

**CONTRACT AND SPECIFICATIONS
FOR
POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM**

John P. Bohenko, City Manager
City of Portsmouth, New Hampshire

Prepared by:
City of Portsmouth
Community Development Department

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BID #17-08

City of Portsmouth
Police Department

POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM

INVITATION TO BID

Sealed bid proposals, plainly marked, (Police Department Dehumidification System Bid Proposal # 17-08) on the outside of the mailing envelope as well as the sealed bid envelope, addressed to the Finance/ Purchasing Department, City Hall, 1 Junkins Avenue, Portsmouth, New Hampshire, 03801, will be accepted until 2:00 p.m. Thursday, November 29, 2007, at which time all bids will be publicly opened and read aloud.

The work consists of furnishing and installing a dehumidification system in the Police locker room. **There will be a mandatory walk through on Thursday, November 15, 2007 at 10:00 a.m. It is required that bidders contact Dan Hartrey at 603-610-7299 to confirm attendance at the meeting.** Bidders will meet in front of the Portsmouth Police Department lobby. Bidders and bidders' employees will be required to have security clearance prior to working in the Police Department.

Specifications and bid proposal forms may be obtained from the Finance/Purchasing Department on the third floor at the above address or on-line at www.cityofportsmouth.com, or by calling the Purchasing Coordinator at 603-610-7227, unless otherwise specified. **CONTINUE BELOW FOR THE COMPLETE BID DOCUMENT.**

Bidders must determine the quantities of work required and the conditions under which the work will be performed.

The City of Portsmouth reserves the right to reject any or all bids, to waive technical or legal deficiencies, and to accept any bid that it may deem to be in the best interest of the City.

If you have any questions, please contact the Purchasing Coordinator at 603-610-7227.

INSTRUCTIONS TO BIDDERS

BIDDING REQUIREMENTS AND CONDITIONS

1. Special Notice to Bidders

Appended to these instructions is a complete set of bidding and general contract forms. These forms may be detached and executed for the submittal of bids. The plans, specifications, and other documents designated in the proposal form will be considered as part of the proposal, whether attached or not.

The bidders must submit a statement of bidder's qualifications, if requested, subsequent to bid opening but prior to award.

2. Interpretation of Quantities in Bid Schedules

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the contractor will be made only for actual work performed and accepted in accordance with the contract. Any scheduled item of work to be done and materials to be furnished may be increased, decreased or omitted as hereinafter provided, and no claim for loss, anticipated profits or costs incurred in anticipation of work not ultimately performed will be allowed due to such increase or decrease.

3. Examination of Plans, Specifications and Site Work

The bidder is expected to examine carefully the site of the proposed work, the plans, standard specifications, supplemental specifications, special provisions and contract forms before submitting a proposal. The submission of a bid shall be considered conclusive evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the contract. It will be conclusive evidence that the bidder has also investigated and is satisfied with the sources of supply for all materials.

Plans, surveys, measurements, dimensions, calculations, estimates and statements as to the condition under which the work is to be performed are believed to be correct, but the contractors must examine for themselves, as no allowance will be made for any errors or inaccuracies that maybe found therein.

4. Familiarity with Laws

The bidder is assumed to have made himself or herself familiar with all federal and state laws and all local by-laws, ordinances and regulations which in any manner affect those engaged or employed on the work or affect the materials or equipment used in the work or affect the conduct of the work, and the bidder, if awarded the contract, shall be obligated to perform the work in conformity with said laws, by-laws, ordinances and regulations notwithstanding its ignorance thereof. If the bidder shall discover any provision in the plans or specifications which is in conflict with any such law, by-law, ordinance or regulation the bidder shall forthwith report it to the engineer in writing.

5. Preparation of Proposal

a) The bidder shall submit its proposal upon the forms furnished by the Owner. The bidder shall specify a lump sum price in figures, for each pay item for which a quantity is given and shall also show the products of the respective prices and quantities written in figures in the column provided for that purpose and the total amount of the proposal obtained by adding the amount of the several items. All words and figures shall be in ink or typed. If a unit price or a lump sum bid already entered by the bidder on the proposal form is to be altered it should be crossed out with ink, the new unit price or lump sum bid entered above or below it and initialed by the bidder, also with ink.

b) The bidder's proposal must be signed with ink by the individual, by one or more general partners of a partnership, by one or more members or officers of each firm representing a joint venture; by one or more officers of a corporation, by one or more members (if member-managed) or managers (if manager-managed) of a limited liability company, or by an agent of the contractor legally qualified and acceptable to the owner. If the proposal is made by an individual, his or her name and post office address must be shown, by a partnership the name and post office address of each general and limited partner must be shown; as a joint venture, the name and post office address of each venturer must be shown; by a corporation, the name of the corporation and its business address must be shown, together with the name of the state in which it is incorporated, and the names, titles and business addresses of the president, secretary and treasurer.

6. Nonconforming Proposals

Proposals will be considered nonconforming and may be rejected in the Owner's sole discretion for any of the following reasons:

- If the proposal is on a form other than that furnished by the Owner, or if the form is altered or any portion thereof is detached;
- If there are unauthorized additions, conditional or altered bids, or irregularities of any kind which may tend to make the proposal or any portion thereof incomplete, indefinite or ambiguous as to its meaning;
- If the bidder adds any provisions reserving the right to accept or reject an award, or to enter into a contract pursuant to an award; or
- If the proposal does not contain a unit price for each pay item listed except in the case of authorized alter pay items.

7. Proposal Guaranty

No Bid Bond is required for this Contract.

8. Delivery of Proposals

When sent by mail, the sealed proposal shall be addressed to the Owner at the address and in the care of the official in whose office the bids are to be received. All proposals shall be filed prior to the time and at the place specified in the invitation for bids. Proposals received after the time for opening of the bids will be returned to the bidder, unopened.

9. Withdrawal of Proposals

A bidder will be permitted to withdraw his or her proposal unopened after it has been submitted if the Owner receives a request for withdrawal in writing prior to the time specified for opening the proposals.

10. Public Opening of Proposals

Proposals will be opened and read publicly at the time and place indicated in the invitation for bids. Bidders, their authorized agents, and other interested parties are invited to be present.

11. Disqualification of Bidders

Any or all of the following reasons may be deemed by Owner in its sole discretion as being sufficient for the disqualification of a bidder and the rejection of his proposal:

- More than one proposal for the same work from an individual, firm, or corporation under the same or different name;

- Evidence of collusion among bidders;
- Failure to submit all required information requested in the bid specifications;
- Lack of competency or of adequate machinery, plant or other equipment, as revealed by the statement of bidders qualification or otherwise;
- Uncompleted work which, in the judgment of the owner, might hinder or prevent the prompt completion of additional work if awarded;
- Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts;
- Default or unsatisfactory performance on previous contracts; or
- Such disqualification would be in the best interests of the Owner.

12. Material Guaranty and Samples

Before any contract is awarded, the bidder may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials to be used in the construction of the work, and the Owner may, in its sole discretion, reject the bid based on the contents of the statement or as a result of the failure of the bidder to submit the statement.

AWARD AND EXECUTION OF CONTRACT

1. Consideration of Proposals

After the proposals are opened and read, they will be compared on the basis of the total price for all sections of work and any such additional considerations as may be identified in the bid documents. The results of such comparisons will be immediately available to the public. In case of a discrepancy between the prices written in words and those written figures, the prices written in words shall govern. In case of a discrepancy between the total shown in the proposal and that obtained by adding the products of the quantities of items and unit bid prices, the latter shall govern.

2. Award of Contract

Within 30 calendar days after the opening of proposals, if a contract is to be awarded, the award will be made to the lowest responsible and qualified bidder whose proposal complies with all the requirements prescribed. The successful bidder will be notified, in writing, mailed to the address on his or her proposal, that his or her bid has been accepted and that the bidder has been awarded the contract.

3. Reservation of Rights

The Owner reserves the right to reject any or all proposals, to waive technicalities or to advertise for new proposals, if, in the sole discretion of the Owner, the best interest of the City of Portsmouth will be promoted thereby.

The Owner reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability of the Owner.

4. Return of Proposal Guaranty

All proposal guaranties, except those of the three lowest bidders, will be returned upon request following the opening and checking of the proposals. The proposal guaranties of the three lowest bidders will be returned within ten days following the award of the contract if requested.

5. Contract Bonds

At the time of the execution of the contract, the successful bidder shall furnish a **Labor and Materials payment bond** in the sum equal to 100 percent of the contract amount.

Each bond shall be: (1) in a form satisfactory to the Owner; (2) with a surety company licensed and authorized to do business and with a resident agent designated for services of process in the State of New Hampshire; and (3) conditioned upon the faithful performance by the principal of the agreements contained in the original bid. All premiums for the contract bonds are to be paid by the contractor.

6. Execution and Approval of Contract

The successful bidder is required to present all contract bonds, to provide proof of insurance, and to execute the contract within 10 days following receipt of the City's notification of acceptance of the bid. No contract shall be considered as in effect until it has been fully executed by all parties.

7. Failure to Execute Contract

Failure to execute the contract and file acceptable bonds within 10 days after notification of acceptance of bid shall be just cause for the cancellation of the award and the forfeiture of the proposal guarantee which shall become the property of the Owner, not as a penalty, but in liquidation of damages sustained. Award may then be made to the

next lowest responsible bidder, or the City may exercise its reserved rights including the rejection of all bids or re-advertisement.

PROPOSAL FORM

POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM

CITY OF PORTSMOUTH, N.H.

To the City of Portsmouth, New Hampshire, herein called the Owner.

The undersigned, as Bidder, herein referred to as singular and masculine declares as follows:

1. All interested in the Bid as Principals are named herein.
2. This bid is not made jointly, or in conjunction, cooperation or collusion with any other person, firm, corporation, or other legal entity;
3. No officer, agent or employee of the Owner is directly or indirectly interested in this Bid.
4. The bidder has carefully examined the sites of the proposed work and fully informed and satisfied himself as to the conditions there existing, the character and requirements of the proposed work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in this Bid, and the bidder has carefully read and examined the Drawings, Agreement, Specifications and other Contract Documents therein referred to and knows and understands the terms and provisions thereof;
5. The bidder understands that the quantities of work calculated in the Bid or indicated on the Drawings or in the Specifications or other Contract Documents are approximate and are subject to increase or decrease or deletion as deemed necessary by the Portsmouth City Engineer. Any such changes will not result in or be justification for any penalty or increase in contract prices; and agrees that, if the Bid is accepted the bidder will contract with the Owner, as provided in the Contract Documents, this Bid Form being part of said Contract Documents, and that the bidder will supply or perform all labor, services, plant, machinery, apparatus, appliances, tools, supplies and all other activities required by the Contract Documents in the manner and within the time therein set forth, and that the bidder will take in full payment therefor the following item prices, to wit:

THIS PROJECT SHALL BE BID BY LUMP SUM

TOTAL BID compiled by the Bidder:

In Figures \$ _____

In Words \$ _____

To Bidder: It is the intention of this contract that the items listed above describe completely and thoroughly the entirety of the work as shown on the plans and as described in the specifications. All other items required to accomplish the above items are considered to be subsidiary work, unless shown as a pay item.

The Bidder has received and acknowledged Addenda No. _____ through _____. All Bids are to be submitted on this form and in a sealed envelope, plainly marked on the outside with the Bidder's name and address and the Project name as it appears at the top of the Proposal Form.

PROPOSAL FORM (continued)

The undersigned agrees that for extra work, if any, performed in accordance with the terms and provisions of the Contract Documents, the bidder will accept compensation as stipulated therein.

Date

Company

By: _____

Print Name

Business Address

By: _____

Signaturee

City, State, Zip Code

Title: _____

Telephone: _____

STATEMENT OF BIDDER'S QUALIFICATIONS

Supply with Bid

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. Add separate sheets if necessary

1. Name of Bidder
2. Permanent Main Office Address
3. Form of Entity
4. When Organized
5. Where Organized
6. How many years have you been engaged in the contracting business under your present name; also state names and dates of previous firm names, if any.
7. Contracts on hand; (schedule these, showing gross amount of each contract and the approximate anticipated dates of completion).
8. General character of work performed by your company.
9. Have you ever failed to complete any work awarded to you? ____ (no) ____ (yes). If so, where and why?
10. Have you ever defaulted on a contract?
____ (no) ____ (yes). If so, where and why?
11. Have you ever failed to complete a project in the time allotment according to the Contract Documents?
____ (no) ____ (yes). If so, where and why?
12. List the most important contracts recently executed by your company, stating approximate cost for each, and the month and year completed.
13. List your major equipment available for this contract.
14. List your key personnel such as project superintendent and foremen available for this contract.

STATEMENT OF BIDDERS QUALIFICATIONS (continued)

15. List any subcontractors and trade whom you would expect to use (unless this work is to be done by your own organization).

a. _____

b. _____

c. _____

Latest Financial Statements: The City reserves the right to request Bidders' latest Financial Statements. Certified audited statements if available, prepared by an independent certified public accountant, may be requested by Owner. If requested, such statements must be provided within five (5) business days or the bid proposal will be rejected. Certified Audited Statement are preferred. Internal statements may be used only if independent statements were not prepared.

Dated at _____ this _____ day of _____, 20__.

Name of Bidder

BY _____

TITLE _____

State of _____

County of _____

_____ being duly sworn, deposes and

says that the bidder is _____ of _____
(Name of Organization)

and answers to the foregoing questions and all statements contained therein are true and correct.

Sworn to before me this _____ day of _____, 20__.

Notary of Public

My Commission expires _____

CONTRACT AGREEMENT

POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM

THIS AGREEMENT made as of the _____ day of _____ in the year ____, by and between the City of Portsmouth, New Hampshire (hereinafter call the Owner) and _____ (hereinafter called the Contractor),

WITNESSETH; that the Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE I- Work - The Contractor shall perform all work as specified or indicated in the Contract Documents for the completion of the Project. The Contractor shall provide, at his expense, all labor, materials, equipment and incidentals as may be necessary for the expeditious and proper execution of the Project.

ARTICLE II - ENGINEER - The City Engineer shall mean the Director of Public Works, or his authorized representative will act as engineer in connection with completion of the Project in accordance with the Contract Documents.

ARTICLE III - CONTRACT TIME - The work will commence and finish in accordance with the Notice to Proceed and be completed within forty five (45) days.

ARTICLE IV - CONTRACT PRICE and PAYMENT- Upon final acceptance of the work and settlement of all claims, Owner shall pay the Contractor the Contract Price as shown in the Bid Proposal, subject to additions and deductions provided for in the Contract Documents.

ARTICLE V - RETAINAGE – There will be no retainage on this contract. One full payment will be made upon completion of the project.

ARTICLE VI - LIQUIDATED DAMAGES - In event the Contractor fails to successfully complete the work within the specified contract time the Owner shall assess the Contractor liquidated damages in the amount of Fifty Dollars (\$50.00) for each calendar day beyond the specified completion date. Liquidated damages shall be deducted from the Contract Price prior to final payment of the Contractor.

ARTICLE VII – CONTRACT DOCUMENTS – The Contract Documents which comprise the contract between Owner and Contractor are attached hereto and made a part hereof and consist of the following:

- 8.1 This Agreement
- 8.2 Contractor’s Bid and Bonds.
- 8.3 Notice of Award, Notice to Proceed
- 8.4 Instruction to Bidders
- 8.5 Insurance Requirements
- 8.6 General Requirements
- 8.7 Technical Specifications
- 8.8 Any modifications, including change orders, duly delivered after execution of this Agreement.

In the event of a conflict, the Technical Specifications will govern.

ARTICLE VIII – TERMINATION FOR DEFAULT – Should contractor at any time refuse, neglect, or otherwise fail to supply a sufficient number or amount of properly skilled workers, materials, or equipment, or fail in any respect to prosecute the work with promptness and diligence, or fail to perform any of its obligations set forth in the Contract, Owner may, at its election, terminate the employment of Contractor, giving notice to Contractor in writing

of such election, and enter on the premises and take possession, for the purpose of completing the work included under this Agreement, of all the materials, tools and appliances belonging to Contractor, and to employ any other persons to finish the work and to provide the materials therefore at the expense of the Contractor.

ARTICLE IX – INDEMNIFICATION OF OWNER – Contractor will indemnify Owner against all suits, claims, judgments, awards, loss, cost or expense (including without limitation attorneys’ fees) arising in any way out of the Contractor’s negligent performance of its obligations under this Contract. Contractor will defend all such actions with counsel satisfactory to Owner at its own expense, including attorneys’ fees, and will satisfy any judgment rendered against Owner in such action.

ARTICLE X – PERMITS – The Contractor will secure at its own expense, all permits and consents required by law as necessary to perform the work and will give all notices and pay all fees and otherwise comply with all applicable City, State, and Federal laws, ordinances, rules and regulations.

ARTICLE XI – INSURANCE – The Contractor shall secure and maintain, until acceptance of the work, insurance with limits not less than those specified in the Contract.

ARTICLE XII – MISCELLANEOUS –

- A. Neither Owner nor Contractor shall, without the prior written consent of the other, assign, sublet or delegate, in whole or in part, any of its rights or obligations under any of the Contract Documents; and, specifically not assign any monies due, or to become due, without the prior written consent of Owner.
- B. Owner and Contractor each binds himself, his partners, successors, assigns and legal representatives, to the other party hereto in respect to all covenants, agreements and obligations contained in the Contract Documents.
- C. The Contract Documents constitute the entire Agreement between Owner and Contractor and may only be altered amended or repealed by a duly executed written instrument.
- D. The laws of the State of New Hampshire shall govern this Contract without reference to the conflict of law principles thereof.
- E. Venue for any dispute shall be the Rockingham County Superior Court unless the parties otherwise agree.

IN WITNESS WHEREOF, the parties hereunto executed this

AGREEMENT the day and year first above written.

BIDDER:

BY: _____

TITLE: _____

CITY OF PORTSMOUTH, N.H.

BY: _____

John P. Bohenko

TITLE: City Manager

NOTICE OF INTENT TO AWARD

Date:

TO:

IN AS MUCH as you were the low responsible bidder for work entitled:

POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM

You are hereby notified that the City intends to award the above referenced project to you.

Immediately take the necessary steps to execute the Contract and to provide proof of insurance within ten (10) calendar days from the date of this Notice.

The City reserves the right to revoke this Notice if you fail to take the necessary steps to execute this Contract.

City of Portsmouth
Portsmouth, New Hampshire

Judie Belanger,
Finance Director

NOTICE TO PROCEED

DATE:

POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM

TO:

YOU ARE HEREBY NOTIFIED TO COMMENCE WORK IN ACCORDANCE WITH THE AGREEMENT DATED _____, WITHIN THIRTY (30) DAYS FROM THE NOTICE TO PROCEED. ALL WORK SHALL BE COMPLETED BY _____.

CITY OF PORTSMOUTH, N.H.

BY: Steven F. Parkinson, PE

TITLE: Public Works Director

ACCEPTANCE OF NOTICE

RECEIPT OF THE ABOVE NOTICE TO PROCEED IS HEREBY ACKNOWLEDGED BY

This the _____ day of _____ 20__

By: _____

Title: _____

CHANGE ORDER

Change Order Number _____ Date of Issuance _____

Owner: CITY OF PORTSMOUTH, N.H

Contractor:

You are directed to make the following changes in the Contract Documents:

Description:

Purpose of Change Order:

Attachments:

CHANGE IN CONTRACT PRICE

CHANGE IN CONTRACT TIME

Original Contract Price:
\$ _____

Original Completion Date:

Contract Price prior to this Change Order:
\$ _____

Contract Time prior to this Change Order:
_____ days

Net Increase or Decrease of this Change Order:
\$ _____

Net Increase or Decrease of this Change Order:
_____ days

Contract Price with all approved Change Orders:
\$ _____

Contract Time with all approved Change Orders:
_____ days

RECOMMENDED:

APPROVED:

APPROVED:

by _____

by _____

by _____

by _____

PW Director

City Finance

City Manager

Contractor

LABOR AND MATERIAL PAYMENT BOND

(This format provided for convenience, actual Labor and Material Bond is acceptable in lieu, if compatible)

Bond Number _____

KNOW ALL MEN BY THESE PRESENTS:

that _____

as Principal, hereinafter called Contractor, and _____ (Surety Company) a corporation organized and existing under the laws of the State of

_____ and authorized to do business in the State of New Hampshire hereinafter called Surety, are held and firmly bound unto the City of Portsmouth, N.H. Obligee, hereinafter called Owner, for the use and benefit of claimants as herein below defined, in the

amount of _____ Dollars (\$ _____), for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a

contract with Owner for _____ in accordance with drawings and specifications prepared by the Public Works Department, 680 Peverly Hill Road, Portsmouth, N.H. 03801, which contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract and for the hire of all equipment, tools, and all other things contracted for or used in connection therewith, then this obligation shall be void, otherwise it shall remain in full force and effect, subject however, to the following conditions:

(1) A claimant is defined as one having a direct contract with the Principal or, with a subcontractor of the Principal for labor, material, equipment, or other things used or reasonably required for use in the performance of the Contract. "Labor and material" shall include but not be limited to that part of water, gas, power, light, heat, oil and gasoline, telephone service or rental of equipment applicable to the Contract.

(2) The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such a claimant, may sue on this bond for the use of such claimant, prosecute the suit by final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any such suit or any costs or expenses of any such suit, and principal and surety shall jointly and severally indemnify, defend and hold the Owner harmless for any such suit, costs or expenses.

(3) No suit or action shall be commenced hereunder by any claimant:

(a) Unless Claimant, other than one having a direct contract with the Principal, shall have given notice to all the following:

LABOR AND MATERIAL PAYMENT BOND (continued)

The Principal, the Owner and the Surety above named, within six (6) calendar months after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the State of New Hampshire save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased all work on said contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere. (4) The amount of this bond may be reduced by and to the extent of any payment of payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed on record against said improvement, whether or not claim for the amount of such lien by presented under and against this bond.

Signed and sealed this _____ day of _____, 20____. In the presence of:

(Witness) BY: _____
(Principal) (Seal)

(Surety Company)

(Witness) BY: _____
(Title) (Seal)

Note:

If the Principal (Contractor) is a partnership, the Bond should be signed by each of the partners.

If the Principal (Contractor) is a corporation, the Bond should be signed in its correct corporate name by its duly authorized Officer or Officers.

If this bond is signed on behalf of the Surety by an attorney-in-fact, there should be attached to it a duly certified copy of his Power of Attorney showing his authority to sign such Bonds.

There should be executed an appropriate number of counterparts of the bond corresponding to the number of counterparts of the Agreement.

CONTRACTOR'S AFFIDAVIT

STATE OF _____:

COUNTY OF _____:

Before me, the undersigned, a _____
(Notary Public, Justice of the Peace)

in and for said County and State personally appeared, _____
(Individual, Partner, or duly authorized representative of Corporate)

who, being duly sworn, according to law deposes and says that the cost of labor, material, and equipment and outstanding claims and indebtedness of whatever nature arising out of the performance of the Contract between

CITY OF PORTSMOUTH, NEW HAMPSHIRE

and _____
(Contractor)

of _____

Dated: _____

has been paid in full for installation of Police Department

(Individual, Partner, or
duly authorized
representative of
Corporate Contractor)

Sworn to and subscribed
before me this _____ day
of _____ 20____

CONTRACTOR'S RELEASE

KNOW ALL MEN BY THESE PRESENTS that _____ (Contractor) of _____, County of _____ and State of _____ does hereby acknowledge that _____ (Contractor)

has on this day had, and received from the CITY OF PORTSMOUTH NEW HAMPSHIRE, final and completed payment for the installation of the Police Department dehumidifier

NOW THEREFORE, the said _____ (Contractor)

for myself, my heirs, executors, and administrators) (for itself, its successors and assigns) do/does by these presents remise, release, quit-claim and forever discharge the City of Portsmouth, New Hampshire, its successors and assigns, of and from all claims and demands arising from or in connection with the said Contract dated _____, and of and from all, and all manners of action and actions, cause and causes of action and actions, suits, debts, dues, duties, sum and sums of money, accounts, reckonings, bonds, bills, specifications, covenants, contracts, agreements, promises, variances, damages, judgments, extents, executions, claims and demand, whatsoever in law of equity, or otherwise, against the City of Portsmouth, New Hampshire, its successors and assigns, which (I, my heirs, executors, or administrators) (it, its successors and assigns) ever had, now have or which (I, my heirs, executors, or administrators) (it, its successors and assigns) hereafter can shall or may have, for, upon or by reason of any matter, cause, or thing whatsoever; from the beginning of record time to the date of these presents.

IN WITNESS WHEREOF,

Contractor:

print name of witness: _____

By: _____
Its Duly Authorized _____

Dated: _____

INSURANCE REQUIREMENTS

Insurance shall be in such form as will protect the Contractor from all claims and liabilities for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this contract whether such operation by himself or by anyone directly or indirectly employed by him.

AMOUNT OF INSURANCE

- A) Comprehensive General Liability:
Bodily injury or Property Damage - \$2,000,000
Per occurrence and general aggregate
- B) Automobile and Truck Liability:
Bodily Injury or Property Damage - \$2,000,000
Per occurrence and general aggregate

Coverage requirements can be met with excess policies

Additionally, the Contractor shall purchase and maintain the following types of insurance:

- A) Full Workers Comprehensive Insurance coverage for all people employed by the Contractor to perform work on this project. This insurance shall at a minimum meet the requirements of the most current laws of the State of New Hampshire.
- B) Contractual Liability Insurance coverage in the amounts specified above under Comprehensive General Liability.
- C) Product and Completed Operations coverage to be included in the amounts specified above under Comprehensive General Liability.

ADDITIONAL INSURED

All liability policies (including any excess policies used to meet coverage requirements) shall include the City of Portsmouth, New Hampshire as named Additional Insureds.

- 1) The contractor's insurance shall be primary in the event of a loss.
- 2) City of Portsmouth shall be listed as a Certificate Holder. The City shall be identified as follows:

City of Portsmouth
Attn: Legal Department
1 Junkins Avenue
Portsmouth, NH 03801

SECTION 01000 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 INTENT OF CONTRACT

- A. The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation and supplies required to complete the work in accordance with the terms of the Contract.
- B. The Contractor shall be required to conform to the intent of the plans and specifications. No extra claims shall be allowed for portions of the work not specifically addressed in the plans and specifications but required to produce a whole and complete project, such work will be considered subsidiary to the bid items.

1.2 INCIDENTAL WORK

- A. Unless specifically excepted in the Bid or Technical Specifications, incidental work items for which separate payment is not measured includes, but is not limited to, the following items:
 - 1. Clean up
 - 2. Signs
 - 3. Mobilization
 - 4. Restoration of property
 - 5. Cooperation with other contractors, abutters and utilities.
 - 6. Accessories and fasteners or components required to make items complete and functional.

1.3 ALTERATION OF PLANS OR OF CHARACTER OF WORK

- A. The Owner reserves the right, without notice to Surety, to make such alterations of the plans or of the character of the work as may be necessary or desirable to complete fully and acceptably the proposed construction; provided that such alterations do not increase or decrease the contract cost.
- B. Within these cost limits, the alterations authorized in writing by the Owner shall not impair or affect any provisions of the Contract or bond.
- C. Any such increases or decreases of the quantities as a result from these alterations or deletions of certain items, shall not be the basis of claim for loss or for anticipated profits by the Contractor.
- D. The Contractor shall perform the work as altered at the contract unit price or prices.

1.4 EXTRA WORK ITEMS

- A. Extra work shall be performed by the Contractor in accordance with the specifications and as directed.
 - 1. Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.
- B. Extra work will be paid for at a price as provided in the Contract documents or if such pay items are not applicable than at a price negotiated between the contractor and the Owner or at the unit Bid price.

- C. If the Owner determines that extra work is to be performed, a change order will be issued.

1.5 CHANGE ORDERS

- A. The Owner reserves the right to issue a formal change order for any increase, decrease, deletion, or addition of work or any increase in contract time or price.
- B. The Contractor shall be required to sign the change order and it shall be considered as part of the Contract documents.

1.6 FINAL CLEAN UP

- A. Before acceptance of the work, the Contractor shall remove from the site all machinery, equipment, surplus materials, rubbish, temporary buildings, barricades and signs.
- B. All parts of the work shall be left in a neat and presentable condition.
- C. On all areas used or occupied by the Contractor, regardless of the contract limits, the Bidder shall clean-up all sites and storage grounds.

1.7 ERRORS AND INCONSISTENCY IN CONTRACT DOCUMENTS

- A. Any provisions in any of the Contract Documents that may be in conflict with the paragraphs in these General Requirements shall be subject to the following order of precedence for interpretation.
 - 1. Technical Specifications will govern General Requirements and Standard Specifications.
 - 2. Shop Drawings will govern Technical Specifications, Standard Specifications and General Requirements.

PART 2 - CONTROL OF WORK

2.1 AUTHORITY OF THE CITY ENGINEER

- A. All work shall be done under supervision of the City Engineer and to his satisfaction.
- B. The City Engineer will decide all questions which may arise as to:
 - 1. the quality and acceptability of materials furnished and work performed;
 - 2. the rate of progress of the work;
 - 3. the interpretation of the plans and specifications;
 - 4. the acceptable fulfillment of the Contract by the Contractor.
- C. The City Engineer will have the authority to suspend the work wholly or in part for such periods as he may deem necessary
 - 1. due to the failure of the Contractor to correct conditions unsafe for workers or the general public;
 - 2. for failure to carry out provisions of the Contract;
 - 3. for failure to carry out orders;
 - 4. for conditions considered unsuitable for the prosecution of the work, including unfit weather; or for any other condition or reason deemed to be in the public interest.
- D. The Contractor shall not be entitled any additional payments arising out of any such suspensions.
- E. The Owner reserves the right to demand a certificate of compliance for a material or product used on the project. When the certificate of compliance is determined to be unacceptable to the

City Engineer the Contractor may be required to provide engineering and testing services to guarantee that the material or product is suitable for use in the project, at its expense.

2.2 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPES

- A. The Contractor shall be responsible for all damage or injury to property of any character:
 - 1. during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work,
 - 2. or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.
- B. When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or as a result of the failure to perform work by the Contractor, the Contractor shall restore, at its own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.
- C. If the Contractor fails to repair, rebuild or otherwise restore such property as may be deemed necessary, the Owner, after 48 hours notice, may proceed to do so, and the cost thereof may be deducted from any money due or which may become due the Contractor under the contract.

2.3 MAINTENANCE DURING CONSTRUCTION

- A. The Contractor shall maintain the work during construction and until the project is accepted.
- B. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and workers to ensure that the structure is kept in satisfactory conditions at all times.

2.4 SAFETY PRECAUTIONS

- A. Upon commencement of work, the Contractor shall be responsible for initiating, maintaining and supervising all safety precautions necessary to ensure the safety of employees on the site, other persons who may be affected thereby, including the public, and other property at the site or adjacent thereto.

2.5 PERMITS

- A. It will be the responsibility of the Contractor to obtain all permits required for the operation of equipment in, or on, all city streets and public ways.

2.6 BARRICADES AND WARNING SIGNS

- A. The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, signs and other traffic control devices, and shall take all necessary precautions for the protection of the work and safety of the building occupants and the public.
- B. Closed off areas shall be protected by effective barricades. Obstructions shall be illuminated during hours of darkness. Suitable warning signs shall be provided to control and direct traffic in a proper manner, as approved by the engineer.
- C. The Contractor will be held responsible for all damage to the work due to lack of adequate controlling devices.

PART 3 - TEMPORARY FACILITIES

3.1 STORAGE FACILITIES

- A. The Contractor shall not store materials or equipment in a public right-of-way beyond the needs of one working day. Equipment and materials shall be stored in an approved location.
- B. The Contractor shall protect all stored materials from damage by weather or accident and shall insure adequate drainage at and about the storage location.
- C. Prior to final acceptance of the work all temporary storage facilities and surplus stored materials shall be removed from the site.

3.2 WATER FACILITIES

- A. The Owner shall provide the Contractor with reasonable access to water necessary for construction operations at the site.

3.3 TEMPORARY ELECTRICITY

- B. The Owner shall provide the Contractor with reasonable access to electrical power necessary for construction operations at the site.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT OF QUANTITIES (As may be applicable to the Project)

- A. All work completed under the contract will be measured according to the United States standard measure.
- B. The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Unless otherwise stated all quantities measured for payment shall be computed or adjusted for "in place" conditions.

4.2 SCOPE OF PAYMENT

- A. The Contractor shall receive and accept compensation provided for work in the contract as full payment for furnishing all materials and for performing all work under the contract in a complete and acceptable manner and for all risk, loss, damage or expense of whatever character arising out of the nature of the work or the prosecution thereof.
- B. The Contractor shall be liable to the Owner for failure to repair, correct, renew or replace, at his own expense, all damage due or attributable to defects or imperfections in the construction which defects or imperfections may be discovered before or at the time of the final inspection and acceptance of the work.
- C. No monies, payable under the contract or any part thereof, shall become due or payable if the Owner so elects, until the Contractor shall satisfy the Owner that the Contractor has fully settled or paid all labor performed or furnished for all equipment hired, including trucks, for all materials used, and for fuels, lubricants, power tools, hardware and supplies purchased by the Contractor and used in carrying out said contract and for labor and parts furnished upon the order of said Contractor for the repair of equipment used in carrying out said contract; and the Owner, if he so elects, may pay any and all such bills, in whole or in part.

4.3 PAYMENT PROCEDURES

- A. Submit Application for Payment after completion of Project closeout procedures with release of liens and supporting documentation. Include consent of surety to final payment and insurance certificates.

4.4 COMPENSATION FOR ALTERED QUANTITIES

- A. Except as provided for under the particular contract item, when the accepted quantities of work vary from the quantities in the bid schedule, the Contractor shall accept as payment in full, so far as contract items are concerned, at the original contract unit prices for the accepted quantities of work done. No allowance will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations or indirectly from unbalanced allocation among the contract items of overhead expense on the part of the Bidder and subsequent loss of expected reimbursements therefore or from any other cause.
- B. Extra work performed will be paid for at the contract bid prices or at the price negotiated between the Owner and the Contractor if the item was not bid upon. If no agreement can be negotiated, the Contractor will accept as payment for extra work, cost plus 15% (overhead and profit). Costs shall be substantiated by invoices and certified payroll.

4.5 FINAL ACCEPTANCE AND FINAL PAYMENT

- A. Upon due notice from the Contractor of presumptive completion of the entire project, the City Engineer will make an inspection. If all construction provided for and contemplated by the contract is found complete to his satisfaction, this inspection shall constitute the final inspection and the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of the final inspection.
- B. If the City Engineer's inspection discloses any work in whole or in part, as being unsatisfactory, the City Engineer will give the Contractor the necessary instructions for correction of such work, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection provided the work has been satisfactorily completed. In such event, the City Engineer will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

4.6 GENERAL GUARANTY AND WARRANTY OF TITLE

- A. Neither the final certification of payment nor any provision in the contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express or implied warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of twelve (12) months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness.
- B. No material, supplies or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease purchase or other agreement by which an interest therein or in any part thereof is retained by the Seller or supplier. The Contractor shall warrant good title to all materials, supplies and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the Owner free from any claims, liens or charges. Neither the Contractor nor any person, firm or

corporation furnishing any material or labor for any work covered by this Contract shall have the right to a lien upon any improvements or appurtenances thereon.

Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the Owner. The provisions of this paragraph shall be inserted in all subcontractors and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials.

4.7 NO WAIVER OF LEGAL RIGHTS

- A. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or be stopped from recovering from the Contractor or his Surety, or both, such overpayment as it may sustain by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.
- B. The Contractor, without prejudice to the Contract, shall be liable to the Owner for latent defects, fraud or such gross mistakes as may amount to fraud, and as regards the Owner's right under any warranty or guaranty.

4.8 TERMINATION OF CONTRACTOR'S RESPONSIBILITY

- A. Whenever the improvement provided for by the Contract shall have been completely performed on the part of the Contractor and all parts of the work have been released from further obligations except as set forth in his bond and as provided in Section 4.5 above.

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY OF WORK

- A. Project: POLICE DEPARTMENT DEHUMIDIFICATION SYSTEM
- B. Owner: **City of Portsmouth NH**
- C. The Work consists of furnishing and installing a dehumidification system in the Police Department Men's locker room.

1.2 WORK RESTRICTIONS

- A. Prior to beginning work: Each employee, subcontractor and subcontractors employee shall receive a security clearance from the Portsmouth Police Department.
 - 1. The Contractor will submit the following information for each employee, subcontractor and subcontractors' employee who will be employed on this project:
 - a. Name
 - b. Date of birth
 - c. Social security number
 - 2. This information shall be used to perform security checks. Workers shall be allowed in the work area only after being approved by the Owner.
 - 3. No extension of the Contract Time will be authorized because of failure to transmit these submittals enough in advance of the Work to permit processing.
- B. Contractor's Use of Premises: During construction, Contractor will have limited use of area indicated. Contractor's use of premises is limited as follows:
 - 1. Contractors' access to work area shall be from a designated building entrance.
 - 2. Owner will occupy building during construction. Contractor will present a schedule to the Owner for approval indicating :
 - a. Disruptive work that will be done in the evenings and weekends.
 - b. Perform non disruptive construction only during normal working hours (8 AM to 5 PM Monday thru Friday, other than holidays), unless otherwise agreed to in advance by Owner.
 - 3. Each work area is to be sealed off with 6 mil plastic sheeting to restrict dust migration. Contractor will operate fans blowing to the exterior creating negative pressure in the work areas.
 - 4. Clean up work areas and return to a useable condition at the end of each work period.

1.3 WORK IN OTHER DIVISIONS AND BY OTHER CONTRACTORS

- A. The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

- B. If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Owner apparent discrepancies or defects in such construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discovered.

END OF SECTION 01100

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1- GENERAL

1.1 PROJECT MANAGEMENT AND COORDINATION

- A. Project access is controlled by a Construction Manager retained by the City. Coordinate construction with the Site Construction Manager to ensure efficient and orderly installation of each part of the Work.
- B. Conduct progress meetings with Owner at Project site as needed. Record minutes and distribute to parties involved, including Owner.

1.2 SUBMITTAL PROCEDURES

- A. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 1. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
 - 2. Identify deviations from the Contract Documents.
 - 3. Submit three (3) copies of each submittal.
- B. Include the following information on each submittal:
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Contractor.
 - 4. Name and address of subcontractor or supplier.
- C. Owner will review each action submittal, mark as appropriate to indicate action taken, and return copies less those retained. Compliance with specified requirements remains Contractor's responsibility.
- D. Construction Schedule Submittal Procedure:
 - 1. Submit schedule within 10 days after date established for Commencement of the Work. Distribute copies to Owner, Construction Manager, and parties required to comply with dates.
 - 2. Revise the schedule after each meeting or activity where revisions have been made. As Work progresses, mark each bar to indicate actual completion. Distribute revised copies to Owner, Construction Manager, and parties required to comply with dates.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. Product Data: Mark each copy to show applicable choices and options. Include the following:
 - 1. Data indicating compliance with specified standards and requirements.
 - 2. Notation of coordination requirements.
 - 3. For equipment data, include rated capacities, dimensions, weights, required clearances, and furnished specialties and accessories.
- B. Shop Drawings: Submit Project-specific information drawn to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data. Submit 1 reproducible print and 1 blue- or black-line print on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Include the following:

1. Dimensions, profiles, methods of attachment, large-scale details, and other information, as appropriate for the Work.
 2. Identification of products and materials.
 3. Notation of coordination requirements.
 4. Notation of dimensions established by field measurement.
- C. Samples: Submit Samples finished as specified and identical with the material proposed. Where variations are inherent in the material, submit sufficient units to show full range of the variations. Include name of manufacturer and product name on label.

2.2 INFORMATION SUBMITTALS

- A. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

END OF SECTION 01300

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Provide products of same kind from a single source. The term "product" includes the terms "material," "equipment," "system," and similar terms.
- B. Product Substitutions: Substitutions include products and methods of construction differing from that required by the Contract Documents and proposed by Contractor after award of the Contract.
 - 1. Submit three (3) copies of each request for product substitution.
 - 2. Submit requests within 10 days after signing the Contract.
 - 3. Submit requests in time to permit processing of request and subsequent submittals, if any, sufficiently in advance of when materials are required in the Work. Do not submit unapproved substitutions on Shop Drawings or other submittals.
 - 4. Identify product to be replaced and provide complete documentation showing compliance of proposed substitution with applicable requirements. Include a full comparison with the specified product, a list of changes to other Work required to accommodate the substitution, and any proposed changes in the Contract Sum or the Contract Time should the substitution be accepted.
 - 5. Architect will review the proposed substitution and notify Contractor of its acceptance or rejection.
- C. Comparable Product Submittal:
 - 1. Submit three (3) copies of each request for approval of products as comparable to basis-of-design products. Submit requests in time to permit processing of request and subsequent submittals, if any, sufficiently in advance of when materials are required in the Work. Do not submit unapproved products on Shop Drawings or other submittals.
 - 2. Identify product to be replaced and provide complete documentation showing compliance of proposed product with applicable requirements. Include a full comparison with the specified product.
 - 3. Architect will review the proposed product and notify Contractor of its acceptance or rejection.
- D. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Deliver products to Project site in manufacturer's original sealed container or packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 3. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 4. Store materials in a manner that will not endanger Project structure.
 - 5. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

PART 2 - PRODUCTS

2.1 PRODUCT OPTIONS

- A. Provide products that comply with the Contract Documents, are undamaged, and are new at the time of installation.
 - 1. Provide products complete with accessories, trim, finish, and other devices and components needed for a complete installation and the intended use and effect.
- B. Select products to comply with all of the following that are applicable:
 - 1. Where only a single product or manufacturer is named, provide the item indicated. No substitutions will be permitted.
 - 2. Where two or more products or manufacturers are named, provide one of the items indicated. No substitutions will be permitted.
 - 3. Where products or manufacturers are specified by name, accompanied by the term "available products" or "available manufacturers," provide one of the named items or comply with provisions for "comparable product" to obtain approval for use of an unnamed product or manufacturer.
 - 4. Where a single product is named as the "basis-of-design" and no other manufacturers are named, provide the named product or comply with provisions for "comparable product submittal" to obtain approval for use of a product of another manufacturer.
 - 5. Where a product is described with required characteristics, provide a product that complies with those characteristics.
 - 6. Where compliance with performance requirements is specified, provide products that comply and are recommended in writing by the manufacturer for the application.
 - 7. Where compliance with codes, regulations, or standards, is specified, select a product that complies with the codes, regulations, or standards referenced.
- C. Unless otherwise indicated, Owner will select color, pattern, and texture of each product from manufacturer's full range of options that includes both standard and premium items.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01600

SECTION 01701 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 CLOSEOUT SUBMITTALS

- A. Record Drawings: Maintain a set of the Shop Drawings as Record Drawings. Mark to show installation that varies from the Work originally shown.
- B. Operation and Maintenance Data: Organize data into three-ring binders with identification on front and spine of each binder and pocket folders for folded sheet information. . Include the following:
 - 1. Manufacturer's operation and maintenance brochures.
 - 2. Emergency instructions.
 - 3. Spare parts list.
 - 4. Wiring diagrams.
 - 5. Copies of warranties.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Examine substrates and conditions for compliance with manufacturer's written requirements including, but not limited to, surfaces that are sound, level, plumb, smooth, clean, and free of deleterious substances; substrates within installation tolerances; and application conditions within environmental limits. Proceed with installation only after unsatisfactory conditions have been corrected.
- B. Verify layout information shown on Drawings, in relation to property survey and existing benchmarks, before laying out the Work.
- C. Prepare substrates and adjoining surfaces according to manufacturer's written instructions, including, but not limited to, filler and primer application.
- D. Take field measurements as required to fit the Work properly. Where fabricated products are to be fitted to other construction, verify dimensions by field measurement before fabricating and, when possible, allow for fitting and trimming during installation.

3.2 CUTTING AND PATCHING

- A. Do not cut structural members or operational elements without prior written approval of Owner.
- B. For patching, provide materials whose installed performance will equal or surpass that of existing materials. For exposed surfaces, provide or finish materials to visually match existing adjacent surfaces to the fullest extent possible.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for installation. Anchor each product securely in place, accurately located and aligned. Clean exposed surfaces and protect from damage. If applicable, prepare surfaces for field finishing.
- B. Clean Project site and work areas daily, including common areas.

3.4 FINAL CLEANING

- A. Clean each surface or item as follows before requesting inspection for certification of Substantial Completion:
 - 1. Remove labels that are not permanent.
 - 2. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication.

3.5 CLOSEOUT PROCEDURES

- A. Substantial Completion: Before requesting Substantial Completion inspection, complete the following:
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Submit specific warranties, maintenance agreements, and similar documents.
 - 3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities.
 - 4. Submit Record Drawings and Specifications, operation and maintenance manuals and similar final record information.
 - 5. Deliver tools, spare parts, extra materials, and similar items.
 - 6. Complete startup testing of systems and instruction of operation and maintenance personnel.
 - 7. Remove temporary facilities and controls.
 - 8. Advise Owner of changeover information related to Owner's occupancy, operation, and maintenance.
 - 9. Complete final cleaning requirements, including touchup painting.
 - 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. On receipt of a request for inspection, Owner will proceed with inspection or advise Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or advise Contractor of items that must be completed or corrected before the certificate will be issued.
- C. Request inspection for certification of Final Completion, once the following are complete:
 - 1. Submit a copy of Substantial Completion inspection list stating that each item has been completed or otherwise resolved for acceptance.
 - 2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- D. Owner will reinspect the Work on receipt of notice that the Work has been completed.
 - 1. On completion of reinspection, Owner will prepare a final Certificate for Payment. If the Work is incomplete, Owner will advise Contractor of the Work that is incomplete or obligations that have not yet been fulfilled.

END OF SECTION 01701

TECHNICAL SPECIFICATIONS

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

SECTION 230500 - COMMON WORK RESULTS FOR HVAC

SECTION 231123 - NATURAL-GAS PIPING

SECTION 233100 - HVAC DUCTS AND CASINGS

SECTION 238416 - DEHUMIDIFIER

SECTION 233100 - HVAC DUCTS AND CASINGS**PART 1 - GENERAL****1.1 SECTION REQUIREMENTS**

- A. Summary: Metal and nonmetal ducts and accessories in pressure classes **2-inch wg (500 Pa)** or less and a maximum velocity of **2400 fpm (12 m/s)**.
- B. Submittals: Product Data for fire and smoke dampers.
- C. Comply with NFPA 90A for systems serving spaces more than **25,000 cu. ft. (708 cu. m)** in volume or building Types II, IV, and V construction more than 3 stories in height.
- D. Comply with NFPA 90B for systems serving spaces in 1- or 2-family dwellings or serving spaces less than **25,000 cu. ft. (708 cu. m)**.
- E. Comply with NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations," Chapter 3, "Duct System," for range hood ducts, except single-family residential usage, unless otherwise indicated.
- F. Comply with UL 181 and UL 181A for ducts and closures.

PART 2 - PRODUCTS**2.1 DUCTS**

- A. Galvanized Steel Sheet: Forming steel with minimum G60 hot-dip galvanized coating.
- B. Carbon-Steel Sheets: ASTM A 366/A 366M, cold-rolled sheets; commercial quality; with oiled, matte finish for exposed ducts.
- C. Stainless Steel: ASTM A 480/A 480M, Type **[316] [304]**, and having a No. 2D finish for concealed ducts and No. 4 for exposed ducts.
- D. Joint and Seam Tape, and Sealant: Comply with UL 181A.
- E. Rectangular Metal Duct Fabrication: Comply with SMACNA's "HVAC Duct Construction Standard" for metal thickness, reinforcing types and intervals, tie-rod applications, and joint types and intervals.

2.2 ACCESSORIES

- A. Volume-Control Dampers: Factory-fabricated volume-control dampers, complete with required hardware and accessories. Single blade and multiple opposed blade, standard leakage rating, and suitable for horizontal or vertical applications.
- B. Fire Dampers: Factory-fabricated fire dampers, complete with required hardware and accessories. UL labeled according to UL 555, "Fire Dampers."
- C. Ceiling Fire Dampers: Factory-fabricated fire dampers, complete with required hardware and accessories. UL listed and labeled; comply with the construction details for the tested floor/roof-ceiling assemblies as indicated in UL's "Fire Resistance Directory."
- D. Smoke Dampers: Factory-fabricated smoke and fire dampers, complete with required hardware and accessories. UL labeled according to UL 555S, "Leakage Rated Dampers for Use in Smoke Control Systems." Combination fire and smoke dampers shall also be UL labeled for 1-1/2-hour rating according to UL 555, "Fire Dampers."

- E. Flexible Connectors: Flame-retarded or noncombustible fabrics, coatings, and adhesives complying with UL 181, Class 1.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Duct System Pressure Class: Construct and install each duct system for the specific duct pressure classification indicated.
- B. Conceal ducts from view in finished and occupied spaces.
- C. Avoid passing through electrical equipment spaces and enclosures.
- D. Dishwasher Exhaust Duct Installation: Comply with SMACNA's "HVAC Duct Construction Standard."
- E. Support and connect metal ducts according to SMACNA's "HVAC Duct Construction Standard."
- F. Support and connect fibrous-glass ducts according to SMACNA's "Fibrous Glass Duct Construction Standard."
- G. Install duct accessories according to details of construction as shown in SMACNA standards.
- H. Install volume-control dampers in lined duct with methods to avoid damage to liner and to avoid erosion of duct liner.
- I. Install fire and smoke dampers according to manufacturer's UL-approved written instructions.
- J. Install fusible links in fire dampers.

3.2 TESTING, ADJUSTING, AND BALANCING

- A. Balance airflow within distribution systems, including submains, branches, and terminals to indicated quantities.

END OF SECTION 233100

SECTION 230500 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Summary: General requirements for motors, hangers and supports, vibration isolation and seismic restraints, and meters and gages.
- B. Submittals: Product Data for materials and equipment specified in this Section.

PART 2 - PRODUCTS

2.1 MOTORS

A. Motor Characteristics:

- 1. Motors 3/4 HP and Larger: Three phase.
- 2. Motors Smaller Than 3/4 HP: Single phase.
- 3. Frequency Rating: 60 Hz.
- 4. Voltage Rating: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
- 5. Service Factor: 1.15 for open dripproof motors; 1.0 for totally enclosed motors.
- 6. Duty: Continuous duty at ambient temperature of 105 deg F (40 deg C) and at altitude of 3300 feet (1005 m) above sea level.
- 7. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.
- 8. Enclosure: Unless otherwise indicated, open dripproof.
- 9. Motors Used with Variable-Frequency Controllers: Ratings, characteristics, and features coordinated with and approved by controller manufacturer.

2.2 HANGERS AND SUPPORTS

- A. Hanger and Pipe Attachments: Factory fabricated with galvanized coatings; nonmetallic coated for hangers in direct contact with copper tubing.
- B. Building Attachments: Powder-actuated-type, drive-pin attachments with pullout and shear capacities appropriate for supported loads and building materials.
- C. Mechanical-Expansion Anchors: Insert wedge-type attachments with pullout and shear capacities appropriate for supported loads and building materials.

2.3 VIBRATION ISOLATION AND SEISMIC CONTROL DEVICES

A. Vibration Supports:

- 1. Pads: Arranged in single or multiple layers of oil- and water-resistant neoprene of sufficient stiffness for uniform loading over pad area, molded with a nonslip pattern and galvanized-steel baseplates, and factory cut to sizes that match requirements of supported equipment.

2. Restrained Mounts: Double-deflection type, with molded, oil-resistant fiberglass, rubber or neoprene isolator elements with factory-drilled, encapsulated top plate for bolting to equipment and baseplate for bolting to structure. Provide isolator with minimum **0.5-inch (13-mm)** static deflection.
3. Spring Isolators: Freestanding, laterally stable, restrained-spring isolators. Provide isolator with minimum **1-inch (25-mm)** static deflection.

B. Vibration Hangers:

1. Elastomeric Hangers: Double-deflection type, with molded, oil-resistant rubber or neoprene isolator elements bonded to steel housings with threaded connections for hanger rods. Provide isolator with minimum **0.5-inch (13-mm)** static deflection.
2. Spring Hangers: Combination coil-spring and elastomeric-insert hanger with spring and insert in compression. Provide isolator with minimum **1-inch (25-mm)** static deflection.

C. Seismic Restraints:

1. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.
2. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
3. Restraining Cables: Stainless-steel cables with end connections made of steel assemblies that swivel to final installation angle and utilize two clamping bolts for cable engagement.
4. Mechanical Anchor Bolts: Seismic-rated, drill-in, and stud-wedge or female-wedge type. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.
5. Adhesive Anchor Bolts: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

2.4 PRESSURE GAGES AND TEST PLUGS

- A. Pressure Gages: Direct-mounting, indicating-dial type complying with ASME B40.100. Dry metal case, minimum **2-1/2-inch (63-mm)** diameter with red pointer on white face, and plastic window. Minimum accuracy 3 percent of middle half of range. Range two times operating pressure.
- B. Test Plug: Corrosion-resistant brass or stainless-steel body with two self-sealing rubber core inserts and gasketed and threaded cap, with extended stem for units to be installed in insulated piping. Minimum pressure and temperature rating **500 psig at 200 deg F (3450 kPa at 93 deg C)**.

PART 3 - EXECUTION

3.1 MOTOR INSTALLATION

- A. Anchor motor assembly to base, adjustable rails, or other support, arranged and sized according to manufacturer's written instructions.

3.2 GENERAL PIPING INSTALLATIONS

- A. Install piping free of sags and bends.
- B. Install fittings for changes in direction and branch connections.
- C. Install sleeves for pipes passing through concrete and masonry walls, gypsum board partitions, and concrete floor and roof slabs.
- D. Exterior Wall, Pipe Penetrations: Mechanical sleeve seals installed in steel or cast-iron pipes for wall sleeves.
- E. Comply with requirements in Division 07 Section "Penetration Firestopping" for sealing pipe penetrations in fire-rated construction.
- F. Install unions at final connection to each piece of equipment.
- G. Install dielectric unions and flanges to connect piping materials of dissimilar metals in gas piping.
- H. Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals in water piping.

3.3 GENERAL EQUIPMENT INSTALLATIONS

- A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.
- B. Install equipment level and plumb, parallel and perpendicular to other building systems and components, unless otherwise indicated.
- C. Install mechanical equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.
- D. Install equipment to allow right of way for piping installed at required slope.

3.4 CONCRETE BASES

- A. Anchor equipment to concrete base according to equipment manufacturer's written instructions and according to seismic codes at Project.
- B. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit.
- C. Install dowel rods on 18-inch (450-mm) centers around the full perimeter of the base to connect concrete base to concrete floor.
- D. Install epoxy-coated anchor bolts for supported equipment that extend through concrete base, and anchor into structural concrete floor.
- E. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

- F. Install anchor bolts to elevations required for proper attachment to supported equipment.
- G. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete and reinforcement as specified in Division 03 Section "Cast-in-Place Concrete."

3.5 HANGERS AND SUPPORTS

- A. Comply with MSS SP-69 and MSS SP-89. Install building attachments within concrete or to structural steel.
- B. Install hangers and supports to allow controlled thermal and seismic movement of piping systems.
- C. Install powder-actuated drive-pin fasteners in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches (100 mm) thick.
- D. Install mechanical-expansion anchors in concrete after concrete is cured. Do not use in lightweight concrete or in slabs less than 4 inches (100 mm) thick.
- E. Load Distribution: Install hangers and supports so piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
- F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:
 - 1. Adjustable Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30 (DN 15 to DN 750).
 - 2. Pipe Hangers (MSS Type 5): For suspension of pipes, NPS 1/2 to NPS 4 (DN 15 to DN 100), to allow off-center closure for hanger installation before pipe erection.
 - 3. Adjustable Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8 (DN 15 to DN 200).
 - 4. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8 (DN 15 to DN 200).
 - 5. Adjustable Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 2 (DN 15 to DN 50).
- G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Specification Sections, install the following types:
 - 1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20 (DN 20 to DN 500).
 - 2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20 (DN 20 to DN 500), if longer ends are required for riser clamps.

3.6 VIBRATION ISOLATION AND SEISMIC CONTROL DEVICE INSTALLATION

- A. Adjust vibration isolators to allow free movement of equipment limited by restraints.
- B. Install resilient bolt isolation washers and bushings on equipment anchor bolts.
- C. Install cables so they do not bend across sharp edges of adjacent equipment or building structure.

END OF SECTION 230500

SECTION 231123 - NATURAL-GAS PIPING**PART 1 - GENERAL****1.1 SECTION REQUIREMENTS**

- A. Minimum Operating-Pressure Ratings:
 - 1. Piping and Valves: 100 psig (690 kPa) minimum unless otherwise indicated.
 - 2. Service Regulators: 65 psig (450 kPa) minimum unless otherwise indicated.
 - 3. Service Meter Minimum Operating Pressure: 5 psig (34.5 kPa).
- B. Gas System Pressure: One distribution pressure. 0.5 psig (3.45 kPa) or less.
- C. Submittals: Product Data for manufactured products and materials.
- D. Quality Assurance: Comply with NFPA 54 International Fuel Gas Code.

PART 2 - PRODUCTS**2.1 PIPES, TUBES, AND FITTINGS**

- A. Steel Pipe: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.
 - 1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
 - 2. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.
 - 3. Protective Coating for Underground Piping: Factory-applied, three-layer coating of epoxy, adhesive, and polyethylene.
- B. Corrugated, Stainless-Steel Tubing: Comply with ANSI/IAS LC 1; include flame-retardant polyethylene coating, copper-alloy threaded ends, and striker plates.
- C. Drawn-Temper Copper Tube: ASTM B 88, Type L (ASTM B 88M, Type B), water tube, with streamline, wrought-copper fittings and brazed joints using BAg-1 silver filler metal.
- D. Annealed-Temper Copper Tube: ASTM B 88, Type L (ASTM B 88M, Type B), water tube, with streamline, wrought-copper fittings and brazed joints using BAg-1 silver filler metal.
- E. PE Pipe: ASTM D 2513, SDR 11.
 - 1. PE Fittings: ASTM D 2683, socket-fusion type or ASTM D 3261, butt-fusion type with dimensions matching PE pipe.
 - 2. PE Transition Fittings: Factory-fabricated fittings with PE pipe complying with ASTM D2513, SDR 11 and steel pipe complying with ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

2.2 SPECIALTIES

- A. Appliance Flexible Connectors:
 - 1. Indoor, Fixed-Appliance Flexible Connectors: Comply with ANSI Z21.24.
 - 2. Indoor, Movable-Appliance Flexible Connectors: Comply with ANSI Z21.69.
 - 3. Outdoor, Appliance Flexible Connectors: Comply with ANSI Z21.75.
 - 4. Corrugated stainless-steel tubing with polymer coating.

- B. Strainers: ASTM A 126, Class B, cast-iron body, Y-pattern, full size of connecting piping, CWP rating of 125 psig (860 kPa). Include 40-mesh startup strainer, and perforated stainless-steel basket.
- C. Weatherproof Vent Cap: Cast- or malleable-iron increaser fitting with corrosion-resistant wire screen, with free area at least equal to cross-sectional area of connecting pipe and threaded-end connection.
- D. Service Meters: Comply with gas company requirements.
- E. Metallic-Lined Plastic Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches (150 mm) wide by 4 mils (0.1 mm) thick, solid yellow color, continuously inscribed with a description of the utility.

2.3 VALVES

- A. General Requirements for Metallic Manual Gas Shutoff Valves: Comply with ASME B16.33.
 - 1. CWP Rating: 125 psig (860 kPa).
- B. PE Ball Valves: Comply with ASME B16.40.
- C. One-Piece, Bronze Ball Valve with Bronze Trim: MSS SP-110.
 - 1. Body: Bronze, complying with ASTM B 584.
 - 2. Ball: Chrome-plated brass.
 - 3. Stem: Bronze; blowout proof.
 - 4. Seats: Reinforced TFE; blowout proof.
 - 5. Packing: Separate packnut with adjustable stem packing threaded ends.
 - 6. CWP Rating: 600 psig (4140 kPa).
 - 7. Listing: Valves NPS 1 ((DN 25)) and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
 - 8. Service: Suitable for natural-gas service with "WOG" indicated on valve body.
- D. Bronze Plug Valves:
 - 1. Body: Bronze, complying with ASTM B 584.
 - 2. Plug: Bronze.
 - 3. Operator: Square head or lug type with tamperproof feature where indicated.
 - 4. Pressure Class: 125 psig (862 kPa).
 - 5. Listing: Valves NPS 1 ((DN 25)) and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
 - 6. Service: Suitable for natural-gas service with "WOG" indicated on valve body.
- E. Cast-Iron, Nonlubricated Plug Valves: MSS SP-78.
 - 1. Body: Cast iron, complying with ASTM A 126, Class B.
 - 2. Plug: Bronze or nickel-plated cast iron.
 - 3. Seat: Coated with thermoplastic.
 - 4. Stem Seal: Compatible with natural gas.
 - 5. Operator: Square head or lug type with tamperproof feature where indicated.
 - 6. Pressure Class: 125 psig (862 kPa).
 - 7. Listing: Valves NPS 1 ((DN 25)) and smaller shall be listed and labeled by an NRTL acceptable to authorities having jurisdiction.
 - 8. Service: Suitable for natural-gas service with "WOG" indicated on valve body.

- F. Valve Boxes: Cast iron, two section, with base to fit over valve and barrel minimum 5 inches (125 mm) in diameter.
- G. Electrically Operated, Automatic Gas Valves: ANSI Z21.21, for operation by appliance automatic shutoff device.
- H. Earthquake Valves: ASCE 25 and UL listed; mechanically operated.
- I. Gas-Pressure Regulators: Single stage, steel jacketed, and corrosion resistant. Include atmospheric vent and elevation compensator.
 - 1. Service-Pressure Regulators: ANSI Z21.80; inlet pressure rating not less than system pressure.
 - 2. Line Pressure Regulators: ANSI Z21.80; 2-psig- (13.8-kPa-) maximum inlet pressure.
 - 3. Appliance Pressure Regulators: ANSI Z21.18; 1-psig- (6.9-kPa-) maximum inlet pressure.
 - 4. Gas-Pressure Regulator Vents: Factory- or field-installed, stainless-steel screen in opening when not connected to vent piping.

PART 3 - EXECUTION

3.1 INDOOR PIPING INSTALLATION

- A. Comply with requirements in Division 23 Section "Common Work Results for HVAC" for basic piping installation requirements.
- B. Comply with NFPA 54 International Fuel Gas Code for installation and purging of natural-gas piping.
- C. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.
- D. Install piping free of sags and bends and install fittings for changes in direction and branch connections.
- E. Piping Installed Under Buildings: Install piping under the building in containment conduit constructed of steel pipe with welded joints as described in Part 2. Install a vent pipe from containment conduit to outdoors and terminate with a weatherproof vent cap.
- F. Install escutcheons at penetrations of interior walls, ceilings, and floors.
- G. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."
- H. Install service meters to comply with gas company requirements.
- I. Install gas stops for shutoff to appliances with low-pressure gas supply.
- J. Install natural-gas piping at uniform grade of 2 percent down toward drip and sediment traps.
- K. Use eccentric reducer fittings to make reductions in pipe sizes. Install fittings with level side down.
- L. Connect branch piping from top or side of horizontal piping.
- M. Except where prohibited by NFPA 54, install unions in pipes NPS 2 (DN 50) and smaller, adjacent to each valve, at final connection to each piece of equipment. Unions are not required at flanged connections.

- N. Install strainer on inlet of each line pressure regulator and automatic or electrically operated valve.
- O. Install pressure gage downstream from each line regulator. Pressure gages are specified in Division 23 Section "Common Work Results for HVAC."
- P. Connect gas piping to equipment and appliances with shutoff valves and unions. Install gas valve upstream from and within **72 inches (1800 mm)** of each appliance using gas. Install union or flanged connections downstream from valves.
- Q. Extend relief vent connections for service regulators, line regulators, and overpressure protection devices to the outdoors and terminate with weatherproof vent cap.
- R. Do not use natural-gas piping as grounding electrode.
- S. Inspect, test, and purge piping according to NFPA 54 International Fuel Gas Code and authorities having jurisdiction.

3.2 PIPING JOINT CONSTRUCTION

- A. Threaded Joints: Thread pipe with tapered pipe threads complying with ASME B1.20.1.
- B. Welded Joints: Construct joints according to AWS D10.12M/D10.12, using qualified processes and welding operators.
- C. Joints in Steel Piping with Protective Coating: Apply joint cover kits to pipe after joining to cover, seal, and protect joints.
- D. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter.
- E. Flanged Joints: Install gasket material, size, type, and thickness appropriate for natural-gas service. Install gasket concentrically positioned.
- F. Flared Joints: Cut tubing with roll cutting tool. Flare tube end with tool to result in flare dimensions conforming to SAE J513. Tighten finger tight then using wrench. Do not overtighten.
- G. Joints in Copper Tubing with Protective Coating: Apply joint cover kits over to cover, seal, and protect joints.
- H. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
 - 1. Plain-End Pipe and Fittings: Use butt fusion.
 - 2. Plain-End Pipe and Socket Fittings: Use socket fusion.

3.3 VALVE INSTALLATION

- A. Install manual gas shutoff valve for each gas appliance ahead of corrugated stainless-steel tubing, aluminum, or copper connector.
- B. Install underground valves with valve boxes.
- C. Install regulators and overpressure protection devices with maintenance access space adequate for servicing and testing.
- D. Install anode for metallic valves in underground PE piping.

3.4 INDOOR PIPING SCHEDULE FOR SYSTEM PRESSURES LESS THAN 0.5 PSIG

- A. Retain " one of" option in first three paragraphs below to allow Contractor to select piping materials from those retained.
- B. Aboveground, branch piping NPS 1 (DN 25) and smaller shall be the following:
 - 1. Steel pipe with malleable-iron fittings and threaded joints.
- C. Aboveground, distribution piping shall be the following:
 - 1. Steel pipe with malleable-iron fittings and threaded joints.

3.5 INDOOR PIPING SCHEDULE FOR SYSTEM PRESSURES MORE THAN 0.5 PSIG AND LESS THAN 5.0 PSIG ((34.5 kPa))

- A. Aboveground, branch piping NPS 1 (DN 25) and smaller shall be the following:
 - 1. Steel pipe with malleable-iron fittings and threaded joints.
- B. Aboveground, distribution piping shall be [one of] the following:
 - 1. Steel pipe with malleable-iron fittings and threaded joints.

END OF SECTION 231123

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Items indicated to be removed and salvaged remain Owner's property. Remove, clean, and deliver to Owner's designated storage area.
- B. Comply with EPA regulations and hauling and disposal regulations of authorities having jurisdiction.
- C. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- D. It is not expected that hazardous materials will be encountered in the Work. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 DEMOLITION

- A. Maintain services/systems indicated to remain and protect them against damage during selective demolition operations. Before proceeding with demolition, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the building.
- B. Locate, identify, shut off, disconnect, and cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
- C. Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- D. Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain or construction being demolished.
- E. Provide temporary weather protection to prevent water leakage and damage to structure and interior areas.
- F. Protect walls, ceilings, floors, and other existing finish work that are to remain. Erect and maintain dustproof partitions. Cover and protect furniture, furnishings, and equipment that have not been removed.
- G. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction.
- H. Promptly remove demolished materials from Owner's property and legally dispose of them. Do not burn demolished materials.

END OF SECTION 024119

SECTION 238416 DEHUMIDIFIER

PART 1 - GENERAL

1.1 SUMMARY

- A. Furnish and install a new dehumidification system to connect with the existing HVAC system in the Men’s Locker Room of the Police Station.

1.2 SECTION REQUIREMENTS

- A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 DEHUMIDIFIER UNIT

- A. Desiccant wheel: Titanium, Silica Gel.
 - 1. Moisture Removal rate: 31 lb/hr with 50% RH at 72 degrees Fahrenheit.
 - 2. Water Removal Efficiency : 1967 BTU/LB
 - 3. Heat Transfer Efficiency: 1350 BTU/LB
 - 4. Process Pressure Drop: 2.05 WG”
 - 5. Reactivation Pressure Drop: 1.93 WG”
- B. Reactivation Heater
 - 1. Type of fuel: Natural Gas
 - 2. Input Capacity: 100,000 btu/h
 - 3. Stages of capacity: Modulating
- C. Supply Air Volume: 1,250 CFM
- D. Controls: Humidistat

2.2 CAPACITIES AND CHARACTERISTICS

- A. Process Fan:
 - 1. Airflow in CFM: 1,250
 - 2. External Static Pressure: 1.45 WG
- B. Reactivation Fan
 - 1. Airflow in CFM (L/s): 320
 - 2. External Static Pressure: 1.75 WG

2.3 INSTALLATION

- A. Install unit per manufacturers direction.
- B. Isolation: Mount cabinet restrained for minimum static deflection.
- C. Install piping adjacent to unit to allow service and maintenance.
- D. Install condensate piping to indirect drain.

END OF SECTION 238119