Request for Quote

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ONE CAPITOL HILL
PROVIDENCE RI 02908

CREATION DATE : 16-OCT-12
BID NUMBER: 7458195
TITLE: REPLACEMENT OF UNIT VENTILATORS AND EXHAUST FAN

BID CLOSING DATE AND TIME:28-NOV-2012 02:00:00

BUYER: Mosca, Gary
PHONE #: 401-574-8124

BILL TO
RIC SPECIAL INSTRUCTIONS
SEE BELOW
SEE BELOW, RI N/A
US

SHIP TO
RIC-PURCHASING
600 MOUNT PLEASANT AVENUE
PROVIDENCE, RI 02908
US

Requistion Number: 1289486

Note to Bidders: Questions concerning this solicitation may be emailed to gary.mosca@purchasing.ri.gov no later than 11/16/12 @ 12:00 NOON (EST). Questions should be submitted in a Microsoft word attachment. Please reference the RFQ # on all correspondence. Questions received if any, will be posted on the internet as an addendum to this solicitation. It is the responsibility of all interested parties to download this information

Line	Description	Quantity	Unit	Unit Price	Total
1	REPLACEMENT OF UNIT VENTILATOR'S AND EXHAUST FAN - CLARKE SCIENCE - RHODE ISLAND COLLEGE THERE WILL BE A PRE-BID CONFERENCE HELD ON 11/14/12 @ 9:00 AM (EDT). LOCATION: RI COLLEGE CAMPUS 600 MT. PLEASANT AVE. PROVIDENCE, RI 02908 PLEASE REPORT TO PHYSICAL PLANT CONFERENCE ROOM **ALLOWANCE - WE HAVE INCLUDED AN ALLOWANCE OF $20,000.00 IN THE BASE BID TO COVER THE COSTS INDICATED IN SECTION (4), (PAGE 12) ALLOWANCES, OF THE BID SPECIFICATIONS.** IT IS ADVISED THAT ALL VENDORS CHECK IN WITH SECURITY FOR A GUEST PARKING PASS.	1.00	Each		

Delivery: _____

Terms of Payment: _____

It is the Vendor's responsibility to check and download any and all addenda from the RIVIP. This offer may not be considered unless a signed RIVIP generated Bidder Certification Cover Form is attached and the Unit Price column is completed. The signed Certification Cover Form must be attached to the front of the offer

BID STANDARD TERMS AND CONDITIONS

TERMS AND CONDITIONS FOR THIS BID

SURETY REQUIREMENTS

BIDDER IS REQUIRED TO PROVIDE A BID SURETY IN THE FORM OF A BID BOND, OR A CERTIFIED CHECK PAYABLE TO THE STATE OF RHODE ISLAND, IN THE AMOUNT OF A SUM NOT LESS THAN FIVE PERCENT (5%) OF THE BID PRICE. BID SURETY MUST BE ATTACHED TO THE BID FORM. THE SUCCESSFUL BIDDER WILL ALSO BE REQUIRED TO FURNISH PERFORMANCE AND LABOR AND PAYMENT BONDS AT TIME OF TENTATIVE CONTRACT AWARD.

START DATE

STARTING DATE _____ NO. OF WORKING DAYS REQUIRED FOR COMPLETION _____

WAGE REQUIREMENTS

BIDDERS ARE ADVISED THAT ALL PROVISIONS OF TITLE 37 CHAPTER 13 OF THE GENERAL LAWS OF RHODE ISLAND APPLY TO THE WORK COVERED BY THIS REQUEST, AND THAT PAYMENT OF THE GENERAL PREVAILING RATE OF PER DIEM WAGES AND THE GENERAL PREVAILING RATE FOR REGULAR, OVERTIME, AND OTHER WORKING CONDITIONS EXISTING IN THE LOCALITY FOR EACH CRAFT, MECHANIC, TEAMSTER, OR TYPE OF WORKMAN NEEDED TO EXECUTE THIS WORK IS A REQUIREMENT FOR BOTH CONTRACTORS AND SUBCONTRACTORS. THE PREVAILING WAGE TABLE MAY BE OBTAINED AT THE RI DIVISION OF PURCHASES HOME PAGE BY INTERNET at www.purchasing.state.ri.us. SELECT "INFORMATION" AND THEN SELECT "PREVAILING WAGE TABLE". THE STATE OF RHODE ISLAND USES THE GENERAL DECISION NUMBER RI20100001. PRINTING THE ENTIRE DOCUMENT AVERAGES APPROXIMATELY ONE MINUTE PER PAGE - YOU MAY WANT TO PRINT ONLY THE PAGES APPLICABLE TO YOUR BID. BIDDERS NOTE: IN THE EVENT THIS BID SPECIFIES PRICE OFFERS ON A TIME-AND-MATERIALS BASIS, i.e., AN HOURLY RATE, ANY OR ALL BIDS SUBMITTED IN AN AMOUNT LESS THAN THE PREVAILING RATE IN EFFECT FOR THE WORK COVERED BY THIS REQUEST AS OF THE DATE OF BID ISSUANCE SHALL BE REJECTED BY THE DIVISION OF PURCHASES.

INSPECTION REQUIREMENTS

BIDDERS ARE RESPONSIBLE FOR INSPECTION OF EQUIPMENT AND/OR LOCATION, TAKING MEASUREMENTS* WHEN REQUIRED, AND MAKING THEMSELVES AWARE OF THE TOTAL REQUIREMENT BEFORE SUBMITTING A BID. *MEASUREMENTS PROVIDED WITH ANY BID ARE FOR REFERENCE PURPOSES AND ARE NOT GUARANTEED TO BE COMPLETELY ACCURATE.

TERMS CONTINUED:

INSURANCE REQUIREMENTS

AN INSURANCE CERTIFICATE IN COMPLIANCE WITH PROVISIONS OF ITEM 31 (INSURANCE) OF THE GENERAL CONDITIONS OF PURCHASE IS REQUIRED FOR COMPREHENSIVE GENERAL LIABILITY, AUTOMOBILE LIABILITY, AND WORKERS' COMPENSATION AND MUST BE SUBMITTED BY THE SUCCESSFUL BIDDER(S) TO THE DIVISION OF PURCHASES PRIOR TO AWARD. THE INSURANCE CERTIFICATE MUST NAME THE STATE OF RHODE ISLAND AS CERTIFICATE HOLDER AND AS AN ADDITIONAL INSURED. FAILURE TO COMPLY WITH THESE PROVISIONS MAY RESULT IN REJECTION OF THE OFFEROR'S BID. ANNUAL RENEWAL CERTIFICATES MUST BE SUBMITTED TO THE AGENCY IDENTIFIED ON THE PURCHASE ORDER. FAILURE TO DO SO MAY BE GROUNDS FOR CANCELLATION OF CONTRACT.

NOTE: IF THIS BID COVERS CONSTRUCTION, SCHOOL BUSING, HAZARDOUS WASTE, OR VESSEL OPERATION, APPLICABLE COVERAGES FROM THE FOLLOWING LIST MUST ALSO BE SUBMITTED TO THE DIVISION OF PURCHASES PRIOR TO AWARD: * PROFESSIONAL LIABILITY INSURANCE (AKA ERRORS & OMISSIONS) - $1 MILLION OR 5% OF ESTIMATED PROJECT COST, WHICHEVER IS GREATER. * BUILDER'S RISK INSURANCE - COVERAGE EQUAL TO FACE AMOUNT OF CONTRACT FOR CONSTRUCTION. * SCHOOL BUSING - AUTO LIABILITY COVERAGE IN THE AMOUNT OF $5 MILLION. * ENVIRONMENTAL IMPAIRMENT (AKA POLLUTION CONTROL) - $1 MILLION OR 5% OF FACE AMOUNT OF CONTRACT, WHICHEVER IS GREATER. * VESSEL OPERATION - (MARINE OR AIRCRAFT) - PROTECTION & INDEMNITY COVERAGE REQUIRED IN THE AMOUNT OF $1 MILLION.

RIVIP INFO - BID SUBMISSION REQUIREMENTS

It is the Vendor's responsibility to check and download any and all addenda from the RIVIP. This offer may not be considered unless a signed RIVIP generated Bidder Certification Cover Form is attached and the Unit Price column is completed. The signed Certification Cover Form must be attached to the front of the offer. When delivering offers in person to One Capitol Hill, vendors are advised to allow at least one hour additional time for clearance through security checkpoints.

AWARD

THE STATE, AT ITS SOLE DISCRETION, SHALL RESERVE THE RIGHT TO MAKE ONE OR MULTIPLE AWARDS FOR THIS REQUIREMENT AND/OR TO REJECT ANY OR ALL BIDS.

TERMS CONTINUED:

SUBSTITUTION TERMS

A) THE MATERIALS, PRODUCTS, AND EQUIPMENT DESCRIBED IN THE BIDDING DOCUMENTS ESTABLISH A STANDARD OF REQUIRED FUNCTION, DIMENSION, APPEARANCE, AND QUALITY TO BE MET BY ANY PROPOSED SUBSTITUTION. B) NO SUBSTITUTION WILL BE CONSIDERED PRIOR TO RECEIPT OF BIDS UNLESS WRITTEN REQUEST FOR APPROVAL HAS BEEN RECEIVED BY THE ARCHITECT AT LEAST 10 DAYS PRIOR TO THE DATE FOR RECEIPT OF BIDS. SUCH REQUESTS SHALL INCLUDE THE NAME OF THE MATERIAL OR EQUIPMENT FOR WHICH IT IS TO BE SUBSTITUTED AND A COMPLETE DESCRIPTION OF THE PROPOSED SUBSITUTION INCLUDING DRAWINGS, PERFORMANCE, AND TEST DATA AND OTHER INFORMATION NECESSARY FOR AN EVALUATION. A STATEMENT SETTING FORTH CHANGES IN OTHER MATERIALS, EQUIPMENT, OR OTHER PORTIONS OF THE WORK, INCLUDING CHANGES IN THE WORK OF OTHER CONTRACTS THAT INCORPORATION OF THE PROPOSED SUBSTITUTION WOULD REQUIRE, SHALL BE INCLUDED. THE BURDEN OF PROOF OF THE MERIT OF THE PROPOSED SUBSTITUTION IS UPON THE PROPOSER. THE ARCHITECT'S DESIGION OF APPROVAL OR DISAPPROVAL OF A PROPOSED SUBSTITUTION SHALL BE FINAL. C) IF THE ARCHITECT APPROVES A PROPOSED SUBSTITUTION PRIOR TO RECEIPT OF BIDS, SUCH APPROVAL WILL BE SET FORTH IN AN ADDENDUM. BIDDERS SHALL NOT RELY UPON APPROVALS MADE IN ANY OTHER MANNER. D) NO SUBSTITUTIONS WILL BE CONSIDERED AFTER THE CONTRACT AWARD UNLESS SPECIFICALLY PROVIDED FOR IN THE CONTRACT DOCUMENTS.

LICENSE REQUIREMENTS

VENDOR (OWNER OF COMPANY) IS RESPONSIBLE TO COMPLY WITH ALL LICENSING OR STATE PERMITS REQUIRED FOR THIS TYPE OF SERVICE. A COPY OF LICENSE/PERMIT SHOULD BE SUBMITTED WITH THIS BID. IN ADDITION TO THESE LICENSE REQUIREMENTS, BIDDER, BY SUBMISSION OF THIS BID, CERTIFIES THAT ANY/ALL WORK RELATED TO THIS BID, AND ANY SUBSEQUENT AWARD WHICH REQUIRES A RHODE ISLAND LICENSE(S), SHALL BE PERFORMED BY AN INDIVIDUAL(S) HOLDING A VALID RHODE ISLAND LICENSE.

END DOCUMENT

RHODE ISLAND COLLEGE

REPLACEMENT OF UNIT VENTILATORS & EXHAUST FAN, CLARKE-SCIENCE BUILDING
SPECIFICATIONS

1. GENERAL.

1.1 Contract Purpose: The existing unit ventilators providing heated and cooled (air-conditioned) air to the classrooms and laboratories in Clarke-Science Building were installed when it was constructed on/about 1963. The pneumatic-operated outside-air and return-air dampers in these units are no longer operable; and the building's pneumatic capabilities have been replaced by a direct-digital system. Further, the existing unit ventilators do not have face-and-bypass dampers. Accordingly, the existing 25 unit ventilators are to be replaced with 25 dual-temperature (hot water or chilled water) unit ventilators having electrically-operated outside-air and return-air dampers and face-and-bypass dampers. In addition, a rooftop exhaust fan that has been removed must be replaced.

Therefore, the requirements of this contract include: the removal of the 25 existing unit ventilators; and the installation of the 25 specified Trane unit ventilators, **EACH having all of the capabilities specified in the six attached PLANS**, which are officially incorporated into these Specifications. The specified replacement 2790-CFM exhaust fan must be furnished and installed. The brick and mortar blocking 3 former outside-air openings must be removed; and 3 galvanized-steel diffusers matching the existing diffusers (in the other outside-air openings) must be furnished and installed in these openings. For EACH replacement unit ventilator: the 120-Volt 15-Amp electric service must be disconnected and reconnected; the copper dual-temperature water supply and return pipes must be disconnected and reconnected; the existing copper condensate-drain piping must be disconnected, adjusted as required, and reconnected to the replacement unit ventilator's drain pan or pipe; the specified replacement balancing valve must be furnished and installed; the Siemens subcontractor must furnish and install a unit-ventilator type terminal-equipment-controller (TEC); the Siemens subcontractor must furnish and install electric cables between this TEC and both operable dampers in the unit ventilator; and connect each replacement unit ventilator to the temperature controller in that room. Further, the Siemens subcontractor must furnish a motor starter for a replacement rooftop exhaust fan; and furnish and install controls conduit and wiring to connect an existing Siemens panel to both the new motor starter and an existing fan motor starter. In addition, each wall-mounted unit ventilator must also be secured to the wall with fasteners and an air-seal-type gasket; each ceiling-mounted unit ventilator must be suspended using the specified ceiling clamps and hangers and connected with a sound-attenuator (vibration-eliminating) fabric to the existing ductwork. Contractor must also uncover a roofed-over opening; furnish and install an equipment curb and replacement exhaust fan; make the sheet-metal connection to an existing duct; provide the cables and conduit for electric service from an existing breaker; and reseal the roofing at the curb.

Although NOT mentioned in the PLANS, **Trane is to furnish each unit ventilator with a manual air-bleeder valve and with a hose bibb for draining the coil.** Hangers and supports must also be furnished and installed. All piping and equipment must be insulated. The associated electric service, a hand-off-auto motor starter, disconnects, switches, conduit systems for the exhaust fan must be furnished and installed. The existing Siemens Building Technologies heating, ventilating and air-conditioning (HVAC) digital controls system must be extended to control two additional exhaust fans, to provide thermostatic controls for EACH unit ventilator, and to operate the outside-air-and-return-air and the face-and-bypass dampers in EACH unit ventilator.

The exhaust system for the designated SEVEN wall registers and TWO ceiling diffusers must be balanced by Votta Brothers; the water flow for EACH of the TWENTY-FIVE unit ventilators must also be balanced by Votta Brothers.

Additional and detailed requirements for this BASE BID are adequately described on the enclosed: 6 PLANS, which are officially incorporated into these Specifications.

In addition, the associated pipefitting, demolition, masonry, sheet-metal, electrical, insulation and roofing work must be accomplished. Equipment and piping must be leak-tested; controls systems installed and verified; air must be bled from all lines; complete testing and start-up operations performed; and all associated electrical requirements satisfied.

1.2 Pre-Bid-Submittal Site Inspection. Each Contractor submitting a bid is to survey the Clarke-Science Building: mechanical room, first floor, second floor (including the janitor's closet) and the rooftop exhaust fans' locations. Contractor is to verify all pertinent measurements before submitting the bid. Attend the non-mandatory (but highly recommended) pre-bid meeting. Call the Rhode Island College Engineer (Mr. John Vickers, 456-8262) with any questions.

1.3 Contractor Qualifications. The removal and installation of the unit ventilators, piping, fittings, valves and related equipment required by this Contract are to be accomplished by a Rhode Island licensed pipefitter; welding is to be accomplished by a RI-certified welder. In addition, the Contractor must have a Master Pipefitting Contractor's License valid in Rhode Island. The actual installation of the electrical service lines, wiring, conduits, boxes, switches, circuit breakers, disconnects, starters and connections as well as the associated electrical equipment required by this Contract are to be performed by a Rhode Island licensed electrician. The electrical subcontractor must have a Master Electrical Contractor's License valid in Rhode Island. The sheetmetal work is to be accomplished by a RI-licensed sheetmetal worker; the subcontractor must have a Master Sheetmetal Contractor's License valid in Rhode Island.

1.4 Pre-construction Planning and Schedule. As soon as possible after being awarded this Contract, the Contractor (and all subcontractors) will attend a pre-construction meeting before starting any actual unit ventilator removal, or unit ventilator and exhaust fan replacement or installation work. Immediately after this meeting and

the approval of submittals, the Contractor should order all required replacement and improvement equipment, parts, materials and associated components. Schedule the work so that these newly improved piping, heating and air-conditioning systems are fully operational 31 March 2013.

1.5 Laws, Permits. Contractor (and subcontractors) are to comply with all applicable federal and state laws, regulations and codes. The Contractor DOES need to obtain a permit for this work from the State Building Commission. The permit is issued by the office of the State Building Commissioner, One Capitol Hill, Providence (222-3033).

1.6 Materials, Equipment and Workmanship.

1.6.1 General. Materials and workmanship shall be the best of their respective kinds; work will be accomplished in a neat and workmanlike manner in full accord with modern construction methods, and with any applicable State codes. All equipment and materials furnished and installed for this contract are to be of American manufacture. All of the replacement unit ventilators, exhaust fan, and balancing valves are specified on the PLANS by manufacturer and model. With these exceptions, all other required materials {to include: valves, equipment mountings, hanger systems, connectors, electrical conduit and wiring, insulation, fasteners, sheetmetal, structural-steel and similar materials} are to conform to accepted National and RI construction industry standards.

1.6.2 Samples and Submittals. At least 1 week prior to the project start date, Contractor shall submit, for Plant Engineer approval:

(a) Samples of the following materials: None.
(b) The following shop drawings: None.

(c) Catalog "Cuts" which adequately identify and describe the following:

(1) All piping, valves (including manual bleeder valves), fittings materials.
(2) Pipe hanger equipment and systems; sheetmetal and sound attenuators (vibration eliminators); roof curb;
(3) ALL THREE types of unit ventilators; and the Siemens BT direct-digital controls system components and terminal-equipment controllers; the balancing valves (all of which are specified by manufacturer and model); other Contractor-furnished materials.
(4) Exhaust fan.
(4) Pipe and equipment insulation.
(5) The on-off-auto motor starter and disconnect switches; and similar, important materials and equipment which the Contractor proposes to furnish, install, use for this Contract.

All such samples and shop drawings will be identified as to manufacturer, item, kind, and include all necessary information to demonstrate that the materials comply with Specifications. Catalog "Cuts" are to include at least one manufacturer's original set (all photo copies NOT acceptable).

1.6.3 Shop Drawing, Catalog Cut & Equipment Ordering Warning. Contractor is not to order nor commence to install any equipment under this Contract until the applicable Shop Drawings and Catalog Cuts are approved by the College Engineer.

1.6.4 and 1.6.5 Deleted.

1.6.6 Conduit. Certain segments of flexible conduit are to be furnished and installed as equipment connections. All conduit within the mechanical room (MR) and conduit within the building is to be EMT thin-wall steel conduit with steel set-screw fittings; or MC cable may be used wherever allowed by the Code; use diameter required by the Code. Appropriate, standard junction and pull boxes, elbows and fittings which match the adjacent conduit are also to be furnished and installed.

1.6.7 Electrical Equipment and Cables. For the replacement exhaust fan #3, contractor is to install a Siemens-furnished hand-off-auto motor starter, a disconnect switch, any required relays, conduit, wiring, fittings, conduit hangers, all associated electrical materials for 100% operational electrical service and controls systems. Siemens is also to install operational control over the existing exhaust fan #4.

Furnish and install the required relays, electrical and conduit fittings, conduit hangers, all associated electrical materials for 100% operational electrical service and controls systems for the unit ventilators and the exhaust fan being furnished and installed by this contract.

Contractor is to use copper electrical wires (600 volts capacity) with THHN insulation for all electric service requirements. Wiring for all controls and temperature-sensor systems will also be of copper, comply with codes and be installed in the specified conduits. If no size is indicated, the wire will be sized in accordance with the Electrical Code for the operating current of the equipment being supported (allowing for starting current).

Contractor is to comply with the following RI College standard color scheme for Its 3-Phase wiring:

Phase A – Black
Phase B – Red
Phase C – Blue.

1.6.8 HVAC Direct-Digital Controls (DDC) Equipment. Because we already have a Siemens Building Technologies (BT) DDC automated temperature controls system (and NO OTHER Manufacturer's DDC system) in 19 major Campus

buildings, ALL CONTROLS EQUIPMENT MUST BE Siemens BT DDC equipment.
Siemens BT is responsible for furnishing **AND INSTALLING**: all controls (only) wiring and conduits; all controls equipment such as sensors, electronic equipment, terminal equipment controllers, panels and thermostats.

1.6.9 Unit Ventilators. Furnish and install the TWENTY-FIVE Trane wall-mounted and ceiling-mounted dual-temperature (hot water or chilled water) unit ventilators having electrically-operated outside-air and return-air dampers and face-and-bypass dampers plus all of the additional capabilities specified on the attached PLANS. These units are to be equipped with no control valves. All unit ventilator motors are to be 120-volt motors; the unit ventilators are to have the cooling and heating capacities and all of the capabilities identified on the enclosed PLANS.

1.6.10 Deleted.

1.6.11 Exhaust Fan. Furnish and install the Greenheck or Carnes Model fan whose size and capabilities are adequately identified in Note 19 on the attached PLAN: GENERAL & Second Floor Electrical Requirements.

1.6.12 Steel. All basic steel products, such as the hangers and threaded rods; bolts, nuts, lock washers and similar fasteners; required for this Contract are to be of mild steel (yield strength of 30,000 or 36,000 psi). Connecting bolts, nuts, washers; anchor bolts; and bolts inserted into concrete ceiling decks, masonry walls and floor slabs shall be of galvanized steel (& bent cold).

1.6.13 Cleaning Materials. To clean a given surface, only those cleaning materials are to be used which are recommended by the manufacturer of the surface to be cleaned.

1.6.14 Piping and Fittings. Contractor is to furnish and accomplish all required piping installation; connections to equipment: ALL connections to use the same kind, diameter, thickness and schedule piping as that which the new piping adjoins. For copper pipe, use Type L and, for solder-type fittings, use silver solder.
Wherever the copper pipe being installed connects to existing steel pipe, use dielectric fittings/connections to avoid electrolytic corrosion. Install also all appropriate gaskets, sealants, Teflon tape to ensure long-lasting, leak-free joints and connections. All pipefitter, plumbing and related site work is to be in full compliance with all applicable codes.

1.6.15 Insulation. After all piping being installed has been completely bled of air and has been tested for leaks, furnish and install the specified 3/4"-thick Armorflex Insulation on ALL of the unit ventilator dual-temperature piping and condensate-drain piping systems; and on ALL of the building's dual-temperature

piping and condensate-drain piping systems located within 3 feet of EACH unit ventilator.

1.6.16 Ceiling Tiles and Grid. Restore completely all ceilings disassembled, damaged or affected by the work of this contract. Furnish and install College-furnished ceiling grid members to match the existing in Clarke-Science Building. Use College-furnished ceiling tiles.

1.6.17 Electrical Service Equipment. Contractor is to furnish all other equipment and materials needed to complete the electrical requirements of these PLANS and Specifications, using standard off-the-shelf hardware, materials and equipment of quality as used by National Grid Company, to include: conduit hangers, clamps, brackets and supports; grounding rods and equipment, connectors and splicing materials; plus all related hardware and insulating tape.

1.6.18Caulking. Caulking material for all drilled holes, new penetrations and existing penetrations is to be: (a) two-component polysulfide, mixed on site, for joints between dissimilar materials and substrates; or (b) GE silicone (Silpruf) sealants for metal-to-metal joints.

1.6.19 Anchors, Bolts, Inserts and Sleeves. Anchors and anchor bolts, bolts, washers, nuts, conduit hangers and miscellaneous fasteners shall be provided where necessary for fastening work in place (such as breaker panels, distribution panels) and shall be as necessary for their intended purpose. They shall be drilled-into and embedded in concrete and masonry as appropriate; or securely fastened to the concrete floor slab, underlying structural members or concrete walls. See the PLANS for additional fastening requirements. Additional toggle bolts no smaller than ¼" diameter (and of lengths to pass through the ceiling or wall material) may be needed to secure certain conduits. Sizes, kinds and spacing of anchors not indicated nor specified shall be as necessary for their purpose. Zinc-coated inserts of suitable and approved types shall be provided where necessary for the support of conduits, equipment, apparatus and other work. Zinc-coated steel pipe sleeves of suitable size shall be provided where conduits pass through floors or walls. All such penetrations shall be sealed (using Fire-Safing foam insulation: US Gypsum's Thermafiber or equal) to comply with the Fire Codes. Steel supports for the fittings, conduits, wireways, receptacle and junction boxes, and equipment shall be galvanized and provided as indicated and as required for complete and top-quality installation. Lack of indications in the PLANS and Specifications of items obviously needed to properly satisfy all work requirements of this project, such as attachments, bolts, hangers, and other fastening devices, shall not relieve the Contractor from furnishing and installing these items.

1.7 Substitution of Materials. Materials specified by Manufacturer and Trade name for installation under this Contract are not to be substituted for "equal" or "equivalent"

materials without State Purchasing Office approval. However, any contractor proposing to supply and install "equal" materials will so notify the State Purchasing Officer at last 96 hours prior to bid submittal. This Officer will consult with the College Engineer to determine whether such materials are, in fact, equal products before awarding the contract to such low bidder [who is offering the "equal" product(s)].

1.8 Storage of Materials. At the job-site, all materials are to be stored in a place and manner which protect them from damage and the effects of weather. Flammable and readily combustible materials are not to be stored inside campus buildings. Coordinate storage requirements and proposed locations with the College Engineer. Contractor is to inspect frequently all stored materials to identify damaged or deteriorating items; such items will not be used and are to be removed from the job-site upon discovery.

1.9 Protection of Work and Property. The Contractor shall safely protect the personnel and property of the College and all adjacent property (as well as the Contractors' materials, equipment and employees) from loss, injury or damage; and shall repair, replace and/or compensate any damage, injury or loss resulting from this project. The College shall not be responsible for contractor equipment/security. Because the Contractor will be using welding-type or soldering equipment within Clarke-Science Building, special care will be taken to avoid fires: particularly when working near combustible materials. Contractor will keep one large CO2 fire extinguisher and one ABC fire extinguisher on hand whenever operations involving flames or arc-welding are in progress; these extinguishers are to be operable in accordance with standards acceptable to the State Fire Marshal. Smoldering fire inspections are to be made by the Contractor's on-site superintendent at the end of each day's work which involved flame-type or arc-welding operations.
Contractor is also to cover all computers, printing and similar equipment, furniture with heavy-duty (6-mil) polyethylene whenever work of this contract is being performed above or near such equipment and furnishings during demolition, equipment installation, duct and piping (and similar) work. Contractor is to coordinate the operations of subcontractors in order to achieve these objectives and a logical accomplishment of the total project.

1.10 Manufacturer's Directions. All manufacturer's articles, materials and other equipment shall be supplied, installed, connected, erected, used, cleaned, and conditioned as directed by the manufacturer's instructions unless otherwise approved by the College Engineer.

1.11 Clean-up. During and after completion of the project, the Contractor shall leave the area in a clean and orderly condition – which is acceptable to the College. Further, the Contractor must leave the work-site clean, safe and secure at the end of each workday. All excess, replaced and unsuitable materials will be removed from Campus by the Contractor, unless otherwise approved by the College Engineer. Except in the MR, the Contractor shall also remove all dust, marks,

stains, fingerprints and other soil or dirt from all floors and painted, decorated and stained surfaces.
The dust resulting from all demolition and removal work shall be controlled so as to prevent its spread to occupied portions of the building, and to avoid the creation of a nuisance for the surrounding areas. The College will continue to use Clarke-Science Building throughout the duration of this contract. Ducts and unit ventilator removal and installation; piping and equipment installation and removal; as well as all hanger and piping installation and other work in and near ceilings must be carefully scheduled to the mutual satisfaction of the College and the Contractor. Isolate occupied spaces from demolition/removal operations by temporary dust-tight barriers. Dust seals shall be installed on doors entering occupied spaces. Gaskets or other means may be used, provided the sealant method does not impede the use of these exits in an emergency.

1.12 Daily-Sign-In Policy. All contractor and sub-contractor personnel are required to sign-in at the Campus Police office in Browne Hall. The Campus Police will issue a parking "pass" and direct your personnel where to park. The "pass" will designate not only the approved parking area; but also the duration of the pass. In addition, each of your workers will be issued an ID, which he or she is to return at the end of the contract (or their part of the contract).

1.13 Payment. Partial payments may be negotiated; 10% retentions apply. **Unless advance College Engineer approval has been obtained**, invoices may not be processed by the College. Please use the AIA (Architect's) payment documents and a College-Engineer-approved Schedule of Values. Upon work completion, the Engineer will be notified, and will conduct with the Contractor's representative a joint physical check of the quality and extent of the heating and air-conditioning equipment, piping and HVAC controls systems installation and replacement work and the associated improvements. This is necessary to insure prompt payment.

1.14 Equipment Start-up Operations and Project Completion. Contractor will (bleed all air from and) activate all lines and provide complete start-up and test service (for all possible modes of operation), for the replacement heating and air-conditioning systems; for the exhaust fans #3 and #4; all unit ventilators; and for the complete controls system. The complete operation of the entire dual-temperature heating and air-conditioning system in Clarke-Science Building (including all pumps, unit ventilators and motors, exhaust fan #3, lines, sensors, valves, controls); will be inspected and tested; all necessary adjustments, maintenance, and filter replacements will be accomplished after the air has been bled from all lines. REPEAT: BLEED ALL AIR FROM LINES. This start-up and test service for the air-conditioning system is to be **performed before the end of March 2013.**

1.15 Guarantee. The Contractor shall leave the facility in proper working order and shall replace any work, material, or equipment provided by the contractor under this contract which develops defects, other than due to vandalism, within one year from

the date of final acceptance by the College, without additional expense to the College. However, any manufacturer's longer-term warranties shall apply.

2. SCOPE OF CONTRACT.

Contractor will furnish all labor, materials, services, staging, equipment and supervision necessary for the **complete installation of**: twenty-five replacement unit ventilators; exhaust fan #3. Therefore, the requirements of this contract include: the removal of the 25 existing unit ventilators; and the installation of the 25 specified Trane unit ventilators, **EACH having all of the capabilities specified in the six attached PLANS**, which are officially incorporated into these Specifications. The specified replacement 2790-CFM exhaust fan must be furnished and installed. The brick and mortar blocking 3 former outside-air openings must be removed; and 3 galvanized-steel diffusers matching the existing diffusers (in the other outside-air openings) must be furnished and installed in these openings. For EACH replacement unit ventilator: the 120-Volt 15-Amp electric service must be disconnected and reconnected; the copper dual-temperature water supply and return pipes must be disconnected and reconnected; the existing copper condensate-drain piping must be disconnected, adjusted as required, and reconnected to the replacement unit ventilator's drain pan or pipe; the specified replacement balancing valve must be furnished and installed; the Siemens subcontractor must furnish and install a unit-ventilator type terminal-equipment-controller (TEC); the Siemens subcontractor must furnish and install electric cables between this TEC and both operable dampers in the unit ventilator; and connect each replacement unit ventilator to the temperature controller in that room. Further, the Siemens subcontractor must furnish a motor starter for a replacement rooftop exhaust fan; and furnish and install controls conduit and wiring to connect an existing Siemens panel to both the new motor starter and an existing fan motor starter. In addition, each wall-mounted unit ventilator must also be secured to the wall with fasteners and an air-seal-type gasket; each ceiling-mounted unit ventilator must be suspended using the specified ceiling clamps and hangers and connected with a sound-attenuator (vibration-eliminating) fabric to the existing ductwork. Contractor must also uncover a roofed-over opening; furnish and install an equipment curb and replacement exhaust fan; make the sheet-metal connection to an existing duct; provide the cables and conduit for electric service from an existing breaker; and reseal the roofing at the curb.

Although NOT mentioned in the PLANS, **Trane is to furnish each unit ventilator with a manual air-bleeder valve and with a hose bibb for draining the coil.** Hangers and supports must also be furnished and installed. All piping and equipment must be insulated. The associated electric service, a hand-off-auto motor starter, disconnects, switches, conduit systems must be furnished and installed. The existing Siemens Building Technologies heating, ventilating and air-conditioning (HVAC) digital controls system must be extended to control two additional exhaust fans, to provide thermostatic controls for EACH unit ventilator, and to operate the outside-air-and-return-air and the face-and-bypass dampers in EACH unit ventilator.

The exhaust system for the designated SEVEN wall registers and TWO ceiling diffusers must be balanced by Votta Brothers; the water flow for EACH of the TWENTY-FIVE unit ventilators must also be balanced by Votta Brothers. Additional and detailed requirements for this BASE BID are adequately described on the enclosed: 6 PLANS, which are officially incorporated into these Specifications.

In addition, the associated pipefitting, demolition, hangers' installation, masonry, sheet-metal duct connections, ceilings restoration, electric-service and connections, and HVAC controls system work, insulation and roofing work must be accomplished. Equipment and piping must be leak-tested; controls systems installed and verified; air must be bled from all lines; thorough equipment balancing performed by Votta Brothers; complete testing and start-up operations performed; and all associated electrical requirements satisfied.

Designated piping and equipment must be insulated. The associated electric service, hand-off-auto motor starters, disconnects, switches, conduit systems must be furnished and installed. The existing Siemens Building Technologies heating, ventilating and air-conditioning (HVAC) digital controls system must be extended to provide thermostatic controls for each unit ventilator; and operational controls for exhaust fans #3 and #4.
Additional and detailed requirements for this BASE BID are adequately described on the enclosed: 6 PLANS – ALL of which are both listed below and officially incorporated into these Specifications. All work will be in accordance with these Specifications and enclosed PLANS.
In addition, the associated pipefitting, hangers installation, demolition, ceilings restoration, concrete core-drilling, must be accomplished. Equipment and piping must be leak-tested; controls systems installed and verified; air must be bled from all lines; complete testing and start-up operations performed; and all associated electrical requirements satisfied.

Regardless of any inadvertent omissions in these Specifications and the enclosed PLANS (and even if all the specific fittings and materials requirements are not identified nor mentioned), contractor is to furnish and install: a complete, fully functional, 100% operational: dual-temperature heating and air-conditioning system and ventilation system for all the rooms supported by the 25 unit ventilators being replaced on the first and second floors of Clarke-Science Building; and all required, associated equipment: ALL in full compliance with all applicable RI codes and modern Engineering standards and practices for such systems.
The following is the COMPLETE List of PLANS for this Contract:

1. PLAN: First Floor Requirements
2. PLAN: GENERAL Requirements
3. PLAN: Second Floor Requirements
4. PLAN: ADDITIONAL Second Floor Requirements
5. PLAN: GENERAL & Second Floor Electrical Requirements
6. PLAN: Balancing Requirements.

3. DETAILED REQUIREMENTS.

3.1 Demolition. Remove and dispose-of the following off-Campus: the existing 25 unit ventilators; plus any electrical service being replaced. Comply with Paragraph 1.11 of these Specifications.

3.2 ASBESTOS-Containing Materials. If the contractor encounters any asbestos pipe insulation or asbestos-containing floor tiles or other asbestos-containing materials (ACM) which interfere with the accomplishment of a requirement of this contract, the College will have such ACM removed from Campus by another contractor AT NO EXPENSE TO THIS UNIT VENTILATORS AND EXHAUST FAN REPLACEMENT CONTRACTOR. This contractor will have absolutely NO asbestos removal responsibilities nor liabilities.

3.3 Support Hangers Installation. Properly locate and install all required hangers to support the specified ceiling-mounted unit ventilators, the exhaust fan; the electrical-service and controls-wiring conduits and equipment; all dual-temperature (chilled-water and hot-water) supply and return piping, and the condensate-drain piping per the PLANS. All holes in masonry and concrete ceilings for anchor bolts supporting hangers shall be core-drilled at the required diameter for the fastener or anchor being installed in accordance with the applicable Manufacturer instructions. All fasteners are to be galvanized; and securely tightened.

3.4 Installation of Unit Ventilators and Exhaust Fan Equipment. Comply with the enclosed PLANS. Furnish and install the specified 25 unit ventilators; comply with Paragraph 1.6.9. Furnish and install the required exhaust fan: make all of the required dual-temperature supply and return piping and condensate-drain piping connections; main; all of the outside-air slot (vertical unit ventilators) and duct (ceiling-mounted unit ventilators) connections; and all of the required electric service wiring, conduits, fittings, motor starters connections per the PLANS and applicable code requirements. Furnish and install the required Siemens DDC controls systems to operate the fan motors and both damper systems of all unit ventilators. Furnish and install the required Siemens DDC controls systems to operate the motors of the two exhaust fans. Furnish and install the required sheetmetal duct connections (including sound attenuators or vibration eliminators) for the replacement exhaust fan and for the four ceiling-mounted unit ventilators.

Furnish and install the manual air-bleeders and hose bibbs on each of the 25 unit ventilators.

3.6 Testing and Start-up Operations. In March 2013, Contractor is to conduct complete Equipment start-up operations (and personnel instruction), per Paragraph 1.13 of these Specifications. However, before start-up, Contractor is to fill all piping of the entire dual-temperature system. AIR MUST BE BLED FROM THE ENTIRE PIPING SYSTEM. The start-up operations we envision include actual start-up and systems adjustments; complete system demonstration and performance verification; total

instruction of Physical Plant personnel; the furnishing of maintenance data and parts lists; the setting and adjustment of all controls and accessories; and trouble-shooting and the provision of a trouble-shooting guide. **Note: After all piping being reconnected, changed, altered or added has been SUCCESSFULLY bled and passed the pressure-leak testing, furnish and install the specified insulation.**

4. EXISTING SYSTEMS UNEXPECTED REPAIRS ALLOWANCE.

EACH CONTRACTOR SUBMITTING A BID IS TO INCLUDE AN ALLOWANCE OF $20,000 IN THE BASE BID TO COVER UNEXPECTED COSTS; SUCH AS, FOR EXAMPLE, THE COSTS OF MAKING UNANTICIPATED REPAIRS ON THE EXISTING PIPING AND ELECTRIC SYSTEMS; PLUS THE COSTS OF MAKING ANY ADDITIONAL CHANGES AND IMPROVEMENTS which may be required as a result of the State Building Commissioner review of these PLANS and Specifications.

Compensation for accomplishing these repairs or improvements, and for making any other required changes or additional equipment installation will be based on actual labor and materials costs. On work by the contractor's own personnel and workers, a combined overhead and profit of 10% is the maximum that will be approved. On work by a subcontractor, a combined overhead and profit (i.e., mark-up) of 10% for the prime contractor is the maximum that will be approved.

ANY PART OF THE $20,000 ALLOWANCE NOT SPENT WILL BE CREDITED TO THE COLLEGE AT THE TIME OF FINAL BILLING. IF NO SYSTEMS REPAIRS NOR ADDITIONAL EQUIPMENT INSTALLATION NOR IMPROVEMENTS ARE REQUIRED, THE ENTIRE $20,000 WILL BE CREDITED TO THE COLLEGE AT THE TIME OF FINAL BILLING.

Whenever requested, proceed to cost-estimate all required (BUT UNANTICIPATED) repairs, improvements and additional equipment installation as requested by the College Engineer. **Use the Rhode Island College Standard Change Order Document (Sample Attached) to submit each proposed Change Order**. Attach the following to EACH Contract Change Order Request document submitted: the estimated personnel hours and applicable (prevailing) wage rate for each trade or skill required to complete the proposed change order; and the detailed list of materials (and unit costs) required. ONLY UPON RECEIPT OF COLLEGE ENGINEER APPROVAL for specific repairs and equipment installation, proceed to accomplish same.

RHODE ISLAND COLLEGE
CONTRACT CHANGE ORDER

P.O. No. _____ Change Order No. _____

Project: (as identified at the start of the Specifications)

To: _____
_____
_____

In accordance with Specifications Paragraph _____ of the above named contract, the following change is made and incorporated into said contract:

(See Attached Detailed Increased "Time and Materials" Requirements)

The Contract Price is changed as follows: _____

The Contract Performance Dates and/or Duration are changed as follows:

All other terms and conditions of subject contract remain in full force and effect.

Submitted by: _____ _____
(Contractor) (date)

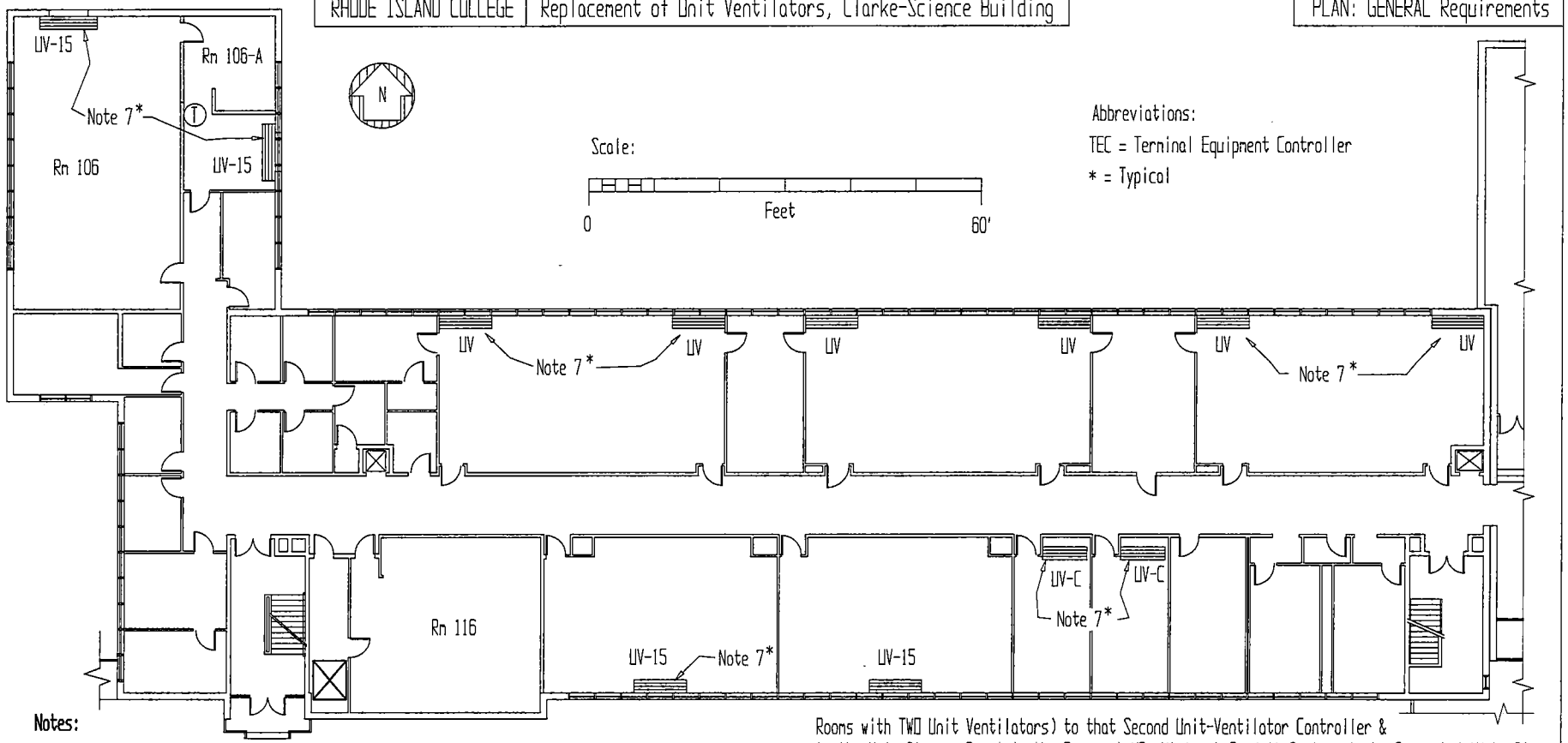
Approved by: _____ _____
(College Engineer) (date)

Accepted by: _____ _____
(Contractor) (date)

FOR OWNER USE ONLY

Original Contract Price (Excluding Allowance) _____
Current Contract Price (Including Obligated Portion of Allowance) _____

RHODE ISLAND COLLEGE | Replacement of Unit Ventilators, Clarke-Science Building | PLAN: GENERAL Requirements



Notes:

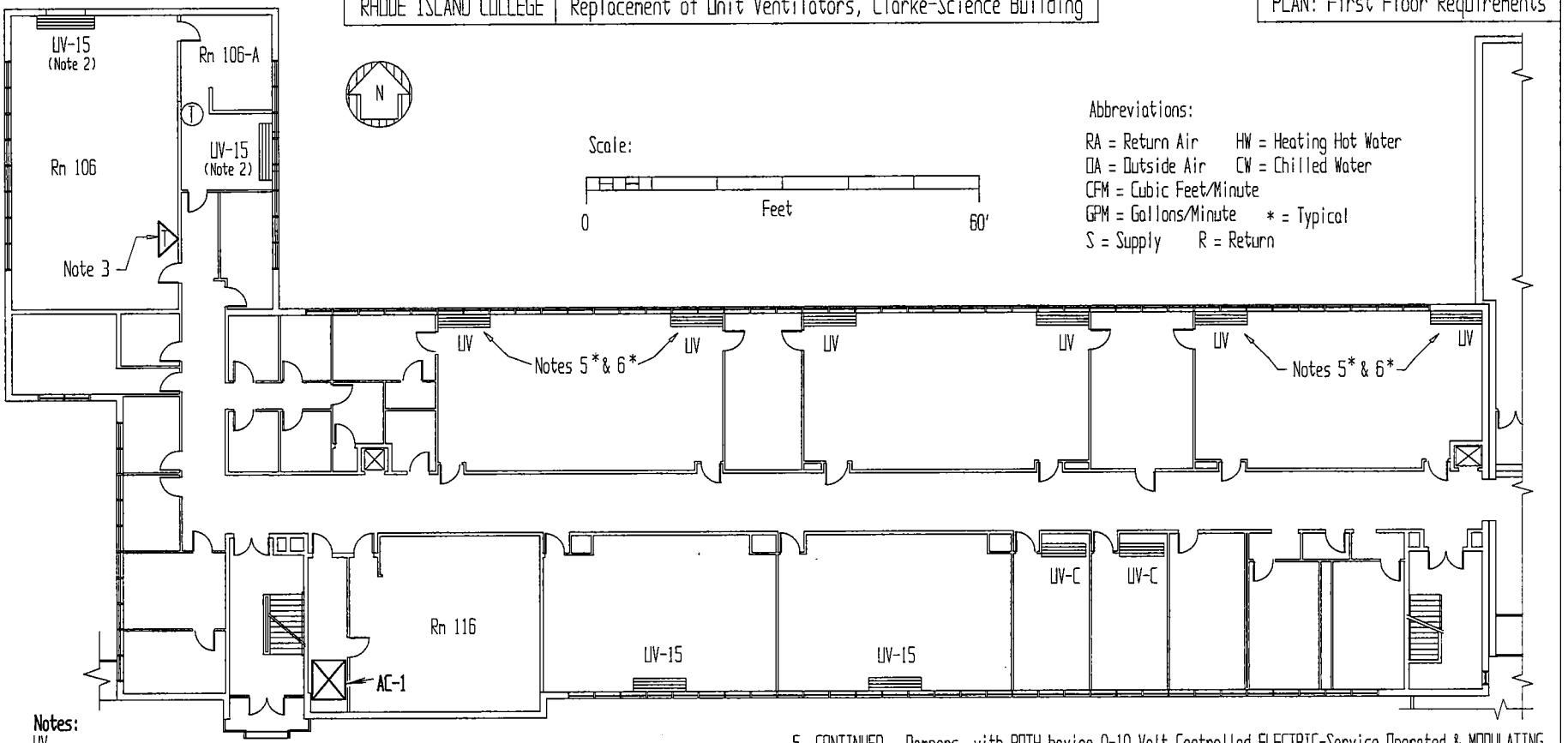
6. ADDED - IMPORTANT: Trane has Informed us that ALL of the 25 Unit Ventilators being Replaced by this Contract will be Delivered Complete with a "Piping Package" having S&R Pipe Ball Valves & PT Ports.
7. GENERAL: For EACH of the 25 Unit Ventilators being Replaced by this Contract:
   (a) Disconnect & Re-Connect the Existing 120-V 15-Amp Electric Service;
   (b) Disconnect & then Re-Connect the Existing (1/2" D) S&R Copper Pipes to the S&R Connections of the Replacement Unit Ventilator - since the Unit Ventilators will have Installed Ball Valves (Note 6), Remove the 2 Existing Ball Valves; F&I Any Additional Copper Piping, Fittings, Reducers Required to Make the Replacement UV's Coil Systems 100% Functional for Both HW & CW Operations. Into the Supply Piping, F&I One Replacement Armstrong Balancing Valve, Size & Type to Match Existing.
   (c) Have the Siemens Subcontractor F&I a DDC Unit-Ventilator TEC Controller within the Unit Ventilator; & F&I the TWO Electrical 3-Conductor #14 Copper Cables (THHN) Required to Connect the TEC to EACH of the Two 0 - 10 Volt Damper Actuators (for the Face-&-Bypass & Outside-Air/ Return-Air Dampers) & thereby F&I the Electric Service Needed to Operate these Dampers. Siemens shall ALSO F&I All Additional Electrical 3-Conductor #18 Copper Cables (THHN) - All Within 3/4" D EMT Conduit Systems - in order to Connect Each Unit-Ventilator Controller to the Room's Existing Siemens DDC Thermostat & (for Rooms with TWO Unit Ventilators) to that Second Unit-Ventilator Controller & to the Main Siemens Panel in the Basement MR; Wiring & Conduit Systems to be Concealed (Note 8).
8. GENERAL: All Wiring & EMT Conduit Systems are to be F&I Concealed Above the Existing Ceilings or Within Walls or in Equipment (Mechanical-Type) Rooms or, If Exposed, in Contractor-PAINTED Wire Mold Installed ONLY at Locations Approved by the College Engineer.
9. GENERAL: All 25 Existing Unit Ventilators being Replaced are to be Removed from Campus & Disposed-of in compliance with All applicable Regulations.
10. GENERAL: Interior Conduit is to be EMT with Steel Set-Screw Fittings (NO Die-Cast) with D as Specified. If Any Conduit must be F&I Either Wholly or Partially Exterior to the Building, Consult with the College Engineer; F&I Sleeves for All Holes & Fire-Stop Same, per the Applicable Codes. Include in the Bid Costs & in Installation: the Required Vertical Risers (or Drops) for Conduits, Wiring, Cables. All Wiring & Cables are to be Copper, 600 V, & Sized per Code. Interior Wiring & Cables (Dry Locations) are to have THHN Insulation. In Wet Locations, Wiring & Cables are to have THHN/THWN Insulation.

29 August 2012

UniVent-1-A

J Vickers, College Engineer

RHODE ISLAND COLLEGE | Replacement of Unit Ventilators, Clarke-Science Building | PLAN: First Floor Requirements



Notes:

UV

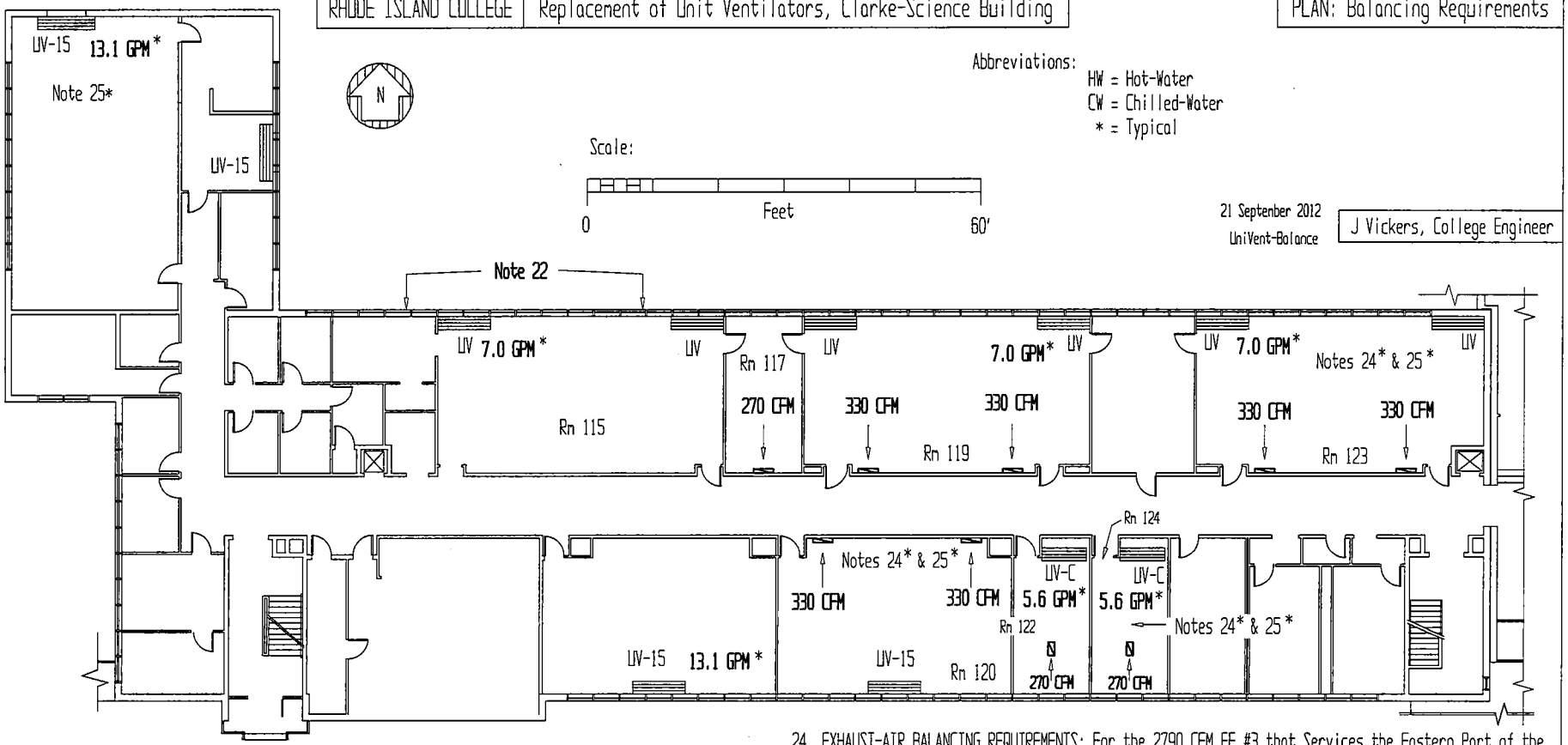
1. ▭ = Symbol for Unit Ventilator; UV-15 = Unit Ventilator with 1500-CFM Capability. UV = Unit Ventilator with 750-CFM Capability. UV-C = Ceiling-Mounted Unit Ventilator with 750-CFM Capability.
2. Ⓣ = Symbol for an Additional Siemens Temperature Sensor. Use Siemens as Subcontractor to Extend their Existing Controls System to Include Separate Temperature Controls for these TWO Unit Ventilators.
3. This is the Existing Temperature Sensor for Both of these TWO Unit Ventilators. Siemens is to F&I the Additional Controls Wiring & Connections so that the Note 2 Sensor will Operate the Unit Ventilator in Room 106A; & will Transmit All Required Temperature & Operating Information to the Main Siemens Panel in the Basement Mechanical Room. Henceforth, the Note 3 Sensor will ONLY Control the Operation of the Room 106 Unit Ventilator.
4. GENERAL: For the Clarke-Science Unit Ventilators, the College Uses the SAME 2 Supply & Return Piping Systems for CW (Summer Weather) & HW (Winter)
5. F&I a Total of SIXTEEN Replacement 750-CFM Trane Model VUVE 0750 Vertical Unit Ventilators EACH with the following Capabilities: RA in Front; OA in Back; a TWO-Pipe System Using the Same Coil for Both CW & HW; a LOW-Speed Only (if possible; Otherwise 3-Speed) 0.25 HP Fan Motor; Face-&-Bypass & OA-&-RA...

5. CONTINUED...Dampers, with BOTH having 0-10 Volt Controlled ELECTRIC-Service Operated & MODULATING Damper Actuators (which Operate against Springs); Freezestat (to Close the OA Damper at Temperatures Below 40° F); End Covers with 3"x 7-1/4" Removable Cut-Out Covers; Auxiliary Drain Pan; Throwaway Filter; Deluxe Beige Unit Finish; Discharge Grille; but with NO External Sensor Setpoint; & No 2-Way Cooling/Changeover 3-Point Floating/Modulating Valve & NO Wall-Mounted Sensor & NO Fan Speed Switch (if Possible) & NO Timed Override; & NO SubBase; & NO 3-Point Floating Modulating Damper Actuators; & NO Tracer ZN520 Controls with Low Temperature Detection; & NO Pneumatic Controls. EACH of these Trane 750-CFM VUVE 0750 Unit Ventilators is to have the Required Damper Systems & be Capable of: 750 CFM; 64.5 MBTU/Hr of Heating with 160° F Entering Water Temperature & 5.5 GPM HW Flow (Pressure Drop = 4.3' of Water); & 27.6 MBTU/Hr of Cooling with 45° F Entering Water Temperature & 7.0 GPM CW Flow (Pressure Drop = 6.7' of Water). **SIX of these 750-CFM Units are Located Along the North Wall on this Floor. See the Second Floor PLAN for the Remaining TEN 750-CFM Unit Ventilators. F&I NO Trane Co. DDC Control Systems Nor Equipment.**

21 August 2012 UniVent-1

J Vickers, College Engineer

RHODE ISLAND COLLEGE | Replacement of Unit Ventilators, Clarke-Science Building | PLAN: Balancing Requirements

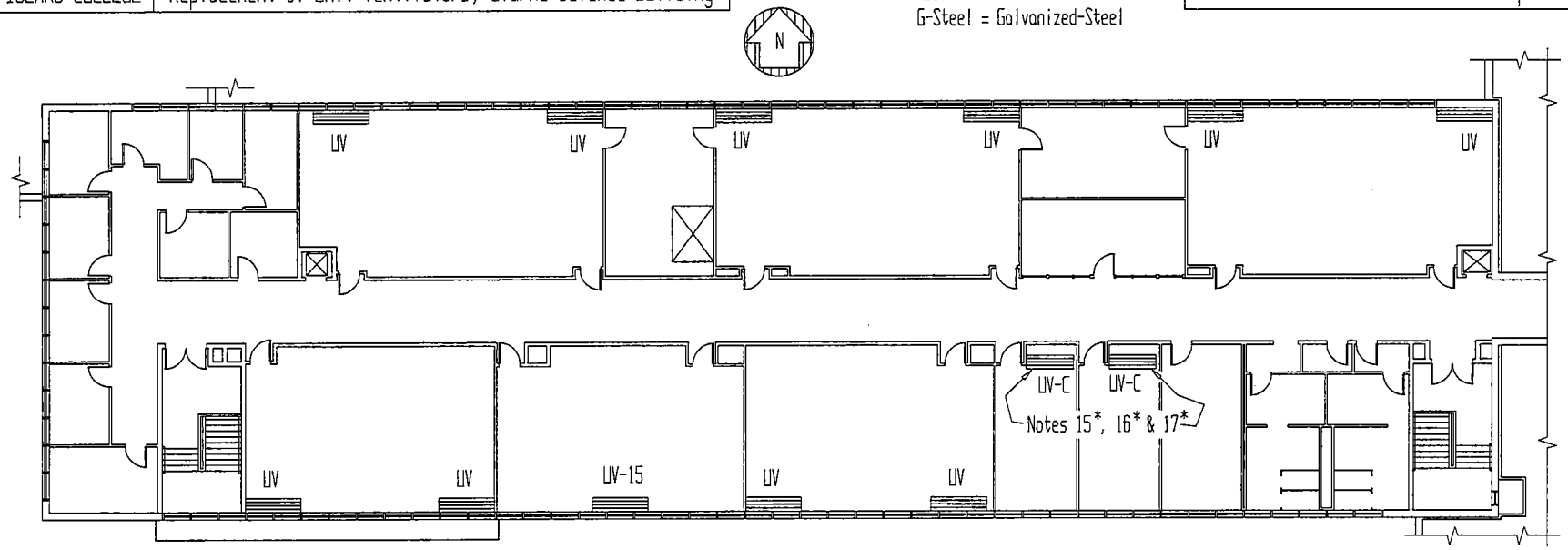


12. CORRECTION: Note 12 is CORRECTED to Indicate that EACH of the FIVE 1500-CFM (Trane Model VUVE 1500) Univents has TWO 0.10 HP Motors (& NOT One 0.25 HP Motor). All Other Requirements & Specifications in Note 12 Continue to Apply.
22. TWO Outside-Air Openings for 750-CFM (Trane Model VUVE 0750) Univents in the North Wall for the Second Floor Room 211 have been Eliminated by Filling the Openings with Brick & Mortar. These 2 Former Outside-Air Openings are Located almost Directly Above the 2 Univents in Room 115. Re-Establish these Outside-Air Openings by Removing All of the Existing Brick & Mortar; & by Installing a G-Steel Diffuser (or Register) with Back-Up Anti-Bird & -Insect Mesh or Protection in EACH of these 2 Re-Established Openings that Match the Existing in the Other Outside-Air Openings. In Addition, Contractor is to Include in the Base Bid the Cost for Re-Establishing a Third (Currently Blocked-Up) Outside-Air Opening in case I Overlooked One.
23. After Many Unacceptable Experiences. we have Concluded that We ONLY had Satisfactory Balancing Results when Votta Brothers have Accomplished the Equipment Balancing Requirements. Accordingly, All Mechanical Contractors Bidding this Univents Replacement Contract are to Include Votta Brothers' Price or Quote in their Bid.
24. EXHAUST-AIR BALANCING REQUIREMENTS: For the 2790 CFM EF #3 that Services the Eastern Part of the First Floor (Note 19), Make the Required Adjustments & Changes so that EACH of TWO Existing Registers in Classrooms 119, 120 & 123 Exhausts 330 CFM (Total of 6 Registers). Also, Make the Required Adjustments & Changes so that the Single Existing Register in Labs 117, 122 & 124 Each Exhausts 270 CFM (Total of 3 Registers).
25. DUAL-TEMPERATURE (HW & CW) WATER-FLOW BALANCING REQUIREMENTS: Make the Required Balancing-Valve & Pump-Impeller (Sheave-Size) Adjustments & Changes so that:
(1) EACH of the FIVE Replaced 1500-CFM (Trane Model VUVE 1500) Unit Ventilators has a Dual-Temperature Water Flow of 13.1 GPM.
(2) EACH of the SIXTEEN Replaced 750-CFM (Trane Model VUVE 0750) Unit Ventilators has a Dual-Temperature Water Flow of 7.0 GPM.
(3) EACH of the FOUR Replaced 700-CFM (Trane Model HUVC 0751) Unit Ventilators has a Dual-Temperature Water Flow of 5.6 GPM.

RHODE ISLAND COLLEGE | Replacement of Unit Ventilators, Clarke-Science Building

Additional Abbreviations:
G-Steel = Galvanized-Steel

PLAN: ADDITIONAL Second Floor Requirements



Notes:

15. F&I a Total of FOUR Replacement 700-CFM Trane Model HUVC 0751 Ceiling-Mounted Unit Ventilators; Each Ceiling-Mounted Univent will be F&I with Its Longer Axis Oriented East-West, & with Its Supply-Air (Conditioned Air) being Discharged from Its South Face (or Elevation); with Its Return-Air Entering through the Botton Part of Its North Face (or Elevation); & with Its Outside-Air Duct Connection on the Northern Part of Its Top Surface.
    F&I EACH Ceiling-Mounted Univent with the following Capabilities: a TWO-Pipe System Using the Same Coil for Both CW & HW; a LOW-Speed Only (if possible; Otherwise 2-Speed) 0.166 HP Fan Motor; Face-&-Bypass plus OutsideAir-&-ReturnAir Dampers, with BOTH having 0-10 Volt Controlled ELECTRIC-Service Operated MODULATING Damper Actuators (which Operate against Springs); Freezestat (to Close the OA Damper at Temperatures Below 40° F); End Covers with Removable Cut-Outs with Covers; a Large Drain Pan that is Located Below ALL of the UNIVENT's COILS & PIPING; Throwaway Filter; Deluxe Beige Unit Finish; Discharge Grille; but with NO External Sensor Setpoint; & No 2-Way Cooling/Changeover 3-Point Floating/Modulating Valve & NO Wall-Mounted Sensor & NO Fan Speed Switch (if Possible) & NO Timed Override; & NO SubBase; & NO 3-Point Floating Modulating Damper Actuators; & NO Tracer ZN520 Controls with Low Temperature Detection; & NO Pneumatic Controls.
    EACH of these Trane 700-CFM HUVC 0751 Unit Ventilators is to have the Required Damper Systems & be Capable of: 700 CFM; 55.9 MBTU/Hr of Heating with 160° F Entering Water Temperature & 5.59 GPM HW Flow (Pressure Drop = 2.44' of Water); & 15.0 MBTU/Hr of Cooling with 45° F Entering Water Temperature & 2.87 GPM CW Flow (Pressure Drop = 0.9' of Water). TWO of these 700-CFM Ceiling-Mounted Unit Ventilators (UV-C) are Located in Labs 216 & 218 on this Floor. See the First Floor PLAN for the Locations of the Other TWO 700-CFM Ceiling-Mounted Unit Ventilators. F&I NO Trane Co. DDC Control Systems Nor Controls Equipment.
16. Note 13 is CORRECTED to Indicate that (Unlike the Replacement Vertical Univents) the Outside-Air Openings of the Replacement Ceiling-Mounted Univents are 3" NARROWER than the Existing O-A Duct Openings to which They must be Connected. Further, the O-A Openings on EACH of the Existing Ceiling-Mounted Univents are on the Univent's North Face; BUT the O-A Openings on the Replacement Ceiling-Mounted Univents are on the Univent's Top Surface. Therefore, Using G-Steel of Gauge to Match Existing. F&I a Transition Duct to Connect the Building's Existing O-A Duct to the Replacement Univent's O-A Opening. Any Vertical Elbows in this Transition must be 45° NOT 90°. Include a Replacement Canvas-Type (Acceptable-Fabric) Sound-Attenuator or Vibration-Eliminating Connector in EACH of the Transitions between the Ceiling-Mounted Univent & Its Supporting O-A Ductwork.
17. GENERAL: In addition to the Requirements of Notes 7 & 14, for EACH of the 21 Vertical (Wall-Mounted) Replacement Univents, F&I 4 Machine Screw Anchors, 3/8" D x 2" Long (per Univent) Drilled into the Exterior, Masonry Walls to Secure (Anchor) EACH Vertical Univent to the Wall at the Site of the Existing Univent being Replaced. In addition to the Notes 7 & 14 Requirements, for EACH of the FOUR Ceiling-Mounted Replacement Univents, F&I ONE 3/8" D G-Steel Threaded Rod (Total of 4) Through Each of the FOUR Mounting Slots on the Univent's Top Surface. F&I ONE (College) Engineer-Approved Hilti Anchor onto the Overhanging Concrete Ceiling or Roof Deck to Support EACH 3/8" D Threaded-Rod Hanger; F&I All G-Steel Heavy-Duty Washers, Nuts & Materials Required for a 100% Operational Support System.

16. Note 13 is CORRECTED to Indicate that (Unlike the Replacement Vertical Univents) the Outside-Air

Scale: 0 Feet 50'

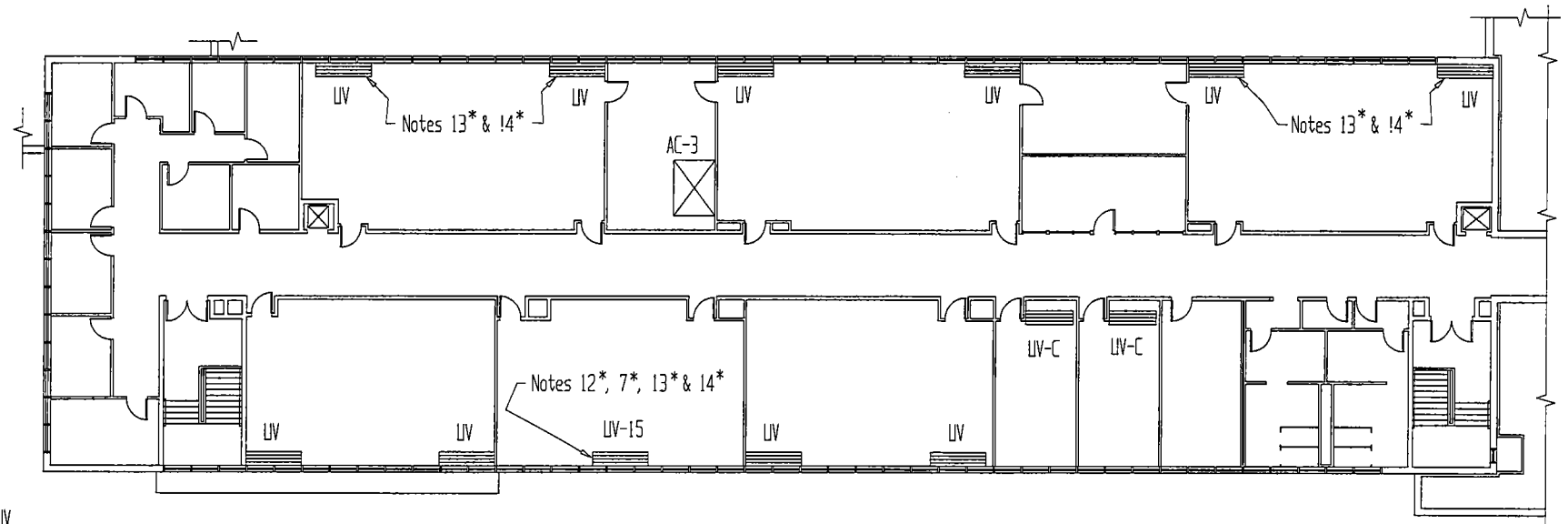
7 September 2012

UniVent-2A

J Vickers, College Engineer

RHODE ISLAND COLLEGE | Replacement of Unit Ventilators, Clarke-Science Building | PLAN: Second Floor Requirements

Additional Abbreviations: Univent = Unit Ventilator



Notes:

1. UV = Symbol for Unit Ventilator; UV-15 = Unit Ventilator with 1500-CFM Capability. UV = Unit Ventilator with 750-CFM Capability. UV-C = Ceiling-Mounted Unit Ventilator with 750-CFM Capability.

11. GENERAL: All GENERAL Notes on ALL PLANS Apply to ALL Work under this Contract, Regardless of the particular PLAN on which the Note Appears.

12. F&I a Total of FIVE Replacement 1500-CFM Trane Model VUVE 1500 Vertical Unit Ventilators EACH with the following Capabilities: RA in Front; OA in Back; a TWO-Pipe System Using the Same Coil for Both CW & HW; a LOW-Speed Only (if possible; Otherwise 3-Speed) 0.25 HP Fan Motor; Face-&-Bypass & Outside Air-&-ReturnAir Dampers, with BOTH having 0-10 Volt Controlled ELECTRIC-Service Operated MODULATING Damper Actuators (which Operate against Springs); Freezestat (to Close the OA Damper at Temperatures Below 40°F); End Covers with 3"x 7-1/4" Removable Cut-Out Covers; Auxiliary Drain Pan; Throwaway Filter; Deluxe Beige Unit Finish; Discharge Grille; but with NO External Sensor Setpoint; & No 2-Way Cooling/Changeover 3-Point Floating/Modulating Valve & NO Wall-Mounted Sensor & NO Fan Speed Switch (if Possible) & NO Timed Override; & NO SubBase; & NO 3-Point Floating Modulating Damper Actuators; & NO Tracer ZN520 Controls with Low Temperature Detection; & NO Pneumatic Controls. EACH of these Trane 1500-CFM VUVE 1500 Unit Ventilators is to have the Required Damper Systems & be Capable of: 1500 CFM; 129.0 MBTU/Hr of Heating with 160°F Entering Water Temperature & 6.49 GPM HW Flow (Pressure Drop = 4.0' of Water); & 55.3 MBTU/Hr of Cooling with 45°F Entering Water Temperature & 13.08 GPM CW Flow (Pressure Drop = 13.78' of Water). ONE of these 1500-CFM Unit Ventilators is Located Along the South Wall on this Floor. See the First Floor PLAN for the Remaining FOUR 1500-CFM Unit Ventilators. F&I NO Trane Co. DDC Control Systems Nor Controls Equipment.

13. GENERAL: ALL of the Three Models of Trane Replacement Unit Ventilators have Outside-Air Openings...

13. (CONTINUED) Openings...that are Wider than the Existing Openings in the Exterior Masonry Walls of Clarke-Science (for the 16 plus 5 Wall-Mounted Vertical Units) & Wider than the Fresh-Air Connection Ducts (Ceiling-Mounted Units). Using Screws & Caulking or Sealant Designed for this Purpose, F&I 18-Gauge G-Steel Cover Plates to Narrow the Equipment Openings to Match the Existing Masonry & Connector-Duct Openings. F&I a Compressible Gasket to Surround Each VERTICAL Unit Ventilator before Fastening & Sealing this Type of Univent against the Wall. F&I a Replacement Canvas-Type (Acceptable-Fabric) Sound-Attenuator or Vibration-Eliminating Connection between EACH of the Four Ceiling-Mounted Univents & Its Supporting Outside-Air Ductwork (Match Size of Existing).

14. GENERAL: In addition to the Requirements of Note 7, for EACH of the 25 Replacement Univents, F&I the Additional 3/4" O Copper Piping, Fittings, Reducers Required to Connect the Condensate-Drain Pan's Drain or Drain-Pipe to the Building's Existing, Adjacent Condensate-Drain Pipe System. Also, F&I 3/4"-Thick Armorflex Insulation on ALL of the Piping Connecting the Building's Dual-Temperature S&R Piping & Condensate-Drain Piping Systems so that All Piping, Fittings & Valves within Each Replacement Univent & All Existing BUILDING Piping, Fittings & Valves Supporting the Univent & Located within 3' of the Replacement is so Wrapped & Insulated.

Scale: 0 Feet 50'

31 August 2012
UniVent-2

J Vickers, College Engineer