AVOID CREATING HAZARDOUS CONDITIONS. IN NO CASE SHALL THE BUILDING EGRESS PASSAGEWAYS BE LEFT IN A CONDITION THAT MAY RENDER THEM UNUSABLE BY THE CONTRACTOR'S EMPLOYEES AND/OR THE GENERAL PUBLIC. THE CONTRACTOR SHALL CAREFULLY COORDINATE ALL WORK IN AREAS ACCESSIBLE TO THE PUBLIC WITH THE PHA SO AS TO MINIMIZE INCONVENIENT CONDITIONS FOR THE BUILDING INHABITANTS.
- o BEFORE BEGINNING THE WORK, AT THE SITE, WHERE POSSIBLE, AND THROUGHOUT THE COURSE OF THE WORK, INSPECT AND VERIFY THE LOCATION OF EVERY ITEM AFFECTED BY THE WORK UNDER THIS CONTRACT. REPORT ANY DISCREPANCIES TO THE ARCHITECT BEFORE PROCEEDING WITH WORK RELATED TO THAT BEING INSPECTED.
- o THE DRAWINGS SHOW PRINCIPAL AREAS WHERE WORK MUST BE ACCOMPLISHED UNDER THIS CONTRACT. INCIDENTAL WORK MAY ALSO BE NECESSARY IN AREAS NOT SHOWN ON THE DRAWINGS DUE TO CHANGES AFFECTING EXISTING MECHANICAL, ELECTRICAL, PLUMBING AND/OR OTHER BUILDING SYSTEMS. SUCH INCIDENTAL WORK IS ALSO A PART OF THIS CONTRACT. INSPECT SUCH AREAS TO ASCERTAIN WORK REQUIRED MEETING MEETING NEW CONDITIONS AND COMPLETING SUCH WORK TO MEET CONTRACT REQUIREMENTS.
- o TRADE, PRODUCT, OR MANUFACTURER'S NAMES AND CATALOG NUMBERS SHOWN ON THE DRAWINGS FOR NEW PRODUCTS ARE TO ESTABLISH QUALITY REQUIRED. IN EACH CASE AD, BY INFERENCE, AFTER TRADE, PRODUCT OF MANUFACTURER'S NAME, THE PHRASE "OR APPROVED EQUAL" FOR PRODUCTS TO BE CONSIDERED FOR EQUIVALENCY TO A SPECIFIED PRODUCT, THEY MUST BE FORMALLY PRESENTED TO THE ARCHITECT DURING THE BIDDING PERIOD IN THE SUBSTITUTION APPROVAL METHOD DESCRIBED IN THE SPECIFICATION. REQUESTS FOR SUBSTITUTION OF SPECIFIED PRODUCTS WILL NOT BE ACCEPTED AFTER THE BIDDING PERIOD. IF NO SUBSTITUTION WAS APPROVED DURING THE BIDDING PERIOD THE SUCCESSFUL BIDDER CONTRACTED TO DO THE WORK WILL BE REQUIRED TO SUPPLY AND INSTALL THE SPECIFIED ITEM WITHOUT VARIATION.
- o IN SOME CASES, THE SPECIFICATIONS WILL LIST A CHOICE OF PRODUCTS THAT THE CONTRACTOR CAN USE IN THE WORK FOR A PARTICULAR PURPOSE. THE CONTRACTOR MAY USE ANY ONE OF THESE PRODUCTS IN THE WORK WITHOUT A REQUEST FOR SUBSTITUTION. IN THIS CASE, HOWEVER, NO OTHER PRODUCTS, OTHER THAN THOSE LISTED, WILL BE CONSIDERED AS AN EQUAL. IN CERTAIN RARE INSTANCES, DUE TO PERSONNEL TRAINING, MAINTENANCE COMPATIBILITY WITH OTHER EQUIPMENT OR OTHER REASONS, ONE PRODUCT OR ONE PRODUCT ALONE WILL BE ACCEPTABLE WITHOUT CONSIDERATION OF OTHER PRODUCTS. IF THIS IS THE CASE, IT WILL BE CLEARLY STATED SO IN THE SPECIFICATIONS.
- o THE CONTRACTOR SHALL USE ACCEPTED CONSTRUCTION PRACTICES AND COMMON SENSE THROUGHOUT THE CONSTRUCTION PROCESS, ESPECIALLY IN THE PLACEMENT AND STORAGE OF MATERIAL IN OR ON THE UNCOMPLETED OR EXISTING STRUCTURE.
- o WHERE NOTES AND SPECIFICATIONS REFER TO A WORK ITEM AS "INSTALL" OR "PROVIDE AND INSTALL", BOTH TERMINOLOGIES SHALL BE INTERPRETED TO ALWAYS MEAN THAT THE CONTRACTOR MUST PURCHASE, TRANSPORT TO THE SITE AND INSTALL THE ITEM, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS; AND THE ITEM SHALL BE FULLY FUNCTIONAL AND BE ABLE TO SERVE ITS INTENDED PURPOSE AT THE COMPLETION OF THE INSTALLATION. ONLY WHEN AN ITEM IS REFERRED TO AS "INSTALL ONLY", IS THE ITEM TO BE PURCHASED AND SUPPLIED BY THE OWNER FOR INSTALLATION BY THE CONTRACTOR.
- o LEAVE ALL AREAS RENOVATED IN MOVE-IN CLEAN CONDITION. LEAVE NO FINGER PRINTS, MARKS, HAZE OR CONSTRUCTION DIRT. REMOVE ALL PACKING, TAPE, AND MARKINGS FROM APPLIANCES. LEAVE ALL LITERATURE AND USER INSTRUCTIONS AND OWNERSHIP MANUALS WITH A REPRESENTATIVE OF THE OWNER.
- o REUSE OF EXISTING MATERIALS MAY BE PERMITTED ONLY WHEN IN STRICT CONFORMANCE WITH ALL REGULATING AGENCIES. ALL MATERIALS WHICH ARE TO BE REUSED IN COMPLETING THE NEW CONSTRUCTION ARE TO BE REFURBISHED TO LOOK AND FUNCTION AS IF NEW. THE CONTRACTOR SHALL CONSULT THE ARCHITECT PRIOR TO REUSING ANY MATERIAL IN THE NEW CONSTRUCTION. THE ARCHITECT RESERVES THE RIGHT TO REJECT ANY EXISTING MATERIAL REQUESTED FOR REUSE IF AT THE ARCHITECT'S DISCRETION THE MATERIAL DOES NOT CONFORM WITH GENERALLY ACCEPTED LATEST NEW STANDARDS. THIS REJECTION CAN BE MADE AT ANY TIME DURING THE COURSE OF THE WORK, AND THE CONTRACTOR WILL BEAR THE SOLE RESPONSIBILITY FOR REMEDYING THE REJECTED WORK.
- o SITE RESTORATION AND CLEAN UP: AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL RESTORE/REPAIR ANY PORTION OF THE SITE AND THE EXTERIOR OF THE BUILDING DAMAGED OR DISRUPTED AS A RESULT OF THE WORK CONDUCTED. IN ADDITION, THE FOLLOWING CLEAN UP ACTIVITIES SHALL BE CONDUCTED PRIOR TO VACATING THE SITE:
- REMOVE ALL DEBRIS CREATED DURING THE WORK.
 - THOROUGHLY RAKE THE ENTIRE WORK AREA AND REMOVE ALL TRASH, DEBRIS, LEAVES, ETC. WHETHER CREATED BY THE WORK OR NOT AND DISPOSE OF OFF SITE.
 - SEED AND WATER ALL BARE LAWN AREAS DISTURBED BY THE WORK.
 - GRASS SEED: MECHANICAL THATCHING, SCARIFYING, AND RAKING- APPLICATION OF PELLETIZED, DOLOMETIC LIME, GRANULAR PRE-EMERGENCE WEED TREATMENT, APPLICATION OF 1-0-6-4 FERTILIZER AND SEEDING (CYCLONE TYPE APPLICATOR) OF LOFTS FULL SUN URBAN SEED MIX AS APPROVED BY THE ARCHITECT. WATERING AND MOWING IS INCLUDED WITH ALL REFURBISHED GRASS AND SEEDED AREAS AS SPECIFIED BY THE ARCHITECT. WATER AND MAINTAIN SEEDED AREAS FOR THE PERIOD OF AT LEAST ONE MONTH TO ENSURE THE UNINTERRUPTED GROWTH AND FULL VIGOR OF THE SEED. THE CONTRACTOR WILL BE RESPONSIBLE TO SUPPLY ALL EQUIPMENT, HOSES AND WATER IF NECESSARY TO MAINTAIN THE SEED.

- o NOTES REGARDING CONCEALED UTILITIES: IN THE CASE OF THE INTERRUPTION OF ESSENTIAL SERVICES OR THE CREATION OF A LIFE THREATENING CONDITION, THE CONTRACTOR SHALL TEND TO THE REPAIR OF THE DAMAGE AS AN EMERGENCY SITUATION AND SHALL PAY FOR ALL ADDITIONAL EXPENSES INCURRED IN DEALING WITH AN EMERGENCY INCIDENT. THESE ADDITIONAL EXPENSES MAY INCLUDE BUT ARE NOT LIMITED TO, OVERTIME PAY, SPECIAL COURIER DELIVERY SERVICE OF ESSENTIAL PARTS OR EQUIPMENT, THE SERVICES OF OUTSIDE SPECIALISTS OR CONSULTANTS, THE RENTAL OF SPECIALIZED EQUIPMENT, OR THE PROVISION OF, OR RENTAL OF, EQUIPMENT NECESSARY TO PROVIDE TEMPORARY SERVICES OR UTILITIES DURING THE REPAIR PERIOD, AND SPECIAL UTILITY COMPANY CHARGES. FOR THE PURPOSES OF THIS CONTRACT, ESSENTIAL SERVICES ARE DEFINED AS GAS SERVICE, ELECTRICAL POWER, HOT AND COLD POTABLE WATER SUPPLY, SPACE HEATING, SANITARY SEWER SERVICE, STORM DRAINAGE, AND TELEPHONE SERVICE. INTERRUPTION OF THESE SERVICES TO MORE THAN TWO LIVING UNITS OR ANY COMMON FACILITY SHALL BE CONSIDERED AN EMERGENCY CONDITION.

THE CONTRACTOR SHOULD BE MADE AWARE THAT SHOULD A TIMELY AND APPROPRIATE RESPONSE NOT BE PROVIDED TO AN ESSENTIAL UTILITY INTERRUPTION OR EMERGENCY CAUSED BY HIM OR HIS WORKMEN OR SUBCONTRACTORS, THAT THE OWNER MAY TAKE ACTION TO HAVE THE EMERGENCY REPAIR MADE BY A THIRD PARTY. DEPENDING ON THE NATURE AND SEVERITY OF THE EMERGENCY OR BREAK AND THE AVAILABILITY OF CONTRACTOR PERSONNEL WITH DECISION MAKING AUTHORITY, THE OWNER MAY OR MAY NOT GIVE PRIOR NOTICE TO THE CONTRACTOR OF THIRD PARTY INVOLVEMENT IN THE CORRECTION OF THE EMERGENCY CONDITION. THE COST OF SUCH THIRD PARTY REPAIRS SHALL BE DEDUCTED FROM THE CONTRACTOR'S BID PRICE.

IN THE EVENT THAT A UTILITY MUST BE RELOCATED TO CARRY OUT OR EXPEDITE THE WORK, AND THE RELOCATION IS NOT CALLED FOR IN THE PROJECT MANUAL TO BE INCLUDED IN THE CONTRACT PRICE, THE CONTRACTOR SHALL BE REIMBURSED FOR THESE COSTS BY THE OWNER ON THE BASIS OF A NEGOTIATED AND MUTUALLY AGREED UPON CHANGE ORDER. THIS WORK SHALL NOT PROCEED WITHOUT A FORMAL, WRITTEN CHANGE ORDER, SIGNED BY THE OWNER, ARCHITECT, AND CONTRACTOR AND APPROVED BY A HUD REPRESENTATIVE.

THE CONTRACTOR WILL BE EQUALLY RESPONSIBLE FOR SIMILAR DAMAGE AND / OR INTERRUPTIONS OF ESSENTIAL SERVICES OCCURRING THROUGHOUT THE WORK, INCLUDING THAT WORK WHICH TAKES PLACE WITHIN RENOVATED BUILDINGS OR AREAS WHERE THE OWNER OR HIS EMPLOYEES OR AFFILIATES TO WORK ENGAGED IN BY SUBCONTRACTORS HIRED BY THE CONTRACTOR TO CARRY OUT THE WORK.

- o ACCESS / DISRUPTION OF USE: IN THE COURSE OF EXECUTING THE WORK, THE CONTRACTOR MAY BE REQUIRED TO WORK IN OR NEAR AREAS WHICH ALLOW RESIDENTS, STAFF AND VISITORS FREE ACCESS TO THE SITE AND TO THE BUILDING(S) OR IN AREAS WHERE REGULAR ACTIVITIES TAKE PLACE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT FREE ACCESS IS SAFELY AND EFFICIENTLY MAINTAINED TO THESE AREAS DURING THE COURSE OF THE WORK AND THAT ROUTINE ACTIVITIES NORMALLY CARRIED OUT ARE NOT DISRUPTED. AT A MINIMUM THE CONTRACTOR SHALL PERFORM THE FOLLOWING TO GUARANTEE ACCESS AND PREVENT DISRUPTION: (1) PRIOR TO WORK COMMENCING, INDICATE THOSE AREAS WHERE WORK IS TO TAKE PLACE. (2) DETERMINE, THROUGH OBSERVATION AND DISCUSSION WITH A DESIGNATED OWNERS REPRESENTATIVE, HOW WORK IN THESE AREAS WILL AFFECT SCHEDULED AND ROUTINE ACTIVITIES AND GENERAL ACCESS TO THE SITE AND STRUCTURES. (3) IF IT HAS BEEN MUTUALLY DETERMINED THAT WORK MAY POTENTIALLY INTERFERE WITH OR DISRUPT ACTIVITIES AND/OR HINDER FREE ACCESS TO THE SITE AND STRUCTURES, THE CONTRACTOR MUST FORMULATE A PLAN OF ACTION TO PREVENT SUCH INTERFERENCE AND MAINTAIN FREE ACCESS DURING THE COURSE OF THE WORK. THIS PLAN SHALL BE PRESENTED TO THE OWNER FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK. IF THE OWNER DOES NOT DEEM THE PLAN SUITABLE, THE CONTRACTOR WILL MAKE MODIFICATIONS TO THE PLAN, RESUBMIT THE PLAN AND RECEIVE FINAL APPROVAL FROM THE OWNER. THE PROPOSED PLAN, AT A MINIMUM, SHOULD INCLUDE THE FOLLOWING INFORMATION: AREAS AND ACTIVITIES IMPACTED BY THE WORK, TIME OF COMMENCEMENT OF THE WORK, DURATION OF THE WORK, PROPOSED MEANS TO MINIMIZE THE DISRUPTION, PROPOSED TEMPORARY ACCESS TO THE SITE OR BUILDINGS, PROPOSED ACTIONS TAKEN BY THE CONTRACTOR MAY INCLUDE, BUT NOT BE LIMITED TO THE CONSTRUCTION OF, PLACEMENT OF, AND REMOVAL OF THE FOLLOWING: PROTECTED AND LEGAL ACCESS PATHS, PROTECTED AND LEGAL STAIRS AND/OR RAMP, LIGHTING AND/OR POWER OR OTHER UTILITIES (SEE ABOVE REGARDING UTILITIES), DOORS AND HARDWARE, AND SIGNAGE. TO MEET THE REQUIREMENTS OF THIS SECTION, WORK NORMALLY DONE IN ONE CONTINUOUS ACTIVITY MAY BE REQUIRED TO DIVIDE INTO TWO OR MORE WORK SESSIONS OR MAY BE REQUIRED TO BE SEQUENTIALLY STAGED.

- o JOB SITE SAFETY: NEITHER THE PROFESSIONAL ACTIVITIES OF HABITECH ARCHITECTURE, LLC, NOR THE PRESENCE OF HABITECH ARCHITECTURE, LLC, OFFICERS, PERSONNEL, EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR, SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATION TO PROVIDE, MAINTAIN, AND ENFORCE ALL SAFETY PRECAUTIONS. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AND SHALL WARRANT THAT THIS INTENT SHALL BE MADE CARRIED OUT THROUGHOUT THE WORK. IN ACCORDANCE WITH THE INSURANCE REQUIREMENTS FOR THIS WORK, THE CONTRACTOR AGREES TO INDEMNIFY AND LIST AS ADDITIONAL INSURED UNDER HIS GENERAL LIABILITY INSURANCE POLICY, OFFICERS, PERSONNEL, EMPLOYEES, AND SUB-CONSULTANTS OF HABITECH ARCHITECTURE, LLC AND THE OWNER.

CONDENSING BOILER SPECIFICATIONS

1-GENERAL

- 1.1 DESCRIPTION
- a. BOILER, AN APPLIANCE FOR SPACE HEATING, A STAND-MOUNTED, GAS-FIRED, AUTOMATICALLY-ADAPTING, HIGH EFFICIENCY, CONDENSING WATERTUBE BOILER INCLUDING CONTROLS AND REQUIRED SAFETY DEVICES.

2-SOURCING

- 2-1 APPROVED MANUFACTURER AND MODELS
- a. BOILER SHALL BE MANUFACTURED FOR VELOCITY BOILER WORKS, PHILADELPHIA, PA
- b. INSTALLED BOILER MODEL SHALL BE AN HEATING-ONLY MODELS: PHNTM2120H.
- c. THE CONTRACTOR SHALL INSURE THAT ANY SUBSTITUTED EQUIPMENT IS EQUIVALENT IN FIT, FORM AND FUNCTION TO THE EQUIPMENT IN THIS SPECIFICATION. THE COST AND RESPONSIBILITY OF ANY ADDITIONAL WORK CAUSED BY THE SUBSTITUTION OF EQUIPMENT SHALL BE BORNE BY THE CONTRACTOR.
- d. ALSO REFER TO EQUIPMENT SCHEDULE IN THE CONTRACT DRAWINGS.

3-DOCUMENTATION

- 3.1 DOCUMENTATION
- a. THIS SPECIFICATION IS ACCOMPANIED BY ADDITIONAL DOCUMENTS INCLUDING A CURRENT SUBMITTAL PACKAGE WITH BOILER LITERATURE, INSTALLATION, OPERATING AND SERVICE INSTRUCTIONS, SHOP DRAWINGS, SITE APPLICATION SPECIFICATIONS, WIRING DIAGRAMS, PIPING DIAGRAMS AND OTHER RELATED WORK MATERIALS.
- b. THIS SPECIFICATION IS NOT AN INSTRUCTIONS DOCUMENT, BUT REFERS TO THE "MANUAL" WHICH SERVES AS THE OFFICIAL INSTALLATION, OPERATING AND SERVICE INSTRUCTIONS DOCUMENT.

4-PRODUCT SPECIFICATIONS

4-1 REFERENCES AND REQUIREMENTS

- a. BOILER SHALL BE USED IN FORCED CIRCULATION HOT WATER HEATING SYSTEMS REQUIRING SUPPLY WATER TEMPERATURES OF 180°F OR LESS.
- b. BOILER SHALL BE EXPERTLY INSTALLED BY A QUALIFIED HEATING INSTALLER OR SERVICE TECHNICIAN IN ACCORDANCE WITH THE INSTALLATION REGULATIONS AND INSTALLER CREDENTIALS ENFORCED IN THE AREA OF THE INSTALLATION SITE.
- c. BOILER SHALL COMPLY WITH ANSI Z21.1.3 TEST STANDARDS FOR THE UNITED STATES AND BE AHRI-LISTED TO VERIFY COMPLIANCE TO THE MINIMUM EFFICIENCIES REQUIRED BY THE U.S. DEPARTMENT OF ENERGY (DOE).
- d. INSTALLERS SHALL CONSULT AUTHORITIES HAVING JURISDICTION AT THE INSTALLATION SITE. WITHOUT AN AUTHORITY HAVING JURISDICTION, INSTALLATION SHALL BE PER THE MANUAL AND THE NATIONAL FUEL GAS CODE, ANSI Z223.1/NFPA 54. IN CANADA, INSTALLATION SHALL BE IN ACCORDANCE WITH THE CANCSA B149.1 INSTALLATION CODE, WHERE REQUIRED BY AUTHORITY HAVING JURISDICTION, THIS INSTALLATION SHALL CONFORM TO THE STANDARD FOR CONTROLS AND SAFETY DEVICES FOR AUTOMATICALLY FIRED BOILERS (ANSI/ASME CSD-1).
- e. ALL WIRING AND GROUNDING SHALL BE DONE IN ACCORDANCE WITH THE AUTHORITY HAVING JURISDICTION AND WITH THE NATIONAL ELECTRICAL CODE ANSI/NFPA 70.
- f. BOILER SHALL MEET THE ENERGY STAR® GUIDELINES FOR ENERGY EFFICIENCY ESTABLISHED BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA).
- g. BOILER SHALL BE MOUNTED, VENTED, PIPED AND WIRED PROPERLY PER EXACT CLEARANCES, REQUIREMENTS AND QUALIFIED MATERIALS DOCUMENTED IN THE MANUFACTURER MANUAL. GAS PIPING AND CONNECTIONS SHALL ALSO FOLLOW THE MANUAL AND LAWFULLY CONFORM TO SAFETY REQUIREMENTS.
- h. BOILER SHALL BE CAPABLE OF INSTALLATION WITH EXHAUST VENTING MADE WITH EITHER CPVC, PVC OR POLYPRO MATERIAL AS SPECIFIED, ASSEMBLED AND LISTED IN THE MANUFACTURER INSTRUCTIONS.
- i. PVC MATERIAL SHALL NEVER BE USED IN EXHAUST VENTING, EXCEPT FOR INSTALLATIONS OUTSIDE OF CANADA, WHEN A FIELD-SUPPLIED SCHEDULE 80 CPVC 90° ELBOW AND A 30-INCH LENGTH OF SCHEDULE 40 CPVC PIPE ARE INSTALLED, PER MANUFACTURER INSTRUCTIONS, AS A TRANSITION FROM THE BOILER VENT CONNECTION TO TRADITIONAL SOLID CORE SCHEDULE 40 PVC VENT MATERIAL (ASTM D2665). CPVC STARTER VENT KIT FROM VELOCITY BOILER WORKS EITHER 1.07039-01 (2" DIAMETER) OR 1.07039-02 (3" DIAMETER) SHALL BE USED FOR THIS PURPOSE OR EQUIVALENT CPVC STARTER COMPONENTS SHALL BE SELECTED AS SUBSTITUTES ALL COMPLIING WITH MANUFACTURER INSTRUCTIONS AND COMPONENT LISTINGS.
- j. CELLULAR CORE PVC (ASTM F891), CELLULAR CORE CPVC AND RADEL (POLYPHENOLSULFONE) ARE PROHIBITED AND SHALL NEVER BE USED FOR EXHAUST OR INTAKE PIPING.
- k. THIS BOILER NEEDS FRESH AIR FOR SAFE OPERATION AND SHALL BE INSTALLED WITH INTAKE VENT PIPING FOR ADEQUATE COMBUSTION AND VENTILATION AIR. INTAKE VENT TERMINATIONS SHALL NOT BE IN AN AREA EXPOSED TO CHEMICALS OR OTHER CONTAMINANTS ON THE AVOIDANCE LIST IN THE BOILER INSTALLATION MANUAL.
- l. BOILER INSTALLATION SHALL ALWAYS INCLUDE A SAFETY RELIEF VALVE INSTALLED IN THE BOILER SUPPLY PIPING AS SPECIFIED IN THE MANUFACTURER'S INSTRUCTION MANUAL.
- m. BOILER SHALL OPERATE PROPERLY WITH A MINIMUM GAS PRESSURE OF 2.5 INCH W.C. (0.62 KPA) FOR NATURAL GAS OR 8.0 INCH W.C. (1.99 KPA) FOR LP GAS AND A MAXIMUM GAS PRESSURE OF 14.0 INCH W.C. (3.48 KPA) FOR NATURAL GAS OR LP GAS. INSTALLING CONTRACTORS SHOULD

- VERIFY THIS GAS PRESSURE WITH AND WITHOUT APPLIANCE FUEL DRAW.
- BOILER SHALL BE LISTED FOR 0 TO 2,000 FT. THIS BOILER SHALL NOT BE INSTALLED OVER 2000 FEET.
- BOILER SHALL NOT BE USED IN GRAVITY HOT WATER SYSTEMS OR SYSTEMS CONTAINING SIGNIFICANT AMOUNTS OF DISSOLVED OXYGEN.

4-2 CONSTRUCTION AND COMPONENTS

- a. BOILER SHALL BE A HIGH EFFICIENCY, GAS-FIRED DIRECT VENT, SEALED COMBUSTION HEATING BOILER APPLIANCE CONFORMING TO THE SPECIFICATIONS AND COMPONENT LISTINGS DESCRIBED, PICTURED AND IN TABLES THROUGHOUT THIS DOCUMENT.
- b. BOILER SHALL INCLUDE A HIGH EFFICIENCY, CONDENSING, STAINLESS STEEL, WATERTUBE PRESSURE VESSEL AS A PRIMARY HEAT EXCHANGER BEARING THE ASME "H" STAMP. IT SHALL BE A DEEP-CLEANING, QUICK-ACCESS DESIGN. THE MAXIMUM ALLOWABLE WORKING PRESSURE (MAWP) FOR THIS HEAT EXCHANGER SHALL BE 50 PSI.
- c. BOILER SHALL HAVE AN INTELLIGENT, SCALABLE GAS ADAPTIVE BOILER CONTROL CONFIGURED ON A FUSE-PROTECTED PRINTED CIRCUIT BOARD THAT INCLUDES AN LCD DISPLAY AND ADJACENT OVERSIZED USER INTERFACE BUTTONS.
- d. BOILER CONTROL SHALL MONITOR FLAME IONIZATION TO AUTOMATICALLY SET THE GAS VALVE TO A CORRECT AIR-FUEL RATIO AND ALLOW "NO TOUCH" ADAPTIVE COMBUSTION SETUP WITHOUT MANUAL THROTTLE OR OFFSET ADJUSTMENTS. AUTOMATIC SELF-CALIBRATION SHALL ALSO PROVIDE CONTINUOUS, SAFE, CLEAN COMBUSTION BY ADAPTING TO MANY LEVELS OF COMPONENT WEAR, VARIATIONS IN FUEL, ENVIRONMENT, AND VENT AIR PRESSURE.
- e. BOILER SHALL INCLUDE AN ELECTRONIC GAS VALVE AND A VARIABLE SPEED BLOWER SYSTEM TO PRECISELY CONTROL FUEL/AIR MIXTURE FOR MAXIMUM EFFICIENCY AND BE CAPABLE OF FULLY MODULATING FIRING RATES EXCEEDING 8.8:1 FOR HEATING-ONLY BOILERS.
- f. BOILER SHALL BE FABRICATED WITH A NON-PLASTIC METAL JACKET INCLUDING A FINISHED FRONT PANEL. BOILER FINISH SHALL BE A RUST RESISTANT POWDER COAT ON SELECTED SURFACES.
- g. BOILER SHALL INCLUDE A SENSOR-LESS, RATE-BASED RESET FUNCTION REQUIRING NO MECHANICAL FIELD INSTALLATION. THIS FEATURE SHALL ASSESS NECESSARY ENVIRONMENTAL CONDITIONS, AND CONTINUALLY ADJUST BOILER OPERATION FOR COMFORT, EFFICIENCY, AND TO REDUCE BOILER WEAR AND TEAR CAUSED BY SHORT-CYCLING.
- h. BOILER FRONT AND SIDE PANELS SHALL BE REMOVABLE USING A TOTAL OF SIX FASTENERS TO ENABLE FULL-SERVICE ACCESS THROUGH THE VACANT PANEL SPACE IF RECOMMENDED CLEARANCE IS PROVIDED.
- i. BOILER PROTECTION SHALL INCLUDE ELECTRICAL COMPONENT SEPARATION FROM INCOMING COMBUSTION AIR AND GAS, LIKELY TO CONTAIN EXCESS HUMIDITY, DUST AND OTHER CONTAMINANTS BROUGHT THROUGH DUCTED COMBUSTION AIR.
- j. BOILER SHALL INCLUDE A UL-353 LISTED HEATING WATER FLOW SWITCH AND HIGH LIMIT PROTECTION PROVIDED WITH THE BOILER. THIS LIMIT CAUSES BOILER SHUTDOWN IF THE BOILER WATER TEMPERATURE EXCEEDS THE SET POINT OF THE LIMIT CONTROL.
- k. BOILER SHALL INCLUDE AN AIR PRESSURE SWITCH TO PROVE THAT THE EXHAUST VENT IS UNOBSTRUCTED.
- l. BOILER SHALL INCLUDE A UNIVERSAL VENT CONNECTOR, HEAT EXCHANGER GASKET, AND JACKET VENT GASKET INSIDE THE BOILER CRATE FOR ATTACHMENT IN THE FIELD BY INSTALLATION TECHNICIANS. THIS UNIVERSAL VENT SHALL BE CONNECTABLE TO APPROVED CPVC OR POLYPRO VENTING.
- m. BOILER SHALL INCLUDE AN INTEGRAL CONDENSATE TRAP.
- n. BOILER SHALL BE SHIPPED FROM THE FACTORY CONFIGURED FOR NATURAL GAS. THIS FACTORY-BUILT BOILER SHALL NOT REQUIRE A CONVERSION KIT TO COMPLETE A SIMPLE NATURAL GAS-TO-LP CONVERSION. INSTEAD THIS CONVERSION SHALL BE COMPLETED IN TWO STEPS WITH A: 1- 2.5MM HEX WRENCH TOOL AT THE GAS VALVE ACCOMPANIED BY A 2- CONTROL DISPLAY SETTING CHANGE.
- o. BOILER SHALL BE EQUIPPED WITH A WIRING DIAGRAM ATTACHED TO THE BOILER JACKET IN A DOCUMENTATION PACKET.
- p. BOILER SHALL BE FACTORY-ASSEMBLED, FIRE-TESTED AND SHIPPED AS A FACTORY-PACKAGED UNIT.
- q. BOILER SHALL INCLUDE THESE ADDITIONAL COMPONENTS IN SEPARATE PACKAGING INSIDE THE BOILER CRATE FOR FINAL FIELD ASSEMBLY OR USE BY INSTALLATION TECHNICIANS.
- VENT CONNECTOR AND TEST PORT
 - WALL-MOUNTING BRACKET, RETAINING CLIPS AND HARDWARE
 - TEMPERATURE/PRESSURE GAGE
 - 30 PSI SAFETY RELIEF VALVE
 - DRAIN VALVE
 - GAS CONNECTION ADAPTER
 - GAS SHUTOFF VALVE
 - (HEATING-ONLY MODELS) GRUNDFOS 26-99 CIRCULATOR OR EQUIVALENT.

4.3 HEATING-ONLY BOILER PRODUCT SPECIFICATIONS

- a. RATINGS- INSTALLED HEATING-ONLY BOILER MODELS SHALL MEET THE PERFORMANCE CHARACTERISTICS SHOWN IN THE RATING TABLE BELOW:

AHRI CERTIFIED					
Model Number	Input ¹ (MBH)		DOE Heating Capacity (MBH)	AHRI Net Rating ² (MBH)	AFUE
PH1M2120H	13.6	120	112	97	95
PH1M2150H	20	150	141	123	95
PH1M2180H	20	180	169	147	95

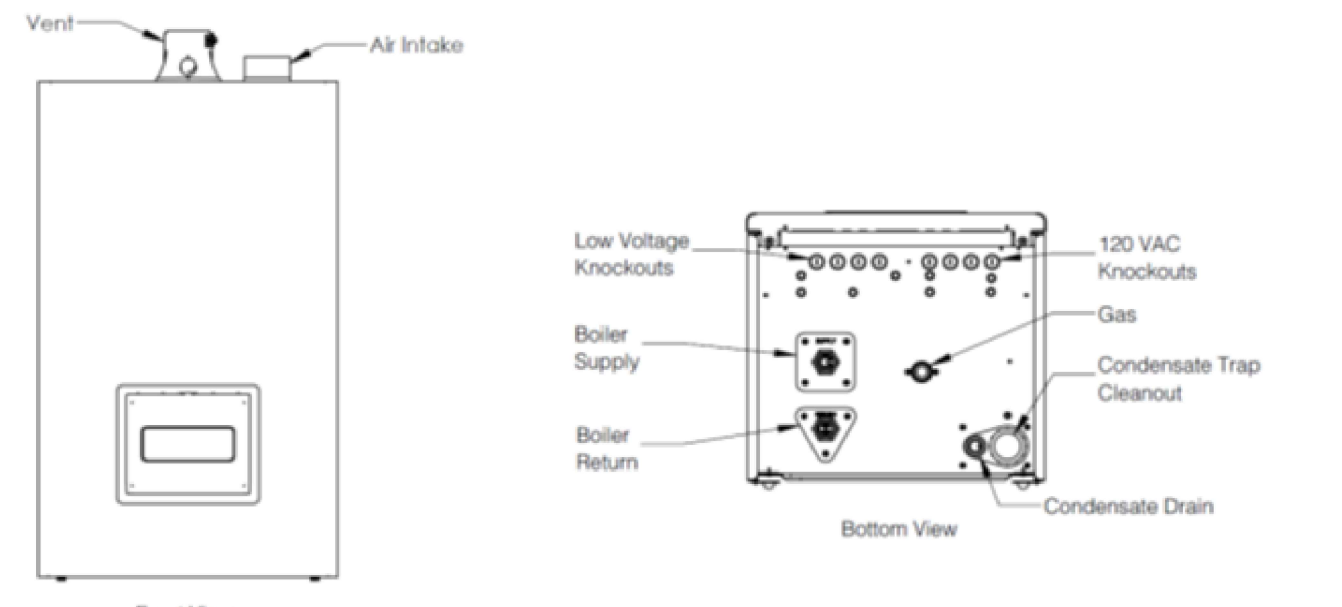
¹ Input for installations with min vent length. See Table 3-3 for derate at max vent length.
² Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15. The manufacturer should be consulted before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent operation, extensive piping systems, etc.

- b. DIMENSIONS- EACH HEATING-ONLY BOILER SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND MEET THE CORRESPONDING CRITERIA SHOWN IN THE TABLES AND FIGURES BELOW.

Model Number	Depth in. (mm)	Width in. (mm)	Height in. (mm)	Space Heating Water NPT, in.	Gas NPT	Maximum Allowable Working Pressure psig (kPa)
PH1M2120H	16.3 (413)	17.8 (453)	29.8 (757)	1	1/2	50 (345)
PH1M2150H	20.4 (518)	17.8 (453)	29.8 (757)	1	1/2	50 (345)
PH1M2180H	20.4 (518)	17.8 (453)	29.8 (757)	1	1/2	50 (345)

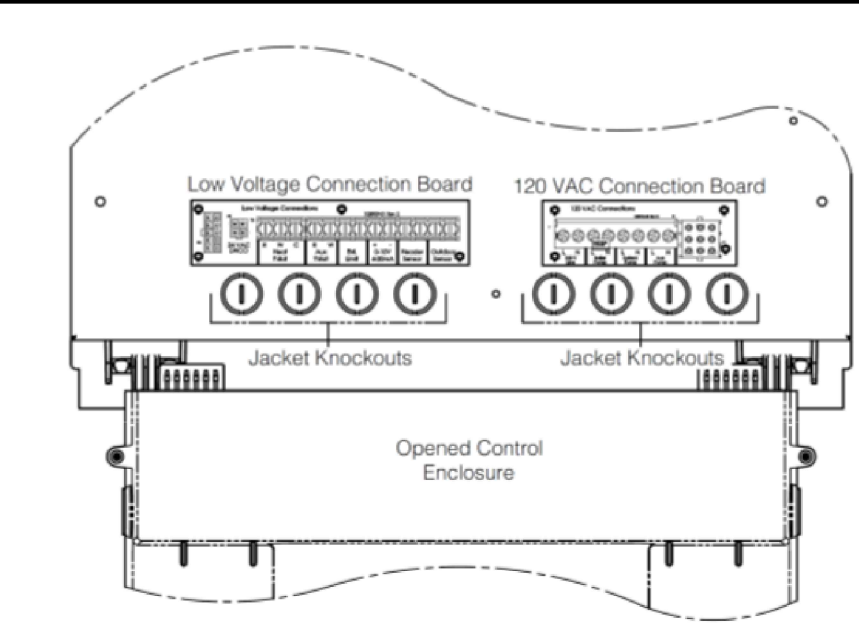
Table 3-3: Air Intake and Vent Lengths

Model Number	Intake/Vent Size in. (mm)	Min Length ft. (m)	Max Length ft. (m)	Approx. Derate at Max. Length (%)
PH1M2120H	Standard	2 (60)	2.5 (0.76)	70 (21.3)
	w/ increaser	3 (80)	2.5 (0.76)	135 (41.1)
PH1M2150H PH1M2180H	Standard	2 (60)	2.5 (0.76)	70 (21.3)
	w/ increaser	3 (80)	2.5 (0.76)	135 (41.1)



4.4 WIRING AND SENSORS

- a. 120 VAC LINE VOLTAGE CONNECTION BOARD- ALL LINE VOLTAGE FIELD CONNECTIONS SHALL BE CONNECTED TO "120VAC CONNECTIONS" TERMINAL STRIP PICTURED.
- b. LOW VOLTAGE CONNECTION BOARD- COMMONLY USED LOW VOLTAGE FIELD FIELD CONNECTIONS SHALL BE CONNECTED TO THE "LOW VOLTAGE CONNECTIONS" TERMINAL STRIP PICTURED ON THE LEFT.



4.5 BOILER CONTROL; CAPABILITY AND FUNCTIONALITY

- a. THE CONTROL SHALL HAVE THE FUNCTIONS OUTLINED BELOW.

Control System Overview

The control manages all of the following boiler functions:

- Boiler Control**
Control simultaneously modulates blower speed and gas valve position to control firing rate and sequences up to three pumps to respond to DHW and CH demands.
- Flame Supervision/Air-Fuel Ratio Control**
Control is a "Gas-Adaptive system" that regulates air and gas flow mixture by measuring flame ionization and adjusting gas valve to achieve target air fuel ratio. This eliminates need to make throttle screw or offset adjustments. This system is self-calibrating and continuously maintains air fuel ratio at desired value.
- Domestic Hot Water**
When there is a DHW demand, system pump will operate per PDI setting. Priority protection is provided to ensure heating system is also serviced.
- Central Heat**
CH demand is detected by a heating thermostat call for heat. When CH demand is detected, control starts boiler pump and modulates firing rate based on measured supply sensor and CH setpoint. Control can accept a second heating thermostat wired to the Aux1 stat input. CH demands have separate setpoint and maximum modulation rates.
- Sensorless Reset**
Control system monitors recent firing rate and burner cycle data to infer current building heat loss. Target supply water temperature is then adjusted to match this heat load. No outdoor sensor mounting or wiring is required. Boost feature increases operating temperature setpoint by 10°F (5.6°C) every 20 minutes CH demand is not satisfied. This process will continue until demand is satisfied (indoor air is at desired temperature), or CH setpoint is reached. Once heat demand is satisfied, operating setpoint reverts to value determined by the Outdoor Reset settings.
- Pump Exercise**
Connected pumps are automatically run for a 20 second exercise period after not being used for longer than 7 days. This helps prevent pump rotor seizing.
- Pump Air Elimination (Pump Purge)**
Pump purge is entered when power is cycled or when there has been an over temperature hold. During this state boiler pump cycles on and off every 5 seconds for two minutes to help remove air from boiler water piping. This may be interrupted by pressing the reset button.
- Built-in Safety Control**
Control includes functions designed to ensure safe and reliable operation. In addition to flame supervision, control monitors supply water temperature, differential water temperature, and flue temperature safety limits. Boiler modulation is adjusted when required to help avoid loss of boiler operation due to exceeding limits. Additionally, control accepts field installation of external limits.
- Fuel Conversion**
The conversion from Natural Gas to LP Gas (or vice versa) is made by changing gas valve setting and a control parameter change on display; no external fuel conversion kit is required.
- Plug & Play Multiple Boiler Control Sequencer**
When multiple boilers are installed, the Control's Sequencer may be used to coordinate and optimize the operation of up to eight (8) boilers. Boilers are connected into a "network" by simply "plugging in" standard ethernet cables into each boiler's "Boiler-To-Boiler Communication" RJ45 connection.
- Priority Demand**
Control accepts a call for heat from multiple places and responds to its "Priority". When more than one demand is present, higher priority demand is used to determine active boiler settings. For example, when DHW has priority, setpoint, "Diff Above", "Diff Below" and pump settings are taken from DHW selections. Active "Priority" is displayed on the Diagnostic Menu, item "C02", see Table 15-9.

4.7 USER INTERFACE/RESIDENT LCD DISPLAY

- b. THE CONTROL DISPLAY SCREEN SHALL DISPLAY THESE CHARACTERISTICS BELOW:

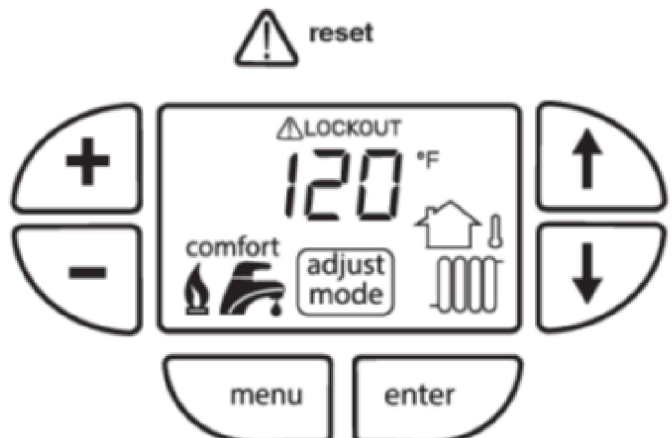


Figure 16-1: Display Icons

Table 16-2: Display descriptions

120°F	When not flashing or alternating display temperature is: • DHW outlet temperature during DHW priority. • Boiler supply temperature at all other times.
	Visible when Central Heating demand is present.
	Visible when DHW heating demand is present. Icon will flash if DHW setpoint is being adjusted.
	Visible when burner is firing. Icon adjacent to active priority.
comfort	Visible when DHW Comfort Mode is selected.
	Visible when Central Heating setpoint reset is enabled.
adjust mode	Visible when adjust mode is active. Icon will flash if manual mode is enabled.
LOCKOUT	Visible when manual reset lockout is active.

HABITECH ARCHITECTURE
12 PINECREST DRIVE MEDFORD, NJ 08055
VOICE: (609) 413-2566 ~ FAX: (609) 654-5230

REVISIONS

NO.	DATE	DESCRIPTION

THESE PLANS ARE AN INSTRUMENT OF SERVICE AND ARE THE PROPERTY OF THE ARCHITECT. INFRINGEMENTS WILL BE PROSECUTED. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS AND BE RESPONSIBLE FOR FIELD FIT AND QUANTITY OF WORK. NO ALLOWANCES SHALL BE MADE ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLECT ON HIS PART.

HEATING BOILER & DHW HEATER
APARTMENT UPGRADES AT
GEORGE J. OTLOWSKI SR. GARDENS,
DOUGLAS G. DZEMA GARDENS &
JOHN E. SOFIELD GARDENS &
DHW BUILDING UPGRADES AT
WILLIAM A. DUNLAP HOMES
PERTH AMBOY, NEW JERSEY
HABITECH ARCHITECTURE, LLC Architecture and Planning
12 Pinecrest Drive Medford, NJ 08055
Telephone: (609) 413-2566 Email lgmestres@gmail.com

DATE: December 5, 2022

GENERAL WORK ITEMS & SPECIFICATIONS

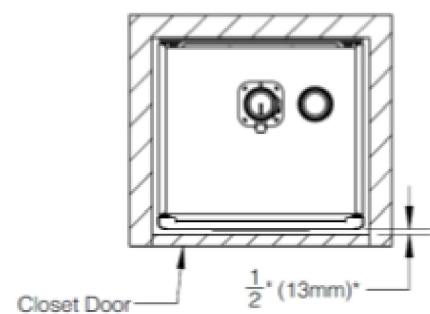
COMM NO. N/A	DRAWING
DATE DEC 2022	A.2
SCALE AS NOTED	
DRAWN BY LGM	
CHECKED BY LGM / JPB	
2 OF 7	

5-1 INSTALLATION SITE REQUIREMENTS
5-1 CLEARANCE REQUIREMENTS

- a. THE BOILER SHALL ONLY BE COMMISSIONED AFTER SATISFYING THE FOLLOWING VENTILATION AIR REQUIREMENTS AND CLEARANCES.

Ventilation Air

1. Combustion air must be obtained directly from outdoors, however ventilation openings may still be required to prevent overheating of boiler components if boiler is installed in small space such as a closet.
2. If a 24" clearance from boiler sides, front, and bottom can be maintained with all doors to the boiler room closed, no ventilation openings are required.
3. If 24" clearances described in (2) cannot be maintained, provide two openings into room, one near floor and other near ceiling. Top of upper opening to be within 12 in. (305 mm) of ceiling and bottom of lower opening within 12 in. (305 mm) of floor. Minimum free area 100 in.² (650 cm²) for each opening. This free area allows into account blocking effect of grills and louvers. If using screens, minimum screen size 1/4 in. (6.4 mm).



This boiler is listed for closet installation with the following clearances from the boiler jacket to combustible construction:

Top: 8" (210mm), Sides: 1/2" (13mm), Front: 1/2" (13mm), Bottom: 6" (150mm)

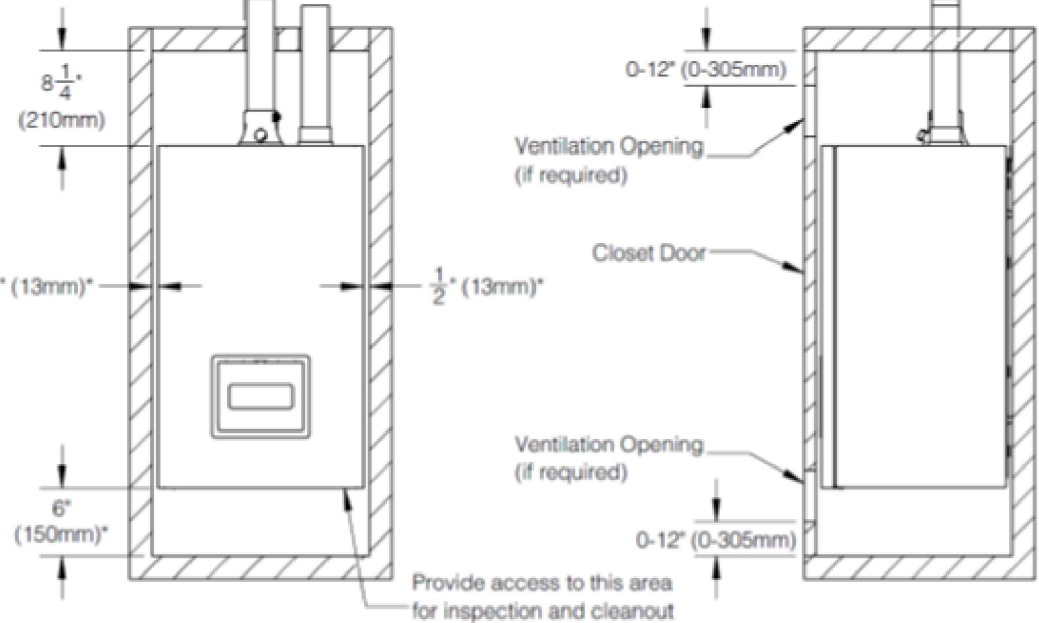
Clearances also apply to non-combustible walls, doors, ceilings and floors.

Clearances from piping to combustible construction:

Non-Concentric Vent (exhaust): 1/2" (6mm)
Concentric Vent or Air Intake Piping: 0" Hot Water Piping: 1/2" (6mm)

*Recommended Service Clearances:

Sides, Front and Bottom: 24" (610mm)



5-2 WATER CHEMISTRY CRITERIA AND RECOMMENDATIONS.

- a. THE BOILER SHALL BE INSTALLED AND FUNCTION USING WATER WITH THE FOLLOWING CHARACTERISTICS.

The heat exchanger used in this boiler is made from stainless steel coils having relatively narrow waterways. Once filled with water, it will be subjected to effects of corrosion as well as fouling from any debris introduced from the system. Take the following precautions to minimize chance of severe heat exchanger damage caused by corrosion and/or overheating.

1. Flush system before connecting boiler.

In a replacement installation, flushing system will remove impurities, such as sediment, solder flux, metal shavings and traces of old boiler additives. Even if system is new, do not omit this step - new systems will contain flux and may even contain other impurities listed above.

Flush system completely and repeat if necessary to completely remove these contaminants. If necessary, a cleaning agent may be used to assist in system cleaning. See Section 14 Start-up and Checkout for recommended cleaners.

2. Make sure the system is tight-

this is the single most important guideline.

Tap water contains dissolved oxygen which causes corrosion. In a tight system, this oxygen comes out of solution and is quickly removed from system through automatic air vent. System then remains essentially free of oxygen.

If system is not tight, however, frequent additions of make-up water can expose heat exchanger to oxygen on a continuous basis. In addition, frequent additions of hard make-up water can cause calcium deposits to collect in heat exchanger, causing severe damage. To minimize additions of make-up water.

- A. Inspect system thoroughly for leaks before putting it into service.
- B. If system includes underground piping or other piping in which a leak might go undetected, consider isolating boiler from the system with a heat exchanger.

C. Make sure expansion tank is properly sized and in good condition, if it is not, safety relief valve may open frequently, resulting in regular additions of make-up water.

- D. If an automatic fill valve is installed, installation of a water meter in fill line is strongly recommended so routine additions of make-up water can be detected and their cause corrected.

3. Non-metallic tubing - even if system is tight, oxygen can be introduced into system through some types of non-metallic tubing used in radiant or snow melt systems.

Other non-metallic tubing is equipped with an oxygen barrier to prevent migration of oxygen into water. If boiler is to be installed in a system containing non-metallic tubing without an oxygen barrier, it must be isolated from boiler with a heat exchanger.

4. Water chemistry, antifreeze, and boiler water additives - improper boiler water chemistry can cause the heat exchanger damage described above, as well as deterioration.
5. Avoid use of petroleum based boiler additives and ester-based lubricants. These can attack seals in both boiler and system.

Freeze Protection

If this freeze protection is required, use the following or its equivalent:

- A. Fernox Alpha-11
B. Sentinel X500 Inhibited Polypropylene Glycol

1. Refer to antifreeze manufacturer's instructions for required dosage. In general these products are a blend of glycol (for freeze protection) and inhibitors (to protect glycol from attacking metallic system components).

2. Do not add any more antifreeze than is necessary to protect system from freeze damage.

3. Maximum antifreeze concentration 50%.

4. Test antifreeze and inhibitor concentration annually.

- A. Inhibitor concentration test kit for Fernox Protector F1, 25 tests per kit. PN 101148-01.

- B. Inhibitor, Fernox Protector F1, 1 pint (500 mL) PN 101147-01.

5. Allowance must be made for additional expansion of glycol solution.

6. Fernox products are available from:

Alent PLC Consumer Products Division
4100 6th Avenue
Altoona, PA 16602
Tel: (972) 547-6002
Email: fernox_usa@alent.com

7. Sentinel products are available from:

Douglas Products and Packaging
1550 E. Old 210 Highway
Liberty, MO 64068
Tel: (877) 567-2560 (Toll Free) and/or selected HVAC distributors

- REMOVED AND ITEMS TO BE LEFT IN PLACE INTACT.
- C. PREPARE AND FOLLOW AN ORGANIZED PLAN FOR DEMOLITION AND REMOVAL OF ITEMS.
1. SHUT OFF, CAP, AND OTHERWISE PROTECT EXISTING PUBLIC UTILITY LINES IN ACCORDANCE WITH THE REQUIREMENTS OF THE PUBLIC AGENCY OR UTILITY HAVING JURISDICTION.
2. COMPLETELY REMOVE ITEMS SCHEDULED TO BE SO DEMOLISHED AND REMOVED, LEAVING SURFACES CLEAN, SOLID, AND READY TO RECEIVE NEW MATERIALS SPECIFIED ELSEWHERE.
3. IN ALL ACTIVITIES, COMPLY WITH PERTINENT REGULATIONS OF GOVERNMENTAL AGENCIES HAVING JURISDICTION.
- D. DEMOLISHED MATERIAL SHALL BE CONSIDERED TO BE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED FROM THE JOB SITE.
- E. USE MEANS NECESSARY TO PREVENT DUST BECOMING A NUISANCE TO THE PUBLIC, TO NEIGHBORS, AND TO OTHER WORK BEING PERFORMED ON OR NEAR THE SITE.
- 3.3 REPLACEMENTS

- A. IN THE EVENT OF DEMOLITION OF ITEMS NOT SO SCHEDULED TO BE DEMOLISHED, PROMPTLY REPLACE SUCH ITEMS TO THE APPROVAL OF THE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.

POINTING, SEALING AND CAULKING

PART 1 - GENERAL

1.1 DESCRIPTION

- A. WORK INCLUDED: THROUGHOUT THE WORK, POINT, SEAL AND CAULK JOINTS WHERE SHOWN ON THE DRAWINGS AND ELSEWHERE AS REQUIRED TO PROVIDE A POSITIVE BARRIER AGAINST PASSAGE OF MOISTURE AND PASSAGE OF AIR.
- B. RELATED WORK:
1. DOCUMENTS AFFECTING WORK OF THIS SECTION INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, AND SECTIONS IN DIVISION 1 OF THESE SPECIFICATIONS.

1.2 QUALITY ASSURANCE

- A. USE ADEQUATE NUMBERS OF SKILLED WORKMEN WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND THE METHODS NEEDED FOR PROPER PERFORMANCE OF THE WORK OF THIS SECTION.

1.3 SUBMITTALS

- A. COMPLY WITH PERTINENT PROVISIONS OF SECTION 01340.
- B. PRODUCT DATA: WITHIN 15 CALENDAR DAYS AFTER THE CONTRACTOR HAS RECEIVED THE OWNER'S NOTICE TO PROCEED, SUBMIT:

1. MATERIALS LIST OF ITEMS PROPOSED TO BE PROVIDED UNDER THIS SECTION;
2. MANUFACTURER'S SPECIFICATIONS AND OTHER DATA NEEDED TO PROVE COMPLIANCE WITH THE SPECIFIED REQUIREMENTS;
3. MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES WHICH, WHEN APPROVED BY THE ARCHITECT, WILL BECOME THE BASIS FOR ACCEPTING OR REJECTING ACTUAL INSTALLATION PROCEDURES USED ON THE WORK.

- C. SAMPLES: UPON REQUEST OF THE ARCHITECT, SUBMIT SAMPLES OF EACH SEALANT, EACH BACKING MATERIAL, EACH PRIMER, AND EACH BOND BREAKER PROPOSED TO BE USED.

1.4 PRODUCT HANDLING

- A. COMPLY WITH PERTINENT PROVISIONS OF SECTION 01640.
- B. DO NOT RETAIN AT THE JOB SITE MATERIAL WHICH HAS EXCEEDED THE SHELF LIFE RECOMMENDED BY ITS MANUFACTURER.

PART 2 - PRODUCTS

2.1 SEALANTS

- A. PROVIDE THE FOLLOWING MATERIALS MANUFACTURED BY GENERAL ELECTRIC COMPANY, 260 HUDSON RIVER ROAD, WATERFORD, NEW YORK 12185, (800) 255-8826, OR EQUALS APPROVED IN ADVANCE BY THE ARCHITECT, WHERE INDICATED AND WHERE OTHERWISE REQUIRED FOR A COMPLETE AND PROPER INSTALLATION.

1. EXTERIOR APPLICATIONS: "ULTRAGLAZE 4000" SEALANT.
2. INTERIOR APPLICATIONS: "CONSTRUCTION 1200" SEALANT.

- B. FOR OTHER SERVICES, PROVIDE PRODUCTS ESPECIALLY FORMULATED FOR THE PROPOSED USE AND APPROVED IN ADVANCE BY THE ARCHITECT.

C. COLORS:

1. COLORS FOR EACH SEALANT INSTALLATION WILL BE SELECTED BY THE ARCHITECT FROM STANDARD COLORS NORMALLY AVAILABLE FROM THE SPECIFIED MANUFACTURER.
2. SHOULD SUCH STANDARD COLOR NOT BE AVAILABLE FROM THE APPROVED MANUFACTURER EXCEPT AT ADDITIONAL CHARGE, PROVIDE SUCH COLORS AT NO ADDITIONAL COST TO THE OWNER.
3. IN CONCEALED INSTALLATIONS, AND IN PARTIALLY OR FULLY EXPOSED INSTALLATIONS WHERE SO APPROVED BY THE ARCHITECT, USE STANDARD WHITE SEALANT.

2.2 PRIMERS

- A. USE ONLY THOSE PRIMERS WHICH HAVE BEEN TESTED FOR DURABILITY ON THE SURFACES TO BE SEALED AND ARE SPECIFICALLY RECOMMENDED FOR THIS INSTALLATION BY THE MANUFACTURER OF THE SEALANT USED.

2.3 BACKUP MATERIALS

- A. USE ONLY THOSE BACKUP MATERIALS WHICH ARE SPECIFICALLY RECOMMENDED FOR THIS INSTALLATION BY THE MANUFACTURER OF THE SEALANT USED, WHICH ARE NON-ABSORBENT, AND WHICH ARE NON-STAINING.
- B. USE "DENVER FOAM", CONTINUOUS-LENGTH COMPRESSIBLE, OPEN-CELL POLYURETHANE FOAM, NON-GASING, BACKER ROD.

2.4 MASKING TAPE

- A. FOR MASKING AROUND JOINTS, PROVIDE AN APPROPRIATE MASKING TAPE WHICH WILL EFFECTIVELY PREVENT APPLICATION OF SEALANT ON SURFACES NOT SCHEDULED TO RECEIVE IT, AND WHICH IS REMOVABLE WITHOUT DAMAGE TO SUBSTRATE.

2.5 OTHER MATERIALS

- A. PROVIDE OTHER MATERIALS, NOT SPECIFICALLY DESCRIBED BUT REQUIRED FOR A COMPLETE AND PROPER INSTALLATION, AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ARCHITECT.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

- A. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION WILL BE PERFORMED. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.

3.2 PREPARATION

- A. MASONRY, CONCRETE AND CERAMIC TILE SURFACES:
1. INSTALL ONLY ON SURFACES WHICH ARE DRY, SOUND, AND WELL BRUSHED, WIPING FREE FROM DUST.
2. AT OPEN JOINTS, REMOVE DUST BY MECHANICALLY BLOWN COMPRESSED AIR IF SO REQUIRED.
3. TO REMOVE OIL AND GREASE, USE SANDBLASTING OR WIRE BRUSHING.
4. WHERE SURFACES HAVE BEEN TREATED, REMOVE THE SURFACE TREATMENT BY SANDBLASTING OR WIRE BRUSHING.
5. REMOVE LAITANCE AND MORTAR FROM JOINT CAVITIES.

B. STEEL SURFACES:

1. STEEL SURFACES IN CONTACT WITH SEALANT:
- A. SANDBLAST AS REQUIRED TO ACHIEVE ACCEPTABLE SURFACE FOR BOND.
- B. IF SANDBLASTING IS NOT PRACTICAL, OR WOULD DAMAGE ADJACENT FINISH, SCRAPE THE METAL OR WIRE BRUSH TO REMOVE MILL SCALE AND RUST.

- C. USE SOLVENT TO REMOVE OIL AND GREASE, WIPING THE SURFACES WITH CLEAN WHITE RAGS ONLY.
2. REMOVE PROTECTIVE COATINGS ON STEEL BY SANDBLASTING OR BY USING A SOLVENT WHICH LEAVES NO RESIDUE.

D. ALUMINUM SURFACES:

1. ALUMINUM SURFACES IN CONTACT WITH SEALANT:
- A. REMOVE TEMPORARY PROTECTIVE COATINGS, DIRT, OIL, AND GREASE.
- B. WHEN MASKING TAPE IS USED FOR PROTECTIVE COVER, REMOVE THE TAPE JUST PRIOR TO APPLYING THE SEALANT.
2. USE ONLY SUCH SOLVENTS TO REMOVE PROTECTIVE COATINGS AS ARE RECOMMENDED FOR THAT PURPOSE BY THE MANUFACTURER OF THE ALUMINUM WORK, AND WHICH ARE NON-STAINING.

3.3 INSTALLATION OF BACKUP MATERIAL

- A. WHEN USING BACKUP OF TUBE OR ROD STOCK, AVOID LENGTHWISE STRETCHING OF THE MATERIAL. DO NOT TWIST OR BRAID HOSE OR ROD BACKUP STOCK.
- B. INSTALLATION TOOL:

1. FOR INSTALLATION OF BACKUP MATERIAL, PROVIDE A BLUNT, SURFACED TOOL OF WOOD OR PLASTIC, HAVING SHARP EDGES DESIGNED TO RIDE IN THE ADJACENT FINISHED SURFACE AND A PROTRUSION OF THE REQUIRED DIMENSIONS TO ASSURE UNIFORM DEPTH OF BACKUP MATERIAL BELOW THE SEALANT.
2. DO NOT, UNDER ANY CIRCUMSTANCE, USE A SCREWDRIVER OR SIMILAR TOOL FOR THIS PURPOSE.
3. USING THE APPROVED TOOL, SMOOTHLY AND UNIFORMLY PLACE THE BACKUP MATERIAL TO THE DEPTH INDICATED ON THE DRAWINGS OR OTHERWISE REQUIRED, COMPRESSING THE BACKUP MATERIAL 25% TO 50% AND SECURING A POSITIVE FIT.

3.4 PRIMING

- A. USE ONLY THE PRIMER APPROVED BY THE ARCHITECT FOR THE PARTICULAR INSTALLATION, APPLYING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AS APPROVED BY THE ARCHITECT.

3.5 BOND BREAKER INSTALLATION

- A. PROVIDE AN APPROVED BOND BREAKER WHERE RECOMMENDED BY THE MANUFACTURER OF THE SEALANT, AND WHERE DIRECTED BY THE ARCHITECT, ADHERING STRICTLY TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

3.6 INSTALLATION OF SEALANTS

- A. PRIOR TO START OF INSTALLATION IN EACH JOINT, VERIFY THE JOINT TYPE ACCORDING TO DETAILS ON THE

DRAWINGS, OR AS OTHERWISE DIRECTED BY THE ARCHITECT, AND VERIFY THAT THE REQUIRED PROPORTION OF WIDTH OF JOINT TO DEPTH OF JOINT HAS BEEN SECURED.

B. EQUIPMENT

1. APPLY SEALANT UNDER PRESSURE WITH POWER-ACTUATED HAND GUN OR MANUALLY OPERATED HAND GUN, OR BY OTHER APPROPRIATE MEANS.
2. USE GUNS WITH NOZZLE OF PROPER SIZE, AND PROVIDING SUFFICIENT PRESSURE TO COMPLETELY FILL THE JOINTS AS DESIGNED.
- C. THOROUGHLY AND COMPLETELY MASK JOINTS WHERE THE APPEARANCE OF PRIMER OR SEALANT ON ADJACENT SURFACES WOULD BE OBJECTIONABLE.
- D. INSTALL THE SEALANT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, THOROUGHLY FILLING JOINTS TO THE RECOMMENDED DEPTH.
- E. TOOL JOINTS TO THE PROFILE SHOWN ON THE DRAWINGS, OR AS OTHERWISE REQUIRED IF SUCH PROFILES ARE NOT SHOWN ON THE DRAWINGS.
- F. CLEANING UP:
1. REMOVE MASKING TAPE AFTER JOINTS HAVE BEEN TOOLED.
2. CLEAN SURFACES OF SEALANT AS THE INSTALLATION PROGRESSES, USING CLEANING AGENT RECOMMENDED BY THE MANUFACTURER OF THE SEALANT USED.
3. UPON COMPLETION OF THE WORK OF THIS SECTION, PROMPTLY REMOVE FROM THE JOB SITE ALL DEBRIS, EMPTY CONTAINERS, AND SURPLUS MATERIAL DERIVED FROM THIS PORTION OF THE WORK.

BASIC MECHANICAL REQUIREMENTS

PART 1 GENERAL

1.1 DEFINITION

- A. THE WORD "MECHANICAL" HEREIN REFERS TO THE HEATING, VENTILATING & AIR CONDITIONING CONTRACT AND REFERS TO THE INDIVIDUAL HEATING, VENTILATING & AIR CONDITIONING CONTRACTOR.
- B. THE PHRASES "THIS CONTRACTOR" AND "THE CONTRACTOR" HEREIN REFER TO THE MECHANICAL CONTRACTOR.

1.2 SECTION INCLUDES

- A. BASIC MECHANICAL REQUIREMENTS SPECIFICALLY APPLICABLE TO DIVISION 15 SECTIONS, IN ADDITION TO DIVISION 1 - GENERAL REQUIREMENTS, AND GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION (AIA DOC. A201).

1.3 RELATED SECTIONS

- A. THE FOLLOWING SECTIONS CONTAIN INFORMATION THAT IS THE RESPONSIBILITY OF THE HEATING, VENTILATING & AIR CONDITIONING CONTRACTOR UNDER THE SCOPE OF WORK OF HIS CONTRACT.

1. SECTION 15010 - BASIC MECHANICAL REQUIREMENTS
2. SECTION 15140 - SUPPORTS AND ANCHORS
3. SECTION 15260 - PIPING INSULATION
4. SECTION 15510 - HYDRONIC PIPING
5. SECTION 15515 - HYDRONIC SPECIALTIES
6. SECTION 15990 - TESTING, ADJUSTING & BALANCING

1.4 WORK INCLUDED

- A. FURNISH AND INSTALL, AS SHOWN ON THE DRAWINGS, COMPLETE AND READY FOR USE, INCLUDING ALL CUSTOMARY SUPPORT EQUIPMENT AND ALL ACCESSORIES DETERMINED BY THE ENGINEER TO BE NECESSARY, AND INCLUDING SUCH ADDITIONAL FEES, PERMITS, CONTROLS, LABELS AND INSTRUCTION MANUALS AS MAY NOT BE WITHIN THE SCOPE OF THE OTHER CONTRACTS, THE FOLLOWING:

HEATING, VENTILATING & AIR CONDITIONING

1. PROVIDE AND INSTALL A NEW GAS FIRED BOILER IN EACH INDIVIDUAL APARTMENT AS DIRECTED BY THE OWNER.
2. PROVIDE AND INSTALL ALL NEW PIPING, BOILER VENTING, GAS PIPING, AND NECESSARY ELECTRICAL WORK.
3. PROVIDE AND INSTALL ALL NECESSARY CONTROLS, DEVICES, AND START-UP FOR A COMPLETE, OPERATIONAL SYSTEM.

- B. THE WORK TO BE DONE UNDER THIS PORTION OF THE CONTRACT IS SUBJECT TO THE "GENERAL CONDITIONS" AND "SUPPLEMENTARY CONDITIONS" IN THE FOREPART OF THESE SPECIFICATIONS UNLESS OTHERWISE CHANGED OR AMENDED IN THIS PORTION.

1.5 SCHEDULE

- A. THIS PROJECT SHALL BE COMPLETE AND TURNED OVER TO THE OWNER BY (SEE GENERAL CONDITIONS).

1.6 SUBMITTALS & SHOP DRAWINGS

- A. THIS CONTRACTOR SHALL FURNISH IN TRIPLICATE TO THE ENGINEER FOR APPROVAL SUCH SHOP AND INSTALLATION DETAILS AND DRAWINGS AS MAY BE REQUIRED TO MAKE CLEAR THE WORK INTENDED OR TO SHOW ITS RELATIONSHIP TO OTHER WORK FOR COORDINATION WITH OTHER CONTRACTORS.

- B. THIS CONTRACTOR SHALL IN WRITING CALL TO THE ENGINEER'S ATTENTION EVERY PROPOSED CHANGE FROM THE PLANS AND SPECIFICATIONS. APPROVAL OF SHOP DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR HIS OWN ERRORS OR FOR CHANGES NOT POINTED OUT IN WRITING.

- C. THIS CONTRACTOR SHALL SUBMIT TO THE ENGINEER AT SUCH TIME AS NOT TO DELAY THE WORK ONE (1) COPY OF PRODUCT DATA CONSISTING OF TECHNICAL LITERATURE TO SHOW ALL ENGINEERING AND TECHNICAL DATA ON EQUIPMENT TO BE USED ON THE JOB. PRIOR TO SUBMITTING TO THE ENGINEER, THE DATA SHALL BE REVIEWED, APPROVED AND SIGNED BY THIS CONTRACTOR AS AN INDICATION THAT THE PRODUCT TO BE PROVIDED MEETS THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO MATERIALS, PERFORMANCE AND PHYSICAL DIMENSIONS. NO EQUIPMENT SHALL BE USED ON THE PROJECT UNTIL SUBMITTALS ARE RETURNED TO THE CONTRACTOR MARKED "APPROVED" BY THE ENGINEER.

- D. IF THE CONTRACTOR DESIRES TO SUBSTITUTE EQUIPMENT OR MATERIAL IN PLACE OF THE "BRAND NAME", THE CONTRACTOR SHALL SUBMIT ALL TECHNICAL ENGINEERING DATA FOR THE DESIRED SUBSTITUTION TO THE ENGINEER AT LEAST 10 DAYS PRIOR TO THE BID DATE. SUBSTITUTIONS MUST BE APPROVED BY THE ENGINEER AND STAMPED "APPROVED" AND WRITTEN NOTICE MUST BE GIVEN IN THE FORM OF AN ADDENDUM BEFORE SUCH SUBSTITUTIONS ARE APPROVED OR PERMITTED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES, ALL OPENINGS, STRUCTURAL, PIPING, ELECTRICAL AND DETAILS REQUIRED FOR SUBSTITUTED EQUIPMENT AT NO EXTRA COST. ENGINEERING APPROVAL OF SUBSTITUTED EQUIPMENT IS FOR DESIGN PURPOSES ONLY; THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DIMENSIONS, QUANTITY, COLOR AND COORDINATION WITH ALL OTHER TRADES.

- E. THE FEDERAL FIRST COURT HAS RULED THAT A PROPRIETARY SPECIFICATION (ONE BRAND ONLY) IS NOT A VIOLATION OF THE ANTI-TRUST LAW. FURTHER, THE COURT STATED THAT THE TRAINED PROFESSIONAL/SPECIFIER MAKE INFORMED JUDGMENTS ON THE SYSTEM WHICH BEST SERVE THEIR CLIENTS' NEEDS.

1.7 COORDINATION

- A. THIS CONTRACTOR SHALL REVIEW THE PLANS AND SPECIFICATIONS AND COORDINATE HIS WORK WITH WORK OF ALL OTHER TRADES INVOLVED FOR THIS PROJECT, AS WELL AS THE PRINCIPAL CONTRACTOR'S SUBCONTRACTOR(S). COORDINATION SHALL BE SUCH THAT PROGRESS SHALL CONTINUE AS PLANNED ON THE PROJECT, AND FINISHED WORK SHALL HARMONIZE WITH OTHER TRADES BOTH IN SERVICE AND APPEARANCE.

- B. THIS CONTRACTOR SHALL ERECT ALL PARTS OF THE EQUIPMENT TO BE FURNISHED UNDER THESE SPECIFICATIONS AT SUCH TIME AND IN SUCH A MANNER AS NOT TO DELAY OR INTERFERE WITH OTHER CONTRACTORS.

- C. THIS CONTRACTOR SHALL PLUG ALL OUTLETS IN RISERS, OR ANY OTHER OUTLETS IN THE PIPING SYSTEM AS THE PIPING IS ERECTED IN ORDER TO PROVIDE TESTING OR IN ORDER THAT WATER MAY BE TURNED ON.

1.8 PLANS & SPECIFICATIONS

- A. THE SYSTEM THAT IS INDICATED ON THE MECHANICAL PLANS HAS BEEN DESIGNED BASED ON EXISTING APARTMENTS AND BUILDINGS WITH PERTINENT INFORMATION AND DETAILS. THE INTENT OF THIS CONTRACT AND THE ASSOCIATED DRAWINGS IS TO REPLACE EACH INDIVIDUAL APARTMENT'S HOT WATER HEATING BOILER AND DHW HEATER SYSTEM AND INSTALL A SINGLE GAS FIRED BOILER WITH INDIRECT DHW TANK IN EACH APARTMENT'S UTILITY CLOSET. CONFIGURATION MAY CHANGE FOR EACH APARTMENT, HOWEVER THE INTENT REMAINS THE SAME, INCLUDING:

1. DISCONNECT AND REMOVE THE INDIVIDUAL APARTMENTS HEATING SYSTEM AND INSTALL A NEW GAS FIRED BOILER FOR HEATING & DHW.
2. CONNECT THE NEW GAS FIRED BOILER TO THE APARTMENT'S HOT WATER HEATING & DOMESTIC WATER SYSTEMS.
3. PLACE THE ENTIRE APARTMENT'S NEW HEATING SYSTEM INTO OPERATION INCLUDING PROVIDING ANY REQUIRED AIR VENTING OF THE EXISTING HEATING SYSTEM AND INSURING PROPER CONDENSATE REMOVAL FROM THE CONDENSING TYPE BOILER.

4. MINOR DETAILS SHALL EXIST FROM APARTMENT TO APARTMENT, HOWEVER IT IS THE CONTRACTOR'S RESPONSIBILITY TO ADJUST TO ALL EXISTING CONDITIONS AND INCLUDE IN HIS WORK THE COMPLETION INSTALLATION OF THE NEW SYSTEM IN ACCORDANCE WITH THE FULL INTENT OF THESE SPECIFICATIONS.

- B. IT IS NOT INTENDED THAT THE DRAWINGS SHALL SHOW EVERY DUCT, PIPE, FITTING, DEVICE OR APPLIANCE AND IT IS UNDERSTOOD THAT WHILE DRAWINGS MUST BE FOLLOWED AS CLOSELY AS JOB CONDITIONS WILL PERMIT, THIS CONTRACTOR IS HELD RESPONSIBLE FOR THE INSTALLATION OF THE SYSTEM IN ACCORDANCE WITH THE TRUE INTENT. THIS CONTRACTOR SHALL FURNISH, WITHOUT EXTRA COST, ALL SUCH APPLIANCES AND FITTINGS NECESSARY TO PROVIDE A COMPLETE SYSTEM IN ACCORDANCE WITH THE BEST PRACTICE AND TO THE SATISFACTION OF THE OWNER, OR HIS REPRESENTATIVE.

- C. SHOULD IT BE FOUND THAT A DUCT, PIPE, DRAIN, VENT, PIECE OF EQUIPMENT, ETC. CANNOT BE INSTALLED AS SHOWN ON THE DRAWINGS, THIS CONTRACTOR SHALL CONSULT THE ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION OR MAKING ANY CHANGES.

- D. SHOULD THERE BE ANY CLARIFICATION REQUIRED FOR EITHER PLANS OR SPECIFICATIONS, IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO QUESTION THE ENGINEER BEFORE PLACING HIS BID. THE ENGINEER SHALL INTERPRET THE INTENT AND MEANING OF THE PLANS AND SPECIFICATIONS AFTER THE CONTRACT IS LET AND THE CONTRACTOR SHALL ABIDE BY HIS DECISION AT NO EXTRA COST.

- E. INSTALLATION, START-UP AND SERVICE INSTRUCTIONS AND RECOMMENDATIONS OF EQUIPMENT MANUFACTURERS AND LABELS BEARING INSTRUCTION SHALL BE PART OF THIS SPECIFICATION. IF THERE IS A CONFLICT BETWEEN THESE INSTRUCTIONS AND INFORMATION CONTAINED IN THIS SPECIFICATION THE CONTRACTOR SHALL QUESTION THE ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH INSTALLATION.

1.09 GUARANTEES & WARRANTIES

- A. CONTRACTOR SHALL REFER TO THE GENERAL CONDITIONS.
- B. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND IN FIRST CLASS CONDITION, FREE FROM

ALL DEFECTS AND SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS, DESIGN, WORKMANSHIP AND PERFORMANCE FOR A PERIOD OF FORTY (40) DAYS FROM DATE OF COMPLETION. UPON RECEIPT OF NOTICE FROM THE OWNER OF THE FAILURE OF ANY ITEM DURING THE GUARANTEE PERIOD, THIS CONTRACTOR SHALL BE RESPONSIBLE FOR PROMPTLY REPLACING THE AFFECTED PARTS WITHOUT EXPENSE TO THE OWNER. ALL MATERIAL USED TO REPAIR THE SYSTEM SHALL BE NEW.

- C. ALL MATERIALS, APPLIANCES, AND EQUIPMENT WHICH ARE SUBJECT TO THE UNDERWRITERS LABORATORY TEST SHALL BEAR THE LABEL OF APPROVAL OF THE NATIONAL BOARD OF FIRE UNDERWRITERS LABORATORIES.

1.10 SUPERINTENDENT, FEES, PERMITS & COMPLIANCE

- A. THIS CONTRACTOR SHALL COMPLETE A FIRST QUALITY JOB SATISFACTORY IN ALL RESPECTS TO THE OWNER AND HIS REPRESENTATIVE. HE SHALL PERFORM THE WORK IN A WORKMANLIKE MANNER.
- B. CONTRACTORS BIDDING ON THE WORK EMBODIED IN THESE SPECIFICATIONS SHOULD VISIT THE JOB SITE TO ACQUAINT THEMSELVES WITH THE JOB CONDITIONS.

- C. CONTRACTOR MUST COMPLY WITH ALL STATE, CITY AND LOCAL CODES AND ORDINANCES GOVERNING WORK OF THIS CHARACTER. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, AND CERTIFICATES REQUIRED FOR THE COMPLETE INSTALLATION OF WORK SPECIFIED. ALL WORK SHALL COMPLY WITH THE NATIONAL BOARD OF FIRE UNDERWRITERS, DEPARTMENT OF LABOR AND INDUSTRY, AMERICAN GAS ASSOCIATION, INTERNATIONAL ELECTRIC CODE AND OTHER REGULATING BODIES.

- D. THE MECHANICAL CONTRACTOR SHALL GIVE HIS PERSONAL SUPERVISION TO THE WORK OR HAVE A COMPETENT SUPERINTENDENT (SATISFACTORY TO THE ENGINEER) ON THE WORK AT ALL TIMES DURING THE PROGRESS OF THE PROJECT WITH AUTHORITY TO ACT FOR HIM. THE CONTRACTOR SHALL ALSO PROVIDE AN ADEQUATE STAFF FOR THE PROPER COORDINATING AND EXPEDITING THE WORK.

- E. HE SHALL LAY OUT HIS WORK, AND SHALL BE RESPONSIBLE FOR ALL LINES, ELEVATIONS AND MEASUREMENTS OF THE WORK INSPECTED BY HIM UNDER THIS CONTRACT. HE MUST EXERCISE PROPER PRECAUTION TO VERIFY THE FIGURES SHOWN ON THE DRAWINGS BEFORE LAYING OUT THE WORK AND WILL BE HELD RESPONSIBLE FOR ANY ERROR RESULTING FROM HIS FAILURE TO EXERCISE SUCH PRECAUTION.

- F. THE MANUFACTURER OF ANY SPECIAL DEVICE USED IN THE WORK, OR HIS REPRESENTATIVES, MUST VISIT THE SITE FROM TIME TO TIME FOR PURPOSE OF INSPECTION.

1.11 DELIVERY, STORAGE & PROTECTION

- A. BEFORE FINAL ACCEPTANCE, ALL EQUIPMENT, FIXTURES AND BRASSWARE SHALL BE THOROUGHLY CLEANED AND PLACED IN FIRST CLASS CONDITION. MARKED OR IMPERFECT MATERIALS SHALL BE REPLACED BY THE RESPECTIVE CONTRACTOR WITHOUT EXPENSE TO THE OWNER.

1.12 CLEANING & PROTECTION

- A. PROTECT WORK, EQUIPMENT AND MATERIALS AT ALL TIMES. PIPE OPENINGS SHALL BE CAPPED OR PLUGGED DURING CONSTRUCTION PERIOD. EQUIPMENT SHALL BE PROTECTED AGAINST DIRT, WATER, CHEMICALS AND DAMAGE. THE CONTRACTOR SHALL NOT ENDANGER OR DAMAGE ANY WORK BY CUTTING, DIGGING OR OTHERWISE AND SHALL NOT CUT OR ALTER THE WORK OF ANY OTHER CONTRACTOR SAVE WITH WRITTEN CONSENT OF THE ARCHITECT OR ENGINEER.

- B. THIS CONTRACTOR SHALL CONFER WITH THE OWNER AS TO LOCATION OF THEIR SEVERAL LINES OF PIPES, DUCTS, CONDUITS, ELECTRICAL OUTLETS, ETC. BEFORE ERECTING ANY WORK IN ORDER TO AVOID INTERFERENCE.

1.13 DAMAGE TO OTHER WORK

- A. CONTRACTOR WILL BE HELD RESPONSIBLE FOR DAMAGE TO THE STRUCTURE, AND FOR DAMAGE TO OTHER WORK CAUSED BY HIS WORK OR THROUGH THE NEGLIGENCE OF HIS WORKMEN. PATCHING AND REPAIRING OF DAMAGED WORK SHALL BE DONE BY THIS CONTRACTOR OR TRADE THAT ORIGINALLY INSTALLED THE WORK, AS DIRECTED BY THE ARCHITECT, BUT COST OF SAME SHALL BE BORNE BY THIS CONTRACTOR.

1.14 CONSTRUCTION SAFETY

- A. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL LOCAL AND STATE OF NEW JERSEY LAWS AND REGULATIONS PERTAINING TO THE ELIMINATION OF HAZARDS AND THE SAFE- GUARDING OF LIFE, LIMB AND HEALTH OF EMPLOYEES, INSPECTION PERSONNEL AND OWNER'S PERSONNEL ON OR ABOUT THE CONSTRUCTION SITE. THIS REQUIREMENT IS A CONTRACTUAL OBLIGATION AND REMAINS IN EFFECT FOR THE DURATION OF THE CONTRACT, FROM COMMENCEMENT OF WORK TO TIME OF COMPLETION.

- B. THE FOLLOWING SHALL BE COMPLIED WITH WHERE APPLICABLE:

- (1) INTERNATIONAL BUILDING CODE (IBC) 2021.
- (2) INTERNATIONAL MECHANICAL CODE (IMC) 2021.
- (3) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA).
- (4) STATE AND LOCAL CODES PERTAINING TO STORAGE OF FLAMMABLE SUBSTANCES.
- (5) OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA).
- (6) NATIONAL ELECTRIC CODE (NEC) 2020.
- (7) NATIONAL STANDARD PLUMBING CODE (NSPC) 2021.

- 1.19 CLOSEOUT
- A. EACH WEEK AND AT THE COMPLETION OF THE JOB, THE MECHANICAL CONTRACTOR SHALL REMOVE ALL DIRT, CRATES AND DEBRIS WHICH HAS ACCUMULATED THROUGH THE INSTALLATION OF HIS WORK.
- B. BEFORE FINAL ACCEPTANCE THE CONTRACTOR SHALL REMOVE ALL DIRT, GREASE, PROTECTIVE COVERING, LABELS, ETC. FROM ALL ITEMS OF THE SYSTEM AND SHALL DELIVER THE SAME READY FOR OPERATION. ANY DISCOLORATION OR OTHER DAMAGE DUE AT ANY PART OF THE BUILDING, ITS FINISH OR FURNISHINGS, DUE TO THE CONTRACTOR'S FAILURE TO PROPERLY CLEAN THE MECHANICAL SYSTEM SHALL BE REPAIRED BY THE CONTRACTOR WITHOUT COST TO THE OWNERS.
- C. AT THE COMPLETION OF THE PROJECT, THIS CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT DRAWINGS UNLESS AND EXCEPT AS QUALIFIED BELOW. DRAWINGS SHALL BE TRANSPARENT REPRODUCTIONS OR AUTOCAD FILES ON DISK OF THE CONTRACT DOCUMENTS CORRECTED BY THIS CONTRACTOR TO CONFORM TO THE INSTALLED WORK.
- D. THIS CONTRACTOR SHALL PROVIDE MANUFACTURER'S EQUIPMENT WIRING DIAGRAMS TO THE ENGINEER. THE CONTRACTOR IS TO BE RESPONSIBLE FOR PREPARING THE AS-BUILT WIRING DIAGRAMS.
- E. THE CONTRACTOR SHALL PROVIDE AS-INSTALLED TEMPERATURE CONTROL DIAGRAM BY THE CONTROL MANUFACTURER WITH COMPLETE SEQUENCE OF OPERATION.

SUPPORTS AND ANCHORS

PART 1 GENERAL

- 1.1 WORK INCLUDED
- A. PIPE, AND EQUIPMENT HANGERS, SUPPORTS, AND ASSOCIATED ANCHORS.
- B. EQUIPMENT BASES AND SUPPORTS.
- C. SLEEVES AND SEALS.
- D. FLASHING AND SEALING EQUIPMENT AND VENT OPENINGS.

- 1.2 RELATED WORK
- A. SECTION 15010 - BASIC MECHANICAL REQUIREMENTS.
- B. SECTION 15260 - PIPING INSULATION.
- C. SECTION 15510 - HYDRONIC PIPING.

- 1.3 REFERENCES
- A. ANSI/ASME B31.9 - BUILDING SERVICES PIPING.
- B. ANSI/ASTM F708 - DESIGN AND INSTALLATION OF RIGID PIPE HANGERS.
- C. MSS SP69 - PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION.
- 1.4 SUBMITTALS
- A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA UNDER PROVISIONS OF SECTION 15010.
- 1.5 REGULATORY REQUIREMENTS
- A. CONFORM TO APPLICABLE CODE FOR SUPPORT OF HYDRONIC AND GAS PIPING.

PART 2 PRODUCTS

- 2.1 PIPE HANGERS AND SUPPORTS
- A. HYDRONIC PIPING:

1. CONFORM TO ASME B31.9, ASTM F708.
2. HANGERS FOR PIPE SIZES 1/2 TO 1-1/2 INCH: CARBON STEEL, ADJUSTABLE SWIVEL, SPLIT RING.
3. MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
4. WALL SUPPORT FOR PIPE SIZES TO 3 INCHES: CAST IRON HOOK.
5. FLOOR SUPPORT FOR HOT PIPE SIZES TO 4 INCHES: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.
6. COPPER PIPE SUPPORT: CARBON STEEL RING, ADJUSTABLE, COPPER PLATED.
- 2.2 HANGER RODS
- A. HANGER RODS SHALL BE MACHINE THREADED CARBON STEEL WITH STEEL HEXAGON NUTS.
- 2.3 SLEEVES
- A. SLEEVES FOR PIPES THROUGH NON-FIRE RATED FLOORS: FORM WITH 1/8 GAUGE GALVANIZED STEEL.
- B. SLEEVES FOR PIPES THROUGH NON-FIRE RATED BEAMS, WALLS, FOOTINGS, AND POTENTIALLY WET FLOORS: FORM WITH STEEL PIPE OR 1/8 GAUGE GALVANIZED STEEL.
- C. SLEEVES FOR ROUND DUCTWORK: FORM WITH GALVANIZED STEEL.
- D. FIRE STOPPING INSULATION: GLASS FIBER TYPE, NON- COMBUSTIBLE.
- E. CAULK: ACRYLIC OF QUALITY SPECIFIED IN SECTION 07900.

- 2.4 FABRICATION
- A. SIZE SLEEVES LARGE ENOUGH TO ALLOW FOR MOVEMENT DUE TO EXPANSION AND CONTRACTION. PROVIDE FOR CONTINUOUS INSULATION WRAPPING.
- B. DESIGN HANGERS WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.
- C. PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING. SHEET LEAD PACKING BETWEEN HANGER OR SUPPORT AND PIPING FOR OTHER TYPES OF PIPING.
- 2.5 FINISH
- A. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

- PART 3 EXECUTION
- 3.1 PIPE HANGERS AND SUPPORTS
- A. ALL PIPING SHALL BE ARRANGED TO MAINTAIN THE REQUIRED PITCH AND PROVIDE FOR THERMAL EXPANSION AND CONTRACTION. ALL PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE BY ADJUSTABLE CLEVIS HANGERS OR WALL BRACKETS. PERFORATED STRAP HANGERS WILL NOT BE PERMITTED.
- B. HANGERS FOR IRON OR STEEL PIPE 1" AND SMALLER SHALL BE SPACED ON 8 FOOT CENTERS, 1-1/4" AND LARGER ON 10 FOOT CENTERS. HANGERS FOR COPPER TUBING 1/2" - 3/4" SIZE ON 5 FOOT CENTERS, 1" SIZE ON 6 FOOT CENTERS, 1-1/4" SIZE AND LARGER ON 8 FOOT CENTERS. PVC ON 6 FOOT CENTERS. HANGER RODS SHALL BE NOT LESS THAN THE FOLLOWING SIZES:

PIPE SIZE	HANGER ROD
1/2" - 2"	3/8" DIAMETER
PVC (ALL SIZES)	3/8" DIAMETER

- C. ALL HANGERS IN CONTACT WITH COPPER PIPE OR TUBING SHALL BE INSULATED BY COPPER OR LEAD TO PREVENT ELECTROLYSIS OR OTHER CHEMICAL ACTION.
- D. HANGERS SHALL BE AS MANUFACTURED BY GRINNELL COMPANY, CRANE OR APPROVED EQUAL.
- E. LATERAL RUNS OF GROUPED PIPES MAY BE SUPPORTED ON APPROVED ADJUSTABLE SADDLE HANGERS. STRAP HANGERS OR CHAINS WILL NOT BE ALLOWED.
- F. INSTALL HANGERS TO PROVIDE MINIMUM 1/2 INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
- G. PLACE A HANGER WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.
- H. USE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT.
- I. WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS.
- J. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.
- K. PROVIDE COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.
- L. HANGER RODS SHALL BE SUSPENDED FROM CLAMPS FASTENED TO BEAMS WHEREVER POSSIBLE. IN BAR JOISTS CONSTRUCTION HANGER RODS SHALL BE SUPPORTED FROM CLAMPS FASTENED TO THE BOTTOM ANGLES OF THE JOISTS. WHERE PIPING IS RUN PARALLEL TO, BUT NOT DIRECTLY BELOW STEELWORK, THE CONTRACTOR SHALL WELD STEEL ANGLES BETWEEN THE STEELWORK AND SUPPORT THE HANGER RODS FROM CLAMPS FASTENED TO THE ANGLES.
- M. HANGERS FOR ALL OTHER PIPING (WHICH WAS NOT MENTIONED ABOVE) SHALL BE SPACED NOT MORE THAN 8 FEET APART, FOR PIPING UP TO AND INCLUDING 3" DIAMETER, AND 50 PLACED AS TO ALLOW FOR PROPER EXPANSION, AMPLE PITCH AND ELIMINATION OF VIBRATION. PIPING 3-1/2" IN DIAMETER OR LARGER MAY HAVE HANGERS SPACED 10 FEET APART.
- N. INDIVIDUAL HANGERS SHALL GENERALLY HAVE ADJUSTABLE SWIVEL PIPE RINGS, EXCEPT THAT FOR LONG RUNS OF PIPE (LARGE SIZE) THEY SHALL BE FITTED WITH ADJUSTABLE SWIVEL PIPE ROLLS IF REQUIRED.
- O. WHERE PIPING IS TO BE SUPPORTED ON WALLS, COPPER COATED VAN-HANGERS BY AMERICAN TUBE AND CONTROL COMPANY, OR APPROVED EQUAL, SHALL BE USED.
- P. HANGERS SHALL BE INSTALLED OUTSIDE OF INSULATION.
- Q. PIPING, CONDUIT, AND EQUIPMENT SHALL BE SUPPORTED FROM BUILDING STRUCTURAL MEMBERS, NOT FROM ROOFING, CEILING, OTHER LINES OR MECHANICAL EQUIPMENT. HANGERS FOR PIPING SHALL BE CLEVIS OR TRAPEZE TYPE.
- R. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

- 3.2 EQUIPMENT BASES AND SUPPORTS
- A. CONSTRUCT SUPPORT OF STEEL PIPE AND FITTINGS. BRACE AND FASTEN WITH FLANGES BOLTED TO STRUCTURE.
- 3.3 SLEEVES
- A. SIZE SLEEVES LARGE ENOUGH TO ALLOW FOR MOVEMENT DUE TO EXPANSION AND CONTRACTION. PROVIDE FOR CONTINUOUS INSULATION WRAPPING.
- B. EXTEND SLEEVES THROUGH FLOORS ONE INCH ABOVE FINISHED FLOOR LEVEL. CAULK SLEEVES FULL DEPTH AND PROVIDE FLOOR PLATE.
- C. WHERE PIPING PENETRATES FLOOR, OR WALL, CLOSE OFF SPACE BETWEEN PIPE OR DUCT AND ADJACENT WORK WITH FIRE STOPPING INSULATION AND CAULK SEAL. PROVIDE CLOSE FITTING METAL COLLAR OR ESCUTCHEON COVERS AT BOTH SIDES OF PENETRATION.
- D. INSTALL CHROME PLATED STEEL ESCUTCHEONS AT FINISHED SURFACES.

PIPING INSULATION

PART 1 GENERAL

- 1.1 WORK INCLUDED
- A. PIPING INSULATION.

- B. JACKETS AND ACCESSORIES.
- 1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION
- A. SECTION 15510 - HYDRONIC PIPING: PLACEMENT OF HANGERS AND HANGER INSERTS.
- 1.3 RELATED WORK
- A. SECTION 15010 - BASIC MECHANICAL REQUIREMENTS
- 1.4 REFERENCES
- A. ANSI/ASTM B209 - ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE.
- B. ANSI/ASTM C195 - MINERAL FIBER THERMAL INSULATION CEMENT.
- C. ANSI/ASTM C335 - STEADY-STATE HEAT TRANSFER PROPERTIES OF HORIZONTAL PIPE INSULATION.
- D. ANSI/ASTM E84 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.
- E. ANSI/ASTM E96 - WATER VAPOR TRANSMISSION OF MATERIALS.
- F. NFPA 255 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.
- G. UL 723 - SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.
- 1.5 QUALITY ASSURANCE

- A. MATERIALS: FLAME SPREAD/FUEL CONTRIBUTED/SMOKE DEVELOPED IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.
- 1.6 SUBMITTALS
- A. SUBMIT PRODUCT DATA UNDER PROVISIONS OF SECTION 15010.
- B. INCLUDE PRODUCT DESCRIPTION, LIST OF MATERIALS AND THICKNESS FOR EACH SERVICE, AND LOCATIONS.
- C. SUBMIT MANUFACTURER'S INSTALLATION INSTRUCTIONS UNDER PROVISIONS OF SECTION 15010.
- D. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE PROCEDURES WHICH ENSURE ACCEPTABLE WORKMANSHIP AND INSTALLATION STANDARDS WILL BE ACHIEVED.

- 1.7 QUALIFICATIONS
- A. APPLICATION: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM THREE YEARS EXPERIENCE.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. DELIVER, STORE, PROTECT AND HANDLE PRODUCTS TO SITE UNDER PROVISIONS OF SECTION 15010.
- B. DELIVER MATERIALS TO SITE IN ORIGINAL FACTORY PACKAGING, LABELED WITH MANUFACTURER'S DENSITY AND THICKNESS.
- C. STORE INSULATION IN ORIGINAL WRAPPING AND PROTECT FROM WEATHER AND CONSTRUCTION TRAFFIC.
- D. PROTECT INSULATION AGAINST DIRT, WATER, CHEMICAL, AND MECHANICAL DAMAGE.
- 1.9 ENVIRONMENTAL REQUIREMENTS
- A. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURERS OF ADHESIVES, MASTICS, AND INSULATION CEMENTS.
- B. MAINTAIN TEMPERATURE DURING AND AFTER INSTALLATION FOR MINIMUM PERIOD OF 24 HOURS.

PART 2 PRODUCTS

- 2.1 ACCEPTABLE MANUFACTURERS

- A. ARMSTRONG.
- B. OWENS CORNING.
- C. KNAUF.
- 2.2 INSULATION
- A. TYPE A: GLASS FIBER INSULATION; ANSI/ASTM C547; K' VALUE OF 0.24 AT 75 DEGREES F; NONCOMBUSTIBLE.
- 2.3 JACKETS
- A. INTERIOR APPLICATIONS:
1. VAPOR BARRIER JACKETS: KRAFT REINFORCED FOIL VAPOR BARRIER WITH SELF-SEALING ADHESIVE JOINTS.
2. PVC ZESTON JACKETS: ONE PIECE, PREMOLDED TYPE.
- 2.4 ACCESSORIES
- A. INSULATION BANDS: 3/4 INCH WIDE; 0.015 INCH THICK GALVANIZED STEEL, 0.007 INCH THICK ALUMINUM.
- B. METAL JACKET BANDS: 3/8 INCH WIDE; 0.015 INCH THICK ALUMINUM.
- C. FIBROUS GLASS CLOTH: UNTREATED; 9 OZ./SQ. YD. WEIGHT.
- D. ADHESIVES: COMPATIBLE WITH INSULATION.

PART 3 EXECUTION

- 3.1 EXAMINATION
- A. VERIFY THAT PIPING HAS BEEN TESTED AND APPROVED BEFORE APPLYING INSULATION MATERIALS.
- B. VERIFY THAT SURFACES ARE CLEAN, FOREIGN MATERIAL REMOVED, AND DRY.
- 3.2 INSTALLATION
- A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
- B. CONTINUE INSULATION WITH VAPOR BARRIER THROUGH PENETRATIONS.
- C. IN EXPOSED PIPING, LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS.
- D. ON INSULATED PIPING WITHOUT VAPOR BARRIER AND PIPING CONVEYING FLUIDS 40 DEGREES F OR LESS, DO NOT INSULATE FLANGES AND UNIONS AT EQUIPMENT, BUT BEVEL AND SEAL ENDS OF INSULATION AT FLANGES AT PUMP LOCATIONS.
- E. FOR HOT PIPING CONVEYING FLUIDS OVER 140 DEGREES F, INSULATE FLANGES AND UNIONS AT EQUIPMENT.
- F. PROVIDE AN INSERT, NOT LESS THAN 6 INCHES LONG, OF SAME THICKNESS AND CONTOUR AS ADJOINING INSULATION, BETWEEN SUPPORT SHIELD AND PIPING, BUT UNDER THE FINISH JACKET, ON PIPING 2 INCHES DIAMETER OR LARGER, TO PREVENT INSULATION FROM SAGGING AT SUPPORT POINTS. INSERTS SHALL BE CORK OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR THE PLANNED TEMPERATURE RANGE. FACTORY FABRICATED INSERTS MAY BE USED.
- G. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS.
- H. JACKETS:
1. INDOOR, CONCEALED APPLICATIONS: INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE SHALL HAVE STANDARD JACKETS, WITH OR WITHOUT VAPOR BARRIER, FACTORY-APPLIED OR FIELD-APPLIED. INSULATE FITTINGS, JOINTS, AND VALVES WITH INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJOINING PIPE, AND FINISH WITH GLASS CLOTH AND ADHESIVE. PVC JACKETS MAY BE USED.
2. INDOOR, CONCEALED APPLICATIONS: INSULATED DUAL-TEMPERATURE PIPES OR PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE SHALL HAVE VAPOR BARRIER JACKETS, FACTORY-APPLIED OR FIELD-APPLIED. INSULATE FITTINGS, JOINTS, AND VALVES WITH MOLDED INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJACENT PIPE, AND FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE.

PIPING	INSULATION	
	PIPE SIZE	THICKNESS
	DEGREES	INCHES
DOMESTIC COLD WATER	60 F	UP TO 1-1/4" 1/2"
HEATING WATER SUPPLY AND RETURN	200 F	UP TO 1-1/4" 1/2"

HYDRONIC PIPING

PART 1 GENERAL

- 1.1 WORK INCLUDED
- A. PIPE AND PIPE FITTINGS.
- B. VALVES.
- C. HEATING WATER PIPING SYSTEM.
- 1.2 RELATED WORK
- A. SECTION 15010 - BASIC MECHANICAL REQUIREMENTS.
- B. SECTION 15140 - SUPPORTS AND ANCHORS.
- C. SECTION 15260 - PIPING INSULATION.
- D. SECTION 15515 - HYDRONIC SPECIALTIES.
- 1.3 REFERENCES
- A. ANSI/ASME - BOILER AND PRESSURE VESSEL CODE.
- B. ANSI/ASME SEC 9 - WELDING AND BRAZING QUALIFICATIONS.
- C. ANSI/ASME B16.3 - MALLEABLE IRON THREADED FITTINGS CLASS 150 AND 300.
- D. ANSI/ASME B16.18 - CAST COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS.
- E. ANSI/ASME B16.22 - WROUGHT COPPER AND COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS.
- F. ANSI/ASME B31.5 - REFRIGERATION PIPING.
- G. ANSI/ASME B31.9 - BUILDING SERVICES PIPING.
- H. ANSI/AWS A5.8 - BRAZING FILLER METAL.
- I. ANSI/AWS D1.1 - STRUCTURAL WELDING CODE.
- J. ANSI/ASTM A53 - PIPE, STEEL, BLACK AND HOT-DIPPED ZINC COATED, WELDED AND SEAMLESS.
- K. ANSI/ASTM A120 - PIPE, STEEL, BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED), WELDED AND SEAMLESS, FOR ORDINARY USES.
- L. ANSI/ASTM A234 - PIPE FITTINGS OF WROUGHT CARBON STEEL AND ALLOY STEEL FOR MODERATE AND ELEVATED TEMPERATURES.
- M. ANSI/ASTM B32 - SOLDER METAL.
- N. ANSI/ASTM B88 - SEAMLESS COPPER WATER TUBE.
- O. ANSI/ASTM F708 - DESIGN AND INSTALLATION OF RIGID PIPE HANGERS.
- P. MSS SP69 - PIPE HANGERS AND SUPPORTS - SELECTION AND APPLICATION.
- Q. MSS SP89 - PIPE HANGERS AND SUPPORTS - FABRICATION AND INSTALLATION PRACTICES.
- 1.4 SYSTEM DESCRIPTION
- A. WHERE MORE THAN ONE PIPING SYSTEM MATERIAL IS SPECIFIED, ENSURE SYSTEM COMPONENTS ARE COMPATIBLE AND JOINED TO ENSURE THE INTEGRITY OF THE SYSTEM IS NOT JEOPARDIZED. PROVIDE NECESSARY JOINING FITTINGS. ENSURE FLANGES, UNION, AND COUPLINGS FOR SERVICING ARE CONSISTENTLY PROVIDED.
- B. USE GROOVED MECHANICAL COUPLINGS AND FASTENERS ONLY IN ACCESSIBLE LOCATIONS.

- C. 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.
- D. USE NON-CONDUCTING DIELECTRIC CONNECTIONS WHENEVER JOINTING DISSIMILAR METALS IN OPEN SYSTEMS.
- E. PROVIDE PIPE HANGERS AND SUPPORTS IN ACCORDANCE WITH MSS SP69 UNLESS INDICATED OTHERWISE.
- F. USE BALL VALVES FOR SHUT-OFF AND TO ISOLATE EQUIPMENT, PART OF SYSTEMS, OR VERTICAL RISERS.
- G. USE SPRING LOADED CHECK VALVES ON DISCHARGE OF PUMPS.
- H. USE 3/4 INCH BALL VALVES WITH CAP FOR DRAINS AT MAIN SHUT-OFF VALVES, LOW POINTS OF PIPING, BASES OF VERTICAL RISERS, AND AT EQUIPMENT.
- 1.5 REGULATORY REQUIREMENTS
- A. CONFORM TO ANSI/ASME B31.9.
- 1.6 QUALITY ASSURANCE
- A. VALVES: MANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY.
- B. WELDING MATERIALS AND PROCEDURES: CONFORM TO ANSI/ASME SEC 9; AND APPLICABLE STATE LABOR REGULATIONS.
- C. WELDERS CERTIFICATION: IN ACCORDANCE WITH ANSI/ASME SEC 9.
- 1.7 SUBMITTALS
- A. SUBMIT PRODUCT DATA UNDER PROVISIONS OF SECTION 01300 AND UNDER PROVISIONS OF SECTION 15010.
- B. INCLUDE DATA ON PIPE MATERIALS, PIPE FITTINGS, VALVES, AND ACCESSORIES.
- C. INCLUDE WELDERS CERTIFICATION OF COMPLIANCE WITH ANSI/ASME SEC 9.
- 1.8 PROJECT RECORD DOCUMENTS

- A. SUBMIT UNDER PROVISIONS OF SECTION 01700 AND UNDER PROVISIONS OF SECTION 15010.
- B. RECORD ACTUAL LOCATIONS OF VALVES.
- 1.9 OPERATION AND MAINTENANCE DATA
- A. SUBMIT UNDER PROVISIONS OF SECTION 01700.
- B. MAINTENANCE DATA: INCLUDE INSTALLATION INSTRUCTIONS, SPARE PARTS LISTS, EXPLODED ASSEMBLY VIEWS.

- 1.10 QUALIFICATIONS
- A. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS EXPERIENCE.
- B. INSTALLER: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION.
- C. WELDERS: CERTIFY IN ACCORDANCE WITH ANSI/ASME SEC 9.
- 1.11 REGULATORY REQUIREMENTS
- A. CONFORM TO ANSI/ASME B31.9 CODE FOR INSTALLATION OF PIPING SYSTEM.
- B. WELDING MATERIALS AND PROCEDURES: CONFORM TO ANSI/ASME SEC 9 AND APPLICABLE STATE LABOR REGULATIONS.
- C. PROVIDE CERTIFICATE OF COMPLIANCE FROM AUTHORITY HAVING JURISDICTION INDICATING APPROVAL OF WELDERS.

- 1.12 DELIVERY, STORAGE, AND HANDLING
- A. DELIVER, STORE, PROTECT AND HANDLE PRODUCTS TO SITE UNDER PROVISIONS SECTION 15010.
- B. ACCEPT VALVES ON SITE IN SHIPPING CONTAINERS WITH LABELING IN PLACE. INSPECT FOR DAMAGE.
- C. PROVIDE TEMPORARY PROTECTIVE COATING ON CAST IRON AND STEEL VALVES.
- D. PROVIDE TEMPORARY END CAPS AND CLOSURES ON PIPING AND FITTINGS. MAINTAIN IN PLACE UNTIL INSTALLATION.
- E. PROTECT PIPING SYSTEMS FROM ENTRY OF FOREIGN MATERIALS BY TEMPORARY COVERS, COMPLETING SECTIONS OF THE WORK, AND ISOLATING PARTS OF COMPLETED SYSTEM.

- 1.13 ENVIRONMENTAL REQUIREMENTS
- A. DO NOT INSTALL UNDERGROUND PIPING WHEN BEDDING IS WET OR FROZEN.
- 1.14 EXTRA MATERIALS
- A. FURNISH UNDER PROVISIONS OF SECTION 15010.
- B. PROVIDE TWO REPACKING KITS FOR EACH SIZE AND VALVE TYPE.
- PART 2 PRODUCTS
- 2.1 HEATING WATER PIPING, ABOVE GROUND
- A. STEEL PIPE: ANSI/ASTM A53 OR A120, SCHEDULE 40, BLACK.

1. FITTINGS: ANSI/ASTM B16.3, MALLEABLE IRON OR ANSI/ASTM A234, FORGED STEEL WELDING TYPE FITTINGS.
2. JOINTS: SCREWED, OR ANSI/AWS D1.1, WELDED.
- B. COPPER TUBING: ANSI/ASTM B88, TYPE L HARD DRAWN, ANNEALED
1. FITTINGS: ANSI/ASME B16.23 CAST BRASS OF ANSI/ASME B16.29 SOLDER WROUGHT COPPER.
2. JOINTS: ANSI/ASTM B32, SOLDER, GRADE 95TA.

- 2.2 EQUIPMENT DRAINS AND OVERFLOWS
- A. STEEL PIPE: ANSI/ASTM A53 OR A120, SCHEDULE 40 GALVANIZED.
1. FITTINGS: GALVANIZED CAST IRON, OR ANSI/ASTM B16.3 MALLEABLE IRON.
2. JOINTS: SCREWED, OR GROOVED MECHANICAL COUPLINGS.
- B. COPPER TUBING: ANSI/ASTM B88, TYPE L HARD DRAWN, ANNEALED
1. FITTINGS: ANSI/ASME B16.23 CAST BRASS, OR ANSI/ASME B16.29 SOLDER WROUGHT COPPER.
2. JOINTS: ANSI/ASTM B32, SOLDER, GRADE 95TA.
- C. PVC PIPE: ANSI/ASTM D1785, SCHEDULE 40, OR ANSI/ASTM D2241, SDR 21 OR 26.
1. FITTINGS: ANSI/ASTM D2466 OR D2467, PVC.
2. JOINTS: ANSI/ASTM D2855, SOLVENT WELD.
- D. ABS PIPE: ANSI/ASTM D2680 OR D2751.
1. FITTINGS: ANSI/ASTM D2751.
2. JOINTS: ANSI/ASTM D2235, SOLVENT WELD.

- 2.3 FLANGES, UNIONS, AND COUPLINGS
- A. PIPE SIZE 2 INCHES AND UNDER: 150 PSIG MALLEABLE IRON UNIONS FOR THREADED FERROUS PIPING; BRONZE UNIONS FOR COPPER PIPE, SOLDERED JOINTS.
- B. PIPE SIZE OVER 2 INCHES: 150 PSIG FORGED STEEL SLIP-ON FLANGES FOR FERROUS PIPING; BRONZE FLANGES FOR COPPER PIPING; 1/16 INCH THICK PREFORMED NEOPRENE BONDED TO ASBESTOS.
- C. GROOVED AND SHOULDERED PIPE END COUPLINGS: MALLEABLE IRON HOUSING CLAMPS TO ENGAGE AND LOCK, DESIGNED TO PERMIT SOME ANGULAR DEFLECTION, CONTRACTION, AND EXPANSION; C-SHAPE ELASTOMER COMPOSITION SEALING GASKET FOR OPERATING TEMPERATURE RANGE FROM -30 DEGREES F TO 230 DEGREES F; STEEL BOLTS, NUTS, AND WASHERS; GALVANIZED COUPLINGS FOR GALVANIZED PIPE.
- 2.4 ACCEPTABLE MANUFACTURERS - GATE VALVES

- A. POWELL.
- B. KEYSTONE.
- C. NIBCO-SCOTT.
- D. JENKINS.
- E. WALWORTH.
- F. MILWAUKEE.
- G. T45.

- 2.5 GATE VALVES
- A. UP TO 2 INCHES: BRONZE BODY, RISING STEM AND HANDWHEEL, INSIDE SCREW, UNION BONNET, DOUBLE WEDGE OR DISC, SOLDER OR THREADED ENDS.
- B. OVER 2 INCHES: IRON BODY, BRONZE TRIM, RISING STEM AND HANDWHEEL, OS&Y, DOUBLE WEDGE, FLANGED ENDS.

- 2.6 ACCEPTABLE MANUFACTURERS - GLOBE VALVES
- A. POWELL.
- B. KEYSTONE.
- C. NIBCO-SCOTT.
- D. JENKINS.
- E. WALWORTH.
- F. MILWAUKEE.
- G. T45.
- 2.7 GLOBE VALVES
- A. UP TO 2 INCHES: BRONZE BODY, RISING STEM AND HANDWHEEL, INSIDE SCREW, RENEWABLE COMPOSITION DISC, SOLDER OR SCREWED ENDS, WITH BACKSEATING CAPACITY.
- B. OVER 2 INCHES: IRON BODY, BRONZE TRIM, RISING STEM AND HANDWHEEL, OS&Y, PLUG-TYPE DISC, FLANGED ENDS.

- 2.8 ACCEPTABLE MANUFACTURERS - BALL VALVES
- A. STOCKHAM.
- B. SWAGelok.
- C. NIBCO-SCOTT.
- D. PARKER.
- E. WATTS.
- 2.9 BALL VALVES
- A. UP TO 2 INCHES: BRONZE BODY, STAINLESS STEEL BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE AND BALANCING STOPS, SOLDER OR THREADED ENDS.
- 2.10 ACCEPTABLE MANUFACTURERS - PLUG COCKS

- A. POWELL.
- B. KEYSTONE.
- C. STOCKHAM.
- 2.11 PLUG COCKS
- A. UP TO 2 INCHES: BRONZE BODY, BRONZE TAPERED PLUG, NON- LUBRICATED, TEFLON PACKING, THREADED ENDS, WITH ONE WRENCH OPERATOR FOR EVERY TEN PLUG COCKS.
- B. OVER 2 INCHES: CAST IRON BODY AND PLUG, PRESSURE LUBRICATED, TEFLON PACKING, FLANGED ENDS, WITH WRENCH OPERATOR WITH SET SCREW.

- 2.12 ACCEPTABLE MANUFACTURERS - BUTTERFLY VALVES

- A. POWELL.
- B. KEYSTONE.
- C. METRA-FLEX.
- D. STOCKHAM.
- E. WATTS.
- F. MILWAUKEE.
- G. CENTURY.
- 2.13 BUTTERFLY VALVES
- A. IRON BODY, BRONZE DISC, RESILIENT REPLACEABLE SEAT FOR SERVICE TO 250 DEGREES F, WATER OR LUG ENDS, 10 POSITION LEVER HANDLE.
- 2.14 ACCEPTABLE MANUFACTURERS - SWING CHECK VALVES
- A. POWELL.
- B. KEYSTONE.
- C. NIBCO-SCOTT.
- D. GRINNELL.
- E. STOCKHAM.
- F. MILWAUKEE.
- G. WATTS.
- 2.15 SWING CHECK VALVES
- A. UP TO 2 INCHES: BRONZE 45 DEGREE SWING DISC, SOLDER OR SCREWED ENDS.
- B. OVER 2 INCHES: IRON BODY, BRONZE TRIM, 45 DEGREE SWING DISC, RENEWABLE DISC AND SEAT, FLANGED ENDS.
- 2.16 ACCEPTABLE MANUFACTURERS - SPRING LOADED CHECK VALVES
- A. POWELL.
- B. KEYSTONE.
- C. NIBCO-SCOTT.
- D. METRA-FLEX.
- E. PARKER.
- F. MILWAUKEE.
- G. WATTS.
- 2.17 SPRING LOADED CHECK VALVES
- A. IRON BODY, BRONZE TRIM, SPRING LOADED, RENEWABLE COMPOSITION DISC, SCREWED, WAFER, OR FLANGED ENDS.

- 2.18 ACCEPTABLE MANUFACTURERS - RELIEF VALVES
- A. B&G.
- B. TACO.
- C. ARMSTRONG.
- D. WATTS.
- E. AMTROL.

- 2.19 RELIEF VALVES
- A. BRONZE BODY, TEFLON SEAT, STEEL STEM AND SPRINGS, AUTOMATIC, DIRECT PRESSURE ACTUATED, CAPACITIES ANSI/ASME CERTIFIED AND LABELED.
- PART 3 EXECUTION
- 3.1 PREPARATION
- A. COPPER TUBING SHALL BE CUT WITH SQUARE ENDS AND ALL BURRS AND FINIS REMOVED. TUBING SHALL BE CAREFULLY HANDLED AND PROTECTED TO AVOID DAMAGE. ANY PIPE CUT, DENTED OR OTHERWISE DAMAGED MUST BE REPLACED WITH NEW PIPE VALVES, SHALL BE REAMED, CLEANED AND FURNISHED BEFORE SOLDER IS APPLIED. ALL SOLDERED JOINTS SHALL BE MADE WITH PURE 95.5 LEAD FREE SOLDER. 50-50 SOLDER WILL NOT BE PERMITTED. ALL PIPE FITTINGS AND FLANGES 3" AND LARGER SHALL BE THOROUGHLY TINNED BEFORE INSTALLATION. THE MECHANICAL CONTRACTOR SHALL EMPLOY RING TYPE TORCHES OR A MINIMUM OF TWO (2) NO. 6 TIPS FOR HEATING 3" AND 4" PIPE, FITTINGS, FLANGES AND VALVES. AFTER SOLDER JOINTS HAVE BEEN MADE, ALL EXCESS FLUX OR COMPOUND SHALL BE WIPED OFF FROM THE EXTERIOR OF THE WORK.

- B. ALL SCREWED PIPING SHALL BE REAMED AND BE FREE FROM FINIS AND BURRS. THREADS ON PIPING SHALL BE FULL CUT AND NOT MORE THAN THREE THREADS ON THE PIPE SHALL REMAIN EXPOSED ONCE THE JOINT HAS BEEN COMPLETED. UNION SHALL BE PROVIDED WHERE REQUIRED FOR READY DISCONNECT. NIPPLES SHALL BE OF THE SAME MATERIAL AND WEIGHT AS THE PIPE ON WHICH THEY ARE USED. CLOSE NIPPLES SHALL NOT BE USED.
- C. PIPING SHALL BE INSTALLED STRAIGHT, DIRECT AND PLUMB, FORMING RIGHT ANGLES WITH OR PARALLEL TO WALLS AND OTHER PIPING, AS POSSIBLE. HORIZONTAL RUNS OF PIPE SHALL BE WELL AND FIRMLY SECURED IN LIGHT OUTLETS, CONDUITS, DUCTS, EQUIPMENT OR PIECES OF APPARATUS, AND SHALL NOT INTERFERE WITH WORK OF OTHER TRADES. ROUGHING SHALL BE KEPT CAPPED. PIPING AND EQUIPMENT SHALL BE ADEQUATELY PROTECTED DURING CONSTRUCTION. PIPING SHALL BE CUT TRUE, REAMED AND BE FREE FROM BURRS.


- D. CONTRACTOR, BEFORE INSTALLING ANY OF HIS WORK, SHALL VERIFY THAT THE INSTALLATION DOES NOT INTERFERE WITH CLEARANCES REQUIRED FOR FINISH COLUMNS, PILASTERS, PARTITIONS, CEILINGS AND WALLS, AS SHOWN ON THE ARCHITECT'S DRAWINGS AND DETAILS. IF ANY WORK IS SO INSTALLED AND IT LATER DEVELOPS THAT SUCH DETAILS CANNOT BE FOLLOWED, THIS CONTRACTOR, AT HIS OWN EXPENSE, SHALL MAKE SUCH CHANGES IN HIS WORK AS DIRECTED BY THE ARCHITECT AND AS WILL PERMIT THE INSTALLATION OF THE GENERAL CONTRACTOR'S WORK SHOWN ON THE PLANS AND DETAILS.
- E. CONTRACTOR SHALL ARRANGE HIS WORK SO THAT ROUGHING MAY BE INSTALLED AND TESTED BEFORE BEING CONCEALED. PIPING SHALL NOT BE CONCEALED OR COVERED UNTIL SAME HAS BEEN TESTED BY THE CONTRACTOR. INSTALL PIPING PROMPTLY AFTER CUTTING HAS BEEN DONE SO THAT OPENINGS MAY BE CLOSED UP AS QUICKLY AS POSSIBLE. HORIZONTAL RUNS OF PIPE SHALL BE WELL AND FIRMLY SECURED IN PLACE WITH HANGERS OR SUPPORTS. VERTICAL LINES OF PIPING SHALL BY BEING HUNG FROM WALL, FLOOR OR ROOF CONSTRUCTION WITH APPROVED ANCHORS OR RISER CLAMPS. THE CLAMPS SHALL BE OF SIZE PROPORTIONATE TO THE WEIGHT OF PIPE SUPPORTS AND SHALL BE OF SIMILAR METAL.

- F. PIPING SHALL BE INSTALLED SUBSTANTIALLY AS SHOWN ON THE DRAWINGS. THE LOCATION OF THE PIPING IS APPROXIMATE AND SCHEMATIC. THE ACTUAL INSTALLED LOCATIONS SHALL PROVIDE ADEQUATE HEADROOM, HARMONIZE WITH OTHER WORK, AND PERMIT EASY ACCESS TO AND REMOVAL OF VALVES, CONTROL VALVES, EQUIPMENT AND TEST/EQUIPMENT. THE EXACT LOCATION OF PIPING AND SPACE CONDITIONS SHALL BE VERIFIED ON THE JOB BY THE CONTRACTOR.
- G. REMOVE SCALE AND DIRT ON INSIDE AND OUTSIDE BEFORE ASSEMBLY.
- H. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES OR UNIONS.
- I. AFTER COMPLETION, FILL, CLEAN, AND TREAT SYSTEMS.
- 3.2 INSTALLATION
- A. THE MECHANICAL CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL HIS WORK AND ARRANGE HIS WORK ACCORDINGLY. THE DRAWINGS ARE GENERALLY INDICATIVE OF THE WORK TO BE INSTALLED, AND IT IS NOT POSSIBLE TO INDICATE ALL FITTINGS AND SPECIALTIES. THE MECHANICAL CONTRACTOR SHALL FURNISH SUCH OFFSETS AND FITTINGS AND SPECIALTIES AS MAY BE REQUIRED TO MEET THE WORKING CONDITION. IF REQUIRED BY THE BUILDING CONDITIONS, DEVIATIONS MAY BE MADE TO THE SYSTEM AFTER SECURING THE CONSENT OF THE ARCHITECT.
- B. PIPING IN THE MECHANICAL ROOMS SHALL BE RUN EXPOSED. ALL OTHER PIPING SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED. EXPOSED PIPING SHALL BE RUN SO AS TO PROVIDE ADEQUATE HEADROOM AND BE PARALLEL TO AND WITH WALLS, FLOORS, CEILINGS, BEAMS, ETC., TO PRESENT A NEAT APPEARANCE. NO PIPING SHALL CROSS BELOW THE HEAD OF A WINDOW OR DOOR.

- C. PIPING SHALL BE INSTALLED SO AS TO PROVIDE ACCESS TO VALVES, TRAPS AND EQUIPMENT FURNISHED UNDER THIS CONTRACT AND THAT FURNISHED UNDER OTHER CONTRACTS. PIPING, VALVES, FITTINGS AND OTHER PARTS SHALL BE SO INSTALLED AS TO PROVIDE A CLEARANCE OF NOT LESS THAN 2" BETWEEN SUCH WORK OR ITS INSULATION COVERING AND ALL ADJACENT WORK WHETHER INSTALLED UNDER THIS OR OTHER CONTRACTS. COORDINATE SIZE AND LOCATION OF ACCESS DOORS WITH SECTION 08305.
- D. PIPE SHALL BE CUT ACCURATELY TO MEASUREMENTS ESTABLISHED AT THE BUILDING AND SHALL BE WORKED INTO PLACE WITHOUT SPRINGING OR FORCING. PROPER ALLOWANCES SHALL BE MADE FOR EXPANSION AND CONTRACTION OF PIPE BY MEANS OF EXPANSION LOOPS, PIPE ANCHORS AND ALIGNMENT GUIDES.
- E. WHERE COPPER CONNECTIONS ARE MADE OF STEEL OR GALVANIZED LINES AND TANKS, DIE ELECTRIC UNIONS SHALL BE USED TO PREVENT ELECTROLYSIS.
- F. ALL PIPING SHALL BE PITCHED UP IN THE DIRECTION OF FLOW AT 1" IN 20' UNLESS OTHERWISE NOTED. HIGH POINTS SHALL HAVE AIR VENTS AS NOTED ON THE DRAWINGS.

- G. PIPING SHALL BE INSTALLED WITH CLEARANCE BETWEEN EXPOSED PIPING OR BETWEEN OUTSIDE OF COVERING ON INSULATED PIPING AND ADJOINING WORK. PIPE AT OR IN THE CEILING SHALL BE HUNG FROM THE CONSTRUCTION ABOVE AND AS CLOSE AS POSSIBLE TO THE BOTTOM OF BEAMS. CONTROL VALVES SHALL BE LOCATED TO GIVE COMPLETE REGULATION OF SYSTEMS AND OTHER EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.
- H. PIPING INSIDE BUILDING SHALL BE PROPERLY GRADED TO DRAIN TO A LOW POINT WHERE THE SYSTEM CAN BE EMPTIED. NO PORTIONS OF THE PIPING SYSTEM SHALL TRAP WATER WHICH CANNOT BE DRAINED. DRAINS SHALL BE INSTALLED AT ALL LOW POINTS. DRAINS SHALL CONSIST OF A HOSE BIBB OR A 1/2" GLOBE VALVE WITH HOSE NIPPLE.
- I. CHANGES IN SIZE OF PIPING SHALL BE MADE BY REDUCING FITTINGS. BUSHINGS WILL NOT BE PERMITTED.
- J. WHERE PIPE SUPPORT MEMBERS ARE WELDED TO STRUCTURAL BUILDING FRAMING, SCRAPE, BRUSH CLEAN, AND APPLY ONE COAT OF ZINC RICH PRIMER TO WELDING.
- K. AT COMPLETION OF THE INSTALLATION, OR AS EACH SECTION OF THE PIPING IS COMPLETED TO A POINT WHERE IT MAY BE SUCCESSFULLY VALVED, PLUGGED OR OTHERWISE BLANKED OFF FROM THE REST OF THE SYSTEM, ALL PIPING SHALL BE TESTED AS FOLLOWS:

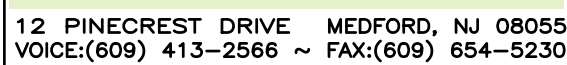
HA PROFESSIONAL LIABILITY CONTRACT



12 PINECREST DRIVE MEDFORD, NJ 08055
VOICE:(609) 413-2566 ~ FAX:(609) 654-5230

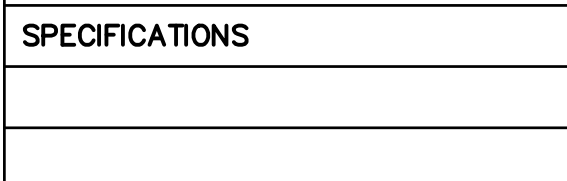
REVISIONS		
NO.	DATE	DESCRIPTION

THESE PLANS ARE AN INSTRUMENT OF SERVICE AND ARE THE PROPERTY OF THE ARCHITECT. INFRINGEMENTS WILL BE PROSECUTED. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS AND BE RESPONSIBLE FOR FIELD FIT AND QUANTITY OF WORK. NO ALLOWANCES SHALL

[illegible][illegible]

HABITECH ARCHITECTURE, LLC
Architecture and Planning
12 Pinecrest Drive
Medford, NJ 08055
Telephone: (609) 413-2566
Email lgmestres@gmail.com

DATE: December 5, 2022



- HYDRONIC SPECIALTIES

1.1 WORK INCLUDED

- A. DELIVER PRODUCTS TO SITE UNDER PROVISIONS OF SECTION 15010.
B. STORE AND PROTECT PRODUCTS UNDER PROVISIONS OF SECTION 15010.

2.1 ACCEPTABLE MAN

-

- ## TESTING, ADJUSTING, AND BALANCING

1.1 SECTION INCLUDES

- A. ASHRAE - 1984 SYSTEMS HANDBOOK: CHAPTER 37, TESTING, ADJUSTING AND BALANCING.

- 1.6 PROJECT RECORD DOCUMENTS
- A. SUBMIT RECORD DOCUMENTS UNDER PROVISIONS OF SECTION 15010.
- 1.7 QUALITY ASSURANCE
- A. BALANCING SHALL BE DONE BY THIS CONTRACTOR AT THE DIRECTION OF THE CONSULTING ENGINEER. ALL LABOR AND MATERIAL SHALL BE PROVIDED BY THIS CONTRACTOR. AGENCY SHALL BE COMPANY SPECIALIZING IN THE ADJUSTING AND BALANCING OF SYSTEMS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS EXPERIENCE.

A. SEQUENCE WORK TO COMMENCE AFTER COMPLETION OF SYSTEMS AND SCHEDULE COMPLETION OF WORK BEFORE SUBSTANTIAL COMPLETION OF PROJECT.

B. SCHEDULE AND PROVIDE ASSISTANCE IN FINAL ADJUSTMENT AND TEST OF SAFETY SYSTEM WITH THE OWNER

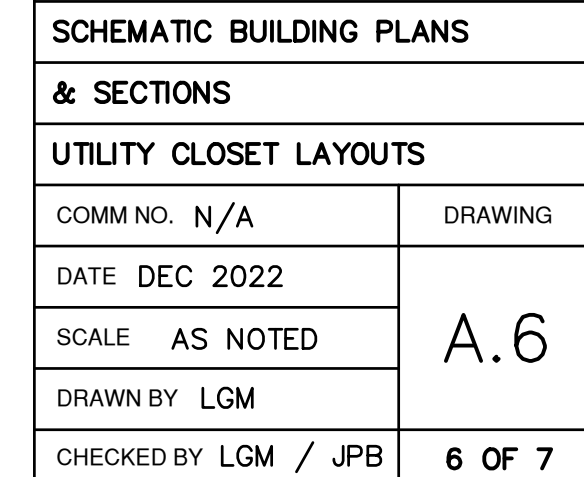
NOT USED

3.1 START UP OF SYSTEM

DEMOLITION NOTES:

1. REMOVE AND DISCARD THE EXISTING HEATING BOILER AND DHW HEATER. CONSULT OWNER PRIOR TO DEMOLITION SHOULD THEY WISH TO KEEP ANY UNITS
2. REMOVE AND DISCARD ALL EXISTING COMPONENTS AND ACCESSORIES ASSOCIATED WITH THE EXISTING BOILER AND DHW HEATER. REUSE OF ANY EXISTING COMPONENTS WITH THE NEW SYSTEM WILL ONLY BE ALLOWED IF THE COMPONENT IS APPROPRIATELY SIZED AND IN LIKE-NEW OPERATING CONDITION. CONSULT ARCHITECT PRIOR TO REUSING ANY COMPONENTS FOR APPROVAL. ASSUME ALL NEW COMPONENTS ARE REQUIRED AS PART OF THE BASE BID. IF COMPONENT REUSE IS GRANTED, PROVIDE A CONTRACT COST DEDUCTION FOR THE REUSED ITEM TO THE OWNER FOR APPROVAL PRIOR TO PROCEEDING WITH THE COMPONENT REUSE.
3. LEAVE ALL REMAINING UTILITIES IN NEAT AND PROPERLY PREPPED CONDITION FOR CONNECTION TO THE NEW SYSTEM COMPONENTS.
4. REPORT ALL CONDITIONS PRIOR TO PROCEEDING WITH ANY WORK. REPORT ANY DISCREPANCIES TO THE ARCHITECT THAT MIGHT AFFECT THE OUTCOME OF A PROPER INSTALLATION.
5. ALL WORK TAKES PLACE IN FULLY OCCUPIED UNITS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS THROUGH THE APARTMENT AND LIMIT THE ACCUMULATION OF DIRT AND DEBRIS.

DATE: December 5, 2022



8 DZEMA/SOFIELD EXISTING UTILITY CLOSET PLAN DETAIL
3/8" = 1'-0"

3 DZEMA & SOFIELD BUILDING TYPE I
1/8" = 1'-0"

4 DZEMA & SOFIELD BUILDING TYPE 2
1/8" = 1'-0"

5 DZEMA & SOFIELD BUILDING TYPE 3
1/8" = 1'-0"

OTLOWSKI GARDENS UNIT BREAKDOWN			
UNIT TYPE	# OF BEDROOMS	# OF BATHROOMS	TOTAL UNITS
1	4	2	18
2	5	2	2
3	3	1 1/2	4



NOTE: THIS SCHEMATIC REPRESENTS THE GENERAL EXISTING CONDITIONS IN MOST APARTMENT UNITS, APARTMENT TYPE '3A'. 3B' AT OTLOWSKI GARDENS HAVE THE HEATING BOILER AND DHW HEATER SEPARATED INTO INDIVIDUAL SPACES WITHIN A SINGLE LARGER CLOSET, SEE DETAIL 6 ON DRAWING A-4. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO PROCEEDING WITH THE WORK. MODIFY ALL PIPING, VENTING AND ASSOCIATED COMPONENTS AS REQUIRED TO PERMIT A COMPLETE INSTALLATION OF THE NEW BOILER AND INDIRECT DHW TANK AS SHOWN IN THESE DRAWINGS.



NEW VENTING NOTES (See manufacturer's installation manual for additional information):

OTLOWSKI

1. NEW 2" EXHAUST VENT FROM BOILER TO BE CONNECTED TO THE EXISTING 4" B-VENT TERMINAL IN THE UTILITY ROOM CEILING, PROVIDE TRANSITION FITTINGS AS NEEDED. B-VENT SHALL BE LINED WITH NEW POLYPRO FLEX OR OTHER MANUFACTURER APPROVED VENT PIPE, NEW ROOF TERMINATION CAP SHALL INSTALLED PER THE VENT MANUFACTURER'S SPECIFICATIONS. PROVIDE TRANSITION FITTING TO BE USED TO REPLACE DETERIORATED B-VENT MATERIAL PER LF IF NEEDED TO COMPLETE THE NEW WORK.
2. NEW 3" PVC AIR VENT FROM BOILER TO BE CONNECTED TO THE EXISTING 3" PVC VENT PIPE FOR THE EXISTING REMOVED DHW HEATER TERMINAL AT THE UTILITY ROOM CEILING, PROVIDE TRANSITION FITTINGS AS NEEDED. NOTE: IN TYPE '3A' & '3B' APARTMENTS THE NEW VENT PIPE WILL NEED TO BE RUN FROM THE BOILER LOCATION ACROSS THE TOP OF THE CEILING ALONG THE BACK WALL OF THE INTERVENING PANTRY CLOSET TO THE PVC CEILING TERMINAL IN THE PANTRY CLOSET. PROVIDE A MODIFIED PVC TERMINAL AS REQUIRED TO PROVIDE DOWNWARD-FACING ELBOW. USE TWO 90° ELBOWS OR 180° BEND FOR AIR TERMINAL. PROVIDE SCREEN ON AIR INTAKE TERMINALS USING 1/2 IN. (12 MM) MESH STAINLESS STEEL FOR CPVC/PVC OR LISTED SCREENS FOR POLYPROPYLENE.

DZEMA/SOFIELD

1. NEW 2" EXHAUST VENT FROM BOILER TO BE CONNECTED TO THE EXISTING 6" B-VENT TERMINAL IN THE UTILITY ROOM CEILING, PROVIDE TRANSITION FITTINGS AS NEEDED. B-VENT SHALL BE LINED WITH NEW POLYPRO FLEX OR OTHER MANUFACTURER APPROVED VENT PIPE. NEW ROOF TERMINATION CAP SHALL INSTALLED PER THE VENT MANUFACTURER'S SPECIFICATIONS. PROVIDE A UNIT COST IN THE BID TO REPLACE DETERIORATED B-VENT MATERIAL PER LF IF NEEDED TO COMPLETE THE NEW WORK.
2. NEW 2" PVC AIR VENT FROM BOILER TO BE CONNECTED TO THE EXISTING 6" B-VENT TERMINAL IN THE UTILITY ROOM CEILING, PROVIDE TRANSITION FITTINGS AS NEEDED.

- THE FOLLOWING IS A GENERAL DESCRIPTION OF THE WORK REQUIRED UNDER THIS CONTRACT FOR THE OTLOWSKI, DZEMA & SOFIELD DEVELOPMENTS:

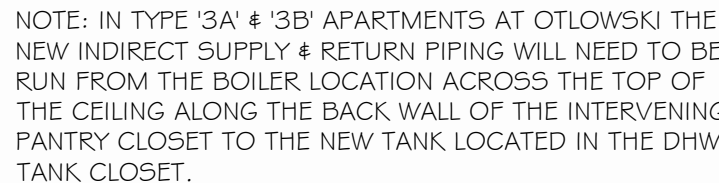
PROVIDE AND INSTALL THE FOLLOWING COMPONENTS AS PART OF THE OVERALL OBJECTIVE OF PROVIDING INDIVIDUAL HEATING BOILERS WITH INDIRECT DHW TANKS TO THE FIFTY-EIGHT (58) APARTMENTS :

- 1) FIFTY NINE (59) 13.6-120 MBH INPUT, 95.0% AFUE RATED GAS FIRED CONDENSING BOILERS, BOILERS SHALL HAVE ELECTRONIC IGNITIONS, PROVIDE A MINIMUM 5-YEAR WARRANTY. BOILER AND TANK TO BE MOUNTED ON FLOOR STAND AS RECOMMENDED BY THE MANUFACTURER:
 - a) BOILER: VELOCITY BOILER WORKS (CROWN) MODEL PHTM21 20H, FIFTY EIGHT (58) UNITS TO BE INSTALLED. ONE (1) UNIT TO BE SUPPLIED AS ATTIC STOCK TO THE OWNER.
 - b) INDIRECT TANK: VELOCITY BOILER WORKS (CROWN) MEGA-STOR II M52-30 30 GALLON FOR ALL 1 1/2 BATHROOM UNITS AND M52-40 40 GALLON FOR ALL 2 BATHROOM UNITS. PROVIDE ONE (1) 30-GALLON AND ONE (1) 40-GALLON TANK AS ATTIC STOCK TO THE OWNER.
- 2) 2" VENT SYSTEM, AS RECOMMENDED BY THE BOILER MANUFACTURER, FOR VENT AND AIR PIPING OF EACH BOILER, TO INCLUDE THE FOLLOWING:
 - a) 2" POLYPROPYLENE AND POLYPROPYLENE FLEX PIPE FOR EXHAUST VENTING.
 - b) 2" AND 3" PVC PIPE FOR AIR VENTING.
 - c) FITTINGS AS REQUIRED TO TRANSITION TO EXISTING B-VENT AND PVC VENT SYSTEMS.
 - d) TERMINATION CAP FOR EXHAUST VENTING.
 - e) ALL ACCESSORIES AND LABOR REQUIRED TO INSTALL A COMPLETE SYSTEM PER MANUFACTURER'S RECOMMENDATIONS.
- 3) MISCELLANEOUS PARTS AND LABOR.

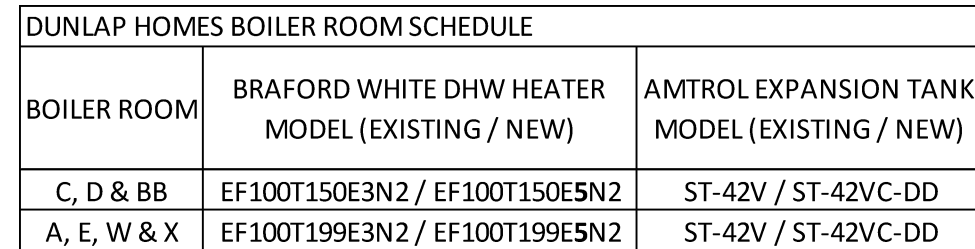
UNDER THIS CONTRACT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING INDIVIDUAL HOT WATER BOILER WITH INDIRECT DHW TANK SYSTEMS AS DETAILED IN THE DRAWINGS AND SPECIFICATIONS, THE CONTRACTOR SHALL MAKE USE OF THE EQUIPMENT AND MATERIALS LISTED ABOVE. ALL ADDITIONAL EQUIPMENT AND MATERIALS REQUIRED PERMITTING A COMPLETE INSTALLATION AS SHOWN ON THE DRAWINGS, DESCRIBED IN THE SPECIFICATIONS AND REQUIRED BY THE MANUFACTURERS AND/OR OTHER AUTHORITIES HAVING JURISDICTION SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN HIS BID PRICE(S). THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- HYDRONIC PIPING AND FITTINGS
 - VALVES, GAGES, FITTINGS, SENSORS, ETC.
 - PUMPS & CIRCULATORS
 - ADDITIONAL EXHAUST AND VENT SYSTEM FITTINGS
 - PIPE INSULATION AS REQUIRED BY ENERGY CODES ON ALL PIPING
 - ELECTRICAL WIRING, CONDUIT, WIREMOLD, BOXES AND DEVICES
 - CONDENSATE PIPING WITH NEUTRALIZER KIT FOR BOILER
 - HANGERS, SUPPORTS, ETC.
 - PATCHING MATERIALS FOR FLOOR, WALL AND CEILING FINISHES
 - ALL LABOR REQUIRED TO PERMIT THE COMPLETE INSTALLATION OF THE NEW SYSTEM
- TIME TO COMPLETE THE PROJECT IS OF THE ESSENCE. IN NO CASE SHALL AN APARTMENT WATER FOR MORE THAN A SINGLE WORK DAY.

- 4) ALL COMPONENTS OF THE NEW SYSTEM ARE TO BE SIZED TO MEET THE CONDITIONS OF THE EXISTING APARTMENT HEATING AND DHW NEEDS AS RECOMMENDED BY THE BOILER AND TANK MANUFACTURER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THESE CONDITIONS WITH THE MANUFACTURER PRIOR TO SIZING AND ORDERING ANY SYSTEM COMPONENTS. SUBMIT SHOP DRAWINGS TO ARCHITECT FOR REVIEW PRIOR TO ORDERING EQUIPMENT AND COMPONENTS.



- 5 INDIRECT DHW TANK - HEATING SIDE PIPING SCHEMATIC
NONE



- THE FOLLOWING IS A GENERAL DESCRIPTION OF THE WORK REQUIRED UNDER THIS CONTRACT FOR THE DUNLAP DEVELOPMENT:

PROVIDE AND INSTALL THE FOLLOWING COMPONENTS AS PART OF THE OVERALL OBJECTIVE OF REPLACING THE EXISTING DHW HEATERS AND EXPANSION TANKS IN SEVEN (7) BOILER ROOMS:

- 1) SEVEN (7) ENERGY STAR COMPLIANT, 97.0% HIGH EFFICIENCY GAS FIRED WATER HEATERS. HEATERS SHALL HAVE DIRECT SPARK IGNITION SYSTEM. PROVIDE WITH A 5-YEAR WARRANTY.
 - a) BOILER: BRADFORD WHITE COMMERCIAL OF SERIES ULTRA HIGH EFFICIENCY MODELS AS SHOWN ABOVE.
- 2) SEVEN (7) ASME COMPLIANT, VERTICAL DIAPHRAGM TYPE HYDRONIC EXPANSION TANKS. PROVIDE WITH A 1-YEAR WARRANTY.
 - b) EXPANSION TANK: AMTROL EXTROL VERTICAL AX SERIES MODELS AS SHOWN ABOVE.
- 3) MISCELLANEOUS PARTS AND LABOR.

UNDER THIS CONTRACT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING HOT WATER HEATER AND EXPANSION TANK SYSTEM AS DETAILED IN THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE USE OF THE EQUIPMENT AND MATERIALS LISTED ABOVE, ALL ADDITIONAL EQUIPMENT AND MATERIALS REQUIRED PERMITTING A COMPLETE INSTALLATION AS SHOWN ON THE DRAWINGS, DESCRIBED IN THE SPECIFICATIONS AND REQUIRED BY THE MANUFACTURERS AND/OR OTHER AUTHORITIES HAVING JURISDICTION SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN HIS BID PRICE(S). THIS INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

- HYDRONIC PIPING AND FITTINGS
- VALVES, GAGES, FITTINGS, SENSORS, ETC.
- ADDITIONAL EXHAUST AND VENT SYSTEM FITTINGS
- PIPE INSULATION AS REQUIRED BY ENERGY CODES ON ALL PIPING
- ELECTRICAL WIRING, CONDUIT, WIREMOLD, BOXES AND DEVICES
- CONDENSATE PIPING WITH NEUTRALIZER KIT FOR HEATER
- HANGERS, SUPPORTS, ETC.
- ALL LABOR REQUIRED TO PERMIT THE COMPLETE INSTALLATION OF THE NEW SYSTEM

TIME TO COMPLETE THE PROJECT IS OF THE ESSENCE. IN NO CASE SHALL A BUILDING BE LEFT WITHOUT HOT WATER FOR MORE THAN A SINGLE WORK DAY.

- 4) MODIFY ALL EXISTING COMPONENTS AND ACCESSORIES ASSOCIATED WITH THE DHW HEATER AS REQUIRED TO REPLACE IT WITH THE SPECIFIED UNIT. IF EXISTING COMPONENTS MUST BE REMOVED OR MODIFIED TO ALLOW FOR THE NEW INSTALLATION, THEIR REUSE WITH THE NEW SYSTEM WILL ONLY BE ALLOWED IF THE COMPONENT IS APPROPRIATELY SIZED AND IN LIKE-NEW OPERATING CONDITION. CONSULT ARCHITECT/OWNER PRIOR TO REUSING ANY COMPONENTS FOR APPROVAL. ASSUME ALL EXISTING COMPONENTS ARE REUSABLE UNDER THE BASE BID.

- 5) ALL COMPONENTS OF THE NEW SYSTEM ARE TO BE SIZED TO MEET THE CONDITIONS OF THE EXISTING BUILDING DHW NEEDS AS RECOMMENDED BY THE HEATER AND TANK MANUFACTURER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THESE CONDITIONS WITH THE MANUFACTURER PRIOR TO SIZING AND ORDERING ANY SYSTEM COMPONENTS. SUBMIT SHOP DRAWINGS TO ARCHITECT FOR REVIEW PRIOR TO ORDERING EQUIPMENT AND COMPONENTS.

[illegible]

HEATING BOILER & DHW HEATER
APARTMENT UPGRADES AT
GEORGE J. OTLOWSKI SR. GARDENS,
DOUGLAS G. DZEMA GARDENS &
JOHN E. SOFIELD GARDENS &
DHW BUILDING UPGRADES AT
WILLIAM A. DUNLAP HOMES
PERTH AMBOY, NEW JERSEY
HABITECH ARCHITECTURE, LLC Architecture and Planning
12 Pinecrest Drive Medford, NJ 08055
Telephone: (609) 413-2566 Email lgmestres@gmail.com

DATE: December 5, 2022

SCOPE OF WORK NOTES	
BOILER & DHW TANK	
SCHEMATICS	
COMM NO. N/A	DRAWING
DATE DEC 2022	A.7
SCALE AS NOTED	
DRAWN BY LGM	
CHECKED BY LGM / JPB	7 OF 7