State of Rhode Island

Department of Administration
Division of Purchases
One Capitol Hill
Providence, RI 02908

INVITATION TO BID

SOLICITATION TITLE: **Boiler Room Ventilation & City Water Upgrades**
SOLICITATION NUMBER: **7549885**
BID PROPOSAL SUBMISSION DEADLINE: **October 13, 2015 at 1:30 PM**

PREBID CONFERENCE

☒ NONMANDATORY

☐ MANDATORY ➡ Bidder must attend the mandatory prebid conference. The bidder's representative must register with the Division of Purchases at the mandatory prebid conference and identify the bidder he or she represents.

Location: Meet in the Lobby at 150 South Main St., Providence, RI
Date: Monday, September 28, 2015
Time: 10:00 AM

QUESTIONS about this solicitation must be emailed and received by the Division of Purchases at doa.purconstruction@purchasing.ri.gov no later than Friday, October 02, 2015, 5:00 PM, in a Microsoft Word attachment with the corresponding solicitation number. Questions, if any, and responses will be posted on the Division of Purchases website at www.purchasing.ri.gov as an addendum to this solicitation

BID BOND REQUIRED: ☐ NO ☒ YES

PAYMENT AND PERFORMANCE BOND REQUIRED: ☐ NO ☒ YES

SPECIFICATIONS AND PLANS: ☐ NO ☒ YES ➡ See Electronic Solicitation Bidding Information. Click on the online active "D" link in the "info" column.

Continued onto next page

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BID PROPOSAL SUBMISSION DEADLINE: **October 13, 2015 at 1:30 PM**

RIVIP REGISTRATION: Bidders must be registered vendors through the online Division of Purchases Rhode Island Vendor Information Program at www.purchasing.ri.gov. To register or update information, click on "Vendor Center," then "Vendor Information" from the dropdown menu on the left.

BIDDER CERTIFICATION COVER FORM: Bidders must download (obtainable at www.purchasing.ri.gov), complete, and submit a Bidder Certification Cover Form with each bid proposal.

Solicitation Date:	Wednesday, September 16, 2015
Project Description:	**Boiler Room Ventilation & City Water Upgrades**
Project Location:	Attorney General's Office at 150 South Main St., Providence, RI 02903
Completion Time:	180 days
User Agency:	Attorney General
Awarding Authority:	The State of Rhode Island Department of Administration Division of Purchases, 2nd Floor One Capitol Hill, Providence, RI 02908-5855
Design Agent:	Creative Environment Consulting Engineers 50 Office Parkway East Providence, RI 02914

The State of Rhode Island through its, Department of Administration, Division of Purchases, is soliciting bid proposals to perform the work described in the plans and specifications dated April 2, 2015 for the Project in accordance with this solicitation.

Bidders are invited to submit bid proposals to the Division of Purchases by the bid proposal submission deadline.

This solicitation contains, and is subject to the terms and conditions of, the Invitation to Bid, Instructions to Bidders, Bid Preparation Checklist (with applicable forms), Agreement, General Conditions, any Supplemental Conditions, Specifications and Plans, Bidder Certification Cover Form, and Bid Form. The solicitation is available at www.purchasing.ri.gov.

The award of the contract pursuant to this solicitation will be made to the responsive and responsible bidder with the lowest bid price. *The Division of Purchases reserves the right to waive any technicalities in the bid proposals, accept or reject any bid proposal, award a contract in the best interest of the State, or revoke any solicitation.*

Continued onto next page

State of Rhode Island

Department of Administration
Division of Purchases
One Capitol Hill
Providence, RI 02908

INVITATION TO BID

Electronic Solicitation Bidding Information

Downloading and Accessing Additional Electronic Solicitation Files

Accessing electronic files on the purchasing website will require Adobe viewer. All bid solicitations that include a "D" in the "Info" column will require WinZip 8.1 software. The WinZip file may contain one or more files. These files may require additional software such as Microsoft Office.

Specifications that have a file for download are marked with a "D" in the "Info" field of the bid search results page located on the Purchasing website. The "D" will indicate an active link to the WinZip file until the bid reaches its opening date. Clicking on the active "D" link will allow you to open or save the WinZip file associated with the bid. Opening the WinZip file will offer you the option of saving to your local computer.

Once saved, you can open the WinZip file and view the files. The individual files can be saved to your computer in a location such as "Desktop" or "My Documents".

Buyer Name: John F. O'Hara II, Title: Chief Buyer

State of Rhode Island Department of Administration
Division of Purchases

REVISED
November 20, 2013

NOTICE TO VENDORS

Each bid proposal for a *public works project* must include a "public copy" to be available for public inspection upon the opening of bids. **Bid proposals that do not include a copy for public inspection will be deemed nonresponsive.**

The public copy must be submitted in .pdf (portable document file) format on a ***read-only*** CD-R media disc. The disc must include ***all of the documents*** submitted in response to the solicitation concatenated or merged into one file. The file must be named in the following manner:

BidNumber_DateofBid_VendorName_VendorID.pdf

The Bidder Certification Cover Form contains all of the information for the file name. The date of bid must appear as mm-dd-yyyy. The vendor name must appear as one word, with no spaces or punctuation. Underscores must separate the fields.

Example: 7543210_11-08-2013_OceanStateCompanyInc_9867.pdf

The public copy disc must be separately enclosed in a protective cover clearly marked "Public Copy" and include the following information (all available from the Bidder Certification Cover Form): (1) title of solicitation; (2) name of bidder and RIVIP vendor ID number; (3) bid number; and (4) date of bid.

The public copy may redact any trade secrets or commercial or financial information which is of a privileged or confidential nature pursuant to the "Access to Public Records Act," R. I. Gen. Laws §§ 38-2-1 *et seq.*

For further information on how to comply with this statutory requirement, see R. I. Gen. Laws §§ 37-2-18(b) and (j). Also see Procurement Regulation 5.11 accessible at www.purchasing.ri.gov

Solicitation #:7549885
Solicitation Title: Boiler Room Ventilation & City Water Upgrades, Attorney General's Office

BID FORM

To: The State of Rhode Island Department of Administration
Division of Purchases, 2nd Floor
One Capitol Hill, Providence, RI 02908-5855

Bidder: _____
Legal name of entity

_____
Address (street/city/state/zip)

_____
Contact name Contact email

_____
Contact telephone Contact fax

1. BASE BID PRICE

The Bidder submits this bid proposal to perform all of the work (including labor and materials) described in the solicitation for this Base Bid Price (*including the costs for all Allowances, Bonds, and Addenda)*:

$_____
(base bid price *in figures* printed electronically, typed, or handwritten legibly in ink)

_____
(base bid price *in words* printed electronically, typed, or handwritten legibly in ink)

- **Allowances**

The Base Bid Price ***includes*** the costs for the following Allowances:

No. 1: _____ $_____

No. 2: _____ $_____

Total Allowances: $_____

- **Bonds**

  The Base Bid Price ***includes*** the costs for all Bid and Payment and Performance Bonds required by the solicitation.

- **Addenda**

  The Bidder has examined the entire solicitation (including the following Addenda), and the Base Bid Price ***includes*** the costs of any modifications required by the Addenda.

  All Addenda must be acknowledged.

  Addendum No. 1 dated: _____

  Addendum No. 2 dated: _____

  Addendum No. 3 dated: _____

  Addendum No. 4 dated: _____

  Addendum No. 5 dated: _____

  Addendum No. 6 dated: _____

2. ALTERNATES (*Additions/Subtractions* to Base Bid Price)

The Bidder offers to: (i) perform the work described in these Alternates as selected by the State in the order of priority specified below, based on the availability of funds and the best interest of the State; and (ii) increase or reduce the Base Bid Price by the amount set forth below for each Alternate selected.

Check "Add" or "Subtract."

____ Add ____ Subtract Alternate No. 1: _____

$_____
(amount *in figures* printed electronically, typed, or handwritten legibly in ink)

_____
(amount *in words* printed electronically, typed, or handwritten legibly in ink)

____ Add ____ Subtract Alternate No. 2: _____

$_____
(amount *in figures* printed electronically, typed, or handwritten legibly in ink)

_____
(amount *in words* printed electronically, typed, or handwritten legibly in ink)

3. UNIT PRICES

The Bidder submits these predetermined Unit Prices as the basis for any change orders approved in advance by the State. These Unit Prices include ***all*** costs, including labor, materials, services, regulatory compliance, overhead, and profit.

Unit Price No. 1: _____ $_____

Unit Price No. 2: _____ $_____

Unit Price No. 3: _____ $_____

4. CONTRACT TIME

The Bidder offers to perform the work in accordance with the timeline specified below:

- Start of construction: _____
- Substantial completion: _____
- Final completion: _____

5. LIQUIDATED DAMAGES

The successful bidder awarded a contract pursuant to this solicitation shall be liable for and pay the State, as liquidated damages and not as a penalty, the following amount for each calendar day of delay beyond the date for substantial completion, as determined in the sole discretion of the State: $_____.

This bid proposal is irrevocable for 60 days from the bid proposal submission deadline.

If the Bidder is determined to be the successful bidder pursuant to this solicitation, the Bidder will promptly: (i) comply with each of the requirements of the Tentative Letter of Award; and (ii) commence and diligently pursue the work upon issuance and receipt of the purchase order from the State and authorization from the user agency.

The person signing below certifies that he or she has been duly authorized to execute and submit this bid proposal on behalf of the Bidder.

BIDDER

Date:_____

_____
Name of Bidder

_____
Signature in ink

_____
Printed name and title of person signing on behalf of Bidder

#_____
Bidder's Contractor Registration Number

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Administration
DIVISION OF PURCHASES
One Capitol Hill
Providence, RI 02908-5855

Tel: (401) 574-8100
Fax: (401) 574-8387
Website: www.purchasing.ri.gov

DIVISION OF PURCHASES
INSTRUCTIONS TO BIDDERS
PUBLIC WORKS CONSTRUCTION (PWC)

Compliance with Instructions to Bidders

These Instructions to Bidders contain terms and conditions that will govern the preparation and submission of a bid proposal and any contract awarded pursuant to this solicitation.

Bidders must comply with each and every requirement of these Instructions to Bidders. Any failure to comply with any requirement may result in the determination of a nonresponsive bid proposal and/or the rejection of the bid proposal.

Priority of Terms and Conditions

The terms and conditions in these Instructions to Bidders *supersede* any and all inconsistent or conflicting terms and conditions in any other provision of any other document in this solicitation or in the bid proposal and govern this solicitation, the bid proposal, and any contract awarded pursuant to this solicitation.

Offer to Contract

Bid proposals constitute an offer to contract with the State of Rhode Island through the Department of Administration Division of Purchases on the terms and conditions contained in the solicitation, the laws of the State of Rhode Island, including all procurement statutes and regulations (available at www.purchasing.ri.gov), and applicable federal and local law, all of which are incorporated into this solicitation and any contract awarded pursuant to this solicitation by this reference.

Comprehensive Review and Inspection

The bidder is responsible for carefully reviewing all of the requirements of this solicitation, inspecting the project location, including checking and/or verifying measurements, site conditions, any limitations, and other details, prior to preparing and submitting its bid proposal. Failure to submit a complete bid proposal may result in rejection of the bid proposal. Claims for additional costs or time resulting from the bidder's failure to inspect and/or verify will not be considered.

Addenda

Responses to questions from bidders, interpretations of plans and specifications, changes prior to the bid proposal submission deadline, approvals of any substitutions, and supplemental instructions and terms will be posted as addenda on the Division of Purchases website at www.purchasing.ri.gov, and all addenda become incorporated into this solicitation upon posting. Bidders are responsible for checking the website to determine the issuance of any addenda. No addenda will be posted within the 5-day period preceding the bid proposal submission deadline except for an addendum withdrawing the solicitation or extending the bid proposal submission deadline.

Prebid Conference

At the discretion of the State Purchasing Agent, a prebid conference - mandatory or nonmandatory - may be held. Bidders must attend a mandatory prebid conference and are encouraged to attend a nonmandatory prebid conference. The bidder's representative must register with the Division of Purchases at a mandatory prebid conference and identify the bidder he or she represents.

Costs

The bidder is responsible for all costs and expenses to develop and submit a bid proposal in response to this solicitation.

Preparation of Bid Proposal

Bid proposals must be made on the Bid Form included in the solicitation and in accordance with the instructions in this solicitation. All applicable blanks must be completed in a legible manner, printed electronically, typed, or handwritten in ink, and amounts must be expressed in both words and figures. In the event of any contradictory terms, handwritten terms prevail over printed or typed terms, and words prevail over figures. Signatures must be in ink. No additional provisions, conditions, or limitations may be made by the bidder, and any erasures and/or corrections must be initialed in ink by the person signing on behalf of the bidder.

This solicitation contains a Bid Preparation Checklist to assist the bidder in preparing a bid proposal for submission.

Submission of Bid Proposal

Each bid proposal (a complete package, with the signed Bidder Certification Cover Form, signed Bid Form, Bid Surety, IRS Form W-9, signed General Contractor Apprenticeship Certification, if applicable, and public copy CD-R media disk) must be submitted in a *separate sealed envelope* with the bidder's name and address and the specific "Solicitation Number," "Solicitation Title," and the "Bid Proposal Submission Deadline" marked in the upper left-hand corner of the envelope.

*The bid proposal must be delivered (via mail, messenger service, or personal delivery) to the Division of Purchases and date-stamped receipted by the date and time specified for the bid proposal submission deadlin*e. Bidders should mail bid proposals sufficiently in advance of the bid proposal submission deadline to ensure timely delivery to the Division of Purchases or, when delivering a bid proposal in person or by messenger, should allow additional time for parking and clearance through security checkpoints. Bid proposals must be addressed to:

Rhode Island Department of Administration
Division of Purchases
One Capitol Hill, Second Floor
Providence, RI 02908-5855

Bid proposals that are not received by the Division of Purchases by the bid proposal submission deadline for whatever reason will be deemed late and will not be considered. The submission time will be determined by the time clock in the Division of Purchases. Postmarks will not be considered proof of timely submission.

At the bid proposal submission deadline, bid proposals will be opened and read aloud in public.

Bid Price

The bidder must submit a Base Bid Price on the Bid Form to perform all of the work specified in the solicitation, including the cost of the bonds and any allowances and addenda. The costs of alternates shall not be included in the calculation of the Base Bid Price. The bidder shall separately provide the cost for each alternate listed in the Bid Form. The cost for each alternate must be designated as an addition to, or subtraction from, the Base Bid Price. Alternates will be selected, if any, by the Division of Purchases in the order of priority listed in the Bid Form.

Bidder Certification Cover Form

The bidder must download, complete, sign, and submit the Bidder Certification Cover Form for this solicitation as the first document with each bid proposal. The Bidder Certification Cover Form is downloadable with the solicitation from the Division of Purchases website by logging in as a RIVIP vendor and clicking on the applicable "Bid Number."

Public Copy

Bid proposals submitted in response to this solicitation are public records pursuant to the Rhode Island "Access to Public Records Act," R. I. Gen. Laws §§ 38-2-1 et seq. Each bid proposal must include a "public copy" to be available for public inspection upon the opening of bids. Bidders may redact in the pubic copy any trade secrets or commercial or financial information which is of a privileged or confidential nature pursuant to the Access to Public Records Act.

The public copy must be submitted in .pdf (portable document file) format on a ***read-only*** CD-R media disk. The disk must include ***all of the documents*** submitted in response to the solicitation concatenated or merged into one file.

The public copy disk must be separately enclosed in a protective cover clearly marked "Public Copy" and include the following information: (1) Solicitation Title; (2) name of bidder and RIVIP vendor ID number; (3) Solicitation Number; and (4) bid proposal submission deadline.

The .pdf file must be named in the following manner:

SolicitationNumber_Bid Proposal Submission Deadline_BidderName_VendorID.pdf

The bid proposal submission deadline must appear as mm-dd-yyyy. The bidder name must appear as one word, with no spaces or punctuation. Underscores must separate the fields.

Example: 7543210_11-08-2013_OceanStateCompanyInc_9867.pdf

The public copy of each bid proposal will be posted on the Division of Purchases website. .

For Rhode Island Department of Transportation highway and bridge projects, in addition to the Quest Lite compatible electronic copy and one hard copy, the bidder must also include a duplicate original of the Quest Lite compatible electronic copy on a ***read-only*** CD-R media disk as the "public copy."

Contractors Registration

The bidder must have and maintain a valid certificate of registration issued by the Contractors' Registration Board throughout the term of the contract awarded pursuant to this solicitation and ensure that its subcontractors, unless exempt from registration, also obtain and maintain valid certificates of registration.

Subcontractors

The bidder must demonstrate that it is able to perform a substantial portion of the work using its own workforce. Any bidder that does not maintain a permanent workforce and/or proposes to perform a disproportionate amount of the work through one or more subcontractors will be considered unqualified. The successful bidder must establish to the satisfaction of the State Purchasing Agent the reliability and responsibility of any subcontractors proposed to perform any work pursuant to this solicitation.

Taxes

The State of Rhode Island is exempt from federal excise taxes and state and municipal sales and use taxes. The bidder shall not include such taxes in any prices in the bid proposal.

Bid Surety

Bidders must furnish, with their bid proposals, either a bid bond from a surety licensed to conduct business in the State of Rhode Island or a certified check payable to the State of Rhode Island in the amount of five (5%) percent of the bid proposal. (*Bidders for Rhode Island Department of Transportation highway and bridge projects must furnish, with their bid proposals, a bid bond from a surety licensed to conduct business in the State of Rhode Island. Certified checks are not permitted for these projects.)* An attorney-in-fact who executes a bond on behalf of the surety must provide a certified current copy of the power of attorney. A successful bidder who fails to submit the additional documentation required by the tentative letter of award and/or fails to commence and pursue the work in accordance with the contract awarded pursuant to this solicitation may forfeit, at the discretion of the State Purchasing Agent, the full amount of the bid surety as liquidated damages. The State will retain the bid surety of all bidders until the earliest of: (i) the issuance of the Purchase Order; (ii) the 61st day following the bid proposal submission deadline; or (iii) the rejection of all bid proposals.

Divestiture of Investments in Iran Requirement

No bidder engaged in investment activities in Iran as described in R.I. Gen. Laws § 37-2.5-2(b) may submit a bid proposal to, or renew a contract with, the Division of Purchases. Each bidder submitting a bid proposal or entering into a renewal of a contract is required to certify that the bidder does not appear on the list maintained by the General Treasurer pursuant to R.I. Gen. Laws § 37-2.5-3.

Domestic Steel

Any steel products required by the plans and specifications in this solicitation must be formed, extruded, forged, cast, fabricated, or otherwise processed from steel made in the United States.

Withdrawal

A bidder may withdraw its bid proposal at any time prior to the bid proposal submission deadline. Bid proposals are irrevocable for a period of 60 days following the bid proposal submission deadline.

Reservation of Rights

The Division of Purchases reserves the right, at any time, for any reason, in its sole discretion, to: (i) revoke, suspend, or terminate this solicitation; (ii) accept or reject any and all bid proposals, in whole or in part; (iii) waive any technical defects, irregularities, or omissions in any bid proposals; and/or (iv) terminate any contract awarded pursuant to this solicitation, with or without cause.

Award

The State Purchasing Agent, in his or her sole discretion, will award the contract pursuant to this solicitation to the responsive and responsible bidder who submits the lowest responsive and responsible bid proposal. The State Purchasing Agent may determine, in his or her sole discretion, the low bid proposal on the basis of the amount of the Base Bid Price plus the alternates selected in accordance with the Bid Form. The successful bidder will receive a tentative letter of award from the Division of Purchases with instructions for the bidder to submit further documentation. The successful bidder shall be authorized to commence work only upon the issuance of the Purchase Order by the Division of Purchases and, in addition, an authorization from the user agency. The issuance of the Purchase Order and the continuation of any contract awarded pursuant to this solicitation is contingent upon the availability of funds.

Payment and Performance Bonds

The successful bidder must furnish a 100% payment and performance bond from a surety licensed to conduct business in the State of Rhode Island upon the tentative award of the contract pursuant to this solicitation.

Prevailing Wages

For contracts priced under $1 Million

The successful bidder and its subcontractors must pay their workers at the applicable prevailing wage rates (adjusted every July 1) for the various trades on a weekly basis, pay their workers one and one-half times the applicable prevailing wage rates for each hour worked in excess of 8 hours in any one day or 40 hours in any one week, and submit certified weekly payroll forms on a monthly basis to the user agency. Prevailing wage posters and rate schedules, available at the Rhode Island Department of Labor and Training website at www.dlt.ri.gov, must be posted at the project site.

For contracts priced $1 Million or More

The successful bidder and its subcontractors must pay their workers at the applicable prevailing wage rates (adjusted every July 1) for the various trades on a weekly basis, pay their workers one and one-half times the applicable prevailing wage rates for each hour worked in excess of 8 hours in any one day or 40 hours in any one week, submit certified weekly payroll forms on a monthly basis to the user agency, and maintain a certified prevailing wage daily log at the project site. Prevailing wage posters and rate schedules, available at the Rhode Island Department of Labor and Training website at www.dlt.ri.gov, must be posted at the project site.

Apprenticeship

if the value of the project pursuant to this solicitation is at least $1 Million (including all alternates), the successful bidder must employ apprentices on this project (in accordance with the apprentice to journeyperson ratio for each trade approved by the State Apprenticeship Council. The bidder must complete, sign, and submit the General Contractor Apprenticeship Certification Form, included in the solicitation, with the bid proposal.

The successful bidder will also be required to complete, sign, and submit the General Contractor Apprenticeship Re-Certification and Certification Form following receipt of the tentative letter of award, and, in addition, each subcontractor must complete, sign, and submit to the successful bidder the Subcontractor Apprenticeship Certification Form prior to the commencement of any work on the project pursuant to this solicitation.

Specific information about apprentice occupations and apprenticeship requirements is available on the Rhode Island Department of Labor and Training website at www.dlt.ri.gov/apprenticeship.

Occupational Safety

The successful bidder must ensure (if the total contract price is at least $100,000) that all employees at the project site possess a card issued by the United States Department of Labor certifying successful completion of an OSHA ten (10) hour construction safety program.

Hazardous Substances

The successful bidder must submit a chemical identification list to the Rhode Island Department of Labor and Training upon receipt of a Purchase Order from the Division of Purchases prior to performance of the contract awarded pursuant to this solicitation and make available to all employees a list of any hazardous substances that may present a risk of exposure.

Substitutions

Any proposal in response to a request for substitutions in this solicitation must include the detailed information necessary for a comprehensive evaluation, including (without limitation) the name of the material or equipment of the proposed substitution and a complete description of the proposed substitution, with drawings and performance and test data. Products specified in this solicitation establish a standard of quality, performance, dimension, function, and appearance. Proposed substitutions must meet the standard and will not be considered without the prior written approval of the Division of Purchases. All substitution approvals will be posted, as addenda to the solicitation on the Division of Purchases website.

Licenses

The successful bidder and anyone performing any work on the contract awarded pursuant to this solicitation must possess all of the licenses required by any federal, state, or local law to perform such work.

Insurance

The successful bidder must submit a copy of an endorsement and a certificate of insurance that references the solicitation number and names the State of Rhode Island as "certificate holder" and as "additional insured" upon the issuance of the tentative letter of award, on an annual basis during the term of the contract awarded pursuant to this solicitation, and from time to time upon request. The certificate of insurance must state that 30 days' advance notice of cancellation, nonrenewal, or material change in coverage (referencing the solicitation number) will be sent to: Rhode Island Department of Administration, Division of Purchases, One Capitol Hill, Providence, Rhode Island 02908-5855, fax # 401-574-8387, and provide evidence of the following specific types and amounts of insurance:

Type of Insurance	Amount of Coverage
Comprehensive General Liability	$1 Million each occurrence (inclusive of both bodily injury and property damage)_
	$1 Million products and completed operations aggregate
	$1 Million general aggregate

Comprehensive General Liability coverage shall include:

Independent contractors
Contractual (including construction "hold harmless" and other types of contracts or agreements in effect for insured operations)
Completed operations
Personal injury (with employee exclusion deleted)

Automobile Liability

Combined Single Limit	$1 Million each occurrence

Bodily injury, property damage, including nonowned and/or hired vehicles and equipment

Workers Compensation

Coverage B	$100,000
Environmental Impairment ("pollution control")	$1 Million or 5% of contract amount, whichever is greater
Builder's Risk	Contract amount

All insurance required by this solicitation, whether through a policy or an endorsement, shall include: (i) a waiver of subrogation, waiving any right the insurance company may have to recover against the State of Rhode Island; and (ii) a provision that the bidder's insurance coverage shall be primary in relation to any insurance, self-insurance, or self-retention maintained by the State of Rhode Island, and any insurance, self-insurance, or self-retention maintained by the State of Rhode island shall be in excess of the bidder's insurance.

The State Purchasing Agent reserves the right to accept alternate forms and plans of insurance and/or to require additional or more extensive coverage.

Minority Business Enterprises

The Division of Purchases reserves the right to give additional consideration to bid proposals submitted by minority/women business enterprises certified by the Division of Purchases, Minority Business Office ("MBEs") provided that any such bid proposal is fully responsive to the terms and conditions of this solicitation, and the bid price is determined, in the discretion of the Division of Purchases, to be within a competitive range.

Any bidder who does not intend to perform all of the work with its own forces shall recruit and engage MBEs to perform at least 10% of the dollar value of the contract awarded pursuant to this solicitation. To reach that goal, the bidder may allocate up to 60% of its costs for materials and supplies obtained from MBE dealers or 100% of its costs for materials and supplies obtained from MBE manufacturers.

The successful bidder must submit a plan to meet this requirement for approval by the Division of Purchases, Minority Business Enterprise Compliance Office within the 21-day period following the tentative letter of award, identifying all MBEs, and must also demonstrate its good faith best efforts to meet these MBE goals. Information about this requirement and a directory of MBEs certified in Rhode Island is available at www.mbe.ri.gov or (401) 574-8670.

Equal Opportunity

The successful bidder must demonstrate a commitment to equal opportunity and submit an affirmative action plan for review by the Rhode Island Department of Administration State Equal Opportunity Office within the 21-day period following the tentative letter of award. Information about this requirement is available at www.diversity.ri.gov/eeo/eoopagehome.htm or (401) 222-3090.

Drug-Free Workplace

The successful bidder shall comply, and require that its employees comply, with the State of Rhode Island Drug Free Workplace policy and provide a certificate of compliance within the 21-day period following the tentative letter of award.

Sprinkler Impairment

The successful bidder must comply with the requirements of the State of Rhode Island's insurance carrier for sprinkler impairment and hot work, accessible at the Division of Purchases website at www.purchasing.ri.gov.

Foreign Corporations

No foreign corporation or limited liability company may transact business in the State of Rhode Island until it shall have obtained a Certificate of Authority from the Rhode Island Secretary of State, and no foreign limited partnership may transact business in the State of Rhode Island until it shall have obtained a Certificate of Registration from the Rhode Island Secretary of State. The successful bidder, if a corporation or limited liability company, will be required to provide a Good Standing Certificate, and if a limited partnership, will be required to provide a Letter of Legal Existence, issued by the Rhode Island Secretary of State within the 21-day period following the tentative letter of award.

Campaign Finance

The successful bidder who has contributed, within the 24 months preceding the contract award, an aggregate amount of more than $250.00 within a calendar year to any Rhode Island general officer, candidate for general office, any member of the general assembly, or any Rhode Island political party, must file a "Vendor Affidavit" with the State of Rhode Island Board of Elections. Information about "Vendor Affidavits" and electronic filing is available at www.elections.ri.gov or Board of Elections, Campaign Finance, (401) 222-2056.

Binding Contract

The form of agreement the successful bidder will be required to execute is included in the solicitation. A binding contract between the State of Rhode Island and the successful bidder will be formed by the issuance of a Purchase Order from the Division of Purchases, *and only by the issuance of a Purchase Order, and only to the extent of available funds*. The binding contract will incorporate and be subject to the terms and conditions of the solicitation, including the Invitation to Bid, the Instructions to Bidders, the General Conditions, any Supplemental Conditions, the Plans and Specifications, the Bid Preparation Checklist, the Bid Form, the Bidder Certification Cover Form, the Agreement, and also the Purchase Order. The successful bidder shall be authorized to commence work only upon the issuance of the Purchase Order and, in addition, an authorization from the user agency.

Compliance with Terms of Contract

Failure of the successful bidder to comply with the terms and conditions of any contract awarded pursuant to this solicitation may result in nonpayment, suspension or termination of the contract, suspension or debarment of the bidder, or any other necessary or appropriate remedy.

RI Department of Labor and Training
Workforce Regulation and Safety Division
Professional Regulation - Prevailing Wage

General Contractor Apprenticeship Certification Form

This form MUST be completed and submitted at the time of bidding and is available on the Department of Labor and Training's Website at www.dlt.ri.gov, under Workforce Regulation and Safety, Prevailing Wage, Publications and Forms.

Bid/RFP Number: _____

Bid/RFP Title: _____

RIVIP Vendor ID#: _____

Vendor Name: _____

Address: _____

Telephone: _____

Fax: _____

E-Mail: _____

Contact Person and Title: _____

_____(Company Name & Address) (hereafter "bidder") hereby certifies that bidder meets the general contractor apprenticeship requirements of R. I. Gen. Laws § 37- 13-3.1 because bidder meets one of the following qualifications (check):

A. __Bidder sponsors a current and duly approved Rhode Island Department of Labor and Training Apprenticeship Program and currently employs at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing on the contract (attach apprenticeship program standards and apprenticeship agreement);

B. _____Bidder sponsors a current and duly registered Rhode Island Department of Labor and Training reciprocal apprenticeship program pursuant to R. I. Gen. Laws § 28-45-16 and currently employs at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach apprenticeship program standards, apprenticeship agreement and Rhode Island Department of Labor and Training Reciprocal Apprenticeship Program Approval);

C. _____Bidder has entered into a current collective bargaining agreement with a duly approved Rhode Island Department of Labor and Training Apprenticeship Program sponsor and, pursuant to the terms of the collective bargaining agreement, will employ at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach relevant section of collective bargaining agreement and signature page);

D. _____Bidder has entered into a current labor agreement with a duly approved Rhode Island Department of Labor and Training Apprenticeship Program sponsor and, pursuant to the terms of the labor agreement, will employ at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach relevant section of labor agreement and signature page);

E. _____Bidder will not perform work on the awarded contract except through subcontractors (non performance);

F. _____Bidder has received approval from the Rhode Island Department of Labor and Training that it satisfies the general contractor requirements of R. I. Gen. Laws §37-13-3.1 for purposes of a particular bid (attach Rhode Island Department of Labor and Training correspondence).

_____ _____

Printed Name and Title of Authorized Representative Date

_____

Signature of Authorized Representative

RI Department *of* Labor and Training
Workforce Regulation *and* Safety *Division*
Professional Regulation • Prevailing Wage

Subcontractor Apprenticeship Certification Form

This form MUST be completed and submitted to the General Contractor BEFORE any work commences on the project. This form is available on the Department of Labor and Training's website at www.dlt.ri.gov, Workforce Regulation and Safety, Prevailing Wage, Publications and Forms.

Bid/RFP Number:_____

Bid/RFP Title:_____

RIVIP Vendor lD#:_____

Vendor Name:_____

Address:_____

Telephone:_____

Fax:_____

E-Mail: _____

Contact Person and Title:_____

_____(Company Name & Address)(hereafter "subcontractor") hereby certifies that it meets the apprenticeship requirements of R. I. Gen. Laws §37-13-3.1 because subcontractor meets one of the following qualifications (check):

A. Subcontractor sponsors a current and duly approved Rhode Island Department of Labor and Training Apprenticeship Program and currently employs at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by perform ing on the contract (attach apprenticeship program standards and apprenticeship agreement);

B. _____Subcontractor sponsors a current and duly registered Rhode Island Department of Labor and Training reciprocal apprenticeship program pursuant to R. I. Gen. Laws § 28-45-16 and currently employs at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach apprenticeship program standards, apprenticeship agreement and Rhode Island Department of Labor and Training Reciprocal Apprenticeship program Approval);

C. _____Subcontractor has entered into a current collective bargaining agreement with a duly approved Rhode Island Department of Labor and Training Apprenticeship Program sponsor and, pursuant to the terms of the collective bargaining agreement, will employ at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach relevant section of collective bargaining agreement and signature page);

D. _____Subcontractor has entered into a current labor agreement with a duly approved Rhode Island Department of Labor and Training Apprenticeship Program sponsor and, pursuant to the terms of the labor agreement, will employ at least one apprentice per trade/ occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach relevant section of labor agreement and signature page);

E. _____Subcontractor will not perform work on the awarded contract except through subcontractors (non performance);

F. _____Subcontractor has received approval from the Rhode Island Department of Labor and Training that it satisfies the subcontractor requirements of R. I. Gen. Laws §37-13-3.1 for purposes of a particular bid (attach Rhode Island Department of Labor and Training correspondence).

_____(Company Name & Address) (hereafter "Subcontractor") hereby certifies that its subcontractor(s) meet the apprenticeship requirements of R. I. Gen. Laws § 37-13 -3.1.

_____ _____

Printed Name and Title of Authorized Representative Date

_____

Signature of Authorized Representative

RI Department of Labor and Training
Workforce Regulation and Safety *Division*
Professional Regulation - Prevailing Wage

General Contractor Apprenticeship Re-Certification and Certification Form

This form MUST be completed and submitted at the time the contract is awarded and is available on the Department of Labor and Training's website at www.dlt.ri.gov, Workforce Regulation and Safety, Prevailing Wage, Publications and Forms.

Bid/RFP Number:_____

Bid/RFP Title:_____

RIVIP Vendor ID#:_____

Vendor Name:_____

Address:_____

Telephone:_____

Fax:_____

E-Mail:_____

Contact Person and Title:_____

Part A

_____(Company Name & Address) (hereafter "General Contractor") hereby re-certifies that it meets the apprenticeship requirements of R. I. Gen. Laws § 37-13-3.1 because General Contractor meets one of the following qualifications (check):

A. _General Contractor sponsors a current and duly approved Rhode Island Department of Labor and Training Apprenticeship Program and currently employs at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing on the contract (attach apprenticeship program standards and apprenticeship agreement);

B. _____General Contractor sponsors a current and duly registered Rhode Island Department of Labor and Training reciprocal apprenticeship program pursuant to R. I. Gen. Laws § 28-45-16 and currently employs at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach apprenticeship program standards, apprenticeship agreement and Rhode Island Department of Labor and Training Reciprocal Apprenticeship Program Approval);

C. General Contractor has entered into a current collective bargaining agreement with a duly approved Rhode Island Department of Labor and Training Apprenticeship Program sponsor and, pursuant to the terms of the collective bargaining agreement, will employ at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by perform ing work on the contract (attach relevant section of collective bargaining agreement and signature page);

D. _____General Contractor has entered into a current labor agreement with a duly approved Rhode Island Department of Labor and Training Apprenticeship Program sponsor and, pursuant to the terms of the labor agreement, will employ at least one apprentice per trade/occupation, who will obtain "on the job training" experience in the apprentice's trade by performing work on the contract (attach relevant section oflabor agreement and signature page);

E. __General Contractor will not perform work on the awarded contract except through subcontractors (non performance);

F. GeneralContractor hasreceived approvalfrom the Rhode IslandDepartment of LaborandTraining that it satisfies the general contractor requirements of RIGL §37-13-3.1 for purposes of a particular bid (attach Rhode Island Department of Labor and Training correspondence).

_____(Company Name & Address) (hereafter "General Contractor") hereby certifies that its subcontractor(s) meet the apprenticeship requirements under R. I. Gen. Laws §37-13-3.1.

_____ _____

Printed Name and Title of Authorized Representative Date

_____

Signature of Authorized Representative

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Labor and Training
Center General Complex
1511 Pontiac Avenue
Cranston, RI 02920-4407

TTY: Via RI Relay 711

Lincoln D. Chafee
Governor
Charles J. Fogarty
Director

STATE CONTRACT ADDENDUM

RHODE ISLAND DEPARTMENT OF LABOR AND TRAINING

PREVAILING WAGE REQUIREMENTS (37-13-1 ET SEQ.)

The prevailing wage requirements are generally set forth in RIGL 37-13-1 et seq. These requirements refer to the prevailing rate of pay for regular, holiday, and overtime wages to be paid to each craftsmen, mechanic, teamster, laborer, or other type of worker performing work on public works projects when state or municipal funds exceed one thousand dollars ($1,000).

All Prevailing Wage Contractors and Subcontractors are required to:

1. Submit to the Awarding Authority a list of the contractor's subcontractors for any part or all of the prevailing wage work in accordance with RIGL § 37-13-4;

2. Pay all prevailing wage employees at least once per week and in accordance with RIGL §37-13-7 (see Appendix B attached);

3. Post the prevailing wage rate scale and the Department of Labor and Training's prevailing wage poster in a prominent and easily accessible place on the work site in accordance with RIGL §37-13-11; posters may be downloaded at www.dlt.ri.gov/pw/Posters.htm .poster/htm or obtained from the Department of Labor and Training, Center General Complex, 1511 Pontiac Avenue, Cranston, Rhode Island;

4. Access the Department of Labor and Training website, at www.dlt.ri.gov on or before July 1st of each year, until such time as the contract is completed, to ascertain the current prevailing wage rates and the amount of payment or contributions for each covered prevailing wage employee and make any necessary adjustments to the covered employee's prevailing wage rates effective July 1st of each year in compliance with RIGL §37-13-8;

5. Attach a copy of this CONTRACT ADDENDUM and its attachments as a binding obligation to any and all contracts between the contractor and any

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Labor and Training
Center General Complex
1511 Pontiac Avenue
Cranston, RI 02920-4407

Telephone; (401) 462-8000
TTY; Via RI Relay 711

Lincoln D. Chafee
Governor
Charles J. Fogarty
Director

subcontractors and their assignees for prevailing wage work performed pursuant to this contract;

6. Provide for the payment of overtime for prevailing wage employees who work in excess of eight (8) hours in any one day or forty (40) hours in any one week as provided by RIGL §37-13-10;

7. Maintain accurate prevailing wage employee payroll records on a Rhode Island Certified Weekly Payroll form available for download at www.dlt.ri.gov/pw.forms/htm, as required by RIGL §37-13-13, and make those records available to the Department of Labor and Training upon request;

8. Furnish the fully executed RI Certified Weekly Payroll Form to the awarding authority on a monthly basis for all work completed in the preceding month.

9. For general or primary contracts one million dollars ($1,000,000) or more, shall maintain on the work site a fully executed RI Certified Prevailing Wage Daily Log listing the contractor's employees employed each day on the public works site; the RI Certified Prevailing Wage Daily Log shall be available for inspection on the public works site at all times; this rule shall not apply to road, highway, or bridge public works projects. Where applicable, furnish both the Rhode Island Certified Prevailing Wage Daily Log together with the Rhode Island Weekly Certified Payroll to the awarding authority.

10. Assure that all covered prevailing wage employees on construction projects with a total project cost of one hundred thousand dollars ($100,000) or more has a OSHA ten (10) hour construction safety certification in compliance with RIGL § 37-23-1;

11. Employ apprentices for the performance of the awarded contract when the contract is valued at one million dollars ($1,000,000) or more, and comply with the apprentice to journeyperson ratio for each trade approved by the apprenticeship council of the Department of Labor and Training in compliance with RIGL §37-13-3.1;

12. Assure that all prevailing wage employees who perform work which requires a Rhode Island trade license possess the appropriate Rhode Island trade license in compliance with Rhode Island law; and

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Labor and Training

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1511 Pontiac Avenue
Cranston, RI 02920-4407

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TTY: Via RI Relay 711

Lincoln D. Chafee
Governor

Charles J. Fogarty
Director

13. Comply with all applicable provisions of RIGL §37-13-1, et. seq;

Any questions or concerns regarding this CONTRACT ADDENDUM should be addressed to the contractor or subcontractor's attorney. Additional Prevailing Wage information may be obtained from the Department of Labor and Training at www.dlt.ri.gov/pw.

CERTIFICATION

I hereby certify that I have reviewed this CONTRACT ADDENDUM and understand my obligations as stated above.

By: _____

Title: _____

Subscribed and sworn before me this___day of_____, 20_.

_____
Notary Public
My commission expires:_____

An Equal Opportunity Employer/Program, /Auxiliary aids and services are available upon request to individuals with disabilities.
TTY via RI Relay 711

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

Department of Labor and Training

Center General Complex
1511 Pontiac Avenue
Cranston, RI 02920-4407

Telephone: (401) 462-8000

APPENDIX A

TITLE 37
Public Property and Works

CHAPTER 37-13
Labor and Payment of Debts by Contractors

SECTION 37-13-5

§37-13-5 **Payment for trucking or materials furnished - Withholding of sums due.** -A contractor or subcontractor on public works authorized by a proper authority shall pay any obligation or charge for trucking and material which have been furnished for the use of the contractor or subcontractor, in connection with the public works being performed by him or her, within ninety (90) days after the obligation or charge is incurred or the trucking service has been performed or the material has been delivered to the site of the work, whichever is later. When it is brought to the notice of the proper authority in a city or town, or the proper authority in the state having supervision of the contract, that the obligation or charge has not been paid by the contractor or subcontractor, the proper authority may deduct and hold for a period not exceeding sixty (60) days, from sums of money due to the contractor or subcontractor, the equivalent amount of such sums certified by a trucker or materialman creditor as due him or her, as provided in this section, and which the proper authority determines is reasonable for trucking performed or materials furnished for the public works.

APPRENDIX B

TITLE 37
Public Property and Works

CHAPTER 37-13
Labor and Payment of Debts by Contractors

SECTION 37-13-7

§ 37-13-7 Specification in contract of amount and frequency of payment of wages. -(a) Every call for bids for every contract in excess of one thousand dollars ($1,000), to which the state of Rhode Island or any political subdivision thereof or any public agency or quasi-public agency is a party, for construction, alteration, and/or repair, including painting and decorating, of public buildings or public works of the state of Rhode Island or any political subdivision thereof, or any public agency or quasi-public agency and which requires or involves the employment of employees, shall contain a provision stating the minimum wages to be paid various types of employees which shall be based upon the wages that will be determined by the director of labor and training to be prevailing for the corresponding types of employees employed on projects of a character similar to the contract work in the city, town, village, or other appropriate political subdivision of the state of Rhode Island in which the work is to be performed. Every contract shall contain a stipulation that the contractor or his or her subcontractor shall pay all the employees employed directly upon the site of the work, unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment computed at wage rates not less than those stated in the call for bids, regardless of any contractual relationships which may be alleged to exist between the contractor or subcontractor and the employees, and that the scale of wages to be paid shall be posted by the contractor in a prominent and easily accessible place at the site of the work; and the further stipulation that there may be withheld from the contractor so much of the accrued payments as may be considered necessary to pay to the employees employed by the contractor, or any subcontractor on the work, the difference between the rates of wages required by the contract to be paid the employees on the work and the rates of wages received by the employees and not refunded to the contractor, subcontractors, or their agents.

(b) The terms "wages", "scale of wages", "wage rates", "minimum wages", and "prevailing wages" shall include:

(1) The basic hourly rate of pay; and

(2)) The amount of:

(A) The rate of contribution made by a contractor or subcontractor to a trustee or to a third person pursuant to a fund, plan, or program; and

(B) The rate of costs to the contractor or subcontractor which may be reasonably anticipated in providing benefits to employees pursuant to an enforceable commitment to carry out a financially responsible plan or program which was communicated in writing to the employees affected, for medical or hospital care, pensions on retirement or death, compensation for injuries or illness resulting from occupational activity, or insurance to provide any of the foregoing, for unemployment benefits, life insurance, disability and sickness insurance, or accident insurance, for vacation and holiday pay, for defraying costs of apprenticeship or other similar programs, or for other bona fide fringe benefits, but only where the contractor or subcontractor is not required by other federal, state, or local law to provide any of the benefits; provided, that the obligation of a contractor or subcontractor to make payment in accordance with the prevailing wage determinations of the director of labor and training insofar as this chapter of this title and other acts incorporating this chapter of this title by reference are concerned may be discharged by the making of payments in cash, by the making of contributions of a type referred to in subsection (b)(2), or by the assumption of an enforceable commitment to bear the costs of a plan or program of a type referred to in this subdivision, or any combination thereof, where the aggregate of any payments, contributions, and costs is not less than the rate of pay described in subsection (b)(1) plus the amount referred to in subsection (b)(2).

(c) The term "employees", as used in this section, shall include employees of contractors or subcontractors performing jobs on various types of public works including mechanics, apprentices, teamsters, chauffeurs, and laborers engaged in the transportation of gravel or fill to the site of public works, the removal and/or delivery of gravel or fill or ready-mix concrete, sand, bituminous stone, or asphalt flowable fill from the site of public works, or the transportation or removal of gravel or fill from one location to another on the site of public works, and the employment of the employees shall be subject to the provisions of subsections (a) and (b).

(d) The terms "public agency" and "quasi-public agency" shall include, but not be limited to, the Rhode Island industrial recreational building authority, the Rhode Island economic development corporation, the Rhode Island airport corporation, the Rhode Island industrial facilities corporation, the Rhode Island refunding bond authority, the Rhode Island housing and mortgage finance corporation, the Rhode Island resource recovery corporation, the Rhode Island public transit authority, the Rhode Island student loan authority, the water resources board corporate, the Rhode Island health and education building corporation, the Rhode Island higher education assistance authority, the Rhode Island turnpike and bridge authority, the Narragansett Bay water quality management district commission, Rhode Island telecommunications authority, the convention center authority, the board of governors for higher education, the board of regents for elementary and secondary education, the capital center commission, the housing resources commission, the Quonset Point-Davisville management corporation, the Rhode Island children's crusade for higher education, the Rhode Island depositors economic protection corporation, the Rhode Island lottery commission, the Rhode Island

partnership for science and technology, the Rhode Island public building authority, and the Rhode Island underground storage tank board.

State of Rhode Island
Division of Purchases

Public Works
Bid Preparation Checklist

Date: **9/14/2015**

Bid#: **7549885**

Title: **Boiler Room Ventilation & City Water Upgrades**

This checklist is provided to assist the bidder in preparing a bid proposal for submission. It is not a substitute for a thorough review of the Instruction to Bidders nor a comprehensive list of all bid proposal requirements. Each bidder is responsible to review the Instructions to Bidders and to comply with all requirements of the Solicitation.

Bid Proposal Package:

☒ RIVIP Bidder Certification Cover Form (completed) signed in ink

☒ Bid Form
- All applicable blank spaces on the Bid Form have been completed
- All Addenda have been acknowledged
- Bid price printed legibly in ink (in both words and figures that match where specified)
- Erasures or corrections have been initialed by person signing the Bid Form
- Bid Form is signed in ink

☒ Bid Surety
- Bid bond or certified check (for DOT projects, bid bond only)
- Bid surety is five percent of the bid total (or such other specified amount)
- Bid Bond is signed by the bidder and surety
- Power of Attorney is attached to the Bid Bond showing the name of person who signed the surety bond

☒ Public Copy of bid proposal in pdf format on a read-only CD-R media disk

☒ General Contractor Apprenticeship Certification Form "2013-14" (for projects $1,000,000 and greater) required at time of bid proposal submission

Note: General Contractor Apprenticeship Re-Certification and Certification Form "2013-16" and Subcontractor Apprenticeship Certification Form "2013-15" are not required at time of bid proposal submission deadline.

- ☒ Applicable professional licenses (as specified in the Solicitation)
- ☒ Rhode Island Contractor Registration Board No.
- ☒ All bid proposal documents in a sealed envelope with the specific Solicitation #, Solicitation title, and the bid proposal submission deadline marked in the upper left hand corner of the envelope
- ☒ Each bid proposal submitted in a separate sealed envelope
- ☒ Completed Form W-9
- ☐ Other _____

Buyer Name: John F. O'Hara II

Contact Information: 401-574-8125

Form W-9 (Rev. 3/7/11)

State of Rhode Island
PAYER'S REQUEST FOR TAXPAYER
IDENTIFICATION NUMBER AND CERTIFICATION

THE IRS REQUIRES THAT YOU FURNISH YOUR TAXPAYER IDENTIFICATION NUMBER TO US. FAILURE TO PROVIDE THIS INFORMATION CAN RESULT IN A $50 PENALTY BY THE IRS. IF YOU ARE AN INDIVIDUAL, PLEASE PROVIDE US WITH YOUR SOCIAL SECURITY NUMBER (SSN) IN THE SPACE INDICATED BELOW. IF YOU ARE A COMPANY OR A CORPORATION, PLEASE PROVIDE US WITH YOUR EMPLOYER IDENTIFICATION NUMBER (EIN) WHERE INDICATED.

Taxpayer Identification Number (T.I.N.)

Enter your taxpayer identification number in the appropriate box. For most individuals, this is your social security number.

Social Security No. (SSN) | | | | | | | | | |

Employer ID No. (EIN) | | | | | | | | | |

NAME _____

ADDRESS _____

(REMITTANCE ADDRESS, IF DIFFERENT) _____

CITY, STATE AND ZIP CODE _____

CERTIFICATION: Under penalties of perjury, I certify that:

(1) The number shown on this form is my correct Taxpayer Identification Number (or I am waiting for a number to be issued to me), **and**
(2) I am not subject to backup withholding because either: (A) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (B) the IRS has notified me that I am no longer subject to backup withholding.

Certification Instructions -- You must cross out item (2) above if you have been notified by the IRS that you are subject to backup withholding because of under-reporting interest or dividends on your tax return. However, if after being notified by IRS that you were subject to backup withholding you received another notification from IRS that you are no longer subject to backup withholding, do not cross out item (2).

PLEASE SIGN HERE

SIGNATURE _____ TITLE _____ DATE _____ TEL NO. _____

BUSINESS DESIGNATION:

Please Check One: Individual ☐ Medical Services Corporation ☐ Government/Nonprofit Corporation ☐
Partnership ☐ Corporation ☐ Trust/Estate ☐ Legal Services Corporation ☐

NAME: Be sure to enter your full and correct name as listed in the IRS file for you or your business.

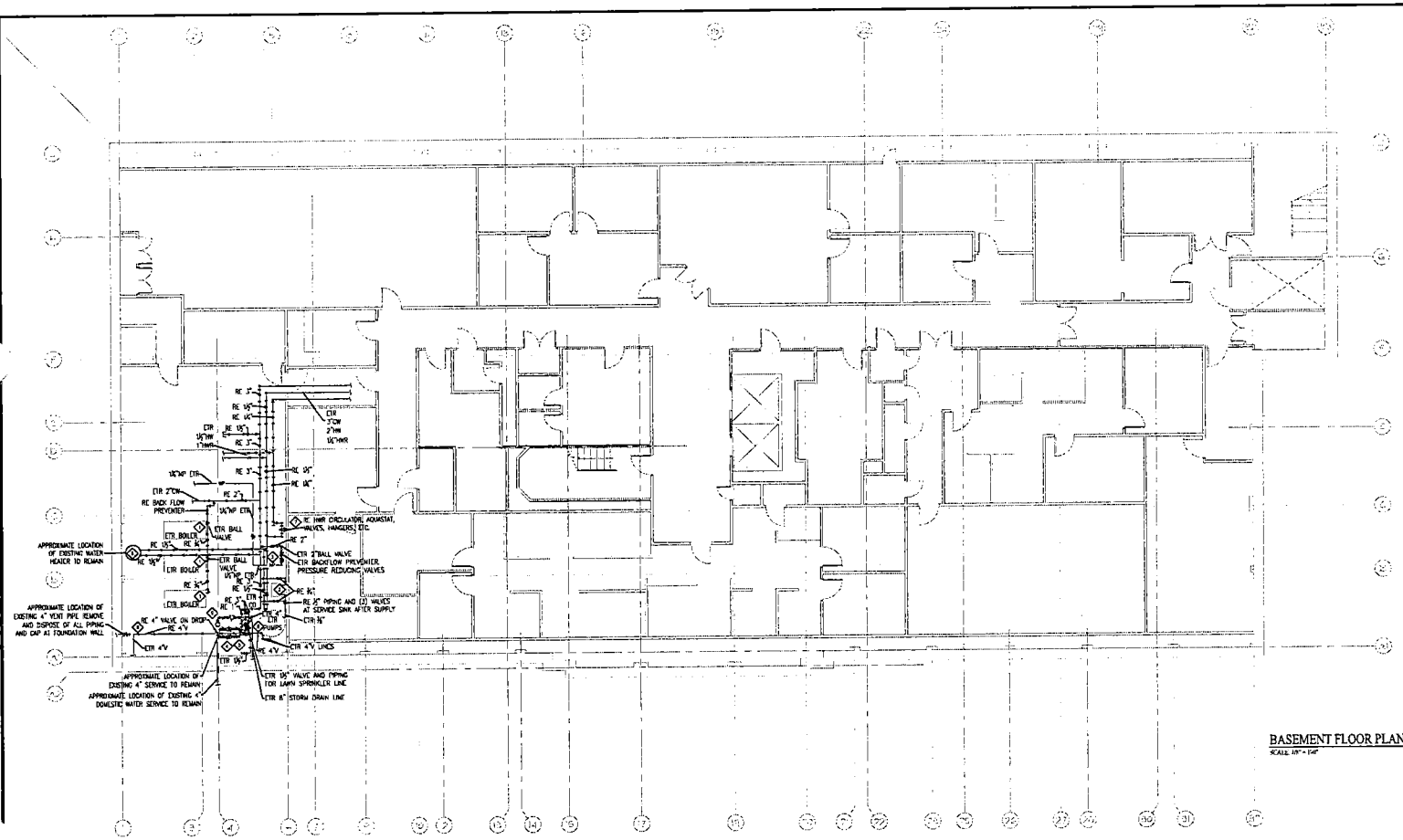
ADDRESS, CITY, STATE AND ZIP CODE: Enter your primary business address and remittance address if different from your primary address). If you operate a business at more than one location, adhere to the following:

1) Same T.I.N. with more than one location -- attach a list of location addresses with remittance address for each location and indicate to which location the year-end tax information return should be mailed.
2) Different T.I.N. for each different location -- submit a completed W-9 form for each T.I.N. and location. (One year-end tax information return will be reported for each T.I.N. and remittance address.)

CERTIFICATION -- Sign the certification, enter your title, date, and your telephone number (including area code and extension).

BUSINESS TYPE CHECK-OFF -- Check the appropriate box for the type of business ownership.

Mail to: Supplier Coordinator, One Capitol Hill, Providence, RI 02908



BASEMENT FLOOR PLAN - PLUMBING DEMO

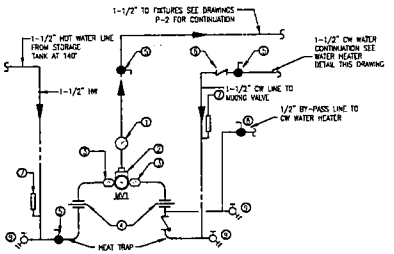
SCALE: 1/8" = 1'-0"

DEMOLITION KEYED NOTES:

1. DISCONNECT & REMOVE ALL EXISTING ¾" CW BOILER FEED PIPING FROM EXISTING ¾" BALL VALVE ON DROP TO BOILER BACK TO EXISTING CW MAIN INCLUDING VALVES, BACK FLOW PREVENTER, HANGERS, ETC. – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
2. EXISTING SERVICE SINK TO REMAIN. REMOVE AND DISPOSE OF EXISTING HOT AND COLD WATER LINES FROM SINK FAUCET TO EXISTING MAIN LINES AT CEILING INCLUDING HANGERS, ETC. REMOVE EXISTING VALVES AND PIPING AFTER SINK SUPPLY EXISTING ¾" PIPING IS TO REMAIN. – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
3. EXISTING PRESSURE REDUCING VALVES AND BACK FLOW PREVENTER ASSEMBLY TO REMAIN. REMOVE AND DISPOSE OF EXISTING 3" CW LINE TO EXISTING 2" VALVE ON DROP FROM 3"MAIN INCLUDING HANGERS, ETC. – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
4. DISCONNECT & REMOVE ALL EXISTING WATER MOTERS, PRESSURE REDUCING VALVES, VALVES, BY-PASS LINES, HANGERS, ETC. AND 3" COLD WATER MAIN LINE PIPING FROM EXISTING 4" FLANGED ELL AT FOUNDATION WALL. COORDINATE ALL SHUT-DOWNS WITH THE OWNER AND THE PROVIDENCE WATER SUPPLY BOARD – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
5. DISCONNECT & REMOVE ALL EXISTING PIPE AND FITTINGS AT WATER SERVICE FOR LAWN SPRINKLER SYSTEM TO EXISTING 1½" CONTROL VALVE TO REMAIN. SYSTEM IS TO BE RECONNECTED TO NEW PIPING. – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
6. EXISTING WATER HEATER IS TO REMAIN. DISCONNECT & REMOVE EXISTING HOT AND COLD WATER PIPING, HANGERS, ETC. FROM MAIN LINES TO DROPS AT CEILING TO WATER HEATER AS INDICATED. REMOVE EXISTING DRAW-OFF FOR NEW HOT WATER RETURN CONNECTION SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
7. DISCONNECT, REMOVE AND REPLACE ALL EXISTING HOT WATER RETURN PIPING TO BE REPLACED WITH NEW. REMOVE EXISTING HOT WATER RETURN CIRCULATOR, VALVES, AQUASTAT, HANGERS, ETC. AND REPLACE WITH NEW. – SEE NEW WORK DRAWINGS AND DETAIL FOR ADDITIONAL INFORMATION.
8. DISCONNECT, REMOVE AND REPLACE EXISTING 4" VENT LINE AS INDICATED COMPLETE WITH ALL HANGERS, SUPPORTS ETC. AND REPLACE WITH NEW. – SEE NEW WORK DRAWINGS AND DETAIL FOR ADDITIONAL INFORMATION.
9. DISCONNECT, REMOVE AND REPLACE EXISTING 4" DRIP POT, FITTINGS AND PIPING AT CEILING. RELOCATE DRIP PIT TO PROTECT PIPING FROM FREEZING COORDINATE TRAP LOCATION WITH DUCTWORK CONTRACTOR. REMOVAL IS TO BE COMPLETE WITH ALL HANGERS, SUPPORTS ETC. AND REPLACE WITH NEW. – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.

MASTER MIXING VALVE:

PROVIDE MIXING VALVE COMPLETE WITH OUTLET THERMOMETER, CHECK STOPS, UNIONS, BALL VALVES ON EACH OUTLET. PLUMBING CONTRACTOR IS TO MOUNT UNIT SECURELY TO WALL. PLUMBING CONTRACTOR IS TO INSTALL VALVE IN COMPLETE ACCORDANCE WITH MANUFACTURERS REQUIREMENTS. IF APPROVED SUBSTITUTE VALVE IS INSTALLED, THIS CONTRACTOR IS RESPONSIBLE FOR REVISED PIPING INSTALLATION FOR VALVE. SET VALVE @ 120°F.



MASTER THERMOSTATIC MIXING VALVE DETAIL

NTS

1. BI METAL DIAL THERMOMETER
2. WATTS SYMMONS MODEL 67-500 VALVE TO BE RATED FOR 3 GPM MINIMUM FLOW AND 15 GPM MAXIMUM FLOW WITH A 10 PSI DROP THRU VALVE.
3. CHECK STOPS
4. UNIONS
5. LINE SIZE FULL PORT BALL VALVE
6. CHECK VALVE
7. THERMOMETER
8. BALANCING VALVE
9. DRAW-OFF W/ VACUUM BREAKER

HVAC-ELECTRICAL-PLUMBING ENGINEERS

Project: STATE OF RHODE ISLAND ATTORNEY GENERAL OFFICE
150 SOUTH MAIN STREET
PROVIDENCE, RI

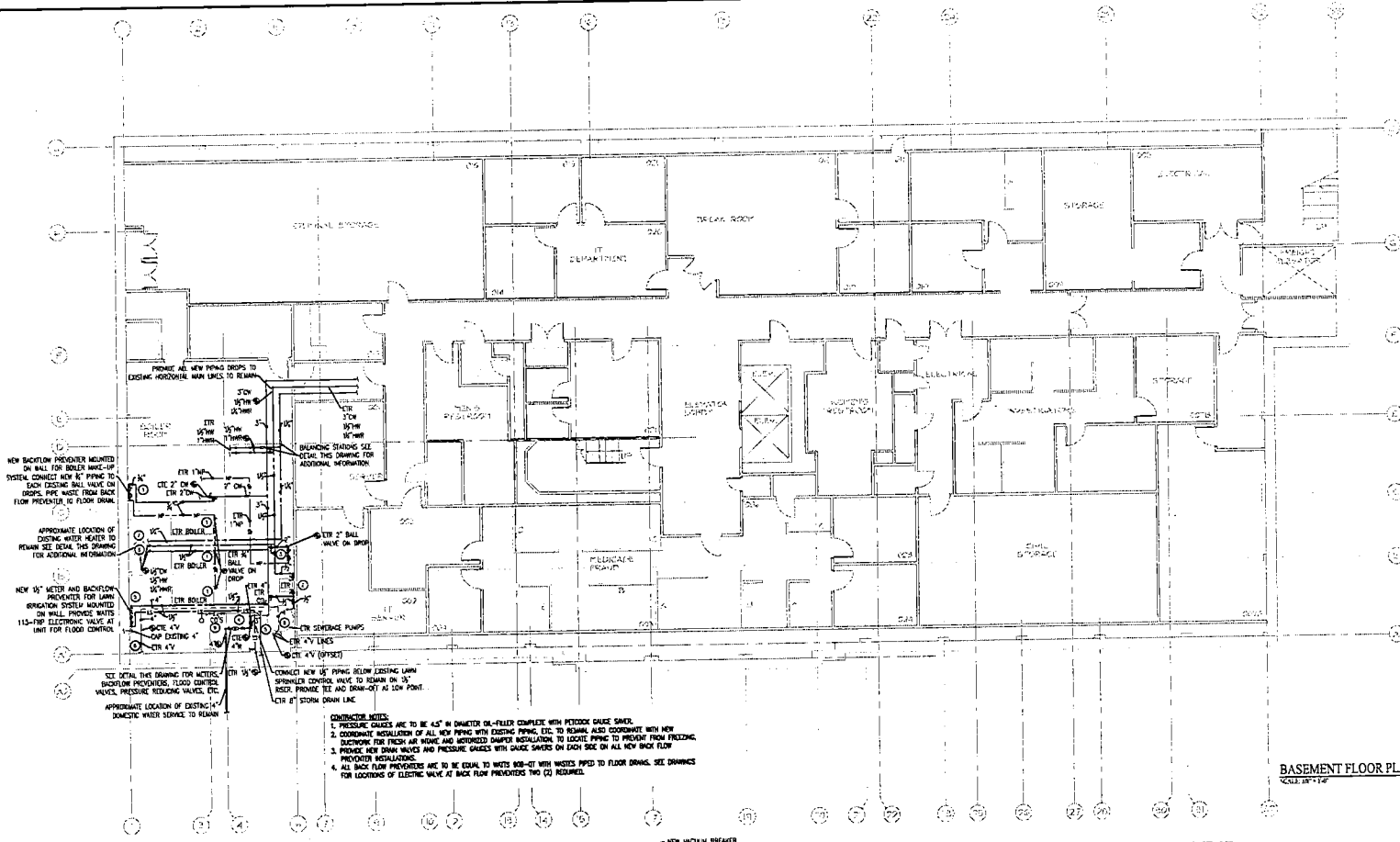
Status: ISSUED FOR PERMIT

No.	Revision Note:	Date

Sheet Title: LOWER LEVEL PLUMBING DEMO

Project No:	2014.0099
Drawn By:	WFH
Checked By:	RCN
Scale:	1/8"=1'-0"
Date:	4/2.15

Drawing No: P-1

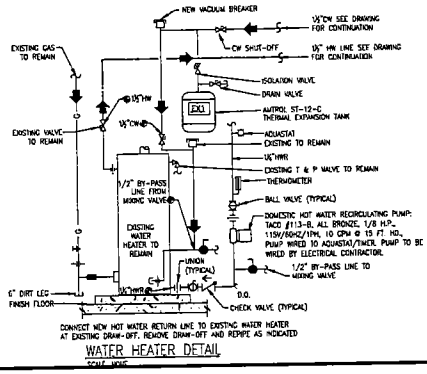


BASEMENT FLOOR PLAN - PLUMBING

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

NEW WORK KEYED NOTES:

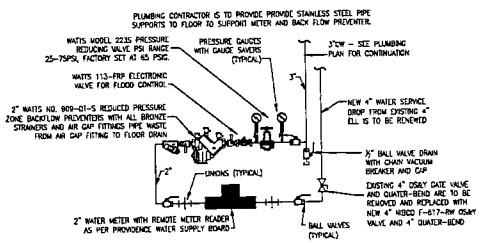
1. CONNECT NEW ¾" CW BOILER FEED PIPING TO NEW 2" CW LINE CONTINUE PIPING TO NEW WATTS 909-QT BACK FLOW PREVENTER MOUNTED ON WALL. PROVIDE NEW ¾" PIPING TO EXISTING ¾" BALL VALVES ON DROPS TO EACH BOILER. SEE DRAWINGS FOR ADDITIONAL INFORMATION.
2. EXISTING SERVICE SINK IS TO REMAIN. PROVIDE NEW ¾" BALL VALVES AND SUPPLIES TO EXISTING SINK FAUCET. PROVIDE ADDITIONAL ¾" BALL VALVE AND PIPING ON COLD WATER TO EXISTING ¾" LINE AND RECONNECT TO EXISTING PIPING TO REMAIN. SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
3. EXISTING PRESSURE REDUCING VALVES AND BACK FLOW PREVENTER ASSEMBLY TO REMAIN. REPIPE EXISTING 2" COLD WATER LINE FROM NEW 3"MAIN TO EXISTING 2" BALL VALVE ON DROP. EXISTING 2" BALL VALVE ON DROP IS TO REMAIN. SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.
4. PROVIDE NEW WATER METERS, PRESSURE REDUCING VALVES, FLOOD CONTROL VALVES, BACKFLOW PREVENTERS SUPPORTS, ETC. AND CONNECTIONS TO EXISTING AND NEW MAINS. COORDINATE WITH ELECTRICAL CONTRACTOR WIRING FOR NEW CONTROL VALVES TO BE LOCATED AT BACK FLOW PREVENTERS.– SEE NEW WORK DRAWINGS AND DETAIL THIS DRAWING FOR ADDITIONAL INFORMATION.
5. FROM EXISTING LAWN SPRINKLER CONTROL VALVE TO REMAIN. PROVIDE NEW 1½" DOMESTIC METER AND 1½"BACK FLOW PREVENTER, WATTS 909-QT WITH WASTE PIPED TO FLOOR DRAIN. INSTALLATION IS TO BE IN ACCORDANCE WITH NARRAGANSETT BAY COMMISSION RULES AND REGULATIONS. PROVIDE PRESSURE GAUGES WITH GAUGE SAVERS ON EACH SIDE OF THE BACKFLOW PREVENTER. COORDINATE WITH ELECTRICAL CONTRACTOR WIRING FOR NEW CONTROL VALVE TO BE LOCATED AT BACK FLOW PREVENTER. SEE NEW WORK THIS DRAWING FOR ADDITIONAL INFORMATION.
6. EXISTING GAS-FIRED WATER HEATER IS TO REMAIN. PROVIDE NEW HOT AND COLD WATER PIPING, HANGERS, ETC. FROM MAIN LINES TO EXISTING DROPS TO EXISTING VALVES TO REMAIN TO WATER HEATER AS INDICATED. SEE NEW WORK DRAWINGS AND DETAIL THIS DRAWING FOR ADDITIONAL INFORMATION.
7. ALL EXISTING HOT WATER RETURN PIPING TO BE REPLACED WITH NEW TO CONNECTION POINT INDICATED. PROVIDE ALL NEW HOT WATER RETURN CIRCULATOR, VALVES, PIPING, AQUASTAT, HANGERS, ETC. COORDINATE WITH ELECTRICAL CONTRACTOR WIRING FOR NEW CIRCULATOR TO BE RELOCATED AT EXISTING WATER HEATER. CONNECT NEW HOT WATER RETURN PIPING AT EXISTING WATER HEATER AS INDICATED IN DETAIL THIS DRAWING. – SEE NEW WORK DRAWINGS AND DETAIL THIS FOR ADDITIONAL INFORMATION.
8. EXISTING VENT PIPING TO BE REROUTED AROUND NEW DUCTWORK FOR FRESH-AIR INTAKE REPLACED WITH NEW NEW PIPING AND CONNECTION TO EXISTING LINES AS INDICATED. PROVIDE ALL NEW VENT PIPING, HANGERS, ETC. PROVIDE HEAVY WEIGHT 4-BAND NO-HUB COUPLINGS AT CONNECTIONS TO EXISTING PIPING WHERE INDICATED THIS DRAWING. – SEE NEW WORK THIS DRAWING FOR ADDITIONAL INFORMATION.
9. PROVIDE NEW DRIP POT, FITTINGS, VALVES AND PIPING COORDINATE LOCATION WITH DUCTWORK CONTRACTOR TO PROTECT TRAP FROM FREEZING. EXISTING DRIP POT MAY BE REUSED PROVIDE NEW 4" CHECK VALVE, 4" GATE VALVE, 4" TRAP AND PIPING CONNECTION TO EXISTING 4" DRAIN LINE. PROVIDE ALL NEW HANGERS, SUPPORTS ETC. REVISE ALL EXISTING DRAIN LINES PIPED TO DRIP POT AS NECESSARY TO SUIT NEW DRIP POT LOCATION. – SEE NEW WORK DRAWINGS FOR ADDITIONAL INFORMATION.



CONNECT NEW HOT WATER RETURN LINE TO EXISTING WATER HEATER AT EXISTING DRAW-OFF. REMOVE DRAW-OFF AND REPIPE AS INDICATED

WATER HEATER DETAIL

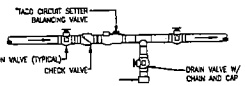
SCALE: NONE



METERS, ENCODERS, BACKFLOW PREVENTERS, PIPING, LAYOUT, ETC ARE TO BE INSTALLED IN STRICT ACCORDANCE WITH PROVIDENCE WATER SUPPLY BOARD RULES AND REGULATIONS. METER AND BACK FLOW PREVENTER ARE TO BE INSTALLED AT HEIGHT AND SPACING REQUIREMENTS ALL IN CONFORMANCE WITH PWSB REGULATIONS.

DOMESTIC WATER SERVICE DETAIL

SCALE: NONE



BALANCING VALVE STATION

NOT TO SCALE

STATE OF RHODE ISLAND
ATTORNEY GENERAL OFFICE
150 SOUTH MAIN STREET
PROVIDENCE, RI

Status: ISSUED FOR PERMIT

No.	Revision Date	Dwn

Sheet Title: LOWER LEVEL PLUMBING NEW WORK DETAILS

Project No:	20140099
Drawn By:	WTH
Checked By:	RCN
Scale:	1/8"=1'-0"
Date:	4/2/15

Drawing No: P-2

GENERAL PLUMBING SPECIFICATIONS

PART 1 – GENERAL PLUMBING REQUIREMENTS:

1.01 GENERAL CONDITIONS:

THE APPLICABLE PROVISIONS OF THE GENERAL CONSTRUCTION SPECIFICATIONS SHALL APPLY TO THE FOLLOWING SPECIFICATIONS ARTICLES.

A. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS UPON WHICH THE CONTRACTOR SHALL SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR PROVISIONS.

B. WHEN CONFLICTS OCCUR IN THE SPECIFICATIONS OR ON THE DRAWINGS, THE ITEMS OF GREATER QUANTITY OR HIGHER COST SHALL BE PROVIDED.

C. THE CONTRACTOR SHALL PROVIDE ALL ITEMS OF LABOR AND MATERIALS NOT SPECIFICALLY INDICATED, BUT REQUIRED TO COMPLETE THE INTENDED INSTALLATION.

D. THE CONTRACTOR SHALL COORDINATE THEIR WORK OR ADJUST SAME TO THAT OF OTHER TRADES, IN ORDER THAT CONFLICTS IN SPACE LOCATIONS DO NOT OCCUR.

E. THE WORK UNDER THIS CONTRACT SHALL BE PERFORMED SIMULTANEOUSLY WITH WORK OF OTHER TRADES, SO AS NOT TO DELAY THE OVERALL PROGRESS OF WORK.

F. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY IF SAME WHICH MAY BE DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COST TO THE OWNER.

G. ALL PLUMBING WORK SHALL BE PERFORMED BY A STATE LICENSED PLUMBER IN STRICT ACCORDANCE WITH AHJ, STATE & LOCAL CODES AND REQUIREMENTS.

H. PROVIDE ALL TRANSPORTATION, LOADING AND UNLOADING AND PROVIDE ALL LABOR NECESSARY FOR ERECTING IN PLACE OF ALL MATERIAL AND EQUIPMENT SHOWN, SPECIFIED OR REQUIRED UNDER THIS DIVISION.

I. ALL PIPE, FITTINGS AND ACCESSORIES USED IN THE DOMESTIC WATER PIPING SYSTEMS ARE TO CONFORM TO THE NEW LEAD REQUIREMENTS NSF61/ANSI.

1.02 SCOPE OF WORK:

A. WITHOUT LIMITING GENERALITY, PROVIDED ALL LABOR, MATERIAL, AND EQUIPMENT FOR A COMPLETE PLUMBING SYSTEM AS DESCRIBED BELOW:

1. DRAIN, WASTE AND VENT PIPING SYSTEMS.
2. DOMESTIC HOT & COLD WATER PIPING SYSTEMS.
3. HOT WATER RETURN PIPING W/CIRCULATOR
4. PIPE INSULATION.
5. HANGERS, SUPPORTS.
6. FLUSHING, DISINFECTING, TESTING AND BALANCING.
7. PERMITS AND FEES.
8. EXPANSION TANK.
9. REMOVAL AND PROPER DISPOSAL OF EXISTING PIPING, HANGERS, ETC. ALL SYSTEMS.

1.03 CONTRACTORS RESPONSIBILITIES:

A. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY INJURIES TO PEOPLE, EMPLOYEES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR TO OTHER WORK RESULTING FROM EXECUTION ON HIS PART OF WORK, IN ANY MANNER WHATSOEVER.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK, MATERIALS, PEOPLE OR EMPLOYEES FROM INJURY OR LOSS DONE BY OTHERS AND SHALL MAKE GOOD SUCH INJURY AT HIS OWN EXPENSE.

C. DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

D. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR' EMPLOYEES, MATERIALS OR EQUIPMENT.

1.04 COORDINATION AND INTERPRETATION OF DRAWINGS:

A. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO RESPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT.

B. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

C. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL NEW WORK CAN BE FULLY COORDINATED. COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.

D. PLUMBING WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

PART 2 – EQUIPMENT:

2.01 PIPING

A. WATER PIPING ABOVE SLAB, SHALL BE TYPE "L" COPPER ASTM-B-88 HARD DRAWN. USE SILVABRITE 100 LEAD-FREE SOLDER ON COLD WATER AND HOT WATER PIPING. PROVIDE NON-CORROSIVE, LEAD-FREE TYPE FLUX CONFORMING TO ASTM B813 WASHABLE.

1. FITTINGS: ASME B16.18, CAST BRASS, OR ASME B16.22, SOLDER WROUGHT COPPER.
2. UNIONS: USE DIELECTRIC UNIONS, FLANGES OR WATERWAYS TO CONNECT DISSIMILAR METAL PARTS.
3. ALL PIPE, FITTINGS AND ACCESSORIES USED IN THE DOMESTIC WATER PIPING SYSTEM ARE TO CONFORM TO THE NEW LEAD REQUIREMENTS.

B. ALL EXPOSED WASTE AND WATER PIPING IN FINISHED AREAS SHALL BE CHROME PLATED, WETHER INSULATED OR NOT.

PART 2 – EQUIPMENT (CONT.):

2.01 PIPING (CONT.)

C. WASTE AND VENT PIPING: PIPE AND FITTINGS SHALL BE SERVICE WEIGHT NO-HUB CAST IRON. NO-HUB COUPLINGS ARE TO BE (4) FOUR BAND MISSION, ANCON, OR APPROVED EQUAL. INSTALLATION AND PIPE AND FITTINGS ARE TO CONFORM TO CISPI REQUIREMENTS.

D. PROVIDE ALL NECESSARY SUPPORTS, HANGERS, BRACES, ANCHORS, AND ALL ELSE NECESSARY FOR THE ENTIRE INSTALLATION AND TO MEET THE INTENT OF THE SYSTEMS FOR PROPER OPERATION.

E. PIPE AND EQUIPMENT SUSPENSION SHALL BE SUCH AS TO PREVENT EXCESSIVE STRESS, EXCESSIVE VIBRATION IN SUPPORTING FORCE, POSSIBLE RESONANCE WITH IMPOSED VIBRATION WHILE THE SYSTEM IS IN OPERATION CREEPING, SAGGING, BUCKLING, OR MISALIGNMENT.

F. SYSTEMS SHALL OPERATE UNDER ALL CONDITIONS OF LOAD WITHOUT ANY OBJECTIONABLE SOUND OR VIBRATION.

G. PROVIDE DI-ELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

H. PROVIDE ALL VALVES OF THE SAME MANUFACTURER (APPOLO, NIBCO, WATTS) OF TOP LINE FIRST QUALITY. VALVES 3" AND UNDER BALL VALVES WATTS LF6000 SERIES (FULL PORT). VALVES 4" AND OVER ARE TO BE OS&Y, IN NIBCO 616 OR EQUAL.

I. CHECK VALVES SHALL BE OF THE HORIZONTAL SWING TYPE WITH HINGED CHECK, GROUND SEAT, LEAD-FREE AND APPROVED TYPE DISCS, SWEAT AND FLANGED.

J. DRAIN VALVES WATTS LF8000-CC WITH CHAIN & CAP WITH WATTS #8 VACUUM BREAKER.

2.02 BIDDING CONFLICTS:

A. IF CONFLICTS OCCUR WITHIN THESE SPECIFICATIONS OR ON THE DRAWINGS, OR EITHER, BETWEEN THE ITEMS OF GREATER QUANTITY OR HIGHER COST SHALL BE BID AND PROVIDED.

2.03 INSULATION:

A. ALL INSULATION WHEN INSTALLED SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM-E-84, NFPA-255, AND UL-723, NOT EXCEEDING A FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50 WHEN COMPARED WITH RED OAK AS 100, AS APPROVED UNDER NFPA AND NBFU PAMPHLET NO. 90A AND NO. 90B STANDARDS.

B. DOMESTIC WATER PIPING ABOVE GROUND SHALL BE INSULATED WITH FIBERGLASS INSULATION WITH FACTORY-APPLIED ALL-SERVICE JACKET SECURED IN PLACE WITH SELF SEALING LAPS. FITTINGS SHALL BE INSULATED WITH PREMOLDED PVC COVERS SECURED IN PLACE WITH STAINLESS STEEL TACKS.

C. PIPING INSULATION MATERIALS AS MANUFACTURED BY GUSTIN-BACON, JOHNS MANVILLE, OWENS-CORNING, KNAUF, OR CERTAIN TEED.

D. DOMESTIC HOT WATER AND HOT WATER RETURN 1-½" THICK COLD WATER : 1" THICK

2.04 PIPING SYSTEM IDENTIFICATION:

1. PIPING SYSTEMS SHALL BE IDENTIFIED AS INDICATED HEREIN OR AS REQUIRED BY APPLICABLE CODES AND/OR OFFICIALS HAVING JURISDICTION.

2. PIPE MARKERS SHALL BE COLOR CODED ACCORDING TO "TABLE 2: CLASSIFICATION OF MATERIALS AND DESIGNATIONS TO COLORS" - ANSI A13.1-1981.

3. PIPE MARKERS SHALL INDICATE DIRECTION OF FLOW, SYSTEM, OPERATING PRESSURE AND TEMPERATURE.

4. PIPE MARKERS SHALL BE OF THE PRESSURE SENSITIVE TYPE AS MANUFACTURED BY THE SETON NAMEPLATE CORP. (F10-CODE)

5. PIPE MARKERS SHALL BE INSTALLED AT EVERY POINT OF ENTRY AND EXIT THROUGH FLOORS, WALLS, CEILINGS OR OTHER CONCEALED SPACES, ON EACH RISER, TAKE-OFF AND BRANCH AND AT EACH PIECE OF EQUIPMENT.

6. INSTALL PIPE MARKERS AT A DISTANCE OF NOT LESS THAN 25 FEET APART IN CONTINUOUS LENGTHS OF PIPE LINES AND ORIENTED SO THAT MARKERS ARE CLEARLY VISIBLE. WHEN PIPE LINES ARE LOCATED ABOVE THE NORMAL LINE OF VISION, THE MARKER SHALL BE PLACED BELOW THE HORIZONTAL CENTERLINE OF THE PIPE.

2.06 HANGERS AND SUPPORTS

A. PROVIDE ALL NECESSARY SUPPORTS, HANGERS, BRACES, ANCHORS, AND ALL ELSE NECESSARY FOR THE ENTIRE INSTALLATION AND TO MEET THE INTENT OF THE SYSTEMS FOR PROPER OPERATION, INCLUDING ALL ADDITIONAL THREADED RODS, STEEL PLATES, UNISTRUT, ETC. NECESSARY TO INSTALL FIXTURE CARRIERS/SUPPORTS TO FLOOR TO PROPERLY ANCHOR FIXTURES.

B. PIPE AND EQUIPMENT SUSPENSION SHALL BE SUCH AS TO PREVENT EXCESSIVE STRESS, EXCESSIVE VARIATION IN SUPPORTING FORCE, POSSIBLE RESONANCE WITH IMPOSED VIBRATION WHILE THE SYSTEM IS IN OPERATION CREEPING, SAGGING, BUCKLING, OR MISALIGNMENT.

C. PROVIDE DI-ELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

2.07 CIRCULATING PUMP:

A. PROVIDE PUMP MANUFACTURED BY TACO OR ENGINEER APPROVED EQUAL BY BELL & GOSSETT OR PACO (PROVIDED THAT ALL SPECIFICATIONS ARE MET), PERFORMANCE & ACCESSORIES TO BE AS INDICATED ON DRAWINGS.

B. PUMPS SHALL BE DESIGNED FOR OPERATION WITH DOMESTIC HOT WATER. PUMPS SHALL HAVE BRONZE FITTED CONSTRUCTION, INCLUDING CAST IRON CASINGS, BRONZE OR COPPER SHAFT SLEEVES, ALLOY STEEL SHAFTS AND BRONZE IMPELLERS. BEARINGS SHALL BE EITHER BE SLEEVE TYPE OR REGREASABLE BALL BEARINGS. PROVIDE CASING WEAR RINGS, DRAIN AND VENT CONNECTIONS AND FLEXIBLE COUPLING OR DIRECT DRIVE CONNECTION BETWEEN PUMP AND MOTOR. IF THE SCHEDULED PUMP INCLUDES BALL BEARINGS AND A DIRECT DRIVE MOTOR TO IMPELLER CONNECTION, THE SUBMITTED PUMP SHALL NOT HAVE SLEEVE BEARINGS OR A FLEXIBLE COUPLING BETWEEN PUMP AND MOTOR.

PART 3 – EXECUTION

3.01 WATER SYSTEM:

A. PIPING SHALL BE RUN PARALLEL WITH THE LINES OF THE BUILDING; WELL SUPPORTED FROM THE STRUCTURE: FREE FROM POCKETS AND SAGS: PITCHED TO DRAIN POINTS; AND INSTALLED WITH PIPE EXPANSION LOOPS, MECHANICAL EXPANSION JOINTS, PIPE GUIDES, OFFSETS AND ANCHORS TO ADEQUATELY PROVIDE FOR THERMAL EXPANSION.

B. ABOVE GROUND PIPING SHALL BE INSTALLED TO PROVIDE NOT LESS THAN 3/4" SPACING FROM FINISHED COVERING TO OTHER COVERING OR SURFACES OF OTHER CONSTRUCTION. SEPARATE BELOW GROUND H & CW PIPING THAT ARE TO BE INSTALLED IN THE SAME TRENCH, BY A MINIMUM OF 12". PIPE SHALL HAVE LONG TURN RADIUS TURNS WITHOUT KINKS. PIPING SHALL NOT MAKE CONTACT WITH OTHER PIPE, CONDUIT REINFORCING STEEL OR CONCRETE.

C. ALL PIPING SHALL BE PROTECTED FROM WATER HAMMER OR SHOCKS BY APPROVED WATER HAMMER ARRESTORS.

D. VALVES SHALL BE INSTALLED ON BRANCHES AND AT SINGLE FIXTURES WHEN TRIM DOES NOT INCLUDE STOPS.

E. FINAL CONNECTIONS SHALL BE MADE TO ALL EQUIPMENT WITH PROPER CONNECTION WHETHER FURNISHED BY THIS CONTRACTOR OR BY OTHERS. THIS CONTRACTOR SHALL PROVIDE STRAINERS AND SUPPLIES.

F. APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.

G. ANY UTILITY OUTAGES OR SYSTEM SHUTDOWNS FOR CONSTRUCTION SHALL BE SCHEDULED WITH THE OWNER PRIOR TO COMMENCING OF WORK.

H. SUBMIT SHOP DRAWINGS OF PERTINENT EQUIPMENT AND RECORD DRAWINGS FOR ALL WORK PROVIDED UNDER THIS CONTRACT TO THE OWNER FOR HIS USE PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.

3.02 DRAINAGE SYSTEMS:

A. THE INTERIOR DRAINAGE SYSTEMS SHALL BE CONSTRUCTED USING MATERIALS AND METHODS AS SPECIFIED AND/OR INDICATED.

B. PROVIDE PROPERLY VENTED WASTE CONNECTION.

C. DRAIN PIPING SHALL BE UNIFORMLY PITCHED TO CONFORM WITH STATE AND LOCAL PLUMBING CODE.

D. TRAPS OF MATERIAL AND DESIGN APPROVED BY THE LATEST ADDITION OF THE APPLICABLE PLUMBING CODE SHALL BE FURNISHED & INSTALLED BY THE PLUMBING CONTRACTOR FOR ALL EQUIPMENT AND APPLIANCES. ALL TRAPS SHALL HAVE THE BOTTOM CLEANOUTS WHERE ACCESS CAN BE PROVIDED.

E. CAREFULLY INSPECT FOR DAMAGED MATERIALS. RUN PIPING AS SHOWN ON THE DRAWINGS. MAKE CHANGES IN DIRECTION WITH LONG SWEEP 1/8 OR 1/16 BENDS.

3.03 TESTING & BALANCING:

A. ALL PLUMBING SYSTEMS LOCATED IN THE SCOPE OF THE PROJECT SHALL BE TESTED & REPAIRED BY THIS CONTRACTOR. TESTING OF ALL SYSTEMS SHALL BE DONE AT THE EXPENSE OF THE PLUMBING CONTRACTOR, AND WITH EQUIPMENT FURNISHED BY HIM. TESTING SHALL BE IN THE PRESENCE OF DULY AUTHORIZED INSPECTORS AND THE OWNER'S REPRESENTATIVE WITH 48-HOUR NOTICE GIVEN TO THESE AUTHORITIES. ALL SYSTEMS SHALL BE REPAIRED AND RETESTED UNTIL REQUIREMENTS ARE MET, WITHOUT ADDITIONAL EXPENSE TO THE OWNER.

B. NEW WATER, WASTE & VENT PIPING SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH LOCAL PLBG INSPECTORS REQUIREMENTS AND AS PER THE STATE PLUMBING CODE.

C. NEW WASTE & VENT PIPING SHALL BE TESTED IN ACCORDANCE WITH LOCAL PLBG INSPECTORS REQUIREMENTS AND AS PER THE STATE PLUMBING CODE.

3.04 STERILIZATION:

A. THE POTABLE WATER DISTRIBUTION SYSTEM SHALL BE THOROUGHLY FLUSH CLEANED, DISINFECTED AND TESTED AS PER THE STATE PLUMBING CODE.

3.05 COMPLETION:

A. PROVIDE PROPERLY EXECUTED CERTIFICATE OF INSPECTION FROM THE LOCAL PLUMBING INSPECTORS OFFICE.

B. VERIFY THAT PROJECT RECORD DOCUMENTS ARE COMPLETE AS SPECIFIED UNDER SUBMITTALS AND RECORD DOCUMENTS.

3.06 CUTTING AND PATCHING:

A. PROVIDE ALL CUTTING AND PATCHING NECESSARY TO INSTALL THE WORK SPECIFIED IN THIS DIVISION.

B. NO STRUCTURAL MEMBERS SHALL BE CUT WITHOUT THE APPROVAL OF THE ENGINEER, & ALL SUCH CUTTING SHALL BE ACCOMPLISHED IN A MANNER DIRECTED BY THE ENGINEER.

3.07 APPROVALS AND SUBSTITUTIONS:

A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT WHEREVER A MANUFACTURER IS SPECIFIED AND SUBSTITUTIONS ARE ALLOWED, THEY SHALL CONFORM IN ALL RESPECTS TO THE SPECIFIED ITEM CRITERIA AS DELINEATED. SPECIFIED EQUIPMENT SHALL BE INTERPRETED AS MINIMUM PERFORMANCE REQUIREMENTS.

B. SUBSTITUTED EQUIPMENT WHERE PERMITTED MUST CONFORM TO SPACE REQUIREMENTS. ANY SUBSTITUTED EQUIPMENT THAT CANNOT MEET SPACE REQUIREMENTS, WHETHER APPROVED OR NOT, SHALL BE REPLACED AT THE CONTRACTOR' S EXPENSE. ANY MODIFICATION OF RELATED SYSTEMS OR ADDITIONAL COSTS THAT RESULT FROM SUBSTITUTED EQUIPMENT SHALL BE BORNE BY THIS CONTRACTOR.

C. IT SHALL BE MANDATORY FOR THIS CONTRACTOR TO SUBMIT HIS BID PRICE BASED ON SPECIFIED MANUFACTURERS OR SUPPLIERS OF MATERIALS OR SERVICES. IF THE CONTRACTOR DESIRES TO SUBSTITUTE OTHER THAN SPECIFIED, HE SHALL SUBMIT SEPARATE PRICES FOR EACH OF THESE ITEMS FOR ADDITIONS OR DEDUCTIONS TO THE BID PRICE, FOR ACCEPTANCE OR REJECTION AT THE TIME BIDS ARE DUE. SHOULD THESE SUBSTITUTIONS BE REJECTED, THE CONTRACTOR SHALL BE OBLIGED TO PROVIDE SPECIFIED MATERIALS AND SERVICES.

3.08 CODES, PERMITS, TESTING AND INSPECTION:

A. ALL WORK SHALL MEET OR EXCEED LATEST REQUIREMENTS OF THE STATE BUILDING & PLUMBING CODES, LOCAL CODES AND AUTHORITIES EXERCISING JURISDICTION OVER THE WORK OF THIS PROJECT. DURING THE PROGRESS OF THE WORK IT SHALL BE SUBJECT TO THE INSPECTION OF THE OWNER, CITY AGENCIES, UTILITY INSPECTORS, AND TO SUCH OTHER INSPECTORS AS MAY HAVE JURISDICTION AT THE CONTRACTOR'S COST.

B. ANY PORTION OF WORK WHICH IS NOT SUBJECT TO THE APPROVAL OF AN AUTHORITY HAVING JURISDICTION SHALL BE PROVIDED IN ACCORDANCE WITH NATIONAL FIRE PROTECTION ASSOCIATION REQUIREMENTS.

C. THE CONTRACTOR SHALL SECURE REQUIRED PERMITS, INSPECTION & TEST CERTIFICATES, TRANSMIT SAME TO THE OWNER AT THE COMPLETION OF THE WORK. PAY ALL ASSOCIATED FEES.

D. AT COMPLETION OF THE WORK, CONTRACTOR SHALL SUBMIT TO THE OWNER'S REPRESENTATIVE IN WRITING A STATEMENT STATING: (1) THAT THE WORK IS COMPLETE: (2) THAT THE ENTIRE INSTALLATION IS IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATION; (3) THAT PRELIMINARY TESTS HAVE BEEN MADE; AND (4) THAT THE WORK IS READY FOR FINAL INSPECTION AND TEST.

3.09 SHOP DRAWINGS AND EQUIPMENT SUBMISSIONS:

A. LAYOUTS AND CERTIFIED EQUIPMENT MANUFACTURER'S DATA SHALL BE SUBMITTED FOR APPROVAL PRIOR TO FABRICATION, ERECTION OR PURCHASE.

B. SHOP DRAWINGS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO: PLUMBING FIXTURES AND TRIM, PIPING, PIPE INSULATION, SHOCK ARRESTORS, VALVES, HANGERS, TRAP PRIMERS, WATER HEATERS, CLEANOUTS AND FLOOR DRAINS.

C. CERTIFICATION SHALL BE SUBMITTED BY THE CONTRACTOR ATTESTING TO THE FACT THAT SPECIFIED PERFORMANCE CRITERIA ARE MET BY ALL EQUIPMENT.

3.10 CLEANING AND TESTS:

A. THE CONTRACTOR SHALL KEEP THE BUILDING AND SITE CLEAN FROM HIS OWN RUBBISH AND/OR WASTE MATERIALS AND, UPON COMPLETION OF HIS CONTRACT, SHALL LEAVE THE BUILDING, SITE AND INSTALLATION IN A CLEAN CONDITION COMPLETELY ACCEPTABLE TO THE OWNER'S REPRESENTATIVE.

B. CLEAN AND TEST ALL NEW PLUMBING SYSTEMS, FIXTURES AND EQUIPMENT.

C. IF ANY PART OF A SYSTEM SHOULD BE STOPPED BY ANY FOREIGN MATTER AFTER BEING PLACED IN OPERATION, CLEAN AND RE-ENERGIZE SYSTEM.

3.11 GUARANTEES:

A. EXCEPT AS OTHERWISE SPECIFIED, ALL WORK SHALL BE GUARANTEED TO BE FREE FROM LEAKS OR OTHER DEFECTS RESULTING FROM THE USE OF INFERIOR MATERIALS, EQUIPMENT, OR WORKMANSHIP. ALL DEFECTIVE MATERIAL OR WORKMANSHIP AS WELL AS DAMAGES TO THE WORK OF ALL TRADES RESULTING FROM SAME SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

B. THE GUARANTEE PERIOD SHALL BE FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE, WHICH SHALL BE THE DATE OF FINAL PAYMENT OR THE DATE OF FORMAL NOTICE OF ACCEPTANCE, WHICHEVER IS EARLIER.

C. CERTIFICATION SHALL BE SUBMITTED BY THE CONTRACTOR ATTESTING TO THE FACT THAT SPECIFIED PERFORMANCE CRITERIA ARE MET BY ALL EQUIPMENT.

D. IF, WITHIN ANY GUARANTEE PERIOD, REPAIRS OR CHANGES TO GUARANTEED WORK ARE REQUIRED AS A RESULT OF THE USE OF DEFECTIVE MATERIALS OR EQUIPMENT, INFERIOR WORKMANSHIP OR WORK THAT IS NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT, AND UPON RECEIPT OF NOTICE FROM THE OWNER, THE FOLLOWING SHALL BE DONE WITHOUT EXPENSE TO THE OWNER:

1. PLACE IN SATISFACTORY CONDITION IN EVERY PARTICULAR ALL OF SUCH GUARANTEED WORK AND CORRECT ALL DEFECTS THEREIN.

2. REPAIR ALL DAMAGE TO THE BUILDING OR SITE/EQUIPMENT OR CONTENTS THEREOF WHICH IS THE RESULT OF THE USE OF DEFECTIVE MATERIALS OR EQUIPMENT OR INFERIOR WORKMANSHIP, OR OF WORK NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT.

3. MAKE GOOD ANY WORK OR MATERIALS, OR THE EQUIPMENT AND CONTENTS OF SAID BUILDING OR SITE DISTURBED IN FULFILLING ANY SUCH GUARANTEE.

E. IN FULFILLING THE REQUIREMENTS OF THE CONTRACT OR OF ANY GUARANTEE EMBRACED IN OR REQUIRED THEREBY, ANY WORK GUARANTEED UNDER ANOTHER CONTRACT IS DISTURBED, RESTORE SUCH DISTURBED WORK TO ORIGINAL CONDITION AND GUARANTEE SUCH RESTORED WORK TO THE SAME EXTENT AS IT WAS GUARANTEED UNDER SUCH OTHER CONTRACT.

F. IF UPON FAILURE TO PROCEED PROMPTLY AFTER NOTICE TO COMPLY WITH THE TERMS OF THE GUARANTEE, THE OWNER MAY HAVE THE DEFECTS CORRECTED AND CONTRACTOR AND HIS SURETY SHALL BE LIABLE FOR ALL EXPENSES INCURRED.

3.12 SAFETY

A. COMPLY WITH ALL OF THE SAFETY REQUIREMENTS OF OSHA THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT.

B. FURNISH, PLACE AND MAINTAIN PROPER GUARDS FOR PREVENTION OF ACCIDENTS AND ANY OTHER NECESSARY CONSTRUCTION REQUIRED TO SECURE SAFETY OF LIFE AND/OR PROPERTY.

3.13 ELECTRICAL WORK:

1. THIS CONTRACTOR SHALL INCLUDE INSTALLATION OF ALL ELECTRICAL WORK REQUIRED TO MAKE DOMESTIC WATER HEATER A COMPLETE AND WORKING OPERATION. ELECTRICAL WORK SHALL BE PERFORMED BY A STATE LICENSED ELECTRICIAN.

2. CONTRACTOR SHALL FIELD VERIFY AVAILABILITY OF POWER, TO MEET PROJECT REQUIREMENTS. PROVIDE REQUIRED POWER TO BOILERS, PUMPS, ETC. AND ALL INTERLOCKING WIRING.

PLUMBING LEGEND

SYMBOL	ABV.	DESCRIPTION
		HEAVY LINES INDICATE NEW PIPING
		LIGHT LINES INDICATE EXISTING PIPING
	RE	REMOVE EXISTING PIPING
	S/W	SOIL/WASTE PIPE ABOVE FLOOR SLAB
	V	VENT PIPE ABOVE FLOOR SLAB
	CW	COLD WATER PIPE
	HW	HOT WATER PIPE
	HWR	NEW HOT WATER RETURN PIPE
		DIRECTION OF FLOW
		UNION
		TEE OFF TOP
		TEE OFF BOTTOM
		DROP AND RUN
		DROP AND TURN
		TEE UP
		TEE DOWN
		PIPE CAP OR PLUG
	UP	PIPE UP / RISE
	DP/DN	PIPE DROP / DN
	W&T	WASTE AND TRAP
		PIPE CONTINUATION
		PLUMBING FIXTURE DESIGNATION - SEE SCHEDULE
	DCO	DANDY CLEANOUT
	BV	BALL VALVE
	CTE	CONNECT TO EXISTING
	ETR	EXISTING TO REMAIN
	TYP	TYPICAL
	RE	REMOVE EXISTING
	ETR	EXISTING TO REMAIN
	GV	GATE VALVE

HVAC•ELECTRICAL•PLUMBING •FIRE PROTECTION•

Project: STATE OF RHODE ISLAND ATTORNEY GENERAL OFFICE
150 SOUTH MAIN STREET
PROVIDENCE, RI

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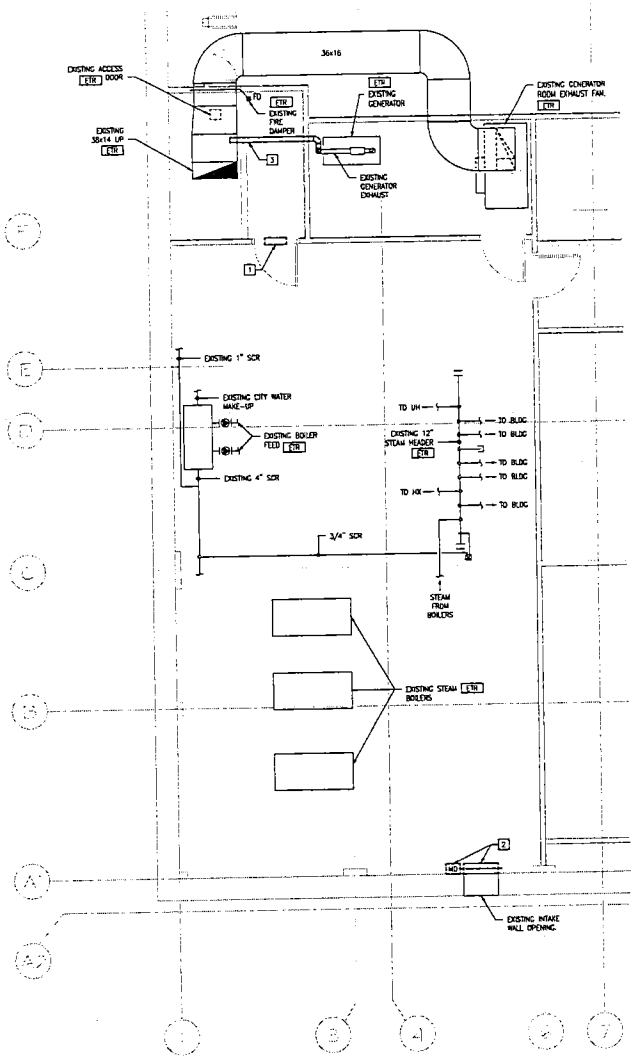
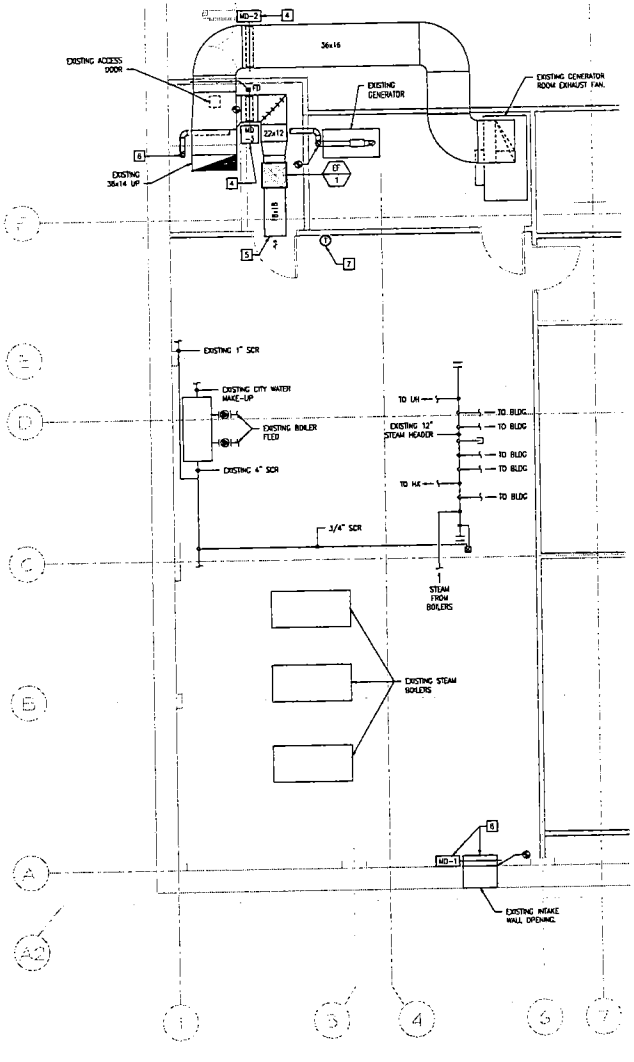


BOILER ROOM FLOOR PLAN - MECHANICAL DEMOLITON

SCALE: 1/4" = 1'-0"

MECHANICAL KEY NOTES:

1. EXISTING WALL MOUNTED PROPELLER FAN TO BE REMOVED IN ITS ENTIRETY. REMOVE ALL ASSOCIATED MOUNTING COMPONENTS, CONTROLS, ELECTRICAL CONNECTIONS, ETC. PATCH EXISTING MASONRY WALL TO MATCH EXISTING.
2. REMOVE EXISTING DUCTWORK ASSOCIATED WITH EXISTING WALL OPENING. REMOVE ASSOCIATED MOTORIZED DAMPER, ACTUATOR, ELECTRICAL CONNECTIONS, AND ALL OTHER APPURTENANCES. PIPING AND DRAIN CONNECTIONS TO BE DISCONNECTED AND RECONNECTED UNDER NEW WORK. REFER TO NEW WORK.
3. REMOVE EXISTING GENERATOR EXHAUST TO POINT INDICATED. REFER TO NEW WORK. PATCH EXISTING EXHAUST DUCTWORK TO MATCH EXISTING.
4. INSTALL NEW BACKDRAFT DAMPER IN DUCTWORK. EXACT LOCATION TO BE COORDINATED IN FIELD. REFER TO SEQUENCE OF OPERATION.
5. PROVIDE 18x18 OPEN ENDED DUCT WITH 1/2" WIRE MESH SCREEN.
6. PROVIDE NEW DUCTWORK AND MOTORIZED DAMPER AT FULL SIZE OF EXISTING WALL OPENING. REFER TO SEQUENCE OF OPERATION.
7. SPACE MOUNTED TEMPERATURE SENSOR. REFER TO SEQUENCE OF OPERATION.
8. INSTALL NEW GENERATOR EXHAUST PIPE. MATERIAL TO MATCH EXISTING. RUN PIPE VERTICALLY THROUGH EXISTING CHASE AS TERMINATE ON ROOF PER GENERATOR MANUFACTURER RECOMMENDATIONS.



BOILER ROOM FLOOR PLAN - MECHANICAL NEW WORK

SCALE: 1/4" = 1'-0"

Project: STATE OF RHODE ISLAND
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HEATING, VENTILATING, AND AIR CONDITIONING SPECIFICATIONS

PART 1 – GENERAL PROVISIONS FOR MECHANICAL WORK

1.01 GENERAL REQUIREMENTS:

A. SCOPE OF WORK SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, HOISTING, RIGGING, INSURANCE, ETC., TO PERFORM THE WORK AS INDICATED ON THE DRAWINGS AND HEREIN SPECIFIED FOR A COMPLETE INSTALLATION. ALL WORK SHALL BE IN ACCORDANCE WITH NATIONAL, STATE AND LOCAL CODES AND ORDINANCES HAVING JURISDICTION, AS INTERPRETED BY THE ENGINEER.

B. APPLY AND PAY FOR ALL NECESSARY INSPECTION FEES, LICENSES AND PERMITS REQUIRED BY THE PROPER AUTHORITIES HAVING JURISDICTION.

C. THE BUILDING WILL BE OCCUPIED DURING ALL OF THE CONSTRUCTION PROCESS. THE CONSTRUCTION SCHEDULE SHALL BE DEVELOPED WITH THE UNDERSTANDING THAT THE BUILDING IS OCCUPIED AND THAT IT CAN NEITHER BE CLOSED NOR CAN THE OWNER'S OPERATIONS STOP.

D. NO EXITS SHALL BE CLOSED WITHOUT THE WRITTEN PERMISSION OF THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION.

E. ANY UTILITY OUTAGES OR SYSTEM SHUTDOWNS FOR CONSTRUCTION SHALL BE SCHEDULED WITH THE ARCHITECT/OWNER PRIOR TO COMMENCING OF WORK.

F. SUBMIT SHOP DRAWINGS OF ALL HVAC EQUIPMENT AND RECORD DRAWINGS FOR ALL WORK PROVIDED UNDER THIS CONTRACT TO THE ENGINEER/OWNER FOR HIS USE PRIOR TO ORDERING, FABRICATING OR INSTALLING SAME.

G. ALL MATERIALS SHALL BE NEW. ALL EQUIPMENT SHALL BEAR THE U.L. LABEL.

H. RECORD DRAWINGS: THE CONTRACTOR SHALL KEEP DAILY UPDATED ACCURATE RECORDS OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK INDICATED ON THE CONTRACT DRAWINGS. THE RECORD DRAWINGS SHALL BE KEPT AT THE JOB SITE, AVAILABLE TO THE OWNER AT ALL TIMES AND LABELED AS "PROJECT RECORD INFORMATION – JOB SET". WHEN WORK IS COMPLETED THE CONTRACTOR SHALL PROVIDE TO THE OWNER ONE COMPLETE SET OF MARKED-UP ORIGINAL PRINTS, UPDATED CAD DRAWINGS AND A CD WITH CAD FILES.

1.02 GUARANTEES:

A. ALL WORK, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED AGAINST DEFECTS RESULTING FROM THE USE OF INFERIOR MATERIALS, EQUIPMENT, OR WORKMANSHIP FOR ONE YEAR FROM THE DATE OF FINAL COMPLETION OF THE CONTRACT, OR FROM FULL ACCEPTANCE BY THE OWNER, WHICHEVER IS EARLIER. ALL DEFECTIVE MATERIAL OR WORKMANSHIP AS WELL AS DAMAGES TO THE WORK OF ALL TRADES RESULTING FROM SAME SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

B. THE GUARANTEE PERIOD SHALL BE FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE, WHICH SHALL BE THE DATE OF FINAL PAYMENT OR THE DATE OF FORMAL NOTICE OF ACCEPTANCE, WHICHEVER IS EARLIER.

C. CERTIFICATION SHALL BE SUBMITTED BY THE CONTRACTOR ATTESTING TO THE FACT THAT SPECIFIED PERFORMANCE CRITERIA ARE MET BY ALL EQUIPMENT.

D. IF, WITHIN ANY GUARANTEE PERIOD, REPAIRS OR CHANGES TO GUARANTEED WORK ARE REQUIRED AS A RESULT OF THE USE OF DEFECTIVE MATERIALS OR EQUIPMENT, INFERIOR WORKMANSHIP OR WORK THAT IS NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT, AND UPON RECEIPT OF NOTICE FROM THE OWNER, THE FOLLOWING SHALL BE DONE WITHOUT EXPENSE TO THE OWNER:

1. REPAIR ALL DAMAGE TO THE BUILDING OR SITE/EQUIPMENT OR CONTENTS THEREOF WHICH IS THE RESULT OF THE USE OF DEFECTIVE MATERIALS OR EQUIPMENT OR INFERIOR WORKMANSHIP, OR OF WORK NOT IN ACCORDANCE WITH THE TERMS OF THE CONTRACT.
2. MAKE GOOD ANY WORK OR MATERIALS, OR THE EQUIPMENT AND CONTENTS OF SAID BUILDING OR SITE DISTURBED IN FULFILLING ANY SUCH GUARANTEE.
3. IN FULFILLING THE REQUIREMENTS OF THE CONTRACT OR OF ANY GUARANTEE EMBRACED IN OR REQUIRED THEREBY, ANY WORK GUARANTEED UNDER ANOTHER CONTRACT IS DISTURBED, RESTORE SUCH DISTURBED WORK TO ORIGINAL CONDITION AND GUARANTEE SUCH RESTORED WORK TO THE SAME EXTENT AS IT WAS GUARANTEED UNDER SUCH OTHER CONTRACT.
4. IF UPON FAILURE TO PROCEED PROMPTLY AFTER NOTICE TO COMPLY WITH THE TERMS OF THE GUARANTEE, THE OWNER MAY HAVE THE DEFECTS CORRECTED AND CONTRACTOR AND HIS SURETY SHALL BE LIABLE FOR ALL EXPENSES INCURRED.

1.03 CONTRACTORS RESPONSIBILITIES:

A. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY INJURIES TO PEOPLE, EMPLOYEES OR DAMAGE DONE TO BUILDING PREMISES OR ADJOINING AREAS OR TO OTHER WORK RESULTING FROM EXECUTION ON HIS PART OF WORK, IN ANY MANNER WHATSOEVER.

B. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PROTECTION OF HIS WORK, MATERIALS, PEOPLE OR EMPLOYEES FROM INJURY OR LOSS DONE BY OTHERS AND SHALL MAKE GOOD SUCH INJURY AT HIS OWN EXPENSE.

C. DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.

D. ENGINEER SHALL NOT BE RESPONSIBLE FOR THE SAFETY OF CONTRACTOR' EMPLOYEES, MATERIALS OR EQUIPMENT.

1.04 COORDINATION AND INTERPRETATION OF DRAWINGS:

A. THIS CONTRACTOR, PRIOR TO SUBMITTING BID SHALL VISIT THE PROJECT SITE TO BECOME FAMILIAR WITH ALL EXISTING CONDITIONS AND TO INSPECT THAT ALL PROVISIONS HAVE BEEN MADE FOR ALL ASPECTS OF THIS PROJECT.

B. IF DISCREPANCIES EXIST BETWEEN DRAWINGS AND/OR SITE CONDITIONS, THE HVAC CONTRACTOR SHALL NOTIFY THE ENGINEER AND THE OWNER PRIOR TO SIGNING OF CONTRACT. REQUESTS FOR COMPENSATION FOR EXTRA WORK, WHICH WOULD HAVE BEEN EVIDENT BY COMPLIANCE WITH THE PREVIOUS STATEMENT, WILL NOT BE CONSIDERED.

C. MECHANICAL EQUIPMENT AND SUCH OTHER APPARATUS AS MAY REQUIRE MAINTENANCE AND OPERATION FROM TIME TO TIME SHALL BE MADE EASILY ACCESSIBLE. ALTHOUGH THE EQUIPMENT MAY BE SHOWN ON THE DRAWINGS IN CERTAIN LOCATIONS, THE CONSTRUCTION MAY DISCLOSE THAT SUCH LOCATIONS DO NOT MAKE ITS POSITION READILY ACCESSIBLE. IN SUCH CASES, THE OWNER OR HIS REPRESENTATIVE SHALL BE NOTIFIED BEFORE ADVANCING THE CONSTRUCTION TO A STAGE WHERE A CHANGE WILL REFLECT ADDITIONAL EXPENSE.

D. IT SHALL BE THE RESPONSIBILITY OF THE HVAC CONTRACTOR TO STUDY ALL DRAWINGS AND DETAILS SO THAT THE INSTALLATION OF ALL NEW WORK CAN BE FULLY COORDINATED COORDINATE WITH ALL TRADES TO AVOID INTERFERENCE OF EQUIPMENT.

E. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATION OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. EQUIPMENT, DUCTS OR PIPES INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

F. HVAC CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH ARCHITECT AND STRUCTURAL ENGINEER.

1.05 DEMOLITION:

A. EACH BIDDER FOR WORK UNDER THIS SECTION OF THE SPECIFICATION SHALL INCLUDE IN HIS BID ALL COSTS INVOLVED IN DISCONNECTING ALL PIPING, DUCTWORK AND UNUSED CONTROL WIRING SERVING EXISTING HVAC EQUIPMENT THAT IS TO BE REMOVED. COORDINATE ALL SHUTDOWN OF EXISTING SYSTEMS AS REQUIRED, WITH THE OWNER.

B. CONTRACTOR SHALL VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. DEMOLITION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING.

C. PRIOR TO COMMENCING DEMOLITION, CONTRACTOR SHALL IDENTIFY WITH OWNER ANY EQUIPMENT TO BE RETURNED TO THE OWNER AFTER DEMOLITION. ALL OTHER DEBRIS SHALL BE DISPOSED OF BY THIS CONTRACTOR IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.

D. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISCONNECTION AND REMOVAL OF THE EXISTING MECHANICAL EQUIPMENT, DUCTWORK, PIPING, VALVES, ETC., IN DESIGNATED AREAS. PATCH ALL WALL PENETRATIONS TO MATCH EXISTING.

E. THIS CONTRACTOR SHALL PROTECT WORK AGAINST INJURY OR DAMAGE, AND CAREFULLY STORE MATERIAL AND EQUIPMENT TO BE RELOCATED. OPEN ENDS OF WORK SHALL BE CLOSED WITH TEMPORARY COVERS OR PLUGS DURING STORAGE AND CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.

1.06 EQUIPMENT:

A. PRODUCTS REQUIRED BY CONSTRUCTION BUT NOT SPECIFICALLY DESCRIBED HEREIN SHALL BE AS SELECTED BY THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ENGINEER.

B. PROVIDE ALL MATERIALS, LABOR, AND ACCESSORIES FOR A COMPLETE AND OPERABLE SYSTEMS AND AS REQUIRED BY THE EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS.

C. PROVIDE ALL HANGERS AND SUPPORTS AS REQUIRED TO SUPPORT ALL NEW PIPING, DUCTWORK AND EQUIPMENT.

D. PROVIDE VIBRATION ISOLATION ON MOTOR DRIVEN EQUIPMENT, PLUS CONNECTED DUCTWORK, COMPLY WITH MINIMUM STATIC DEFLECTIONS AS RECOMMEND BY ASHRAE FOR SELECTION AND APPLICATION OF VIBRATION ISOLATION MATERIALS AND UNITS.

1.07 EXECUTION:

A. ALL CUTTING, CORE DRILLING AND PATCHING REQUIRED FOR INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE THE RESPONSIBILITY OF THIS CONTRACTOR. COORDINATE ALL WORK FOR A COMPLETE AND FINISHED INSTALLATION.

B. INSTALL ALL MATERIALS, ACCESSORIES AND EQUIPMENT ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR A COMPLETE AND OPERABLE SYSTEMS AS INDICATED ON THE DRAWINGS MANUFACTURERS INSTRUCTIONS.

C. INSTALLATION OF THE HVAC SYSTEM SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/OR REPLACEMENT OF NEW AND EXISTING EQUIPMENT.

D. ALL MISCELLANEOUS STRUCTURAL SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATION SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.

E. WHERE DUCTWORK PENETRATES ANY SMOKE AND/OR FIRE RATED PARTITIONS PROVIDE UL LISTED DYNAMIC FIRE AND/OR SMOKE DAMPERS PER NFPA GUIDELINES. INSTALL PER MANUFACTURERS INSTRUCTIONS.

F. ALL CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.

1.08 EQUIPMENT, VALVE, AND PIPE IDENTIFICATION:

A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PRODUCTS ARE LIMITED TO SETON, BRADY OR BRIMAR WHICH HAVE A MINIMUM OF 5 YEARS EXPERIENCE IN THE MANUFACTURING OF MECHANICAL IDENTIFICATION PRODUCTS.

B. EQUIPMENT IDENTIFICATION:

1. USE BLACK LAMINATED PHENOLIC NAMEPLATES 6" LONG X 3" HIGH WITH WHITE INCISED LETTERING 1/2" HIGH. ATTACH TO EQUIPMENT WITH STAINLESS STEEL OR BRASS SCREWS, OR RIVETS.

PART 2 – EQUIPMENT

2.01 GENERAL DUCTWORK:

D. ALL DUCTWORK SHALL BE OF TOP GRADE GALVANIZED STEEL, CONSTRUCTED AND SUPPORTED AS PER S.M.A.C.N.A. LOW PRESSURE STANDARDS. SQUARE THROAT, ROUND HEEL ELBOWS ARE NOT ACCEPTABLE. ALL ELBOWS SHALL BE SQUARE WITH TURNING VANES OR LONG RADIUS TYPE. ALL JOINTS, SEAMS AND FITTINGS SHALL BE AIR AND WATER TIGHT USING SOLDER JOINTS, COMPOUND OR SILICONE AND SHALL BE FOAMED TO PROVIDE A MINIMUM RESISTANCE TO THE AIR FLOW.

E. ALL DUCTWORK CONSTRUCTION SHALL BE OF FABRICATED SHEET METAL (NO DUCT BOARD OR FLEXIBLE DUCT WILL BE ACCEPTABLE) AND BE BUILT IN ACCORDANCE WITH "SMACNA" STANDARDS AND PUBLICATION TITLED "HVAC DUCT CONSTRUCTION STANDARDS".

F. DUCTWORK DIMENSIONS INDICATED ON DRAWINGS ARE NET INSIDE DIMENSIONS REQUIRED FOR AIRFLOW.

G. FLEXIBLE CONNECTION: ATTACH AT INLET AND OUTLET OF FANS SO THAT METAL IS SEPARATED BY 6" MINIMUM AND SO THAT JOINT IS AIR TIGHT. USE NEOPRENE HEAVY DUTY TYPE 6.0 INCH CLEAR DUCT TO DUCT.

H. NO FLEXIBLE DUCT WILL BE ACCEPTABLE.

I. DUCT SUPPORTS SHALL BE SPACED NOT MORE THAN 8'-0" ON CENTER AND SHALL BE STEEL STRAP HANGERS, (PERFORATED STRAP NOT PERMITTED) FOR DUCTS UP TO 30" WIDE; ANGLE HANGERS FOR DUCTS OVER 20" WIDE. STRAP HANGERS SHALL BE 1" x 16 GAUGE MINIMUM EXTENDING ON BOTH SIDES OF DUCT AND TURNING UNDER 2", FASTENED TO SIDES AND BOTTOM WITH SHEET METAL SCREWS.

J. DUCTWORK DOES NOT REQUIRE INSULATION.

2.02 DAMPERS:

A. ALL DAMPERS SHALL BE AT LEAST ONE GAUGE HEAVIER THAN DUCT IN WHICH INSTALLED, REINFORCED AS NECESSARY AND EQUIPPED WITH QUADRANT AND LOCKING DEVICE.

B. DAMPERS SHALL BE INSULATED OPPOSED BLADE TYPE WITH FACTORY INSTALLED LOCKING QUADRANTS EXTENDED 2".

C. PROVIDE ACTUATOR AND COORDINATE WITH CONTROLS CONTRACTOR FOR CONTROL WIRING. MECHANICAL CONTRACTOR TO PROVIDE ALL CONTROL WIRING REGARDLESS OF VOLTAGE, INCLUDING ELECTRICAL TRANSFORMER IF NECESSARY.

2.03 IN-LINE EXHAUST FAN:

A. DUCT MOUNTED FAN SHALL BE OF THE CENTRIFUGAL, DIRECT-DRIVEN, INLINE TYPE.

B. THE FAN HOUSING SHALL BE OF A SQUARE DESIGN CONSTRUCTED OF ALUMINUM AND SHALL INCLUDE SQUARE DUCT MOUNTING COLLARS. FAN CONSTRUCTION SHALL INCLUDE TWO REMOVABLE ACCESS PANELS LOCATED PERPENDICULAR TO THE MOTOR MOUNTING PANEL. THE ACCESS PANELS MUST BE OF SUFFICIENT SIZE TO PERMIT EASY ACCESS TO ALL INTERIOR COMPONENTS.

C. THE FAN WHEEL SHALL BE CENTRIFUGAL, BACKWARD-INCLINED, CONSTRUCTED OF ALUMINUM, AND SHALL INCLUDE A WHEEL CONE CAREFULLY MATCHED TO THE INLET CONE FOR PRECISE RUNNING TOLERANCES. WHEELS SHALL BE STATICALLY AND DYNAMICALLY BALANCED.

D. ALL FANS SHALL BEAR THE AMCA CERTIFIED RATINGS SEAL FOR SOUND AND AIR PERFORMANCE. FAN SHALL BEAR A PERMANENTLY AFFIXED MANUFACTURER'S NAMEPLATE CONTAINING THE MODEL NUMBER AND INDIVIDUAL SERIAL NUMBER FOR FUTURE IDENTIFICATION.

E. MOTOR TO BE AN ELECTRONIC COMMUTATION (EC) MOTOR SPECIFICALLY DESIGNED FOR FAN APPLICATIONS. AC INDUCTION TYPE MOTORS ARE NOT ACCEPTABLE. EXAMPLES OF UNACCEPTABLE MOTORS ARE: SHADED POLE, PERMANENT SPLIT CAPACITOR (PSC), SPLIT PHASE, CAPACITOR START AND 3 PHASE INDUCTION TYPE MOTORS. MOTORS SHALL BE PERMANENTLY LUBRICATED WITH HEAVY-DUTY BALL BEARINGS TO MATCH THE FAN LOAD AND PRE-WIRED TO THE SPECIFIC VOLTAGE AND PHASE. INTERNAL MOTOR CIRCUITRY SHALL CONVERT AC POWER SUPPLIED TO THE FAN TO DC POWER TO OPERATE THE MOTOR. MOTOR SHALL BE SPEED CONTROLLABLE DOWN TO 20% OF FULL SPEED (80% TURNDOWN), SPEED SHALL BE CONTROLLED BY EITHER A POTENTIOMETER DIAL MOUNTED ON THE MOTOR OR BY A 0-10 VDC SIGNAL. MOTOR SHALL BE A MINIMUM OF 85% EFFICIENT AT ALL SPEEDS.

F. A NEMA-1 DISCONNECT SWITCH SHALL BE PROVIDED AS STANDARD. FACTORY WIRING SHALL BE PROVIDED FROM MOTOR TO THE HANDY BOX.

PART 3 – EXECUTION

3.01 CONTROLS:

A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT THIS CONTRACTOR BE RESPONSIBLE FOR PROVIDING ALL DEVICES, TRANSFORMERS AND WIRING (REGARDLESS OF VOLTAGE) NECESSARY TO PROVIDE THE SEQUENCES AS SPECIFIED HEREIN.

B. ALL MECHANICAL SYSTEMS SHALL BE AUTOMATICALLY CONTROLLED. WHERE NO DESCRIPTION OF OPERATION IS INDICATED FOR A PARTICULAR SYSTEM OR DEVICE, THE CONTRACTOR SHALL SELECT APPROPRIATE CONTROL SCHEMATICS AND REVIEW THEM WITH THE ENGINEER PRIOR TO PROCESSING. ALL CONTROLS SHALL BE ARRANGED AND DESIGNED FOR MAXIMUM ENERGY CONSERVATION.

C. REMOVE AND DISCARD ALL EXISTING UNUSED CONTROLS.

D. ALL NEW CONTROLS SHALL BE COMPATIBLE WITH EXISTING TRIDIUM CONTROL SYSTEM. CONTRACTOR SHALL PROVIDE ALL MODIFICATIONS TO EXISTING CONTROL SYSTEM TO INTEGRATE WORK COVERED UNDER THIS PROJECT IN ITS ENTIRETY. COORDINATE WITH OWNER AND OTHER TRADES FOR FULL SCOPE OF CONTROL INTEGRATION.

3.02 SEQUENCE OF OPERATIONS

A. EXHAUST FAN

1. EXHAUST FAN SHALL BE INTERLOCKED WITH SPACE MOUNTED TEMPERATURE SENSOR. WHEN SPACE TEMPERATURE IS SENSED TO BE ABOVE 90°F (ADJUSTABLE), EXHAUST FAN SHALL BE ENERGIZED TO FULL SPEED. EXHAUST FAN SHALL RUN FOR A MINIMUM OF 30 MINUTES. EXHAUST FAN SHALL NOT BE DE-ENERGIZED UNTIL SPACE TEMPERATURE IS BELOW 90°F (ADJUSTABLE).
2. EXHAUST FAN SHALL NOT BE ALLOWED TO ENERGIZE WHEN EXISTING GENERATOR ROOM EXHAUST FAN IS ENERGIZED.

B. MOTORIZED DAMPER (MD-1)

1. MOTORIZED DAMPER SHALL OPEN WHEN EXHAUST FAN IS ENERGIZED AT ANY SPEED. EXHAUST FAN SHALL NOT BE ALLOWED TO ENERGIZE UNTIL MOTORIZED DAMPER IS PROVEN OPEN.
2. MOTORIZED DAMPER SHALL CLOSE WHEN EXHAUST FAN IS DE-ENERGIZED. MOTORIZED DAMPER SHALL NOT BE ALLOWED TO CLOSE UNTIL EXHAUST FAN IS PROVEN OFF.
3. MOTORIZED DAMPER SHALL OPEN WHEN ANY GAS FIRED APPLIANCE WITHIN BOILER ROOM IS CALLED TO RUN.

C. MOTORIZED DAMPERS (MD-2&3)

1. BOTH DAMPERS SHALL BE CLOSED WHEN ASSOCIATED EXHAUST FANS ARE NOT ENERGIZED.
2. WHEN EXISTING GENERATOR ROOM EXHAUST FAN IS CALLED TO ENERGIZE, ASSOCIATED MOTORIZED DAMPER (MD-2) SHALL OPEN. WHEN GENERATOR IS DE-ENERGIZED, MOTORIZED DAMPER MD-2 SHALL CLOSE.
3. WHEN EXHAUST FAN EF-1 IS CALLED TO ENERGIZE, ASSOCIATED MOTORIZED DAMPER (MD-3) SHALL OPEN. FAN SHALL NOT BE ALLOWED TO RUN UNTIL MOTORIZED DAMPER MD-3 IS PROVEN OPEN. WHEN EXHAUST FAN EF-1 IS DE-ENERGIZED, MOTORIZED DAMPER MD-3 SHALL CLOSE.

3.03 BALANCING, ADJUSTING, TESTING, & CLEANING:

A. ALL HVAC SYSTEMS SHALL BE BALANCED BY AN INDEPENDENT TESTING AND BALANCING AGENCY CERTIFIED BY AABC. ALL TESTING SHALL BE IN ACCORDANCE WITH AABC & NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION, FORM #61268. SYSTEMS SHALL BE ADJUSTED TO FLOW AND AIR QUANTITIES DESIGNED. A WRITTEN REPORT SHALL BE SUBMITTED FOR REVIEW.

B. PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS AND SERVICES FOR STARTUP TESTING AND BALANCING OF MECHANICAL SYSTEMS FOR QUANTITIES INDICATED ON DRAWINGS UPON COMPLETION OF INSTALLATION. BALANCE SYSTEMS IN ACCORDANCE WITH CODES, STANDARDS, REGULATIONS AND AUTHORITIES HAVING JURISDICTION. CONTRACTOR SHALL USE RECENTLY CALIBRATED EQUIPMENT COMPATIBLE WITH INSTALLED EQUIPMENT AND SUBMIT BALANCING REPORT TO THE ENGINEER.

C. AIR BALANCING: PROVIDE COMPLETE BALANCING AND ADJUSTING OF ALL AIR SYSTEMS INCLUDING SETTING THE FLOW THROUGH ALL EQUIPMENT. RECORD ALL FAN MOTOR CURRENTS AND NAMEPLATE DATA. TEST AND ADJUST FLOW AT THE FAN. LIST DESIGN AND MEASURED FLOWS.

D. ALL HVAC SYSTEMS SHALL BE TESTED AND FOUND TIGHT. ANY LEAKS DEVELOPED SHALL BE CORRECTED PRIOR TO OWNER'S ACCEPTANCE OF THE NEW SYSTEMS.

3.04 PROJECT CLOSE-OUT:

C. RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. CLEAN PORTIONS OF THE SITE AFFECTED BY WORK OF THIS CONTRACT. REMOVE WASTE AND SURPLUS MATERIALS FROM THE SITE.

D. SUBMIT TWO COPIES OF OPERATION AND MAINTENANCE DATA BOUND IN THREE-RING BINDERS. INCLUDE WARRANTIES, SUBMITTALS, BALANCING REPORT, AND PROJECT DOCUMENTS AND CERTIFICATES. THE MANUAL SHALL ALSO INCLUDE A SCHEDULE FOR EQUIPMENT MAINTENANCE. SCHEDULE SHALL PROVIDE A GENERAL OUTLINE FOR EQUIPMENT REQUIREMENT. EXAMPLE: FILTERS SHALL BE CHANGED EVERY 3 MONTHS, TEST DAMPERS ONCE A YEAR, MAINTAIN NEUTRALIZING KIT AT THE AIR HANDLERS.

E. CONTRACTOR SHALL INSTRUCT OWNER IN USE OF SYSTEM.

F. CONTRACTOR SHALL DEMONSTRATE ALL SEQUENCES OF CONTROL TO THE ENGINEER. THE CONTROL AND BALANCING SUB-CONTRACTORS SHALL ACCOMPANY THE ENGINEER DURING CHECK-OUT PROCEDURE. PERSONNEL SHALL BE EQUIPPED WITH TOOLS AND SPARE PARTS TO MAKE MINOR REPAIRS AND ADJUSTMENTS.

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STATE OF RHODE ISLAND
ATTORNEY GENERAL OFFICE
150 SOUTH MAIN STREET
PROVIDENCE, RI

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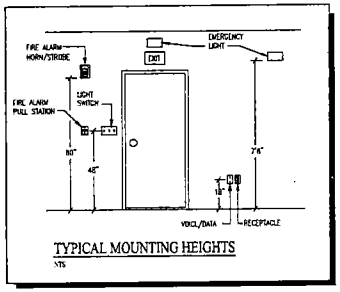
GENERAL NOTES:

1. LOCATIONS SHOWN FOR CONNECTIONS TO EQUIPMENT ARE DIAGRAMMATIC. INSTALL FOR EASE OF MAINTENANCE AND TO SUIT EQUIPMENT.
2. PROVIDE ALL REQUIRED PULL BOXES, JUNCTION BOXES, AND DISCONNECT SWITCHES.
3. COLOR CODE ALL WIRING.
4. PROVIDE CONDUIT SLEEVES AS REQUIRED, THROUGH FIRE RATED SEPARATIONS. FIRE SEAL AFTER WIRING IS COMPLETE.
5. PROVIDE A NYLON PULL CORD IN ALL EMPTY CONDUITS.
6. THE LOCATIONS OF HVAC EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FOR EXACT LOCATIONS REFER TO HVAC DRAWINGS AND SHOP DRAWINGS.
7. CONCEAL ALL WIRING UNLESS OTHERWISE NOTED.
8. CIRCUIT NUMBERS INDICATE PANEL AND CIRCUIT BREAKER FOR EQUIPMENT CONNECTIONS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO INSTALL ALL REQUIRED WIRING PER NATIONAL ELECTRIC CODE AND PROJECT SPECIFICATIONS TO PROPERLY ENERGIZE THE ELECTRICAL SYSTEM. ALL WIRING SHALL BE RUN IN A NEAT AND ORDERLY MANNER.
9. WIRING SHALL NOT BE LAID ON, OR ATTACHED TO THE SUSPENDED CEILING OR ITS SUPPORT WIRES. ALL CABLES SHALL BE RUN PARALLEL OR PERPENDICULAR TO WALLS. DO NOT RUN CABLES DIAGONALLY THROUGH ANY SPACE.
10. WHERE THE NUMBER OF CURRENT CARRYING CONDUCTORS IN A RACEWAY OR CABLE EXCEEDS THREE, THE ALLOWABLE AMPACITY SHALL BE REDUCED PER NATIONAL ELECTRIC CODE TABLE BASED ON NO DIVERSITY. CONSIDER NEUTRALS TO BE CURRENT CARRYING CONDUCTORS.
11. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS. NO CLAIM FOR EXTRA COMPENSATION SHALL BE ENTERTAINED FOR WORK WHICH A PRELIMINARY EXAMINATION WOULD HAVE REVEALED. THE SUBMISSION OF A BID WILL BE CONSIDERED AS ACKNOWLEDGMENT ON THE PART OF THE BIDDER OF HIS VISITATION TO THE SITE.
12. OBTAIN ALL NECESSARY PERMITS AND CERTIFICATES. PRESENT SATISFACTORY PROOF OF FINAL INSPECTION AND APPROVAL BY AUTHORITIES HAVING JURISDICTION.



TYPICAL MOUNTING HEIGHTS

NTS

TYPICAL DEMOLITION NOTES:

(TYPICAL FOR ALL DEMOLITION DRAWINGS)

1. PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. RENOVATION WORK WILL REQUIRE CAREFUL SITE EXAMINATION PRIOR TO BIDDING. NO CONFIGURATION WILL BE DRAWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY AN EXPERIENCED OBSERVER. FIELD VERIFY MEASUREMENTS AND CONDITIONS ARRANGEMENTS THAT ARE AS SHOWN ON DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL REVIEW ALL OF THE OTHER TRADES DRAWINGS TO VERIFY ALL AREAS OF RENOVATION AND TO GET A COMPLETE UNDERSTANDING OF THE DEMOLITION WORK REQUIRED BY THIS PROJECT.
2. FIELD VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.
3. DEMOLITION DRAWINGS ARE BASED ON CASUAL FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT DISCREPANCIES TO OWNER/ENGINEER BEFORE DISTURBING EXISTING INSTALLATIONS. THESE DRAWINGS HAVE BEEN COMPILED FROM THE BEST AVAILABLE INFORMATION AND ARE NOT INTENDED TO LIMIT THE SCOPE OF THE WORK. THE ELECTRICAL CONTRACTOR MAY ENCOUNTER HIDDEN OR COVERED CONDITIONS, NOT INDICATED IN THESE DOCUMENTS, REQUIRING THE ELECTRICAL CONTRACTOR TO PROVIDE ADDITIONAL WORK FOR THE COMPLETION OF HIS OR HER CONTRACT. IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INSPECTED THE SITE PRIOR TO BIDDING AND VERIFIED THE INFORMATION SUPPLIED HEREIN AND ADDITIONAL WORK REQUIRED. BEGINNING OF DEMOLITION MEANS THE CONTRACTOR ACCEPTS EXISTING CONDITIONS. REFER TO ALL CONSTRUCTION DOCUMENTS TO GAIN A COMPLETE UNDERSTANDING OF THE DEMOLITION WORK REQUIRED.
4. CUT, REMOVE AND LEGALLY DISPOSE OF SELECTED ELECTRICAL EQUIPMENT, COMPONENTS AND MATERIALS AS INDICATED, INCLUDING, BUT NOT LIMITED TO, REMOVAL OF ELECTRICAL ITEMS INDICATED TO BE REMOVED AND ITEMS MADE OBSOLETE BY THE WORK. DISCONNECT AND REMOVE ALL DEVICES, CONDUIT AND FITTINGS, WIRING AND CABLE, FIRE ALARM DEVICES/COMPONENTS, HANGERS, SUPPORTS, WIREWAYS, AND ALL OTHER ELECTRICAL COMPONENTS MADE OBSOLETE BY THIS PROJECT. THE OWNER RESERVES THE OPTION OF SALVAGE RIGHTS TO DEMOLISHED MATERIAL AND REMOVED EQUIPMENT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE TO OBTAIN A LIST OF MATERIALS AND REMOVED EQUIPMENT TO BE TURNED OVER TO THE OWNER. ALL OTHER MATERIAL AND REMOVED EQUIPMENT NOT BEING SALVAGED BY THE OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR. PLACE ALL DEMOLISHED ELECTRICAL MATERIALS EXCEPT HAZARDOUS MATERIALS AS DETERMINED BY THE AUTHORITY HAVING JURISDICTION IN GENERAL CONTRACTOR'S DUMPSTER. ALL HAZARDOUS ELECTRICAL MATERIALS SHALL BE LEGALLY DISPOSED OF BY THE ELECTRICAL SUBCONTRACTOR.
5. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.
6. EXTEND EXISTING ELECTRICAL INSTALLATIONS AS CALLED FOR ON THE DRAWINGS.
7. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW WORK.
8. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY.
9. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH AND PAINT SURFACES TO MATCH EXISTING WALL COLOR.
10. REMOVE ABANDONED OUTLETS DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. REMOVE BACKBOXES OF DEMOLISHED OUTLET DEVICES. BLANK PLATES ARE NOT ALLOWED. PROVIDE CUTTING, PATCHING AND PAINTING TO MATCH WALL COLOR AS REQUIRED.
11. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED.
12. DISCONNECT AND REMOVE OTHER SYSTEMS AND EQUIPMENT WITHIN THE WORK AREA MADE OBSOLETE BY THIS WORK.
13. PROTECT ALL EXISTING WALLS, FLOORS, CEILINGS, LIGHT FIXTURES, ETC. WHICH ARE TO REMAIN AND TO PREVENT DAMAGE DURING ALL CONSTRUCTION PHASES. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. PROVIDE AND MAINTAIN TEMPORARY PARTITIONS OR DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT AREAS. PROTECT THE STRUCTURE, FURNISHINGS, FINISHES, AND ADJACENT MATERIALS NOT INDICATED OR SCHEDULED TO BE REMOVED. PROTECT THE ELECTRICAL WORK AND THE WORK OF OTHERS IN A MANNER BEST SUITED TO THE PARTICULAR CASE. CORRECT ANY DAMAGE DONE TO ANY WORK AT NO ADDITIONAL COST.
14. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.
15. EXTEND EXISTING INSTALLATIONS USING MATERIALS AND METHODS COMPATIBLE WITH EXISTING ELECTRICAL INSTALLATIONS, OR AS SPECIFIED.
16. CLEAN AND REPAIR EXISTING MATERIALS AND EQUIPMENT WHICH REMAIN OR ARE TO BE RELOCED.
17. PANELBOARDS: PROVIDE TYPED CIRCUIT DIRECTORY SHOWING REVISED CIRCUITING ARRANGEMENT.
18. EXISTING ELECTRICAL EQUIPMENT AND WIRING NOT SHOWN ON THESE DOCUMENTS SHALL BE CONSIDERED EXISTING TO REMAIN.

ELECTRICAL SYMBOL LEGEND

POWER & COMMUNICATION

FM	FIRE-O-MATIC SWITCH, MTD. OVER BURNER & WATER HEATER. OMOE CAT. # 1C-1
S_{BE}	BOILER EMERGENCY SWITCH. ARROW-HART #: 1S120 W/ MULBERRY 41020 PLATE
J	JUNCTION BOX
	ELECTRIC PANEL
S_C	SINGLE POLE MOTOR RATED SWITCH W/ OVERLOAD HEATER (MANUAL MOTOR STARTER).
	TEL/DATA OUTLET, PROVIDE A 4" SQUARE BOX WITH A SINGLE DEVICE RAISED COVER OPENING MOUNTED 18" A.F.F. TO CENTER. "#" INDICATES 54" A.F.F., "F" INDICATES 42" A.F.F., "T" INDICATES FLOOR MOUNTED, "C" INDICATES MOUNTED 6" ABOVE COUNTER TOP. ALSO PROVIDE BLANK PLATE
ATS	AUTOMATIC TRANSFER SWITCH

ABBREVIATIONS

A	AMPS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
ATS	AUTOMATIC TRANSFER SWITCH
BFG	BELOW FINISHED GRADE
BOF	BOTTOM OF FIXTURE
C	CONDUIT
CAT	CATALOG
CB	CIRCUIT BREAKER
CBA	COLOR BY ARCHITECT
CD	CANDELA
CU	COPPER
DN	DOWN
DWG	DRAWING
ECPS	EMPTY CONDUIT W/ PULL STRING
EG	EQUIPMENT GROUND
EWC	ELECTRIC WATER COOLER
EX	EXISTING
F	FAHRENHEIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
G	GROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER
HOA	HAND-OFF-AUTOMATIC SWITCH
HP	HORSEPOWER
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
IG	ISOLATED GROUND
KW	KILOWATT
MTD	MOUNTED
N	NEUTRAL
NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NF	NOT FUSIBLE
NG	NATIONAL GRID (ELECTRIC UTILITY)
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
P	POLE
PH	PHASE
RECEC(S)	RECEPTACLE(S)
TEL	TELEPHONE
TTB	TELEPHONE TERMINAL BOARD
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UTP	UNSHIELDED TWISTED PAIR
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WP	WEATHERPROOF
XFMR	TRANSFORMER

EXISTING ITEMS NOTES:

1. DASHED ELECTRICAL EQUIPMENT INDICATES EXISTING TO BE REMOVED UNLESS OTHERWISE NOTED. PULL BACK WIRING AND CONDUIT BACK TO NEXT ACTIVE OUTLET OR POWER SOURCE.

   RS _ INDICATES EXISTING ELECTRICAL EQUIPMENT TO REMAIN
   RR _ INDICATES EXISTING ELECTRICAL EQUIPMENT TO BE REMOVED AND RELOCATED. EXISTING CIRCUIT SHALL BE EXTENDED TO NEW LOCATION OF RELOCATED EXISTING ELECTRICAL EQUIPMENT.
   RN _ INDICATES NEW LOCATION OF EXISTING ELECTRICAL EQUIPMENT

2. REFER TO SPECIFICATIONS AND TYPICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.

Project: STATE OF RHODE ISLAND ATTORNEY GENERAL OFFICE
150 SOUTH MAIN STREET
PROVIDENCE, RI

Status: BID SET

No.	Revision Item	Date

Sheet Title: ELECTRICAL SYMBOL LIST, NOTES, DETAILS & ABBREVIATIONS

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Drawn By:	JRV
Checked By:	SC
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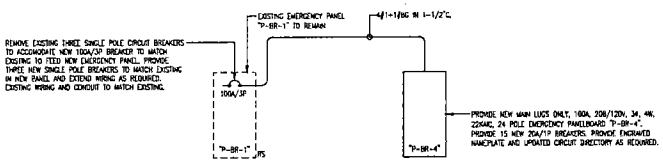


PARTIAL POWER RISER DIAGRAM

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

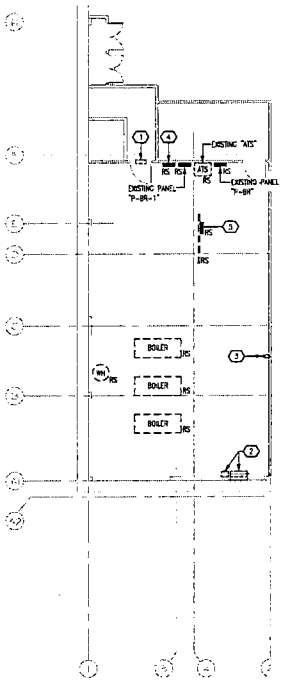
ELECTRICAL CONNECTION SCHEDULE FOR MECHANICAL EQUIPMENT

TAG #	DESCRIPTION	EQUIPMENT CHARACTERISTICS								PANEL	CIRCUIT	BREAKER SIZE	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	NOTES
		VOLTS	PH	AMPS	HP	kW	MCA	MOCP	OTH						SIZE	FUSE	POLES	NEMA		
1	EXHAUST FAN	120	1	-	3/4	-	-	13.8	1800	P-BR-3	3	20/1	(2)#12 AL(1)#12G - 3/4"C	BOILER ROOM	NA	NA	NA	NA	ST	1

ELECTRICAL CONNECTION SCHEDULE FOR MECHANICAL EQUIPMENT

TAG #	DESCRIPTION	EQUIPMENT CHARACTERISTICS								PANEL	CIRCUIT	BREAKER SIZE	FEEDER AND CONDUIT	EQUIPMENT LOCATION	DISCONNECT SWITCH				MOTOR CONTROL	NOTES
		VOLTS	PH	AMPS	HP	kW	MCA	MOCP	OTH						SIZE	FUSE	POLES	NEMA		
2	MOTORIZED DAMPER	120	1	-	-	-	-	-	-	P-BR-3	5	20/1	(2)#12 AL(1)#12G - 3/4"C	BOILER ROOM	NA	NA	NA	NA	ST	1
3	MOTORIZED DAMPER	120	1	-	-	-	-	-	-	P-BR-3	5	20/1	(2)#12 AL(1)#12G - 3/4"C	BOILER ROOM	NA	NA	NA	NA	ST	1

NOTES:
1. PROVIDE A MANUAL MOTOR STARTER, WITH OVERLOAD ELEMENT(S) SIZED PER THE LOAD SERVED.

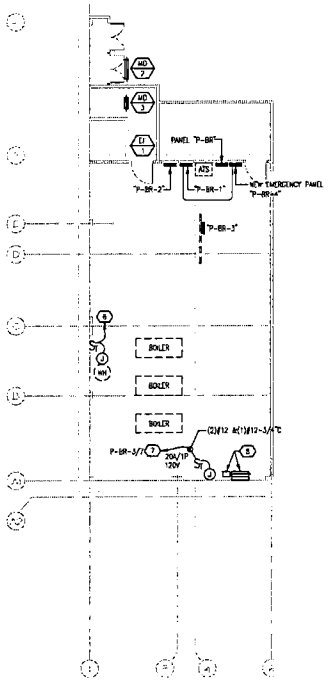


PARTIAL ELECTRICAL DEMOLITION PLAN AT BOILER ROOM

SCALE: 1/4"=1'-0"

DEMOLITION SHEET NOTES:

1. EXISTING WALL MOUNTED PROPELLER FAN TO BE REMOVED IN ITS ENTIRETY. REMOVE WIRING BACK TO SOURCE AND LABEL BREAKER AS SPARE.
2. ELECTRICAL CONTRACTOR SHALL DISCONNECT EXISTING MECHANICAL EQUIPMENT. EXISTING CIRCUIT SHALL BE MADE SAFE AND MAINTAINED SO THAT IT CAN BE UTILIZED IN NEW DESIGN.
3. ELECTRICAL CONTRACTOR SHALL DISCONNECT EXISTING CIRCULATOR PUMP. EXISTING CIRCUIT SHALL BE MADE SAFE AND MAINTAINED SO THAT IT CAN BE UTILIZED IN NEW DESIGN.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE NEW ENGRAVED NAMEPLATE FOR EXISTING PANEL. PANEL NAME SHALL BE "P-BR-2". UPDATE PANEL DIRECTORY AS REQUIRED.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE NEW ENGRAVED NAMEPLATE FOR EXISTING PANEL. PANEL NAME SHALL BE "P-BR-3". UPDATE PANEL DIRECTORY AS REQUIRED.



PARTIAL ELECTRICAL CONSTRUCTION PLAN AT BOILER ROOM

SCALE: 1/4"=1'-0"

MECHANICAL EQUIPMENT CONNECTION TAG:

XXX Y

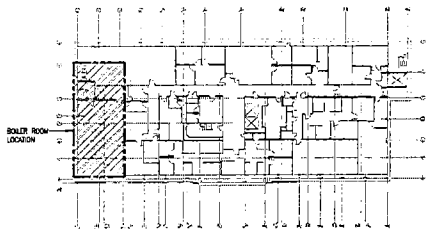
REFER TO "ELECTRICAL CONNECTION SCHEDULE FOR MECHANICAL EQUIPMENT" IN THIS DRAWING SET FOR ALL CIRCUIT INFORMATION, INCLUDING BUT NOT LIMITED TO BRANCH CIRCUIT WIRING AND CONDUIT SIZE, VOLTAGE, PHASE, MOTOR CONTROL, DISCONNECT SWITCH AND CIRCUIT BREAKER. REFER TO MECHANICAL, PLUMBING, AND FIRE PROTECTION PLANS FOR EXACT EQUIPMENT LOCATIONS.

NEW CONSTRUCTION SHEET NOTES:

6. ELECTRICAL CONTRACTOR SHALL EXTEND EXISTING MAINTAINED CIRCUIT FOR NEW CIRCULATOR PUMP. NEW WIRING SHALL MATCH EXISTING. PUMP TO BE PROVIDED BY PLUMBING CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL EXTEND EXISTING CIRCUIT AS REQUIRED TO NEW PUMP LOCATION. VERIFY EXACT LOCATION IN FIELD WITH PLUMBING CONTRACTOR. ELECTRICAL CONTRACTOR SHALL FURNISH & INSTALL 120 VOLT AND CONTROL WIRING TO ADJACENT AND FINER PER THE MANUFACTURER'S RECOMMENDATIONS.

7. ELECTRICAL CONTRACTOR SHALL PROVIDE NEW CIRCUIT FOR NEW ELECTRONIC CONTROL VALVES. ELECTRONIC VALVES TO BE PROVIDED AND INSTALLED BY PLUMBING CONTRACTOR AND WIRED BY ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT AND 10 VOLT INTERCONNECTING WIRING AS REQUIRED FROM VALVES MOUNTED JUNCTION BOX TO FLOW SENSORS. COORDINATE EXACT LOCATIONS AND WIRING REQUIREMENTS WITH PLUMBING CONTRACTOR. PRIOR TO THE START OF ANY WORK, INSTALL ALL 120V AND LOW VOLTAGE WIRING PER THE MANUFACTURER'S RECOMMENDATIONS.

8. EXTEND EXISTING MAINTAINED CIRCUIT TO NEW MOTORIZED DAMPER AS REQUIRED. NEW WIRING SHALL MATCH EXISTING. VERIFY EXACT LOCATION IN THE FIELD WITH MECHANICAL CONTRACTOR.



KEY PLAN - LOWER LEVEL

NOT TO SCALE

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Status:
BID SET

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Sheet Title:
PARTIAL ELECTRICAL PLANS, SCHEDULES AND NOTES

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Drawing No:
E1.0

ELECTRICAL SPECIFICATIONS

PART 1 - GENERAL

GENERAL REQUIREMENTS
ALL WORK SHALL BE IN ACCORDANCE WITH THE ARRANGEMENT, DETAILS AND LOCATION AS INDICATED ON THE CONTRACT DOCUMENTS, REFERENCE DRAWINGS AND ANY SUPPLEMENTAL ADDENDA, BULLETINS OR DRAWINGS ISSUED BY THE OWNER/ENGINEER. LAYOUTS ARE DIAGRAMMATIC AND FINAL ARRANGEMENT OF EQUIPMENT SHALL SUIT FIELD CONDITIONS. REFER TO ALL DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT FOR THE EXACT LOCATION OF ALL EQUIPMENT AND REQUIRED MOUNTING HEIGHTS PRIOR TO THE START OF ANY ROUGHING. THE RIGHT IS RESERVED TO MAKE ANY REASONABLE CHANGE IN LOCATION TO OUTLETS AND EQUIPMENT PRIOR TO ROUGHING AT NO ADDITIONAL EXPENSE TO THE OWNER.

SCOPE OF WORK
THE SCOPE OF WORK CONSISTS OF THE INSTALLATION OF ALL MATERIALS TO BE FURNISHED UNDER THIS SECTION, AND WITHOUT LIMITING THE GENERALITY THEREOF, CONSISTS OF FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, STORAGE, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL ELECTRICAL WORK SHOWN ON THE DRAWINGS, AS DESCRIBED IN THE SPECIFICATIONS, OR AS REASONABLY INFERRED FROM EITHER, IN THE OPINION OF THE ARCHITECT/ENGINEER AS BEING REQUIRED.

SITE VISIT
BIDDERS ARE ADVISED TO VISIT THE SITE AND INFORM THEMSELVES AS TO CONDITIONS UNDER THIS WORK WILL BE PERFORMED. FAILURE TO DO SO WILL, IN NO WAY, RELIEVE THE SUCCESSFUL BIDDER FROM THE RESPONSIBILITY OF FURNISHING ANY MATERIALS OR PERFORMING ANY WORK IN ACCORDANCE WITH THE TRUE INTENT AND MEANING OF THE DRAWINGS AND SPECIFICATIONS. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY AN EXPERIENCED OBSERVER. FIELD VERIFY MEASUREMENTS AND CIRCUITING ARRANGEMENTS THAT ARE AS SHOWN ON DRAWINGS. ARRANGEMENTS SHALL BE MADE WITH THE OWNER PRIOR TO THE VISIT FOR INSPECTION OF THE EXISTING BUILDINGS.

RELATED WORK
THE FOLLOWING RELATED WORK IS NOT INCLUDED UNDER THIS SECTION AND SHALL BE PROVIDED UNDER OTHER SECTIONS. COORDINATE WILL ALL WITH ALL DIVISIONS TO ENSURE A COMPLETE INSTALLATION.

1. AUTOMATIC TEMPERATURE CONTROL AND DIRECT DIGITAL WIRING UNLESS SPECIFICALLY NOTED ON DRAWINGS OR IN SPECIFICATIONS.

DEFINITIONS
1. "CONCEALED" SHALL BE DEFINED AS AREAS WHERE CONDUIT AND WIRING IS LOCATED IN CHASES, WALLS, PARTITIONS, SHAFTS, AND ABOVE FINISHED CEILINGS.
2. "EXPOSED" SHALL MEAN CONDUIT AND WIRING RUN ON THE SURFACE OF THE BUILDING CONSTRUCTION.
3. "CONDUIT" SHALL MEAN IN ADDITION TO CONDUIT, ALL FITTINGS, HANGERS AND OTHER ACCESSORIES RELATING TO SUCH CONDUIT SYSTEMS.
4. "WIRING" SHALL MEAN WIRE, RACEWAY, BOXES AND FITTINGS.
5. "PROVIDE" SHALL MEAN "PROVIDED COMPLETE IN PLACE" THAT IS, "FURNISHED AND INSTALLED."

CODES, REGULATIONS, AND PERMITS
ALL WORK UNDER THIS SECTION SHALL CONFORM TO THE LATEST EDITIONS OF THE LOCAL STATE BUILDING CODE, THE STATE ELECTRICAL CODE, NFPA, ANSI/NECA INSTALLATION STANDARDS, AND ALL OTHER LOCAL GOVERNING CODES. GIVE NOTICES, FILE PLANS, OBTAIN AND PAY FOR PERMITS AND LICENSES AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION. PERMITS SHALL BE SECURED THROUGH THE CITY. DELIVER CERTIFICATES OF INSPECTIONS TO OWNER/ENGINEER. NO WORK SHALL BE COVERED BEFORE EXAMINATION AND APPROVAL BY OWNER/ENGINEER AND THE AUTHORITIES HAVING JURISDICTION. IMPERFECT OR CONDEMNED WORK SHALL BE REPLACED WITH WORKING CONFORMING TO REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER, SUBJECT TO APPROVAL OF THE OWNER/ENGINEER. IF WORK IS COVERED BEFORE DUE INSPECTION AND APPROVAL THE ELECTRICAL CONTRACTOR SHALL PAY COSTS OF UNCOVERING THE INSTALLED WORK, WHETHER IT MEETS CONTRACT REQUIREMENTS OR NOT.

MATERIALS
ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THIS SECTION SHALL BE NEW AND OF THE BEST GRADE FOR THE SERVICE INTENDED. IT IS NOT INTENDED THAT THESE SPECIFICATIONS OR DRAWINGS SHOW EVERY CONDUIT, FITTING, AND APPURTENANCE. ALL SUCH PARTS NECESSARY FOR THE COMPLETE EXECUTION OF THE WORK, IN ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE AND TO THE SATISFACTION OF THE OWNER/ENGINEER SHALL BE PROVIDED WHETHER THESE PARTS MAY HAVE SPECIFICALLY MENTIONED OR NOT, OR INDICATED ON THE DRAWINGS.

SHOP DRAWINGS
WHERE THE DRAWINGS OR SPECIFICATIONS LIST SPECIFIC BRANDS OR CATALOG NUMBERS, ONLY THESE PRODUCTS MAY BE USED UNLESS THE WORDS: "OR APPROVED EQUAL" OR "BUT ARE NOT LIMITED TO" ARE INCLUDED. THE ENGINEER'S REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN INTENT. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE ELECTRICAL CONTRACTOR FROM COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS, NOR DEPARTURES THEREOF. THE ELECTRICAL CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFORMING AND CORRECTNESS OF ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATING PROCESSES, FOR TECHNIQUES OR ASSEMBLY, AND FOR PERFORMING THEIR WORK IN A SAFE MANNER. DEVIATIONS TO SPECIFIED MATERIALS SHALL BE AT THE SOLE RISK OF THE ELECTRICAL CONTRACTOR, WHO SHALL BE RESPONSIBLE FOR ALL ASSOCIATED CHANGES TO THIS AND OTHER TRADES. WITHIN THIRTY (30) DAYS AFTER THE DATE OF NOTICE TO PROCEED, AND BEFORE THE PROCUREMENT OF ANY MATERIALS AND EQUIPMENT, SUBMIT FOR APPROVAL A COMPLETE ITEMIZED LIST OF ALL THE MATERIALS AND EQUIPMENT INCORPORATED UNDER THIS SECTION. ALL SHOP DRAWING SUBMITTALS SHALL BE COMPLETE AND INCLUDE ALL PART 2 PRODUCTS OF THIS SPECIFICATION AND BE CLEARLY IDENTIFIED. NO CONSIDERATION WILL BE GIVEN TO PARTIAL SUBMITTALS, EXCEPT WITH PRIOR APPROVAL.

OPERATIONS AND MAINTENANCE MANUALS
AT LEAST TWO (2) MONTHS PRIOR TO THE TIME OF TURNING OVER HIS CONTRACT TO THE OWNER FOR USE AND OCCUPANCY OR SUBSTANTIAL COMPLETION, SECURE AND DELIVER TO THE OWNER/ENGINEER THREE (3) COMPLETE INDEXED BOUND FILES CONTAINING APPROVED OPERATING AND MAINTENANCE MANUALS, SHOP DRAWINGS, AND OTHER DATA AS FOLLOWS:

1. OPERATION DESCRIPTION OF ALL SYSTEMS.
2. COMPLETE SHOP DRAWINGS OF ALL EQUIPMENT.
3. PREVENTING MAINTENANCE INSTRUCTIONS FOR ALL SYSTEMS.
4. SPARE PARTS LISTS OF ALL SYSTEM COMPONENTS.
5. NAMES, ADDRESS AND TELEPHONE NUMBERS OF ALL SUPPLIERS OF THE SYSTEMS.

NON-AVAILABILITY OF OPERATING AND MAINTENANCE MANUALS OR INACCURACIES THEREIN MAY BE GROUNDS FOR CANCELLATION AND POSTPONEMENT OF ANY SCHEDULED FINAL INSPECTION BY THE OWNER UNTIL SUCH TIME AS THE DISCREPANCY HAS BEEN CORRECTED AND/OR RETAINAGE OF SUFFICIENT MONIES TO PREPARE SAME.

RECORD DRAWINGS
OWNER'S RECORD DRAWINGS SHALL BE UPDATED AS THE PROJECT PROGRESSES. MAINTAIN DOCUMENTS IN SAFE, DRY LOCATION. INDICATE CLEARLY AND ACCURATELY ANY CHANGES NECESSITATED BY FIELD CONDITIONS AND DIMENSIONS ALL CONCEALED RACEWAYS. THE ELECTRICAL CONTRACTOR SHALL DELIVER THE COMPLETED REPRODUCIBLE RECORD DRAWINGS AND CAD DISKS PROPERLY TITLED AND DATED TO ARCHITECT/ENGINEER. THESE RECORD DRAWINGS SHALL BECOME THE PROPERTY OF THE OWNER.

CHANGE ORDERS/PROPOSAL REQUEST:
A. DURING THE COURSE OF CONSTRUCTION, CHANGES IN THE WORK MAY OCCUR. WHEN A SIGNIFICANT CHANGE IS TO BE MADE, A PROPOSAL REQUEST WILL BE ISSUED.
B. PROVIDE A COMPLETE COST BREAKDOWN WHEN RESPONDING TO EACH PROPOSAL REQUEST.
C. EACH ITEM OF WORK TO BE PRICED SEPARATELY.
D. EACH LINE ITEM TO BE BROKEN DOWN INCLUDING QUANTITIES AND LISTING SEPARATELY LABOR AND MATERIAL.
E. BOTH CREDITS AND EXTRAS SHALL BE SEPARATELY AND CLEARLY QUANTIFIED.
F. ALLOWANCES FOR OVERHEAD AND PROFIT SHALL BE AS LISTED IN THE SUPPLEMENTARY CONDITIONS.
G. IF YOU BECOME AWARE OF A FIELD CONDITION, CODE REQUIREMENT, ERROR, OR OMISSION THAT YOU FEEL SHOULD RESULT IN A CHANGE TO THE WORK, PLEASE CONTACT THE ENGINEER FOR DISCUSSION. THE ENGINEER MAY BE ABLE TO CLARIFY THE SITUATION AND AVOID UNNECESSARY PAPERWORK.
K. IT IS RECOGNIZED THAT THE OWNER BENEFITS WHEN THE CONSTRUCTION PROCESS IS A COOPERATIVE EFFORT INSTEAD OF AN ADVERSARIAL RELATIONSHIP. REASONABLE GIVE-AND-TAKE ALLOWS THE CONSTRUCTION PROCESS TO MOVE SMOOTHLY. YOUR EFFORTS IN THIS REGARD WILL BE APPRECIATED BY ALL PARTIES.
L. I UTILIZE UNIT PRICING AS REQUESTED/INDICATED ON DRAWING FA0.0.

GUARANTEE AND SERVICE
THE ELECTRICAL CONTRACTOR SHALL GUARANTEE THE PERFORMANCE OF THE INSTALLATION AND ALL EQUIPMENT INCLUDED IN THIS SECTION IN WRITING FOR ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE ENGINEER. SHOULD ANY DEFECTS IN MATERIALS OR WORKMANSHIP APPEAR DURING THIS PERIOD, THEY SHALL BE CORRECTED OR REPLACED BY THE ELECTRICAL CONTRACTOR TO THE SATISFACTION OF THE OWNER/ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

COORDINATE WITH OTHER TRADES:
CONFER WITH OTHER TRADES AND FURNISH IN WRITING TO THE OWNER/ENGINEER ANY INFORMATION NECESSARY TO PERMIT THE WORK OF ALL TRADES TO BE INSTALLED SATISFACTORILY AND WITH THE LEAST POSSIBLE INTERFERENCE OR DELAY. WORK INSTALLED THAT CREATED INTERFERENCE OR RESTRICTS ACCESS REQUIRED BY CODE OR TO CONDUCT MAINTENANCE AND/OR ADJUSTMENTS SHALL BE MODIFIED AT NO ADDITIONAL COST TO THE OWNER. FURNISH TO OTHER TRADES ANY INFORMATION REQUIRED FOR THE PURPOSE OF COORDINATING ADJACENT WORK.

SLEEVES, INSERTS, AND SUPPORTS
THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL INSERTS, CONDUIT HANGERS, ANCHORS AND STEEL SUPPORTS NECESSARY FOR THE SUPPORT AND INSTALLATION OF ALL ELECTRICAL EQUIPMENT.

CUTTING, PATCHING, FIRE PROOFING AND PAINTING
INCLUDE ALL CORING, CUTTING, PATCHING, FIREPROOFING AND PAINTING NECESSARY FOR THE EXECUTION OF THIS SECTION. STRUCTURAL ELEMENTS SHALL NOT BE CUT WITHOUT WRITTEN APPROVAL OF THE OWNER/ENGINEER. REPAIR AND PATCH AROUND THE WORK SPECIFIED HEREIN TO MATCH THE EXISTING ADJACENT SURFACES TO THE SATISFACTION OF THE OWNER/ENGINEER. FILL AND PATCH ALL OPENINGS OR HOLES LEFT IN THE EXISTING STRUCTURES BY THE REMOVAL OF EXISTING EQUIPMENT THAT IS PART OF THIS SECTION OF THE SPECIFICATIONS. APPLY FIRESTOPPING TO CABLE AND RACEWAY SLEEVES AND OTHER PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES TO RESTORE ORIGINAL UNDISTURBED FIRE-RESISTANCE RATINGS OF ASSEMBLIES. PAINT EXPOSED CONDUITS TO MATCH EXISTING FINISH COLOR.

HOISTING, SCAFFOLDING AND PLANKING
INCLUDE THE FURNISHING, SET-UP AND MAINTENANCE OF ALL HOISTING MACHINERY, CRANES, SCAFFOLDS, STAGING AND PLANKING AS REQUIRED FOR THE EXECUTION OF WORK FOR THIS SECTION.

SAFETY REQUIREMENTS
LIFE SAFETY AND ACCIDENT PREVENTION SHALL BE A PRIMARY CONSIDERATION. COMPLY WITH ALL THE SAFETY REQUIREMENTS OF THE OWNER AND OSHA THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. FURNISH, PLACE AND MAINTAIN PROPER GUARDS AND ANY OTHER NECESSARY CONSTRUCTION REQUIRED TO SECURE SAFETY OF LIFE AND PROPERTY.

ACCESSIBILITY
ALL WORK PROVIDED UNDER THIS SECTION SHALL BE PROVIDED SO THAT PARTS REQUIRING PERIODIC INSPECTION, MAINTENANCE AND REPAIR ARE READILY ACCESSIBLE. WORK OF THIS TRADE SHALL NOT INFRINGE UPON THE CLEARANCES OF OTHER TRADES.

PROTECTION OF WORK AND PROPERTY
THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE CARE AND THE PROTECTION OF ALL WORK INCLUDED UNDER THIS SECTION UNTIL THE COMPLETION AND FINAL ACCEPTANCE OF THIS PROJECT. PROTECT ALL EQUIPMENT AND MATERIALS FROM DAMAGE FROM ALL CAUSES INCLUDING, BUT NOT LIMITED TO, FIRE, VANDALISM, AND THEFT. ALL MATERIALS AND EQUIPMENT DAMAGED OR STOLEN SHALL BE REPAIRED OR REPLACED WITH EQUAL MATERIAL OR EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER. PROTECT ALL EQUIPMENT, OUTLETS AND OPENINGS, AND ROOF PENETRATIONS WITH TEMPORARY PLUGS, CAPS AND COVERS. PROTECT WORK AND MATERIALS OF OTHER TRADES FROM DAMAGE THAT MIGHT BE CAUSED BY WORK OR WORKMEN UNDER THIS SECTION AND MAKE GOOD ON DAMAGE THUS CAUSED. DAMAGED MATERIALS SHALL BE REMOVED FROM THE SITE; NO SITE SYSTEMS AND EQUIPMENT CAUSED BY THE ELECTRICAL CONTRACTOR DURING INSTALLATION SHALL BE REPAIRED AND/OR REPLACED AT THIS CONTRACTOR'S EXPENSE TO THE COMPLETE SATISFACTION OF THE BUILDING OWNER.

SEISMIC RESTRAINT REQUIREMENTS
PROVIDE SEISMIC RESTRAINTS AS REQUIRED IN ACCORDANCE WITH THE STATE BUILDING CODE. A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER, LICENSED IN THE APPLICABLE STATE FOR THE PROJECT LOCATION, SHALL PREPARE THE SEISMIC RESTRAINT DESIGN AND CERTIFY THAT THE DESIGN IS IN COMPLIANCE WITH THE STATE BUILDING CODE REQUIREMENTS.

PROJECT CLOSEOUT
A CERTIFICATE OF COMPLETION SHALL BE ISSUED BY THE ELECTRICAL CONTRACTOR INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS AND ALL APPLICABLE LOCAL, STATE AND FEDERAL STATUTES AND CODES. FINAL INSPECTION BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT OF THE CERTIFICATE OF COMPLETION. NO LIFE SAFETY DEFICIENCIES IN THE EGRESS OR EXIT LIGHTING SYSTEMS, FIRE ALARM SYSTEM, OR THE EMERGENCY POWER SYSTEM SHALL BE PRESENT WHEN REQUESTING FINAL INSPECTION. PREMATURE REQUESTS FOR FINAL INSPECTIONS THAT REQUIRE REINSPECTION OF DEFICIENT ITEMS WILL RESULT IN BACK CHARGES OF THE COSTS ASSOCIATED WITH THE REINSPECTION.

TEMPORARY POWER AND LIGHTING
PROVIDE GFCI PROTECTED EXTENSION CORDS. PERMANENT CONVENIENCE RECEPTACLES MAY BE UTILIZED DURING THE CONSTRUCTION PROCESS.

POWER SHALL BE DERIVED FROM THE EXISTING BUILDING AND KWH USAGE PAID BY THE OWNER.

DRAWINGS AND SPECIFICATIONS
THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY EACH TO THE OTHER, AND ANY LABOR OR MATERIAL CALLED FOR BY EITHER, WHETHER OR NOT BY BOTH, OR NECESSARY FOR THE SUCCESSFUL OPERATION OF ANY COMPONENTS SHALL BE PROVIDED. BEFORE INSTALLING ANY WORK, VERIFY THAT IT DOES NOT INTERFERE WITH THE CLEARANCES REQUIRED FOR OTHER WORK. INSTALLED WORK WHICH INTERFERES WITH EXISTING NECESSARY SERVICES SHALL BE MODIFIED AS DIRECTED BY THE OWNER, AT NO ADDITIONAL COST TO THE OWNER. BE FAMILIAR WITH THE DRAWINGS AND SPECIFICATIONS OF ALL OTHER TRADES TO PREVENT INTERFERENCES AND ASSURE COMPLETE COORDINATION. IF THERE ARE ANY DISCREPANCIES BETWEEN THE ELECTRICAL DRAWINGS AND SPECIFICATIONS REQUEST CLARIFICATION FROM THE ENGINEER PRIOR TO START AND OR CONTINUATION OF ANY WORK OR THE PROCUREMENT OF ANY MATERIALS AND EQUIPMENT.

WIRE AND CABLE
WIRING SHALL BE TYPE THHN/THWN OR XHHW, MINIMUM OF #12 AWG SOLID COPPER WITH CONDUCTIVITY OF NOT LESS THAN 98% OF THE ANSI STANDARD FOR ANNEALED COPPER, UL LISTED FOR BUILDING WIRE 90 DEGREES CELSIUS, WET OR DRY LOCATIONS RATED FOR 600V SERVICE. MC AND FMAC (FIRE ALARM CONTROL CABLE-TYPE MC-FPLP) CABLING CAN BE USED WHERE CONCEALED. CONDUCTORS LARGER THAN #10 SHALL BE STRANDED. COLOR CODING SHALL BE CONSISTENT THROUGHOUT.

CONDUIT
ELECTRIC METALLIC TUBING SHALL BE ELECTROGALVANIZED SHERARDIZED STEEL WHERE EXPOSED. ALL WIRING SHALL BE INSTALLED IN CONDUIT. ALL ROUTING OF CONDUIT SHALL BE RUN PERPENDICULAR TO BUILDING WALLS. ALL ELECTRIC METALLIC TUBING SHALL BE UTILIZED WITH STEEL SET SCREW TYPE FITTINGS. CONDUIT SHALL BE SUPPORTED FROM BUILDING STRUCTURE; AND SHALL BE INDEPENDENT OF DUCTS, PIPES, CEILING AND THEIR SUPPORTING MEMBERS.

OUTLET BOXES
PROVIDE OUTLET BOXES AS REQUIRED FOR ALL ELECTRICAL DEVICES AND EQUIPMENT. MINIMUM SIZE OF BOXES SHALL BE 4", 1-1/4" DEEP. ALL OUTLET BOXES SHALL BE GALVANIZED STEEL.

PULL BOXES, JUNCTION BOXES AND WIREWAYS
A. PULL BOXES SHALL BE OF CODE GAUGE GALVANIZED STEEL WITH SCREW COVERS TO MATCH. PULL BOXES AND WIREWAYS SHALL BE AS SHOWN ON CONTRACT DRAWINGS AND/OR AS REQUIRED BY THE NATIONAL ELECTRICAL CODE AND/OR JOB CONDITIONS, WITH STEEL BARRIERS SEPARATING SYSTEMS.
B. WIREWAYS SHALL BE OF CODE GAUGE STEEL, BAKED ENAMEL MANUFACTURED STANDARD SECTIONS AND FITTINGS, WITH COMBINATION HINGED AND SCREW COVERS.
C. CONDUCTORS PASSING THROUGH PULL BOXES AND WIREWAYS SHALL BE IDENTIFIED TO INDICATE THEIR ORIGIN AND TERMINATION. PROVIDE NAMEPLATES FOR ALL PULL BOXES.
D. WEATHERPROOF JUNCTION BOXES INSTALLED IN GRADE SHALL BE POLYMER CONCRETE WITH GASKETED COVER, MINIMUM 6"x8".

CIRCUIT BREAKERS FOR EXISTING PANELBOARDS
A. CIRCUIT BREAKERS SHALL BE EQUAL TO THE EXISTING CIRCUIT BREAKERS AND OF THE SAME MANUFACTURER AS THE EXISTING PANELBOARDS IN WHICH THEY ARE TO BE INSTALLED.
B. PROVIDE UPDATED TYPEWRITTEN CIRCUIT DIRECTORY CARDS INDICATING AREAS AND DEVICES SERVED BY EACH CIRCUIT IN ALL EXISTING PANELBOARDS PANELS AFFECTED BY THE WORK OF THIS PROJECT.
C. ADD PANELBOARDS FOR ADD ALTERNATE, 22KAIC RATED MINIMUM.

PANELBOARDS:
A. AT EACH LOCATION INDICATED ON THE PLANS, FURNISH AND INSTALL AN APPROPRIATE PANEL OF THE AMPACITY AND VOLTAGE RATING SHOWN ON THE DRAWINGS.
B. ALL PANELS SHALL BE OF THE SAFETY DEAD FRONT CIRCUIT BREAKER TYPE FOR SERVICE ON THREE PHASES, FOUR WIRE MAINS UNLESS OTHERWISE SPECIFIED.
C. ALL PANELS SHALL BE OF CODE GAUGE STEEL.
D. PANELS SHALL BE SURFACE OR FLUSH MOUNTED, AS INDICATED ON THE PLANS, AND INSTALLED SO THAT THE TOP CIRCUIT BREAKER IS NO MORE THAN 6'-6" ABOVE THE FINISHED FLOOR.
E. THE PANELBOARDS SHALL BEAR THE UNDERWRITERS' LABORATORIES LABEL.
F. ALL BUSES SHALL BE COPPER.
G. ALL PANELBOARDS SHALL HAVE A CIRCUIT DIRECTORY CARD MOUNTED IN A FRAME WITH PLASTIC COVER INSTALLED ON THE INSIDE OF THE DOOR.
H. ALL DIRECTORY CARDS SHALL BE PROPERLY FILLED IN, USING A TYPEWRITER, AND INDICATING AREAS AND DEVICES SERVED BY EACH CIRCUIT.
I. ALL CIRCUIT BREAKERS SHALL BE OF QUICK-MAKE AND QUICK- BREAK TYPE ON MANUAL OPERATION, TRIP-FREE, AND WITH INVERSE TIME CHARACTERISTICS AND SHALL HAVE BOLTED BUS CONNECTIONS, PLUG-IN CIRCUIT BREAKERS WILL NOT BE ALLOWED.
J. PANELBOARD TRIMS SHALL BE DOOR-IN-DOOR DESIGN.
K. TRIMS AND DOORS SHALL BE MADE OF CODE GAUGE, FULL FINISH SHEET STEEL.
L. THE TRIM AND DOORS SHALL BE FACTORY FINISHED ON BOTH SIDES.
M. ALL PANELBOARDS SHALL BE KEYED ALIKE.
N. PANELBOARDS SHALL CONTAIN CIRCUIT BREAKERS INDICATED ON PANELBOARD SCHEDULE ON THE DRAWINGS.
O. TWO AND THREE POLE BREAKERS SHALL BE COMMON TRIP TYPE.
P. ALL PANELBOARDS SHALL BE EQUIPPED WITH A NEUTRAL BAR HAVING ONE SOLDERLESS CONNECTOR FOR EACH CIRCUIT AS INDICATED AND WITH ALL REQUIRED KNOCKOUTS.
Q. NEW PANELBOARDS SHALL BE MANUFACTURED BY EATON/CUTLER HAMMER TO MATCH UPSTREAM PANEL MANUFACTURER OR APPROVED EQUAL.

MINERAL INSULATED METAL SHEATHED CABLE (MI CABLE):
A. SECTION INCLUDES
1. TYPE MI MINERAL-INSULATED SEAMLESS METAL SHEATHED CABLE.
2. CABLE CONNECTORS AND CONNECTIONS.
B. REFERENCES
1. ANSI/NFPA 70 - NATIONAL ELECTRICAL CODE; UL 2196.
C. SUBMITTALS
1. PRODUCT DATA: PROVIDE FOR EACH CABLE ASSEMBLY TYPE.
2. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE APPLICATION CONDITIONS AND LIMITATIONS OF USE STIPULATED BY PRODUCT TESTING AGENCY SPECIFIED UNDER REGULATORY REQUIREMENTS.
D. QUALIFICATIONS
1. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM TEN YEARS DOCUMENTED EXPERIENCE AND MANUFACTURED IN NORTH AMERICA.
2. CABLE SHALL NOT OFF GAS OR PROPAGATE SMOKE.
E. REGULATORY REQUIREMENTS
1. CONFORM TO REQUIREMENTS OF ANSI/NFPA 70.
2. FURNISH PRODUCTS LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES, INC. AS SUITABLE FOR PURPOSE SPECIFIED AND SHOWN.
F. APPROVALS
1. UL CLASSIFIED- 2-HOUR FIRE RESISTIVE CABLE.
2. FM APPROVALS CP-1; 2-HOUR FIRE RESISTIVE CABLE.
G. PROJECT CONDITIONS
1. VERIFY THAT FIELD MEASUREMENTS AND CONDITIONS ARE AS SHOWN ON DRAWINGS.
2. CABLE ROUTING SHOWN ON DRAWINGS IS APPROXIMATE UNLESS FULLY DIMENSIONED. ROUTE CABLE AS REQUIRED TO MEET PROJECT CONDITIONS.
3. WHERE CABLE ROUTING IS NOT SHOWN, AND DESTINATION ONLY IS INDICATED, DETERMINE EXACT ROUTING AND LENGTHS REQUIRED.
H. COORDINATION
1. COORDINATE WORK SPECIFIED IN THIS SECTION WITH WORK PROVIDED UNDER OTHER ELECTRICAL WORK AND THE WORK OF OTHER TRADES.
2. DETERMINE REQUIRED SEPARATION BETWEEN CABLE AND OTHER WORK.
3. DETERMINE CABLE ROUTING TO AVOID INTERFERENCE WITH OTHER WORK.
I. MANUFACTURERS - MINERAL-INSULATED METAL-SHEATHED CABLE
1. PENTAIR/PYROTENAX SYSTEM 1850 2-HOUR FIRE RATED, OR EQUAL.
J. MINERAL-INSULATED METAL-SHEATHED CABLE
1. DESCRIPTION: ANSI/NFPA 70, TYPE MI.
2. CONDUCTOR: COPPER.
3. INSULATION VOLTAGE RATING: 600 VOLTS.
4. INSULATION VOLTAGE RATING FOR TWISTED PAIR CABLES: 300 VOLTS.
5. CABLE TEMPERATURE RATING: 75 DEGREES C.
6. TERMINATION TEMP. RATING: 90 DEGREES C.
7. INSULATION MATERIAL: MAGNESIUM OXIDE REFRACTORY MINERAL.
8. METAL-SHEATH MATERIAL: SEAMLESS SOFT DRAWN COPPER.
9. FIRE RATING: CABLE ASSEMBLY INCLUDING SUPPORTS SHALL HAVE A 2-HOUR FIRE RATING AS LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES, INC.
10. OVER JACKET IS AVAILABLE.
K. WIRING CONNECTORS AND TERMINATIONS
1. CABLE TERMINATION:
A. PENTAIR/PYROTENAX KIT PER THE MANUFACTURER'S RECOMMENDATIONS.
L. EXAMINATION
1. VERIFY THAT CABLE END FACTORY (TEMPORARY) SEALS HAVE REMAINED INTACT, THAT THE INSULATION HAS NOT BEEN EXPOSED TO AIR, AND THAT NO MOISTURE HAS ENTERED CABLE INSULATION.
2. VERIFY THAT WORK OF OTHER TRADES LIKELY TO DAMAGE CABLE HAS BEEN COMPLETED.
M. STORAGE
1. CABLES SHALL BE SHIPPED FROM THE MANUFACTURER WITH ENDS TEMPORARILY SEALED AGAINST MOISTURE INGRESS.
2. WHEN CABLES ARE CUT IN THE FIELD, THE END SHALL BE SEALED USING STANDARD SEALING COMPOUND AND PVC TAPE.
3. CABLE SHALL BE STORED IN A CLEAN DRY LOCATION.
N. HANDLING
1. CABLE SHALL BE UNCOILED BY ROLLING OR ROTATING SUPPLY REEL. DO NOT PULL FROM COIL PERIPHERY OR CENTER.
2. TAKE PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO CABLE FROM CONTACT WITH SHARP OBJECTS, INCLUDING PULLING OVER FOREIGN MATERIAL OR SHEAVES.
O. WIRING METHODS
1. FIRE RATED LOCATIONS: USE ONLY FIRE RATED CABLE.
2. USE WIRING METHODS INDICATED ON DRAWINGS AND AS SPECIFIED HEREIN.
P. INSTALLATION
1. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. BENDING:
A. NOT LESS THAN FIVE (5) TIMES THE CABLE DIAMETER FOR CABLE NOT MORE THAN ¾ INCH (250 KCMIL).
B. NOT LESS THAN TEN (10) TIMES THE CABLE DIAMETER FOR CABLE MORE THAN ¾ INCHES (350 AND 500 KCMIL).
3. PULLING:
A. FOR ALL CABLES UP TO AND INCLUDING #1 AWG USE 24 INCH (250MM) OR LARGER SHEAVES.
B. FOR #1/0 THROUGH 250 KCMIL INCLUSIVE, USE 18 INCH (460MM) OR LARGER SHEAVES.
C. FOR 350 KCMIL AND LARGER CABLES, USE 24 INCH (610MM) OR LARGER SHEAVES.
D. ON PULLS OF OVER 360 DEGREES, CONTACT MANUFACTURER FOR ASSISTANCE.
E. 350 AND 500 KCMIL CABLES SHALL NOT BE PULLED MORE THAN 360 DEGREES IN TOTAL.
4. SPLICING: ALL FIRE RATED SPLICES SHALL BE MADE IN THE FACTORY.
A. IN THE EVENT A FIELD SPLICE IS NECESSARY, IT MUST BE APPROVED BY THE ENGINEER AND MADE IN FIELD BY PERSONNEL TRAINED BY CABLE MANUFACTURER USING MANUFACTURER'S COMPONENTS.
5. TERMINATIONS:
A. FIELD MADE TERMINATIONS SHALL BE MADE WITH CABLE MANUFACTURER'S TERMINATION KITS ONLY STRIPPING TOOLS, CRIMPING AND COMPRESSION TOOLS AVAILABLE FROM THE MANUFACTURER SHALL BE USED FOR PROPER CABLE TERMINATION.
B. TERMINATIONS MUST BE COMPLETED IMMEDIATELY ONCE STARTED TO AVOID MOISTURE INGRESS FROM SURROUNDING AIR. PRIOR TO COMPLETING EACH TERMINATION, TEST INSULATION RESISTANCE AND FOLLOW MANUFACTURER'S DRYING PROCEDURES UNTIL INSULATION RESISTANCE REACHES AN ACCEPTABLE LEVEL.
C. CONNECTIONS TO FERROUS CABINETS FOR SINGLE CONDUCTOR CABLES SHALL INCORPORATE BRASS PLATES 1/4 INCH (6MM) THICK BY 4 INCH (100MM) WIDE BY LENGTH AS REQUIRED WITH 1/2 INCH (12MM), 3/4 INCH (19MM), 1 INCH (25MM) OR 1-1/4 INCH (32MM) DRILLED AND TAPPED HOLES. INSTALL PER MANUFACTURERS' DRAWING.
D. FOR APPLICATIONS USING 90 DEGREE C RATING OF CABLE, LUGS SHALL BE RATED 90 DEGREES C.
6. SHEATH INDUCTION REDUCTION:
A. WHEN MULTI-PHASE CIRCUITS HAVE PARALLELED SINGLE CONDUCTORS, CABLES SHALL BE RUN IN GROUPS HAVING ONE OF EACH PHASE IN EACH GROUP.
B. EACH SET OF PARALLELED CONDUCTORS SHALL BE SEPARATED BY AT LEAST 2.15 SINGLE CABLE DIAMETERS.
C. ON BALANCED THREE-PHASE WYE CIRCUITS NEUTRAL CONDUCTORS MAY BE LOCATED WITHIN THE 2.15 CABLE DIAMETER SPACE BETWEEN GROUPS OF PHASE CONDUCTORS.
D. EACH GROUP OF CABLES SHALL BE FASTENED TIGHTLY TOGETHER, AT LEAST ONCE BETWEEN EACH CABLE SUPPORT ON HORIZONTAL RUNS AND TWICE ON VERTICAL RUNS, USING ½ INCH (13MM) WIDE BY 0.030 INCH (0.75MM) THICK STAINLESS STEEL STRAPS.
7. EXPOSED OF SURFACE INSTALLATIONS:
A. CABLE MAY BE SECURED DIRECTLY TO FIRE RATED BUILDING STRUCTURE USING AN APPROVED METHOD SUCH AS ONE, OR ANY COMBINATION, OF THE FOLLOWING:
1) STRAPS: ½ INCH (13MM) WIDE X 3-1/2 INCH (90MM) LONG BY 0.030 (0.75MM) THICK STAINLESS STEEL OR COPPER STRAPS. EACH STRAP SHALL CONTAIN TWO ¼ INCH (6MM) HOLES FOR SECURING WITH 3/16 INCH (5MM) BY MINIMUM 1-3/4 INCH (44MM) LONG STEEL ANCHORS.
2) STEEL STRUTS AND CABLE TRAY: USE ONLY THE STEEL STRUT FRAMING SYSTEM AND SUPPORT RECOMMENDED BY PYROTENAX. ALUMINUM OR OTHER MATERIALS ARE NOT ACCEPTABLE.
3) OTHER APPROVED METHOD.
B. SUPPORTS SHALL NOT EXCEED SIX (6) FEET ON CENTER HORIZONTALLY, OR SIX (6) FEET VERTICALLY.
C. CABLES SHALL BE INSTALLED PARALLEL TO BUILDING LINES.
8. EMBEDDED INSTALLATIONS:
A. CABLES WILL BE RUN IN THE SAME TREFOIL CONFIGURATION AS EXPOSED INSTALLATIONS.
B. PROTECT AGAINST DAMAGE DURING PULLING, AND DURING CONCRETE POURING OR BACKFILL AND TAMPING.
C. WHERE CABLES EMERGE FROM GRADE, PROVIDE PVC CONDUIT, METAL PLATE OR ANGLE IRON. THIS PROTECTION SHALL MINIMALLY EXTEND FROM 18 INCHES (450MM) BELOW GRADE TO 8 FT. (2.5M) ABOVE GRADE.
9. WALL OR FLOOR PENETRATIONS:
A. PROVIDE SLEEVE TO PROTECT CABLE AND PENETRATION OPENING DURING PULLING.
B. PROVIDE APPROVED FIRE STOPPING OF ALL PENETRATIONS.
10. NEATLY TRAIN AND LACE CABLE INSIDE BOXES, EQUIPMENT, AND PANELBOARDS.
Q. FIELD QUALITY CONTROL
1. INSPECT CABLE FOR PHYSICAL DAMAGE AND PROPER CONNECTION.
2. MEASURE TIGHTNESS OF BOLTED CONNECTIONS AND COMPARE TORQUE MEASUREMENTS WITH MANUFACTURER'S RECOMMENDED VALUES.
3. VERIFY CONTINUITY OF EACH CONDUCTOR.
4. PRIOR TO ENERGIZING CABLES, MEASURE INSULATION RESISTANCE OF EACH CABLE. TABULATE AND SUBMIT FOR APPROVAL.

PART 3 - EXECUTION

GENERAL
ALL INTERRUPTIONS AND SHUTDOWNS OF EXISTING ELECTRICAL SYSTEMS AND SERVICES SHALL BE AS SHORT AS POSSIBLE AND AT TIME AND DURATION APPROVED BY THE OWNER AND THE ENGINEER. THE ELECTRICAL CONTRACTOR SHALL INCLUDE ALL PREMIUM TIME ASSOCIATED WITH THE SYSTEM AND SERVICE INTERRUPTIONS AND SHUTDOWNS.

CLEANING, ADJUSTING, AND TESTING
AT THE COMPLETION OF THE WORK, ALL PARTS OF THE INSTALLATION SHALL BE THOROUGHLY CLEANED. ALL DEVICES, EQUIPMENT, CONDUITS, AND FITTINGS SHALL BE COMPLETELY CLEANED OF GREASE, METAL CUTTINGS, DIRT WHICH MAY HAVE ACCUMULATED DURING CONSTRUCTION AND PROTECTION COVERS. ANY DISCOLORATION OR DAMAGE TO PARTS OF THE BUILDING, ITS FINISH OR FURNISHINGS DUE TO FAILING TO PROPERLY CLEAN THE ELECTRICAL SYSTEM SHALL BE REPAIRED BY THE ELECTRICAL CONTRACTOR WITHOUT COST TO THE OWNER. THE ELECTRICAL CONTRACTOR SHALL TEST ALL WORK AND EQUIPMENT AS DIRECTED BY THE OWNER AND AS REQUIRED BY AUTHORITIES HAVING JURISDICTION. FURNISH ALL EQUIPMENT, NECESSARY PERSONNEL AND THE ELECTRICAL POWER. THE ENTIRE INSTALLATION SHALL BE TESTED FOR SHORTS, GROUNDS AND OPEN CIRCUITS AND ALL DEFECTS SHALL BE CORRECTED BEFORE ACCEPTANCE OF HIS WORK. ALL WORK SHALL BE DEMONSTRATED TO BE IN PROPER OPERATING CONDITION TO THE COMPLETE SATISFACTION OF THE OWNER AND OWNER.

EQUIPMENT CONNECTIONS
THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONNECTIONS TO ALL EQUIPMENT REQUIRING ELECTRICAL SERVICE, INCLUDING POWER CABLES, BRANCH CIRCUIT EXTENSIONS, FIRE ALARM CABLES, MOTORS, CONTROLLERS, LIGHTING FIXTURES AND ALL OTHER EQUIPMENT AND SYSTEMS SPECIFIED OR SHOWN ON THE DRAWINGS.

GROUNDING AND BONDING
PROVIDE GROUNDING AND BONDING METHODS IN ACCORDANCE WITH NEC CODE ARTICLE 250 AND LOCAL UTILITY COMPANY REGULATIONS.

CONDUIT WORK
ALL WIRING SHALL BE INSTALLED IN HEAVY WALL RIGID STEEL UNLESS OTHERWISE NOTED BELOW AND RUN CONCEALED EXCEPT AS INDICATED ON THE DRAWINGS. BRANCH CIRCUIT WIRING IN HUNG CEILINGS, FURRED SPACES OR EXPOSED MAY BE INSTALLED IN ELECTRICAL METALLIC TUBING. PANELBOARD FEEDERS MAY BE RUN IN ELECTRICAL METALLIC TUBING EXCEPT PANELBOARD FEEDERS RUN UNDERGROUND OR IN CONCRETE SLABS SHALL BE IN HEAVY WALL RIGID STEEL CONDUIT AS SPECIFIED ABOVE OR PVC. ALL EXPOSED CONDUIT IN SPACES INDICATED AS MECHANICAL ROOMS AND WHERE INSTALLED EXPOSED BELOW THE 8' LEVEL ELSEWHERE ON THE PROJECT SHALL BE RIGID STEEL CONDUIT. CONDUIT EXTENSIONS IN METAL PARTITIONS MAY BE MADE WITH FLEXIBLE METAL CONDUIT, WITH GROUNDING CONDUCTOR.

CONNECTIONS TO PORTABLE AND PERMANENTLY MOUNTED MOTORIZED EQUIPMENT AND MOTORS, AS WELL AS THE EQUIPMENT HOUSING, SHALL BE MADE WITH APPROVED LIQUID TIGHT FLEXIBLE METAL CONDUIT. FLEXIBLE CONNECTIONS SHALL BE A MAXIMUM OF 18" LONG AND WITH GROUNDING CONDUCTOR. FLEXIBLE CONNECTIONS SHALL BE USED PRIOR TO ATTACHMENT TO EQUIPMENT HOUSINGS.

CONDUIT ENDS SHALL BE CUT SQUARE, THREADED AND REAMED TO REMOVE BURRS AND SHARP EDGES. FIELD THREADS SHALL BE OF THE SAME TYPE AND HAVE THE SAME EFFECTIVE LENGTH AS FACTORY CUT THREADS. EXCESSIVE EXPOSED THREADS WILL NOT BE ALLOWED. TURNS, WHEREVER REQUIRED IN EXPOSED CONDUIT RUNS SHALL BE MADE BY THE USE OF FACTORY-MADE BENDS, OR FIELD MADE BENDS. CONDULETS, OR IN THE EVENT OF A MULTIPLICITY OF CONDUITS MAKING THE SAME TURN, A STEEL JUNCTION BOX WITH A REMOVABLE STEEL COVER MAY BE USED. OFFSETS AND BENDS FOR CHANGES IN ELEVATION OF EXPOSED CONDUIT RUNS SHALL BE MADE AT WALLS OR BEAMS AND NOT IN OPEN SPACES BETWEEN WALLS OR BEAMS. CONDUITS SHALL BE ROUTED SO AS NOT TO INTERFERE WITH THE OPERATION OF MAINTENANCE OF ANY EQUIPMENT. THE ENTIRE JOB SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER. STEEL SUPPORTS OR RACKS SHALL BE GALVANIZED STEEL CHANNEL AND FITTINGS, UNISTRUT, KINDORF, HUSKY PRODUCTS COMPANY, OR EQUAL.

ALL CONDUIT WORK SHALL BE CAREFULLY CLEANED AND DRIED INSIDE BEFORE THE INSTALLATION OF CONDUCTORS. WIRE SHALL NOT BE PULLED INTO CONDUIT SYSTEM UNTIL BUILDING IS COMPLETED. PLUG CONDUIT ENDS TO EXCLUDE DUST, MOISTURE, PLASTER OR MORTAR WHILE BUILDING IS UNDER CONSTRUCTION. NO LUBRICANTS OR CLEANING AGENTS WHICH MIGHT HAVE A DELETERIOUS EFFECTS ON CONDUCTOR COVERINGS SHALL BE USED FOR DRAWING CONDUCTORS INTO RACEWAYS.

DRAWINGS, IN RELATION TO ROUTING OF CONDUITS, ARE DIAGRAMMATIC. THE NUMBER AND SIZE OF CONDUITS AND WIRE SHALL BE FURNISHED AND INSTALLED AS INDICATED BY THE DRAWINGS. CONDUITS SHALL BE ROUTED IN THE FIELD SO AS TO BE COORDINATED WITH THE BUILDING STRUCTURE. CONCEALED CONDUIT SHALL BE AS SHORT AND DIRECT AS POSSIBLE. EXPOSED CONDUIT SHALL BE RUN IN STRAIGHT LINES PARALLEL TO WALLS, BEAMS AND COLUMNS AND WITH RIGHT ANGLE BENDS AND THREADED CONDUIT FITTINGS. ALL CONDUIT IN CONCRETE SLABS SHALL BE RUN ABOVE BOTTOM STEEL REINFORCING, BELOW TOP REINFORCING AND COLUMN TIES. CONDUITS PASSING THROUGH FLOORS, WALLS AND BEAMS SHALL BE OF SUCH SIZE, NUMBER AND IN SUCH LOCATIONS SO AS NOT TO IMPAIR THE STRENGTH OF THE CONSTRUCTION. AT TIME OF ROUGHING CONDUITS IN CONCRETE SLAB AREA, PRIOR TO POURING OF SLAB, THE ELECTRICAL CONTRACTOR SHALL CONSULT THE STRUCTURAL ENGINEER FOR COORDINATION AND APPROVAL OF SIZE, SPACING AND METHOD OF CONDUIT INSTALLATION IN SLABS AND WALLS, AS WELL AS PENETRATION OF SUCH. PARTICULAR ATTENTION SHALL BE GIVEN TO THE INSTALLATION OF CONDUITS AT GROUPED AREAS, SUCH AS PANELBOARD, CABINET AND PULL BOX ENTRANCES.

ALL METAL CONDUIT BURIED IN THE EARTH OR FILL SHALL BE COATED WITH TWO COATS OF HEAVY ASPHALT PAINT OVER ITS ENTIRE LENGTH, INCLUDING COUPLINGS.

RACEWAYS IN CEILING SPACES SHALL BE ROUTED IN SUCH AN APPROVED MANNER AS TO ELIMINATE OR MINIMIZE THE NUMBER OF JUNCTION BOXES REQUIRED, BUT ALSO SHALL BE ROUTED IN AN ORDERLY AND ORGANIZED MANNER. SUPPORT RODS AND CLAMPS SHALL BE FURNISHED AND INSTALLED AS DIRECTED BY THE OWNER. SUPPORT OF CONDUITS BY USE OF WIRE IS STRICTLY PROHIBITED. CONDUITS SHALL BE SUPPORTED AND SECURED BY CONDUIT SUPPORT DEVICES.

WHERE RIGID METAL CONDUIT IS THREADED IN THE FIELD, A STANDARD CONDUIT CUTTING DIE PROVIDING 3/4" TAPER PER FOOT SHALL BE EMPLOYED. THREADLESS COUPLING SHALL NOT BE USED ON RIGID METAL CONDUIT EXCEPT WHERE SPECIFICALLY ALLOWED BY THE OWNER. RUNNING THREADS SHALL NOT BE USED ON RIGID METAL CONDUIT.

CONDUIT WORK SHALL BE INSTALLED IN SUCH A MANNER TO KEEP EXPOSED THREADS TO AN ABSOLUTE MINIMUM, AND IN NO CASE SHALL MORE THAN THREE THREADS BE LEFT EXPOSED AFTER THE CONDUIT WORK IS MADE UP TIGHT. THIS REQUIREMENT APPLIES TO ALL CONDUIT WORK, INCLUDING CONDUIT BURIED IN EARTH OR FILL OR IN CONCRETE.

MINIMUM SIZE CONDUIT SHALL BE 3/4" NOMINAL TRADE SIZE.

A MINIMUM 3/16" DIAMETER TWISTED NYLON PLASTIC TYPE FISH CORD SHALL BE FURNISHED AND INSTALLED IN ALL EMPTY RACEWAYS. PROVIDE A TAG ON EACH END OF FISH CORD INDICATING THE LOCATION OF THE OTHER END.

FIRE STOPPING
ELECTRICAL INSTALLATIONS IN HOLLOW SPACES, VERTICAL SHAFTS AND VENTILATION OR AIR HANDLING DUCTS SHALL BE SO MADE THAT THE POSSIBLE SPREAD OF FIRE OR PRODUCTS OF COMBUSTION WILL NOT BE SUBSTANTIALLY INCREASED. OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RESISTANCE RATED WALLS, PARTITIONS, FLOORS OR CEILINGS SHALL BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE-RESISTANCE RATING.

IDENTIFICATION:
NAMEPLATES SHALL BE FURNISHED AND INSTALLED ON THE METER CENTERS/SWITCHBOARD AND METER CENTERS/SWITCHBOARD CIRCUIT BREAKERS, PANELBOARDS, TRANSFORMERS, JUNCTION BOXES, CABINETS FOR ALL SPECIAL PURPOSE SWITCHES, MOTOR DISCONNECT SWITCHES, STARTERS AND OTHER CONTROLS FURNISHED UNDER THIS CONTRACT, TO DESIGNATE THE EQUIPMENT CONTROLLED AND FUNCTION. NAMEPLATES SHALL BE LAMINATED WHITE BAKELITE WITH 1/4" HIGH BLACK RECESSED LETTERS. NAMEPLATES SHALL BE SECURELY ATTACHED TO THE EQUIPMENT WITH GALVANIZED SCREWS OR RIVETS. ADHESIVES OR CEMENTS WILL NOT BE PERMITTED. ALL PULL BOXES AND JUNCTION BOXES SHALL BE IDENTIFIED AS TO SYSTEM AND FUNCTION BY MEANS OF BLACK FIBRE PEN.

PROGRAMMING:
A. PROVIDE ALL PROGRAMMING AS REQUIRED FOR A FULLY OPERATING SYSTEM AND MEETING APPROVAL OF OWNER AND THE AUTHORITY HAVING JURISDICTION. ALL ROOM NAMES, NUMBERS AND OTHER WORDING MUST MEET APPROVAL OF THE OWNER AND MAY NOT MATCH CONTRACT DRAWINGS.
B. PRIOR TO PROGRAMMING, SUBMIT A COMPLETE LIST OF ALL DEVICE "ADDRESSES" TO THE AUTHORITY HAVING JURISDICTION, FOR FINAL APPROVAL.
C. ALL REQUIRED PROGRAM CHANGES AND ALL OWNER REQUESTED PROGRAM CHANGES DURING THE FIRST YEAR FOLLOWING FINAL APPROVAL AND ACCEPTANCE SHALL BE PROVIDED AT NO CHARGE TO THE OWNER.
D. ELECTRICAL CONTRACTOR SHALL VERIFY ALL ACTUAL ROOM NAMES AND INCLUDE IN PROGRAMMING OF THE FIRE ALARM CONTROL PANEL.

ACCESS CODES:
A. A RECORD OF ALL PROGRAM ACCESS CODES TO BE GIVEN TO THE OWNER AND INCLUDED AS PART OF THE MAINTENANCE MANUALS. AT END OF GUARANTEE/WARRANTY PERIOD, ACCESS CODE LIST TO BE UPDATED, CERTIFIED AS ACCURATE BY THE VENDOR, AND DELIVERED TO THE OWNER.

WARRANTY/GUARANTEE:
A. THE CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT AND WIRING TO BE FREE FROM INHERENT MECHANICAL AND ELECTRICAL DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
B. THE EQUIPMENT SUPPLIER SHALL PROVIDE THE OWNER WITH A FORMAL WRITTEN EQUIPMENT GUARANTEE UPON COMPLETION OF THE INSTALLATION AND TESTING OF THE SYSTEM. THE GUARANTEE PERIOD SHALL BEGIN ON THE DAY OF ACCEPTANCE OF THE SYSTEM BY THE ENGINEER AND SHALL PROVIDE FOR A PERIOD OF ONE YEAR, UNLESS A LONGER PERIOD IS REQUIRED ELSEWHERE IN THESE SPECIFICATIONS.
C. THE CONTRACTOR SHALL INCLUDE AS PART OF THEIR BASE BID THE COST OF A ONE-YEAR TEST AND INSPECTION CONTRACT, TO BE HELD BY THE COMPANY WHICH SHALL CERTIFY THE COMPLETED INSTALLATION. THE CONTRACT SHALL PROVIDE FOR QUARTERLY INSPECTIONS IN ACCORDANCE WITH NFPA72 AND LOCAL REQUIREMENTS. ANY EQUIPMENT FOUND TO BE DEFECTIVE DURING THE WARRANTEE PERIOD SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL CHARGE TO THE OWNER.
D. PROVIDE ONE YEAR OF THIRD PARTY MONITORING. COORDINATE WITH OWNER AS REQUIRED FOR SPECIFIC REQUIREMENTS.

HVAC•ELECTRICAL•PLUMBING •FIRE PROTECTION•

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