



Department of Administration / Division of Purchases
One Capitol Hill, Providence, Rhode Island 02908-5855
Web Site: www.purchasing.ri.gov
14 May 10
Addendum # 2

RFP # 7325673

Title: ARRA- Design-Build of Fire Alarm Systems and Sprinkler Systems @ RI College
(Craig Lee Hall)

Submission Deadline: 27 May 10 @ 11:00 AM (Eastern Time)

1. Delete Sections 2, 3, 5, 9 and 10 in their entirety.
2. Insert Attached Specifications Sections 2 and 3 in their entirety (to include the Change Order form)
3. Delete Paragraph 4.2 in its entirety.
4. Section 8.0 - Change the third item (bullet) under Submission Requirements to read:
"Evidence of Qualifications as described in Section 2.4, Section 4.1 and Section 8.0. It is preferable for the Response to contain the actual text of the RFP followed by the Vendor's response to that paragraph. "
5. Section 8.0 - Change the last (seventh) item (bullet) under Submission Requirements to read: "BASE BID and the Cost of EACH of the Three Add Alternates. Documents are to be signed, sealed, and separate from the technical response."
6. Change the last sentence of Section 8.3 to read: "No more than 75% of the work shall be conducted by Subcontractors."
7. Change Paragraph 8.7 to read: "Costs - Provide the BASE BID and the Cost for EACH of the Three Add Alternates."
8. Page 23, Delete Paragraph that begins "A selection committee will evaluate submitted proposals..." and replace with "The project will be awarded to the lowest qualified bidder (BASE BID plus three bid alternates."
9. The Attached Bid Sheet shall be used for preparing bids.
10. The attached twenty (20) PLANS are now part of the RFP package.

A handwritten signature in black ink, appearing to read "Jerome D. Moynihan".

Jerome D. Moynihan, C.P.M., CPPO
Administrator of Purchasing Systems

Disk Based Bidding Information

File Format

All disk based bid files are ZIP files that you can open using the **WinZip 8.1** software. The ZIP file will contain one or more files based on the type of Bid/RFP.

Downloading the Disk Based Bid

Bids that have a file for download are marked with a "D" in the Info field of the bid search results. The "D" will be 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 ZIP file associated with the bid. Opening the WinZip file will download a copy to your computer's temporary directory.

Opening the Disk Based Bid

Once downloaded, you can open the ZIP file with Winzip and view the Microsoft Office files contained within the WinZip file. Immediately save (extract) the individual files to an appropriate directory on your computer, such as "Desktop" or "My Documents".

Completing the Disk Based Bid

Once the Microsoft Office files are properly saved, open the individual files and enter the required information in the appropriate fields. Save each file again to capture the new information you entered.

Submitting the Disk Based Bid

Save the completed files to a CD or diskette. Label the CD or diskette with the Bid/RFP number and bidder's name (company name, not contract name). Submit as instructed in the Bid or RFP solicitation document.

INSTALLATION OF FIRE-SPRINKLER SYSTEM & REPLACEMENT OF FIRE-ALARM SYSTEM, CRAIG-LEE HALL

SPECIFICATIONS

2. GENERAL.

2.1 Contract Purpose. Rhode Island College is using this contract to have a fire-protection sprinkler system furnished and installed throughout the entire Craig-Lee building: an electronically-supervised wet pipe ADDRESSABLE sprinkler system that satisfies all requirements of the current RI Fire Code and of NFPA #13 and of all RI laws pertaining to sprinkler systems (to include recent changes). This contract will also REPLACE the existing, antiquated fire-alarm (FA) system in Craig-Lee Hall with a complete, ADDRESSABLE fire-alarm (FA) system: to be installed in order to comply with the latest Fire Codes concerning academic buildings on a College Campus; and to enhance life-safety conditions for the students and building occupants who use this building (about 80,352 square feet).

In addition to the FCI E-3 Analog Addressable (Main) FA Control Panel and the associated FA wiring and conduit systems; pull stations, horn/strobe units, smoke and heat detectors must also be replaced with addressable devices that comply with current Fire Codes. Additional components must also be furnished and installed, to include an ESTIMATED: 2 Style 6 SLC Circuits; 2 Style Z Notification Appliance Circuits (SNAC), or power supplies for audible alarm devices – with 60 hours of battery stand-by power; 1 weather-resistant beacon; 40 FCI addressable handicapped-accessible manual pull stations; 97 FCI analog addressable photo-electric smoke detectors with bases; 1 FCI analog addressable harsh-environment smoke detector with base; 8 FCI analog addressable photo-electric duct-mounting smoke detectors with remote-alarm/test stations; 8 FCI addressable fault-isolation modules (each capable of isolating the required number of devices/circuit); 31 FCI addressable monitor modules; 20 FCI addressable relay (control) modules; 98 FCI addressable synchronizable multi-candela horn-strobe devices; 8 FCI addressable synchronizable multi-candela strobe-only alarm assemblies; shut-down control systems for the 7 air-handlers in this building whose capacity exceeds 1999 CFM; 1 remote, key-operated drill switch; 20 magnetic door holders.

In addition, the **Contractor is also responsible for the detailed FA system design and layout; and for the submission of detailed PLANS or shop drawings** for the Contractor's complete FA System to the State Fire Marshal's Office (Mr. Wade Pallazini, 462-4600) for APPROVAL prior to the actual installation. Furnishing and installation of the associated FA components; installation of hangers, anchors and support systems; pipe sleeves and fire-stop systems; electrical controls and fire-alarm system (and fire-sprinkler system) interconnections; pull stations, horn/strobe units, smoke detectors, similar devices listed previously; electrical conduits, fittings, boxes, wiring, relays, switches, connectors; plaster-ceiling and skim-coats installation and repairs; wall restorations; anchoring into concrete; and similar requirements are also included in the BASE BID of this contract.

In addition, the **Contractor is also responsible for the detailed Fire-Sprinkler System design and layout; and for the submission of detailed PLANS or shop drawings** for the Contractor's complete Fire-Sprinkler System to the State Fire Marshal's Office (Mr.Dennis McGarty, 462-4600) for APPROVAL prior to the actual installation. Furnishing and installation of the associated sprinkler system heads, cut-off and check valves, flow switches, flow-test and drain systems, anti-tampering devices, and other required components; installation of hangers and support brackets; pipe sleeves and fire-stop systems; electrical controls and addressable interconnections to the fire-alarm system; electrical conduits, fittings, boxes, wiring, relays, switches, connectors; any required plaster-ceiling repairs; any required wall restorations; anchoring into concrete; and similar

ADD ALTERNATE ONE: Indicate the additional costs (to be added to the BASE BID price) which apply when the College directs the Contractor to Furnish & Install (F&I) a 4 x 4 x 9.5 F A-C Model 1580 In-Line Fire "Booster" Pump capable of providing 500 GPM at 90 PSI head- pressure; and having a 40-HP 3545-RPM (3-phase, 208-V) open-drip motor. Pump system is to include: relief valve, 2 pressure gauges, 2 reducers; a Firetrol FTA 1350 wye-delta closed-transition starting electric Fire-Pump Controller (208-V 3-phase) in a NEMA-2 enclosure; a 6-GPM (at 100 PSI head-pressure) MTH Model T41 E Jockey Pump with a 1/2-HP (3450 RPM 3-phase, 208-V) motor, relief valve, and a Firetrol FTA 500 Controller having: a NEMA-2 enclosure, fusible disconnect, magnetic starter, and pressure switch.

Accomplishment of this ADD ALTERNATE is to include: the provision of Complete Electric Service: from lugs to be added to (or replaced on) the low-Voltage bus-bars of the existing exterior 4160/ 120-208-Voltage transformer; these lugs must also accommodate the 3 existing 750-Kcmil cables connected to each existing lug. Furnish and install (F&I) also: a fused disconnect; the 4 required copper 400-Kcmil (THHN/THWN or XHHW) cables plus ground wire (sized per Code) in a 3" D standard rigid galvanized-steel conduit (ENCASED in concrete) from the transformer through a core-drilled hole into the mechanical room (ground-floor Humanities Wing); the interior conduit may be EMT. Furnish and install (F&I) also **all required wiring, conduits, hangers, fittings, fasteners, connections, controls and electric materials** to provide a complete and operational electric service in compliance with all applicable Codes. F&I also the 6" thick reinforced-concrete support slab having length and width dimensions large enough to adequately support the fire pump, jockey pump and (possibly also) the backflow preventer;.(comply with the anchoring and other requirements of Note 21 on the PLAN: STILL MORE Basement MR (Humanities) & GENERAL Requirements. F&I also all required piping, cut-off and check valves, hangers, anchors, pipe supports, and other pipefitting and plumbing materials to provide a 100% operational "Booster" Pump System that complies with all Fire and Electric Codes requirements. Comply also with all requirements of NFPA 20.

ADD ALTERNATE TWO: Indicate the additional costs (to be added to the BASE BID price) which apply when the College directs the Contractor to construct a smaller elevator mechanical room in the Humanities Wing's basement mechanical room. The purpose is to provide additional floor space (only if necessary) to accommodate the fire "booster" pump, the jockey pump, the 2 controller panels and the backflow preventer. Involved are the construction and anchoring of two

masonry walls (total length of 10'- 9") and a steel door with frame; and the relocation of an electrical controls panel plus a disconnect, two conduits and electrical cables. Comply with Note 26 on the PLAN: Basement MR (Humanities Wing) & ADD ALTERNATE TWO Requirements.

ADD ALTERNATE THREE: Indicate the additional costs (to be added to the BASE BID price) which apply when the College directs the Contractor to use the separate, qualified subcontractor: (a) to **properly fire-stop and seal all currently existing penetrations through fire-rated assemblies** (to include: walls, floors, ceilings); and (b) to thereby **restore the integrity (and rating) of all such fire-rated assemblies**. The submittals to the Building Commissioner (and to the other approval agencies listed in these Specifications) are to identify the manufacturer of the fire-stopping materials; and include specifications and catalog cut sheets for the exact materials and products which will be used for fire-stopping of the existing penetrations; and also include the color-coding schedule(s) associated with these fire-stopping materials for all of the listed penetration sizes. The contractor will be paid for properly sealing and fire-stopping all of these existing penetrations through fire-rated assemblies on a unit cost basis. Therefore, please indicate on the **Bid Documents** the unit costs and total costs of fire-stopping the following estimated quantities of penetrations of the sizes indicated:

<u>Estimated Quantity</u>	<u>Size of Penetration</u>	<u>Unit Cost</u>	<u>Total Cost</u>
25	< 2-1/2" Diameter		
20	2-1/2" Diameter or Larger BUT < 6" Diameter & < 5" x 5" Square		
12	6" Diameter and Larger, to include Irregularly Shaped Penetrations > 5" x 5" Square		

OVERALL TOTAL COST OF ADD ALTERNATE THREE: \$_____

2.2 Pre-Bid-Submittal Site Inspection. Each contractor submitting a bid is to survey all of the rooms and spaces on the six floors of the Humanities Wing and on the three floors of the East Wing that comprise Craig-Lee Hall. The Bid Announcement distributed by the RI Division of Purchases will indicate the date, time and location of a pre-bid meeting for all bidders. Attendance at this meeting is NOT mandatory, but is highly recommended. Contractor is to verify all pertinent measurements before submitting the bid.

2.3 Pre-Construction Planning and Schedule. Immediately after being awarded this Contract, the Contractor is to arrange a pre-construction meeting with the College Engineer (456-8262) **before starting** sprinkler and fire-alarm (FA) systems planning and design, shop drawing development or actual sprinkler system and replacement FA system installation work. Any subcontractors are also to attend this meeting. At this pre-construction meeting, Contractor is to furnish the specified submittals and a thorough briefing on the planned sprinkler and fire-alarm systems design and installation procedures. The scheduling objective is the **completion of**

all work under this Contract before 28 February 2011. (Please see Note 42 on the attached PLAN: ADDITIONAL Second Floor of Humanities Wing & GENERAL Requirements for additional requirements.) Actual design, shop drawing preparations and, after their approval, fire-sprinkler and FA systems installation work should ALL start as soon as possible. The Contractor's schedule will be reviewed at this pre-construction meeting to ensure that the systems' installation is scheduled to the mutual agreement of the College and the Contractor; for Craig-Lee Hall will continue to be occupied and in full operation throughout the duration of this Contract except for vacation periods.

2.4 Contractor Qualifications. The fire-sprinkler systems design, engineering and complete installation required by this contract are to be performed by a Rhode-Island-Licensed fire-sprinkler contractor. **Comply with all appropriate standard practices and applicable fire codes associated with the design and installation of sprinkler systems.** The installation of the replacement fire-alarm system, FA components and all electrical service and controls lines, wiring, conduits, boxes, switches, circuit breakers, disconnects, connections and associated electrical equipment (and related electrical systems replacement and improvements) required by this Contract are to be performed by a Rhode Island licensed fire-alarm or electrical contractor. Each fire-alarm subcontractor and electrical subcontractor must have a Master Fire-Alarm Contractor's License or Master Electrical Contractor's License, respectively, valid in Rhode Island. Any required welding is to be accomplished by a RI-certified welder.

2.5 Laws, Permits. Contractor is to comply: with all applicable federal and state laws, regulations, rules, ordinances and codes **(to include the latest fire-code requirements promulgated by the State of RI)**; with the current NFPA 13; as well as with ISO standards. The Contractor DOES need to obtain (and pay for) a permit from the State Building Commissioner, One Capitol Hill, Providence (401-222-3032). Contractor is also to obtain a Dig-Safe Permit.

2.6 Materials and Workmanship. 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 all applicable State Codes. All equipment and materials furnished and installed for this contract are to be new; of current production; in conformance with the standards of UL, Inc., and NEMA, ASA, IEEE, NFPA; are to be of American manufacture; and are to conform to accepted industry standards; exceptions require ADVANCE College Engineer approval.

2.6.1 Samples and Submittals. As soon as possible, Contractor shall submit, for approval:

(a) Samples of the following materials: each proposed sprinkler head type; and each proposed smoke detector.

(b) Shop Drawings of the following:

(1) The total Fire-Sprinkler System Plan. (This Plan must receive State Fire Marshal approval prior to the start of sprinkler system installation work.)

These shop drawings should clearly indicate all interconnections of the fire-sprinkler system being installed under this contract with the fire alarm system; and with any other utility system, to include the installation of the required backflow preventer. This Sprinkler System Subcontractor is responsible for engineering and installing a complete and useable fire-sprinkler protection system which complies with all Code requirements to include all required fire-sprinkler system electrical (only) interconnections with the fire alarm system. **BEFORE SUBMITTING THE FIRE-SPRINKLER SYSTEM PLANS TO THE STATE FIRE MARSHAL AND BUILDING COMMISSIONER FOR APPROVAL, REVIEW THE PROPOSED ROUTING OF ALL PIPING AND CONDUITS WITH THE COLLEGE ENGINEER, since per Notes 64 and 75 of the PLANS, CONTRACTOR IS TO FURNISH AND INSTALL ALL REQUIRED SPRINKLER PIPING AND SYSTEMS, AND ALL REQUIRED FA COMPONENTS, CONDUIT AND WIRING SYSTEMS CONCEALED ABOVE PLASTER AND SUSPENDED CEILINGS OR WITHIN WALLS (certain exceptions apply).** After the shop drawings have been reviewed, the Contractor will make any necessary revisions and then proceed to install the fire-sprinkler systems as finally approved throughout the entire Craig-Lee facility (and depicted in detail on the 20 enclosed PLANS).

(2) The total Fire-Alarm System Plan. (This Plan is required prior to the start of fire-alarm system installation work.)

These shop drawings should clearly indicate all interconnections of the fire-alarm system being installed under this contract with the existing Campus-wide fire-alarm system and equipment located in the College Security Offices; and with any other utility system, to include the building's existing electrical system and the new fire-sprinkler system. This FA System Subcontractor is responsible for engineering and installing a complete and useable fully addressable fire-alarm system which complies with all RI laws, and with all fire and electrical Code requirements (plus recent changes) to include: all required fire-sprinkler system, existing electrical system and existing Campus fire-alarm system interconnections. **BEFORE SUBMITTING THE FIRE-ALARM SYSTEM PLANS TO THE STATE FIRE MARSHAL FOR APPROVAL, REVIEW THE PROPOSED ROUTING OF ALL CONDUITS AND COMPONENTS WITH THE COLLEGE ENGINEER (CONCEALMENT REQUIREMENTS of (1) above APPLY).** After the shop drawings have been reviewed, the Contractor will make any necessary revisions and then proceed to install the fire-alarm system as finally approved throughout the entire Craig-Lee facility (and depicted in detail on the 20 enclosed PLANS).

Based on the State Fire Marshal, RI State Fire Code and Building Commissioner preliminary guidance, Contractor will have to incorporate specific zoning and addressable locations into the System's design in order to satisfy requirements for the proper display of fire-sprinkler, smoke detector, pull station and other component activations.

(3) The Exterior Joint Sealing System for the 3" diameter electrical conduit from the high-voltage transformer (for the Fire "Booster" Pump System; and for the direct-burial underground fire-sprinkler system's service-entrance pipe from the water main . Refer to Note 20 on the PLAN:ADDITIONAL Basement M R (Humanities) & GENERAL Requirements.

(c) Catalog "cuts" which adequately identify and describe the fire-alarm controls wiring and conduits/raceways; any required contactors, relays, control units, and transformers; all types of addressable smoke detectors; AMM4 monitoring modules (tamper & flow switches); M500X fault-isolation modules (each capable of isolating up to 25 devices/circuit); audio-visual horn-strobe devices; strobe-only alarm devices; shut-down control systems; pull stations; the FA Panel and equipment; all types of sprinkler heads, the sprinkler piping and fittings, valves, flow sensors; the complete fire "booster" pump system; which the Contractor proposes to install for this Contract. At least one copy of each Catalog Extract is to consist of Original printed sheets (NOT all photocopies).

2.6.2 Conduit. All conduit shall be of the size required by the latest edition of the electrical code for the number of wires indicated. Minimum conduit size shall be 1/2 inch (interior). Appropriate, standard boxes and fittings are also to be furnished and installed. Contractor shall furnish and install all junction boxes, pull boxes and fittings required for the installation of the work; boxes shall be of code gauge and the smallest appropriate size required for the particular installation. Any conduits and electrical equipment which must be relocated or installed within the building are to be installed so that all conduits and wiring are located **concealed** (exceptions require advance Engineer approval). Sufficient, sturdy hangers will be used to adequately support the conduit system (plus an occasional additional load) without any deflections, sagging, looseness. Exterior conduit is to be concrete-encased, standard rigid galvanized-steel conduit. **Any pre-approved exposed interior conduit (and fittings, boxes, connectors and accessories) must be wire-mold or Equal**; elsewhere, standard EMT and associated fittings are to be used within the building; or MX cable (please see the PLANS). Another exception: all pull stations being lowered also require wire-mold type boxes and conduits. Any required raceways shall be furnished and installed complete with all necessary fittings, boxes, connectors and accessories. Raceway systems shall be UL listed.

2.6.3 Electric Wiring. Specified gauge sizes refer to American Wire Gauge, 98.5% conductivity. Interior Wiring is to be copper wire, soft-drawn and annealed, with THHN insulation: rated 600 volts, and dual-rated 75°C wet and 90°C dry. Wire will be sized in accordance with the Electrical Code for the operating current of the equipment being supported (allowing for starting current). No wire shall be smaller than #14 without College Engineer approval. However, Exterior Wiring is to be copper wire, soft-drawn and annealed, no smaller than #10, but with THHN/THWN or XHHW insulation. All conductors #10 or larger shall be stranded. All wire and wire sizes shall conform to applicable electrical codes and AIEE Standards. Contractor shall furnish and install all wiring taps, terminals, connectors, splices, conduit and cable supports in compliance with applicable electrical codes and generally accepted construction practices in RI. Wire joints in circuit work shall be Buchanan "B-Cap", Ideal "Wire Nut" # 452 or 453, "Scotchlock Type R", or T & B "Sta-Kon".

TYPE MC CABLE MAY BE USED IN CONCEALED LOCATIONS; ALL CONDUIT AND WIRING SYSTEMS MUST BE CONCEALED.

All FA system panels, components, devices are to be manufactured by FCI (or Notifier equal). **NO OTHER MANUFACTURER'S FA equipment is acceptable.**

Only FCI and Notifier furnish truly user-friendly FA equipment. Indeed, our own fire-protection personnel have been trained on these manufacturers' panels and software; and can reset, adjust and change the programming of these FA panels and equipment without having to call-in and pay for a local manufacturer's representative. Further, all of these other FA equipment manufacturers ONLY have ONE local representative; consequently we would likely have to wait, even during emergencies, to have our FA panels rewet of adjusted.

2.6.4 Piping and Fittings. For diameters less than 2", sprinkler piping is to be black-iron, Schedule 40 threaded pipe, couplings and fittings. Use fittings and valves to match the adjoining piping material. For larger diameters, schedule 10 rolled grooved-end steel pipe with Victaulic (or Equal) fittings may be used WITHIN THE BUILDING ONLY. However, wherever fire-sprinkler piping is being installed CONCEALED beneath the specified Superior Systems, Inc. .03" thick aluminum soffit systems, CPVC piping may be used beneath these covers. Wherever two pipes of different metallic materials are joined, use dielectric fittings to preclude electrolytic corrosion.

PIPE AND PIPE FITTINGS

- A. When welded and seamless steel pipe is used and joined by welding or by rolled-end grooved pipe couplings, the minimum wall thickness for pressures up to 300 psi shall be in accordance with Schedule 10 for sizes up to 5-inch diameter; shall be 0.134 in. for 6-inch diameter; and 0.188 in. for 8- and 10-inch diameter pipe.
- B. When steel pipe is used and joined by threaded fittings, the minimum wall thickness shall be in accordance with Schedule 40 pipe for pressures up to 300 psi.
- C. Fittings, couplings, unions and reducers shall be of a type specifically approved for use in sprinkler systems and shall have a working pressure not less than 175 psig. Grooved-end fittings and couplings shall be compatible couplings from the same manufacturer as the pipe.
- D. Chrome-plated steel escutcheons will be used around all pipes passing through walls, floors and ceilings in occupied or finished areas, with all holes (to include those through fire-walls) being sleeved and sealed in compliance with applicable codes.

VALVES

- A. All valves shall be free from defects and shall be stamped or marked with manufacturer's name and UL approved.
- B. Gate valves shall be 175 psi standard class. Valves 2 inches and smaller shall be all bronze, with rising stem and screwed ends; over 2 inches in size shall be bronze-mounted, iron-body, resilient-seated, outside screw and

yoke-type flanged. Standpipe valves shall be 2-1/2" diameter fire-hose valves (with 2-1/2" to 1-1/2" reducers and caps).

- C. Check valves shall be iron-body bronze-mounted, swing type, with flanged ends on piping 2" and larger in size; but shall be bronze with screwed ends on piping under 2". Check valves on the branch to the fire department connection shall have automatic ball drip.
- D. Each butterfly-type valve shall be equipped with a tamperproof switch having two sets of contacts.
- E. Provide Watts 709 Series or Ames 2000 SS or Febco double-check backflow preventer; of the SAME SIZE as the entry pipe. Valves shall be OS&Y gate valves with a test cock on the city side of the inlet OS&Y gate valve.

SPRINKLER HEADS

- A. Provide UL listed quick response, pendant, upright, and sidewall sprinklers. Sprinklers shall be 1/2" orifice with chrome plated finish. Sidewall sprinklers shall be institutional style. All sprinklers shall be manufactured by Reliable Automatic Sprinkler Corp. Inc.; or by Duraspeed; or Equal.
- B. Heads shall be ordinary temperature classification, except in areas subject to abnormal heating conditions. Minimum fusing temperature shall be 155° F. Sprinklers in mechanical rooms and electric rooms shall have a temperature rating of 200° F.

SPARE SPRINKLERS AND CABINET

- A. This contractor shall furnish and deliver to the owner: 3 spare sprinklers of each type used on the project. These spare sprinklers shall correspond to the types and temperature ratings of the sprinklers installed on the site.
- B. This contractor shall furnish and mount on a wall near the sprinkler service riser, a properly designed and marked cabinet in which the spare sprinklers shall be placed and stored.
- C. This contractor shall furnish and store in the spare head cabinet special sprinkler head wrenches as needed for the various sprinkler styles.

DRAINS AND TEST CONNECTIONS

- A. Drains shall be provided at low points in piping, at bases of risers and wherever necessary to insure that all portions of piping shall be completely drained.
- B. Wet-pipe test connections shall include test pipe with a minimum diameter of 1-1/4". Piping shall terminate outside the building with a half-inch orifice. Test piping through outside walls and exterior to the building shall be galvanized steel pipe with sleeves caulked watertight. Valves shall be

located above ceilings with nearby access panels furnished and installed by this contractor.

WATER FLOW INDICATORS

Provide UL-approved closed-circuit indicators with adjustable retard and two sets of contacts. Provide the required quantity of water flow switches on this wet pipe sprinkler system.

SUPERVISORY SWITCHES

Provide UL-approved, tamper-proof switches with weatherproof die-cast aluminum housings and two sets of contacts.

SUPPORTS AT ALL RISERS

Support risers from the floor with pipe stands. Pipe stands shall be bolted to the floor.

WET PIPE SYSTEM

Provide new piping, automatic devices, gauges and all required accessories and appurtenances required by NFPA-13. All system components shall be UL-approved.

SIGNS

- A. Provide permanently marked identification signs at drain and test valves in the system and caution signs at all control valves. Provide metal or aluminum lithographed signs, red and white in color, 6" long and 2" high with lettering ½" high. Attach with stainless steel or brass screws, rivets, or other permanent means to metal straps wrapped around pipe near valve location. Provide a "Sprinkler Room" sign on the door(s) to every room where valves are located. Signs shall not be stickers. Signs shall be of metal or aluminum, secured with tamper-resistant screws.
- B. Provide nameplates with permanently attached placards indicating the hydraulic design information for each sprinkler system design area. Locate the nameplates on the riser in the sprinkler room.

FIRE DEPARTMENT CONNECTION

Furnish and install the required Fire-Department Connection (Note 24 on the PLAN: PLAN: STILL MORE Basement MR (Humanities) & GENERAL Requirements). Provide a flush- type single connection Elkhart Brass MFG. Co. Model 151 Connection with plug and chain. Escutcheon shall be lettered "AUTO-SPRINKLER". All components shall be chrome-plated and threads shall conform to Providence Fire Department threads.

HANGERS

- A. At the end of each branch line, provide a Tolco surge restrainer, or the type of hanger that prevents upward movement; or install the hanger rod tight to the pipe.
- B. All hanger components shall be UL-listed for use with sprinkler system piping. Hanger systems are to be adequate and sufficiently strong to properly support the entire sprinkler system: to include occasional, significant additional loads. All hangers are to be attached to the building's structure; and are to be in compliance with all applicable NFPA-13 requirements.

2.6.5 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.

2.6.6 Finished Surfaces Work. Damages to walls, ceilings, floors (such as smeared, scratched or gauged masonry members or sheetrock) will be completely finished (painted as appropriate) so as to match the finish, texture and surface plane of adjacent surfaces. Small area damages to the existing bricks are to be concealed by a caulking; or, in larger areas of damage, such bricks are to be replaced, and mortared-in. Spot painting of any damage repairs to the walls will be required. COMPLY WITH NOTES 11, 47 and 73 on the PLANS.

2.6.7 Caulking. Caulking material for all drilled holes and sprinkler-system-to-building joints 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. For the below-grade core-drilled hole installed for the conduit entrance from the high-voltage transformer, and for the sprinkler system's underground entrance pipe, furnish the oakum, hydraulic cement, waterproofing agent and seal per Note 20 on the PLAN: ADDITIONAL Basement MR (Humanities) & GENERAL Requirements; and the approved submittal.

2.6.8 Insulation. Within the building, use Fire-Safing foam insulation (US Gypsum's Thermafiber or equal) to **completely fill all voids** between the building's components and the sleeves; and between the sleeves and the accommodated pipe. Such Fire-Safing insulation is to be the type accepted by the Fire Marshal for use in sealing penetrations through fire-walls.

2.6.9 Anchors, Bolts, Inserts and Sleeves. Anchors, bolts, pipe and conduit hangers and miscellaneous fasteners shall be provided where necessary for fastening work in place 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 existing masonry or structural components. The entire fire-sprinkler components supporting (and fasteners) system shall comply with all requirements of NFPA-13. 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 pipes, conduits, equipment, apparatus and other work. Zinc-coated steel pipe sleeves of suitable size shall be provided where pipes or conduit pass through floors, roofs or walls. Steel supports for the piping, fittings, conduits, fixtures and equipment shall be 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 the responsibility for furnishing and installing these items.

2.6.10 Backfill Materials. Except for the top (loam) layer, all non-organic excavated soils (that is, NO topsoil) may be used and compacted as backfill. For the compacted layer below, beside and above the all underground piping being furnished and installed by this contract, use a washed sand (composed of hard, durable sand particles, free from loam and other undesirable matter), conforming to the following gradation requirements:

SIEVE SIZE	% PASSING
#4	100
#200	3

2.6.11 Loam, Fertilizer and Grass Seed. Contractor is to re-establish the grass surface in areas damaged by the excavation, such as in the vicinity of the high-voltage transformer. Topsoil is to be fertile, friable, medium-textured sandy loam with no admixture of refuse nor any materials toxic to grass growth; and shall be screened to free the topsoil from subsoil and stumps, roots, brush; stones and clay lumps over 3/4" in diameter; and other objectionable material. This loam shall possess good filtration and permeability rates, and shall have an acidity range between pH 5.5 to 7.5. On-site loam shall also be freed from the materials listed above before being re-used. Grass seed shall be pure, live, fresh from commercial sources and labeled per State and Federal laws, rules, and regulations. Seed is to be a blend of equal amounts of the following 5 types of seed: Palmer perennial ryegrass, Baron Kentucky bluegrass, Jamestown red fescue, Georgetown Kentucky bluegrass and Ram 1 Kentucky bluegrass. Grass seed is to be spread at the rate of 8 pounds per 1,000 SF.

Fertilizer is to be 19-19-19 of a type recommended for freshly planted seed, and is to be spread in the quantities recommended by the manufacturer.

All seed and fertilizer procurement and installation are to be approved in advance by the College's Director of Grounds.

2.6.12 Backfill Materials; Base Course. All non-organic excavated soils (that is, NO topsoil) may be used and compacted as backfill beneath the reinforced-concrete replacement slab above the fire-sprinkler service-entrance water line. The subgrade and such backfill as is required after excavating are to be thoroughly compacted before installing the 6" compacted-thickness base course for the slab. All types of excavated materials may be used to backfill the conduits trench; naturally, a 6" thick layer of loam should be used as the top layer for any trench. **Then, the 6" thick reinforced-concrete replacement slab is to be installed (by a pavement subcontractor acceptable to the College).** The 6" compacted-thickness base course below the concrete slab is to be "CRUSHER-RUN" material or tailings of fines, dense-graded, with hard and durable stone and sand; and containing no stone greater than 1 inch. BANK-RUN GRAVEL WILL NOT BE

ACCEPTABLE. The base course is to conform to the following gradation requirements:

SIEVE SIZE	% PASSING
2"	100
1/2"	50-85
#40	18-55
#200	12-20

2.6.13 Steel. All basic steel products (e.g., concrete reinforcing steel rods; hangers; support angles, bolts, nuts, lock washers; leveling shims) for this Contract **(excludes piping)** are to be of mild steel (yield strength of 30,000 or 36,000 psi). Connecting bolts, nuts, lock washers; shims; anchor bolts; and bolts installed exterior to the building or inserted into concrete and floor slabs shall be of galvanized steel (and bent cold).

2.6.14 Concrete; Reinforcing Mesh. Contractor is to use standard, 3,600 psi, ready-mix portland-cement (PC) concrete for the concrete base of the booster pump. If the contractor prefers to hand-mix the concrete for the concrete bases ONLY, advance College Engineer approval is required. Maximum gravel size is to be 3/4". The reinforcing steel mesh (6" x 6" x 3/16" diameter) is to be furnished and installed at the horizontal centerline of the 6" thick slabs. In order to ensure that the mesh is installed at the designated elevation within the concrete, CONTRACTOR IS TO STRIKE-OFF (OR SCREED) THE BOOSTER PUMP FOUNDATION (AND THE REPLACEMENT EXTERIOR PAVEMENT) TWO TIMES: AT 3" LEVEL AND THEN AT FULL FOUNDATION OR SLAB THICKNESS. The concrete is to be wood-floated and then steel-trowelled. All concrete is to be later covered with polyethylene and kept wet down for three days (minimum) curing. Reinforcing rods are to be steel, deformed rods, as used in the construction industry. Mortar or concrete mix for setting anchor bolts in existing concrete is to be expansion-type, designed for this purpose. All concrete forms are to be those generally used for concrete foundations and slabs by the construction industry in RI; the elevations and alignments of forms are to be checked by transit (or equal) before the concrete is placed.

2.6.15 Ceiling Tiles, Ceiling Grids and Lighting Fixtures. Per Notes 67, 68, 83, and 84 on the attached PLANS, furnish and install Fire-Rated Armstrong Prelude fire-guard exposed-tee grid systems having baked-on white enamel. Furnish and install 2' x 2' white Armstrong #1831 fissured fire-guard acoustical lay-in ceiling tiles having vinyl-latex finish.

Furnish and install Day-Brite Model 2P2GS232-36W-120-1/2-EB 2' x 4' lay-in fixtures, EACH having 2 T8 lamps and parabolic reflectors.

2.7 Substitution of Materials. Equipment and materials identified by manufacturer in these specifications for installation under this Contract are not to be substituted for "equal" or "equivalent" materials. However, any contractor proposing to supply and install "equal" materials will so notify the State Purchasing Officer at least 96 hours prior to bid submittal. This Officer will consult with the College Engineer to determine whether such materials are, in fact, acceptable equal products before awarding the contract to such a low bidder [who is offering the "equal" product(s)].

2.8 Storage of Materials. Throughout the project, all fire-alarm and sprinkler systems components and materials are to be kept completely dry and above 40°F prior to and during application. We plan to achieve a mutual agreement with the Contractor for the inside storage of all materials needed for this Contract. However, any exterior storage is to include the stacking of materials on 4-inch high pallets and covering them with waterproof tarpaulins until they are used. To summarize, all materials are to be stored in a place and manner which protect them from damage and the effects of weather. Flammable materials are not to be stored inside buildings.

2.9 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 Contractor's 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.

2.10 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.

2.11 Clean-Up. During and after completion of this project, the Contractor shall leave the area in a clean and orderly condition - which is acceptable to the College. All trash and construction debris shall be removed from the building on a daily basis. Broom-clean, vacuum, dust, and wet mop all surfaces affected by the construction on a daily basis. This requirement also includes the use of polyethylene barriers to prevent the spread of dust (particularly during drilling and core-drilling operations); as work is completed in a given room, these interior spaces shall be vacuumed until no construction dust nor debris remains. Excess and unsuitable materials and debris will be removed from Campus by the Contractor. The Contractor shall also remove all marks, stains, fingerprints and other soil or dirt from all painted, decorated and similarly finished surfaces; and repaint such areas as necessary. Final payment will be withheld until all clean-up operations are satisfactorily completed.

2.12 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 submit a schedule of values and use the AIA payment documents. Upon work completion, the College Engineer is to be notified, and will conduct with the Contractor's representative a joint physical check of the quality and extent of the fire-alarm and fire-sprinkler systems installation work. This is necessary to insure prompt payment.

2.13 Davis-Bacon. Contractor is required to pay prevailing wages as set forth by the Rhode Island Department of Labor and Training and the Davis Bacon Wage Rate Schedules. Submit ONE copy of certified payrolls for the offeror and for all sub-contractors with each pay request.

2.14 Red-line Drawings. Maintain a set of red-line drawings on-site reflecting as-built conditions. Red-lines shall be marked on final design drawings. Red-line drawings shall be presented at each progress meeting for review by the College.

2.15 Guarantee. The Contractor shall leave the facility in proper working order and shall replace any work, material, or equipment provided by him or her under this contract which develops defects, except those caused by vandalism, within 1 year from the date of final acceptance by the College, without additional expense to the College.

2.16 SCOPE OF CONTRACT. Contractor will furnish all Engineering, layout, labor, materials, services, scaffolding, equipment and supervision necessary for: the required installation of a 100% operational, fully functional, wet-pipe addressable fire-protection sprinkler system; this system is likely to have 9 zones and is to protect all of the 80,352 total square feet contained within Craig-Lee Hall. Contractor will furnish all Engineering, layout, labor, materials, services, scaffolding, equipment and supervision necessary for the required installation of a replacement addressable fire-alarm (FA) system (including the Main FA Panel) throughout the entire Craig-Lee facility. All required electrical fire-alarm components installation and wiring; and controls wiring and conduit systems and associated fire-sprinkler-system connections to the building's fire-alarm system are to be included in this contract. The connection of the replacement fire-alarm system to the Campus' existing fire-alarm system is required: to obtain a system which sends alarms directly to the Providence FD (with simultaneous notification of the College Security Department: both printer recording and computer display); and which also sends trouble notifications via the existing Siemens heating, ventilating and air-conditioning (HVAC) controls system to the College Security Department (both printer recording and computer display).

The required excavation and backfilling (to match existing) for the direct-burial fire-sprinkler system water entrance line, and for the underground, concrete-encased conduit containing the cables between the secondary-voltage bus-bars of the exterior transformer and the power terminals of the fire "booster" pump system are also to be accomplished under the Base Bid of this Contract. The replacement of all the concrete pavement removed during the excavation operation, and the restoration of the improved grounds in the vicinity of the exterior transformer, are also parts of this contract. Excavation; furnishing and compaction of the sand bedding for the underground piping; concrete encasement of the electric conduit from the transformer; backfilling and compaction; all base course installation and compaction; reinforced concrete pavement replacement and curing; raking, rolling, fertilizing and reseeding of the grounds are included as part of this contract.

The 20 attached Craig-Lee Hall: Installation of Fire-Sprinkler & Replacement Fire-Alarm Systems PLANS further identify the work requirements of this Contract and are officially incorporated into these Specifications. These PLANS are diagrammatic only and are not intended to show every detail of construction nor location of the fire-alarm and controls wiring. The fire-sprinkler system (and the associated controls wiring system) shall be complete, to include all minor parts not specifically noted on the PLANS, but required for a properly functioning fire-sprinkler (and controls wiring) system; the fire-sprinkler system (and the associated controls wiring system) **shall conform to all applicable codes**. The replacement addressable fire-alarm system (panel, sensor and notification (alarm) equipment, wiring and conduit system) shall be complete, to include all minor parts not

specifically noted on the PLANS, but required for a properly functioning fire-alarm (and associated wiring) system; the entire fire-alarm system **shall conform to all applicable codes**.

The following is the COMPLETE List of PLANS for this Contract:

1. PLAN: Ground Floor of BOTH the Humanities Wing & the East Wing.
2. PLAN: Ground Floor of Humanities Wing & GENERAL Requirements.
3. PLAN: Basement M R of Humanities Wing & GENERAL Requirements.
4. PLAN: ADDITIONAL Basement M R (Humanities) & GENERAL Requirements.
5. PLAN: STILL MORE Basement M R (Humanities) & GENERAL Requirements.
6. PLAN: Basement M R (Humanities Wing) & ADD ALTERNATE TWO Requirements.
7. PLAN: First Floor of Humanities Wing & GENERAL Requirements.
8. PLAN: ADDITIONAL Ground Floor of Humanities Wing & GENERAL Requirements.
9. PLAN: Second Floor of Humanities Wing & GENERAL Requirements.
10. PLAN: ADDITIONAL Second Floor of Humanities Wing & GENERAL Requirements.
11. PLAN: Third Floor of Humanities Wing & GENERAL Requirements.
12. PLAN: Fourth Floor of Humanities Wing & GENERAL Requirements.
13. PLAN: Ground Floor of East Wing & GENERAL Requirements.
14. PLAN: First Floor of East Wing & GENERAL Requirements.
15. PLAN: First Floor Ceiling & Lighting Fixtures Replacement Requirements.
16. PLAN: ADDITIONAL First Floor Ceiling & Lighting Fixtures Replacement Requirements.
17. PLAN: Second Floor of East Wing & GENERAL Requirements.
18. PLAN: ADDITIONAL Second Floor of East Wing & GENERAL Requirements.
19. PLAN: Second Floor Ceiling & Lighting Fixtures Replacement Requirements.
20. PLAN: Enclosure System Concealing Fire-Sprinkler Piping in Typical Classroom.

For Craig-Lee Hall, the available electrical system is 120/208 Volts, 3-Phase, 4-Wire. Contractor is also responsible for all work lay-out, elevations, measurements, leveling and alignment. REGARDLESS OF ANY ERRORS OR INADVERTENT OMISSIONS IN THESE PLANS AND SPECIFICATIONS, CONTRACTOR IS TO FURNISH AND INSTALL SUFFICIENT AND PROPER MATERIALS AND EQUIPMENT (MANUFACTURED FOR THIS PURPOSE) TO PROVIDE SAFE, EFFICIENT AND 100% OPERATIONAL FIRE-SRINKLER AND FIRE-ALARM SYSTEMS: in full compliance with all applicable codes (to include the latest changes to the RI Fire Code) and with modern Engineering standards and practices for such a system.

For the replacement FA system, furnish and install an FCI E-3 Analog Addressable (Main) FA Control Panel and the associated FA wiring and conduit systems (comply also with Notes 14 and 37 on the attached PLANS). Additional components must also be furnished and installed, to include an ESTIMATED: 2 Style 6 SLC Circuits; 2 Style Z Notification Appliance Circuits (SNAC), or power supplies for audible alarm devices – with 60 hours of battery stand-by power; 1 weather-resistant beacon; 40 FCI addressable handicapped-accessible manual pull stations; 97 FCI analog addressable photo-electric smoke detectors with bases; 1 FCI analog addressable harsh-environment smoke detector with base; 8 FCI analog addressable photo-electric duct-mounting smoke detectors with remote-alarm/test stations; 8 FCI addressable fault-isolation modules (each capable of isolating the required number of devices/circuit); 31 FCI addressable monitor modules; 20

FCI addressable relay (control) modules; 98 FCI addressable synchronizable multi-candela horn-strobe devices; 8 FCI addressable synchronizable multi-candela strobe-only alarm assemblies; shut-down control systems for the 7 air-handlers in this building whose capacity exceeds 1999 CFM; 1 remote, key-operated drill switch; 20 magnetic door holders.

Furnish and install the specified replacement ceilings and lighting fixtures per the PLANS. Furnish and install the 20 replacement addressable magnetic door holders, per Note 79 on the attached PLANS.

Contractor is also to furnish the College with a diskette containing an exact copy of the complete software and program of the replacement Fire-Alarm Panel (furnished and installed under this contract); and, **at the end of the Warranty Period, is to provide the College with the Highest-Level PASSWORD used for that Fire-Alarm (FA) Panel.**

Please Note: this Contract excludes the cost of removing and replacing any asbestos-containing materials (ACM) (such as ceiling materials, pipe insulation or floor tiles) which the Contractor may encounter; if any ACM must be removed to allow this Contractor to complete the Contract, the College will remove such ACM AT NO EXPENSE NOR LIABILITY TO THIS CONTRACTOR.

3. DETAILED REQUIREMENTS.

3.1 Water Supply Information. The following water flow test results shall be used for the hydraulic design of the Craig-Lee Hall fire-protection sprinkler system:

Static Pressure	=	42 psi
Residual Pressure	=	36 psi
Flow	=	980 GPM

3.2 Supervisory Switches. For each sprinkler zone control valve, OS&Y and gate valve, provide an Addressable anti-tampering supervisory switch electrically connected into the fire-alarm system and replacement FA Panel; to transmit a "Trouble" whenever activated.

3.3 Addressable Water Flow Indicators are to be provided both in fire mains where required and at the connection of each zone to a supply main. Each water-flow indicator is to be electrically connected into the fire-alarm system and replacement FA Panel; to transmit an "Alarm" whenever activated

3.4 Electric Fire-Alarm System. Furnish and install the FCI FA panel; all alarm, sensor, pull-station and associated components and monitoring modules and shut-down systems required for the proper operation of the systems; to include all FA system components depicted on the approved Fire Alarm System PLANS which this contractor is to develop and submit. Furnish and install all required wiring and conduit materials and systems.

3.5 Computations. Provide hydraulic calculations for approval. The most remote areas shall be hydraulically calculated to provide the necessary coverage; satisfy all density requirements. **Sprinklers shall be installed in spaces of twenty-four**

inches or more above suspended ceilings; thus, the Contractor will have to add sprinkler heads above the ceilings in most, if not all, of the corridors.

3.6 Piping Requirements. Route piping as required to avoid obstructions. Piping will or will not be allowed to pass through structural members, depending on their sizes and drill-hole locations; review all such requirements with the College Engineer. No piping shall be supported from ducts, conduit or other piping. Provide all required couplings, valves, fittings (elbows, tees), similar materials; make all required connections. All piping shall be flushed out thoroughly and maintained in a clean condition until the system is accepted by the College. No piping shall be covered or concealed before being inspected, tested and approved.

3.7 Pipe Hanger Requirements. All piping shall be rigidly supported from the building's structure by means of approved hangers and supports. Pipe shall be supported: to maintain the required grading and pitch of lines; to prevent vibration; and to secure the piping in place. The sprinkler system's hanger support system shall also be arranged so as to **provide for the total expansion and contraction of the piping**. The entire support system for the Craig-Lee sprinkler system is to be furnished and installed (and hangers spaced) in complete accordance with NFPA-13. **Although not mentioned on the PLANS, Furnish and Install ANY REQUIRED THREADED RODS (or APPROVED MEGALUG-TYPE SYSTEM) AT SPRINKLER PIPING HOLES IN FLOORS.**

3.8 Sprinkler and FA Systems Installation Requirements. Furnish and install all required sprinkler heads, piping systems, controls, fire-alarm panel and components, wiring systems and conduits, per the Shop Drawings or Plans developed by the Contractor and approved by the State Fire Marshal and Building Commissioner; all in accordance with the recently revised State Codes and NFPA-13 requirements. All sprinkler pipe and fire-alarm conduit routes shall be reviewed by the College Engineer prior to installation. This contractor shall be responsible for reviewing the architectural and structural drawings to verify ceiling types and areas with limited clearance. **All FA conduits and all Sprinkler Piping shall be concealed above ceilings: except in unoccupied and other spaces designated on the PLANS.**

3.9 Testing, Start-Up, and Training Requirements. Contractor is to arrange for representatives of the State Fire Marshal to accompany him or her; and to witness all required testing of the sprinkler and fire-alarm systems and of the associated fire-alarm/controls-wiring system. Conduct all required tests until the Systems are approved and accepted: all in accordance with applicable State Codes and NFPA 13 requirements. Hydrostatically test the systems at 200 psi for a period of two hours. Certificates of approval and acceptance by the State Fire Marshal shall be submitted to the Engineer.

3.9.1 Start-Up and Training Operations. No later than 15 March 2011, Contractor is to conduct start-up operations (and personnel instruction). The start-up operations we envision include actual start-up and systems adjustments; complete system demonstration and performance verification; 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. The required testing is to include ALL equipment installed by this contract. Contractor will instruct the

College's Engineer and Physical Plant personnel on the operation and maintenance requirements of all equipment being replaced and installed.

3.9.2 Operation and Maintenance Manuals. Three ORIGINAL (NOT photo-) copies of all pertinent operation and maintenance literature for the Craig-Lee fire alarm and sprinkler system will be submitted to the Engineer. O&M manuals shall be bound in three-ring binders and shall be divided into sections with a table listing the contents of each section. O&M manuals shall include: equipment cut sheets, manufacturer's maintenance information on all components of the system, as-built drawings, system operational instructions, spare parts lists, and any other information pertinent to the operation and maintenance of the fire-alarm and fire-sprinkler systems.

3.9.3 As-Built PLANS. Use red-line drawings and original design documents to develop As-built plans on AutoCad. Provide three (3) sets of as-built PLANS (documents) and a CD with both AutoCad and PDF electronic files.

3.9.4 Maintenance. **Maintenance and servicing of the sprinkler and fire-alarm systems (and of all equipment being installed) FOR ONE YEAR are also included in this Contract. Four Quarterly tests of the sprinkler and fire-alarm systems (Spring of 2011 through Winter of 2012) are INCLUDED as BASE BID requirements of this Contract.**

3.10 Reinforced Concrete Construction. The construction of the 6" thick "booster" fire pump support slab(s) (and of the backflow preventer support slab, in this equipment is not wall-mounted) is to be accomplished per these Specifications. Drill four 3" deep holes into the existing concrete floor; furnish and install four ½" diameter x 6" long galvanized steel bolts to anchor the slab to the floor (use expansive grout around the bolts in the holes). Install the necessary forms and, using the specified materials, place the 6" thick "booster" fire pump support slab, with the specified reinforcing-steel mesh installed at its horizontal center. (as well as the required replacement pavement (sidewalk) slabs, which are to have identical contraction and expansion joints to match the existing). CONCRETE IS TO BE STRUCK-OFF at the required surface elevation. The concrete is to be wood-floated; and then given a steel-troweled finish (for the equipment support slab). Use a light-broom finish to match the existing finish of the exterior hardstand for the exterior replacement slab. Cure the concrete slabs (wet, covered by polyethylene for 3 days minimum). Have the College Engineer approve the forms before placing any concrete. Finally, use an approved joint sealing compound for the exterior slab's joints.

3.11 Excavation and Backfill: Replace the exterior concrete slabs and restore the grounds after excavation to match the initially existing surfaces. Comply with Paragraphs 1.6.10, 1.6.11, 1.6.12 and 1.6.14 of these Specifications; and with Notes 16,18,19,21 and 21 (Continued) on the attached PLANS.

3.12 Cleaning. After all installation work is completed, accomplish all cleaning operations required by Paragraph 1.11; the objective is to leave the facility in a 100%

clean, ready-to-occupy condition – even if your personnel did not cause all of the dust and debris to be removed.

3.13 FIRE SAFETY REQUIREMENTS. No open flames nor propane tanks nor torches nor welding equipment are to be used during this sprinkler systems installation and FA system replacement contract without prior, specific College Engineer approval.

3.14 EXISTING SYSTEMS UNEXPECTED REPAIRS ALLOWANCE.

EACH CONTRACTOR SUBMITTING A BID IS TO INCLUDE AN ALLOWANCE OF \$48,000 IN THE BID TO COVER UNEXPECTED COSTS; SUCH AS, FOR EXAMPLE, THE COSTS OF EXCAVATING BOULDERS LARGER THAN ½ CUBIC YARD; OR OF MAKING ADDITIONAL (OTHER THAN SPECIFIED) BUT UNANTICIPATED REPAIRS ON THE EXISTING ELECTRICAL OR SPRINKLER SYSTEMS; PLUS THE COSTS OF MAKING ANY ADDITIONAL CHANGES AND IMPROVEMENTS which may be required as a result of the State Building Commissioner and State Fire Marshal reviews of these PLANS and Specifications.

Compensation for accomplishing these repairs or improvements, and for making any other necessary changes or additional equipment installation required as a result of the fire-marshal (and building commissioner) reviews 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 \$48,000 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 \$48,000 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 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.

IMPORTANT – INSERT UNIT PRICES IN BOTH COLUMNS WITH BRAND AND MODEL NUMBERS. DO NOT DETACH THE TAB PORTION			BID NO.	BID NO.
			SHEET NO.	SHEET NO.
QUANTITY	DESCRIPTION OF ITEMS	UNIT	UNIT PRICE AND BRAND OR MODEL NO.	UNIT PRICE AND BRAND OR MODEL
NO.	RHODE ISLAND COLLEGE INSTALLATION OF FIRE-SPRINKLER SYSTEM & REPLACEMENT OF FIRE-ALARM SYSTEM, CRAIG-LEE HALL BASE BID: <u>ADD ALTERNATE ONE:</u> Indicate the additional costs (to be added to the BASE BID price) which apply when the College directs the Contractor to: Furnish & Install (F&I) a 4 x 4 x 9.5 F A-C Model 1580 In-Line Fire “Booster” Pump capable of providing 500 GPM at 90 PSI head- pressure; and having a 40-HP 3545-RPM (3-phase, 208-V) open-drip motor. Pump system is to include: relief valve, 2 pressure gauges, 2 reducers; a Firetrol FTA 1350 wye-delta closed-transition starting electric Fire-Pump Controller (208-V 3-phase) in a NEMA-2 enclosure; a 6-GPM (at 100 PSI head-pressure) MTH Model T41 E Jockey Pump with a 1/2-HP (3450 RPM 3-phase, 208-V) motor, relief valve, and a Firetrol FTA 500 Controller having: a NEMA-2 enclosure, fusible disconnect, magnetic starter, and pressure switch. Accomplishment of this ADD ALTERNATE is to include: the provision of Complete Electric Service: from lugs to be added to (or replaced on) the low-voltage bus-bars of the existing exterior 4160/ 120-208-V transformer; these lugs must also accommodate the 3 existing 750-Kcmil cables connected to each existing lug. Furnish and install (F&I) also: a fused disconnect; the 4 required copper 400-Kcmil (THHN/THWN or XHHW) cables plus ground wire (sized per Code) in a 3" Ø standard rigid galvanized-steel conduit (ENCASED in concrete) from the transformer through a core-drilled hole into the mechanical room (ground-floor Humanities Wing); the interior conduit may be EMT. Furnish and install (F&I) also all required wiring, conduits, hangers, fittings, fasteners, connections, controls and electric materials to provide a complete and operational electric service in compliance with all applicable Codes. F&I also the 6" thick reinforced-concrete support slab having length and width dimensions large enough to adequately support the fire pump, jockey pump and (possibly also) the backflow preventer; (comply with the anchoring and other requirements of Note 21 on the PLAN: STILL MORE Basement MR (Humanities) & GENERAL Requirements. F&I also all required piping, cut-off and check valves, hangers, anchors, pipe supports, and other pipefitting and plumbing materials to provide a 100% operational “Booster” Pump System that complies with all Fire and Electric Codes requirements. Comply also with all requirements of NFPA 20. ADD ALTERNATE ONE: <u>ADD ALTERNATE TWO:</u> Indicate the additional costs (to be added to the BASE BID price) which apply when the College directs the Contractor to Construct a smaller elevator mechanical room in the Humanities Wing's basement mechanical room. The purpose is to provide additional floor space (only if necessary) to accommodate the fire “booster” pump, the jockey pump, the 2 controller panels and the backflow preventer. Involved are the construction and anchoring of two masonry walls (total length of 10'- 9") and a steel door with frame; and the relocation of an electrical controls panel plus a disconnect, two conduits and electrical cables. Comply with Note 26 on the PLAN: Basement MR (Humanities Wing) & ADD ALTERNATE TWO Requirements. ADD ALTERNATE TWO: <u>ADD ALTERNATE THREE:</u> Indicate the additional costs (to be added to the BASE BID price) which apply when the College directs the Contractor to use the separate, qualified subcontractor: (a) to properly fire-stop and seal all currently existing penetrations through fire-rated assemblies (to include: walls, floors, ceilings); and (b) to thereby restore the integrity (and rating) of all such fire-rated assemblies. The submittals to the Building Commissioner (and to the other approval agencies listed in these Specifications) are to identify the manufacturer of the fire-stopping materials; and include specifications and catalog cut sheets for the exact materials and products which will be used for fire-stopping of the existing penetrations; and also include the color-coding schedule(s) associated with these fire-stopping materials for all of the listed penetration sizes. The		\$ _____ \$ _____ \$ _____	

contractor will be paid for properly sealing and fire-stopping all of these existing penetrations through fire-rated assemblies on a unit cost basis. Therefore, please indicate on the Bid Documents the unit costs and total costs of fire-stopping the following estimated quantities of penetrations of the sizes indicated:

<u>Estimated Quantity</u>	<u>Size of Penetration</u>	<u>Unit Cost</u>	<u>Total Cost</u>
25	< 2-1/2" Diameter	\$ _____	\$ _____
20	2-1/2" Diameter or Larger BUT < 6" Diameter & < 5" x 5" Square	\$ _____	\$ _____
12	6" Diameter and Larger, to include Irregularly Shaped Penetrations > 5" x 5" Square	\$ _____	\$ _____
OVERALL TOTAL COST OF ADD ALTERNATE THREE:			\$ _____