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ADDENDUM TO THE CONTRACT DOCUMENTS

ADDENDUM No.: 3 **DATE :** 9/4/15

PROJECT:	New Town Hall Construction Project 26 Court Street Plymouth, MA	**OWNER:**	Town of Plymouth 11 Lincoln Street Plymouth, MA 02360	**OWNER'S PROJECT MANAGER:**	STV/DPM One Gateway Center 300 Washington Street Suite 951 Newton, MA 02458

The following items will amend the Contract Documents or provide clarification and are to be considered a part of the Bid Documents. Information provided in this addendum supersedes and supplements all portions of the Bid and Construction Documents with which it conflicts.

General:	Description:
Bullet Resistant Glazing Question	General Contractor is responsible to provide the bullet resistant glass partitions shown on the Drawings in Rooms #223, #225 and #234; as specified in Section 085653 "Security Windows."
Sealant Questions	1. Sealant associated with exterior site paving is the responsibility of the General Contractor. 2. All hollow metal door frames are to be sealed to adjacent wall construction in accordance with Section 079200 "Joint Sealants" Paragraph 2.3.A.2. 3. All hollow metal door frames with wood trim are to be sealed to adjacent wall construction in accordance with Section 079200 "Joint Sealants" Paragraph 2.3.A.2. 4. Sealant Filed Sub-Bid Contractor is responsible to seal around wood windows as identified in Section 085200 "Wood Windows" Paragraph 3.2.F.
Waterproofing Questions	1. No; the new elevator pits are not slated to receive cementitious waterproofing. An integral waterproofing admixture is included in the concrete as per Section 033000 "Cast-In-Place Concrete" Paragraph 2.1.3.A.5. 2. Concealed membrane flashing is furnished and installed by the Waterproofing Filed-Sub-Bid Contractor as part of the air/water barrier system as specified in Section 072726 "Fluid Applied Membrane Air/Water Barriers." As per Section 042000 "Unit Masonry" Paragraph 1.3.C.3, the Masonry Filed Sub-Bid-Contractor must complete the installation of the flashings for final tie-ins to metal drip edges and through the exterior masonry veneer..
Rigid Insulation Questions	1. Rigid insulation located within masonry cavity wall construction shall be provided by the Masonry Filed Sub-Bid Contractor as per Section 042000 "Unit Masonry." 2. Rigid insulation located under concrete slabs on grade, below grade and at foundation walls shall be provided by the General Contractor as per Section 033000 "Cast-In-Place Concrete."
Roof Vapor Retarder Question	The vapor retarder shown on the architectural details (i.e. Arch Detail #30/A501) under low slope roof areas is to be provided by the Roofing Filed Sub-Bid Contractor as identified in Section 075419 "PVC Roofing" Paragraph 2.5.
Plaster Questions	1. Plaster scoring as per keynote 9.22 is to be 1/8 inch wide by 1/16 inch deep as identified in Section 092613 "Gypsum Veneer Plastering" Paragraph 3.6.E.1. Control joints will not be acceptable. 2. The Plaster Filed Sub-Bid Contractor shall provide gypsum substrate (single and multiple layers) for all walls and ceilings indicated to received veneer plaster. 3. The acoustic plaster ceiling system specified in Section 095400 "Sound Absorbing Plaster Systems" is a proprietary system as per Paragraph 2.1.B. Equivalent products may be submitted for review and approval pursuant to MGL 30, 39M and 149, 44A-M.
Structural Steel Question	Yes; AISC qualified and certified installers and fabricators are required for the structural steel as identified in Section 0512000 "Structural Steel" Paragraph 1.06.
Painting Questions	1. Field painting of the exterior zinc cladding, soffits and fascia is NOT required. 2. Field painting of galvanized steel lintels is required at all windows located in masonry. 3. The 1820 Courthouse corridor walls are slated to receive scored plaster and a multi-color paint scheme. The glaze is only a topcoat. No other faux finish is required. 4. Painting, stripping and prep work identified in Note #1/Dwg A805 is to be done by the Painting Filed-Sub-Bid Contractor.

General:	Description:
Elevator Questions	1. Products listed in Section 142100 "Traction Elevators" are not meant to be proprietary. Three acceptable manufacturers and products have been listed for competitive bidding. 2. Hoistway and pit dimensions may vary between manufacturers/products and must be coordinated with approved shop drawings. Surrounding construction has little tolerance to accommodate more than a few inches of variation in any direction. 3. Rated capacities/loads identified in Section 142100 Paragraph 2.3 are minimum requirements. MRL elevators have been specified due to reduced electrical loads. Hydraulic elevators will not be accepted. 4. 36 inch wide single slide door on Elevator #2 will be considered as long as it does not result in problems with surrounding construction and meets all MAAB clearance requirements.
Copper Cladding Question	Copper cladding on the exterior entrance canopies on the new building is to be provided by the General Contractor.
Fence Question	Decorative metal fences as shown on the Drawings and specified in Section 323119 "Decorative Metal Fences and Gates" is to be provided by the General Contractor.
Site Bench Question	Steel angles associated with salvaged granite benches shown on Detail #1/Dwg L2.2 are to be provided by the General Contractor.
Insurance Question	Insurance amounts and requirements as identified in Section 00800 "Supplemental General Conditions" pertain only to the General Contractor.

Specification:	Description:
Section 00100 Instructions to Bidders	Item #4 on Page 7 - Omit Sub-Items #f. & g. in their entirety. These are not required since bidders have already been pre-qualified.
Section 012600 Contract Modification Procedures	Paragraph 1.5 - Add Item D as follows: "D. Change Order Mark-Ups: 1. Acceptable mark-ups for increases in the Contract Price shall be limited as follows: a. Fifteen percent (15%) of the amount for overhead, superintendence and profit. 1) For Work performed by the General Contractor or non-filed Subcontractors, the mark-up shall be paid to the General Contractor, and the General Contractor and said non-filed Subcontractors shall agree upon the distribution of this amount. 2) For Work performed by a Filed Sub-Bid Subcontractor, pursuant to M.G.L. c. 149, s. 44F, the mark-up shall be paid to the Filed Sub-Bid Subcontractor. This provision does not apply to other Subcontractors including sub-Subcontractors listed under paragraph E of the Form for Filed Sub-Bid. b. Five percent (5%) of the amount for work performed by a filed Sub-Bid Subcontractor pursuant to M.G.L. c. 149, s. 44F, as an additional allowance for compensation to the General Contractor for processing forms and assuming full responsibility for the faithful performance of such work by said Filed Sub-Bid Subcontractor(s), provided that there shall be no additional allowance to a General Contractor if the General Contractor self performs the subcontract work pursuant to M.G.L. c. 149, s. 44F(5). c. Actual costs for payment and performance bonds; provided they do not exceed a total cost of four percent (4%) in total.

Section 012600 Contract Modification Procedures (Continued)	2. General Contractor, Subcontractors and Filed Sub-Bid Subcontractors are required to anticipate annual updated prevailing wage schedules in accordance with M.G.L. c. 149, §27 and shall not be entitled to claim additional compensation for base bid contract work due to updated prevailing wage schedules. 3. If the net change is an Add to the Contract Price, it shall include the Contractor's overhead, superintendence and profit as stated in Item #1 above. On any change that involves a net Deduct to the Contract Price, no allowance for overhead, superintendence and profits shall be included. 4. For any change that does not include labor performed or materials installed in the project, there will be no markup for the Contractor's overhead, superintendence, and profit, even though there may be a net increase in the Contract Price. 5. Charges for small tools known as "tools of the trade" are not to be computed in the amount of any change to the Contract Price. 6. Statutory Contract adjustments made under the provisions of M.G.L. c. 149, s.44F shall not be considered Change Orders and shall not entitle the Contractor to any adjustments for overhead, profit, and superintendence, although the Awarding Authority may require such adjustments be processed via Change Order forms."
Section 042000 Unit Masonry	1. Revise Paragraph 2.1.A to read as follows: "Refer to Division 07 Section "Thermal Insulation" Paragraph 2.4.A for cavity wall foam-plastic board insulation." 2. Revise Paragraph 2.14 to add Item B. as follows: "B. Masonry Filed Sub-Bid Contractor to provide cavity wall foam insulation."
Section 044310 Granite Cut Site Stone	Revise Paragraph 2.2 and 2.3 to Add Item D. as follows: "D. Suppliers: Stone is available from Stone Source; Boston, MA 02210 Tele: 617.671.0900."
Section 072726 Fluid Applied Membrane Air/Water Barriers	Revise Paragraph 2.4. to Add item N. as follows: "M. Silicone Transition Flashing: Provide silicone transition flashing where shown on the Drawings, acceptable in writing to air/water barrier manufacturer. 1. Basis of Design Product: "Pecora XL-Span" or equal."
Section 073126 Slate Shingles	1. Revise Paragraph 1.12.A to read as follows: "A. Roofing Installer's Warranty: On warranty form at end of this Section, signed by Installer, in which Installer agrees to repair or replace components of slate-shingle roofing that fail in workmanship within specified warranty period. 1. Warranty Period: Two (2) years from date of Substantial Completion." 2. Revise Paragraph 1.12 to Add Item B. as follows: "B. Roofing Manufacturer's Warranty: Manufacturer agrees to repair or replace slate shingles that fail in materials within specified warranty period. 1. Warranty Period: Seventy-five (75) years from the date of Substantial Completion."
Section 079200 Joint Sealants	Add Paragraph 2.8 as follows: "2.8 Exterior Sidewalk Sealants A. Silicone Traffic Joint Sealant: Provide manufacturer's standard, single-component, moisture cure, sealants for traffic applications. 1. Products: Subject to compliance with requirements; provide one of the following: a. "Spectrem 800"by Tremco Incorporated. b. "Pecora 311-NS" by Pecora Corporation. c. "Sikasil 728 SL" by Sika Corporation. 2. Applications: Exterior horizontal joints in concrete and paver sidewalks."
Section 084113 Aluminum Entrances and Storefront	1. Revise Paragraph 1.8.A.3 to read as follows: "3. Flush Aluminum Doors and Frame Manufacturer's Warranty Period: Ten (10) years from date of Substantial Completion." 2. Revise Paragraph 1.8.A to add Item #4. as follows: "4. Installer's warranty for all aluminum entrances, storefront framing, flush aluminum doors and frames shall be for a period of two (2) years from the date of Substantial Completion."

Section 142100 Traction Elevators	1. Revise Paragraph 2.1 to add Item #D as follows: "D. Elevator must be a design that can be maintainable by any licensed elevator maintenance company employing journeymen mechanics, without the need to purchase or lease additional diagnostic devices, special tools, or instructions from the original equipment manufacturer." 2. Revise Paragraph 2.1 to add Item #E as follows: "E. Provide manufacturer's standard pre-engineered elevator systems that will comply with or fulfill the requirements of elevator description in this Section or at manufacturer's option, provide custom-manufactured engineered elevator systems that will fulfill requirements. Where components are not otherwise indicated, provide standard components published by manufacturer as included in standard pre-engineered elevator system and as required for a complete system."
Section 230000 HVAC	1. Paragraph 2.17 TERMINAL HEATING UNITS (ELECTRIC), Add Sub-Paragraph B as follows: "B. ELECTRIC DUCT HEATING COILS (EDC) 1. Electric Duct Heating Coils: Provide electric duct heating coils with automatic reset thermal cutouts for primary over-temperature protection and with load-carrying manual reset thermal cutouts, factory-wired in series with each heater stage, for secondary protection. Include overcurrent cutouts and sub-circuit fusing in assembly. Select coils with the following additional construction features: 2. Finned Tubular Electric Coils: Construct coils with resistance wire of 80% nickel/20% chromium, installed in copper plated steel tubing and surrounded by compacted magnesium-oxide powder. Provide spiral-wound copper plated steel fins brazed continuously to tubes. 3. Heating Capacity: Size coils head on ratings of the required output (BTUH), electrical input (watts, voltage, phase) and CFM. 4. Manufacturers: Subject to compliance with requirements, provide duct heating coils of one of the following: a. Berko Electric Mfg. Div.; Weil-McLain Co., Inc. b. Chromalox Div.; Emerson Electric Co. c. Federal Pacific Electric Co. d. INDEECO. e. or Equal."
Section 230000 HVAC (Continued)	2. Paragraph 2.30 AUTOMATIC TEMPERATURE CONTROLS (DDC), Sub-Paragraph A, Sub-sub paragraph 3: DELETE in its entirety and REPLACE with the following: "3. Provide all required control wiring including CAT6 Ethernet wiring for any controllers requiring Ethernet connectivity. Terminate Ethernet cable in MDF and IDF closets on patch panels proceed under Technology Section 270000. a. Install an open-protocol (BACNet) energy management system (EMS) to monitor and trend energy and flow consumed by the following systems throughout the building. 1) HVAC Systems. 2) Hot and cold domestic water systems. 3) Main electric service meter. 4) Gas meters."

Section 260000 Electrical	1. Paragraph 1.4 WORK INCLUDED IN THIS SECTION, Sub-Paragraph B, DELETE Sub-sub paragraph 23 and REPLACE with the following: "23. Integrated Electronic Security System IESS, provisions including 120 volt power sources, cable tray, raceways and backboxes for security systems as shown on drawings and specified in SECTION 280000." 2. Paragraph 1.4 WORK INCLUDED IN THIS SECTION, Sub-Paragraph B, ADD Sub-sub Paragraphs 24 and 25 as follows: "24. Two – Way Communications Call Box System. 25. Distributed Antenna System." 3. Paragraph 2.15 STANDBY ELECTRICAL SYSTEM, Sub-Paragraph J, Sub-sub Paragraph 1: DELETE, "120/208 volts, 3 phase, 4 wire operation" and REPLACE with, "277/480 volts, 3 phase, 4 wire operation." 4. Paragraph 2.27 DISTRIBUTED ANTENNA SYSTEM to be ADDED to Part 2 as follows: **2.27 DISTRIBUTED ANTENNA SYSTEM** A Summary 1. This specification describes the criteria for deploying a Public Safety Radio Distributed Antenna System (DAS). The DAS components specified in this document include: Bi-Directional Amplifiers (BDA), Donor Antennas, Coverage Antennas, Coax Cable, Coax Connectors, Splitters, Combiners and Couplers. These devices shall be used as part of a system, by the DAS integrator, experienced with designing projects for in-building, public safety, 2-way radio systems. 2. The system specified is based upon TX/RX Systems Bird Technologies Group RescueLine Signal Booster and represents the performance standard upon which any equivalent solution shall be based. It shall be the integrator's responsibility to base the design on the frequency ranges used by both the local Police and Fire departments. The system provided shall meet NFPA 72, 2010, Chapter 24 and Annex A and Massachusetts CMR 780, 403-6, Section 1 codes and shall be designed as such. It shall include a true, integrated battery backup unit which is serially connected to the main BDA system. B. Abbreviations and Acronyms 1. ACG: Automatic Gain Control 2. AHJ: Authority Having Jurisdiction 3. ATP: Acceptance Test Plan 4. BDA: Bi-Direction Amplifier 5. BOM: Bill-of-Material 6. DAS: Distributed Antenna System 7. EBS: Educational Broadband Service 8. ESMR: Enhanced Specialized Mobile Radio 9. FCC: Federal Communications Commission 10. GUI: Graphical User Interface 11. LMR: Land Mobile Radio 12. MTBF: Mean Time Between Failure 13. NFPA: National Fire Protection Association 14. NMS: Network Management System 15. PSN: Public Safety Network 16. RoF: Radio-over-Fiber 17. RSL: Received Signal Level 18. SMR: Specialized Mobile Radio 19. SMS: Short Message Service 20. SNIR: Signal-to-Noise Interference Ratio 21. SOW: Statement of Work 22. VSWR: Voltage Standing Wave Ratio

Section 260000 Electrical (Continued)	C. Definitions 1. Acceptance: Expressed approval by the AHJ and Owners representative D. General Description 1. The building shall be both pre and post tested for fire and police department radio signal strength. A test shall be scheduled with the Fire Department and Police Department. Any expense incurred by the test shall be the responsibility of this trade Contractor. 2. A site survey to determine the RF signal strength on or near the building grounds to determine the level of amplification necessary to provide clear and reliable radio communications over 95% of the overall area inside the building will be required. 3. The Fire/Police Department radio test shall check the signal reception in several locations on the floor area. Signal strength shall be for clear reception throughout the building utilizing the type of hand held radio unit that is used by the Fire and Police Department. Quantity of test locations shall be determined and conducted by the local department representative. Each floor of the building shall be divided into a grid of approximately twenty (20) equal areas. A maximum of one (1) area will be allowed to fail the test per floor. A spot located approximately in the center of a grid area will be selected for the test. Once the spot has been selected, prospecting for a better spot within the grid area will not be permitted. Field strength testing instruments are to be recently calibrated (1 year) and of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand held transceivers. 4. Required Signal Levels: a. Signal strength shall be for clear reception throughout the building utilizing hand held radio units of the type(s), which are used by the Fire/Police Department. Signal strength testing shall follow TSB-88 standards using delivered audio quality measurements (DAQ). b. A minimum signal strength of –95 dBm (DAQ4) shall be available on over 95% of the floor area required to be covered when transmitted from the fire department. c. A minimum signal strength of –95 dBm (DAQ4) shall be received at the fire department system from over 95% of the floor area required to be covered. 5. Required Broadcasting Frequency: a. Frequency to be compatible with Fire and Police Department equipment. b. The building Owner will be responsible for keeping the operational frequencies of the BDA compatible with the Fire and Police Department radio system. 6. The bi-directional antenna type system shall consist of the following components: a. Bi-directional radio amplifier b. Plenum rated coaxial cable c. Antennas (internal and external) d. Terminators e. T-taps (if required) f.Other components and interconnecting circuitry g. Battery Backup NFPA Compliant unit (not UPS system) h. Connect power supply to emergency circuit 7. It is the intent of these specifications that where a BDA system is required, a complete fully functioning system shall be installed, approved and tested before an Occupancy Permit is issued. 8. Areas req**uiring** coverage include stairwells corridors, hallways, and other areas designated by the Fire Marshall and/or the Authority Having Jurisdiction (AHJ). 9. The contractor shall coordinate with the Fire Marshall's office and Police Department Communications Division to obtain the correct frequencies and other similar information necessary to deploy a complete and fully operational system at this location.

Section 260000 Electrical (Continued)	10. Expansion: Without replacing or adding to the Infrastructure, the system shall have expansion capabilities to support the addition or changes of radio frequencies and future building renovations. Any additional Components required for system expansion shall comply with all specifications of this Section. 11. Alarming: The BDA shall include the following outputs which shall interface to the fire alarm system: a. Signal booster malfunction alarm b. Loss of AC Power Alarm c. Low Battery Alarm d. Antenna Circuit Malfunction e. Charge Failure Alarm 12. Coordinate the installation of these alarms with the fire alarm contractor. 13. Antenna locations as shown on the drawings are approximations. The system provider is responsible for locating the in-building antennas and the donor antenna required by the equipment selected, proposed design and the design criteria. E. Design Submissions: 1. This trade contractor shall complete a Fire Alarm Permit Application acquired from the Fire Prevention Division stating a “BDA” installation. 2. Plan Review: Provide one line, schematic and detail drawings of the proposed system architecture. Indicate proposed locations for system components. Provide specifications for procurement and installation of a complete system for review by the Fire Department and all other agencies and authorities having jurisdiction (included will be operational frequencies). 3. Testing and Commissioning: Coordinate the completion date of the Fire Department radio signal repeater system so as to permit a Certificate of Occupancy to be obtained in a timely manner, in accordance with a schedule established by the Owner’s project manager. 4. The entire system shall meet with the approval of the Fire Department and all other agencies and authorities having jurisdiction before a Certificate of Occupancy will be issued. F. Quality Assurance 1. Qualifications: The Installer shall employ NICET certified technicians. G. Codes, Standards and Certifications 1. All work, including but not limited to: cabling, pathways, support structures, wiring, equipment, installation, workmanship, maintenance and testing shall comply with the latest editions of the National Fire Protection Association (NFPA), National Electrical Code, National Electrical Safety Code, all applicable local rules and regulations, equipment manufacturer's instructions, and the National Electrical Sub-Contractors’ Association (NECA) Standard of Installation. In case of discrepancy or disagreement between the documents noted above, the contractor shall satisfy the most stringent requirements. 2. Requirements set forth by first-responder code, ordinance, or the AHJ shall supersede the requirements described herein and shall be met in their entirety. It is the Contractor’s responsibility to ensure that the system complies with local code, ordinances or requirements established by the PSN AHJ. H. Requirements 1. WSP DAS: a. On a per channel basis, the downlink RSL for each frequency band shall meet or exceed Design Audio Quality (DAQ) testing criteria. b. Prior to installation, contractors shall confirm the channel count, loading and frequencies use in the serving area, and shall guarantee coverage for these channels per DAQ 3.4t criteria. The complete list shall be included as part of the contractors submittal.

Section 260000 Electrical (Continued)	c. The DAS shall deliver coverage throughout 95% of the building, and 100% of areas designated as critical. Coverage areas shall include stairwells, elevators, and underground spaces. d. The system shall be housed in a NEMA 4 cabinet and shall include 24 hour battery backup. e. The system shall maintain maximum required output power while preventing excessive emissions per FCC requirements. l. Submittals 1. The contractor, prior to beginning the on-site installation, is required to submit, for approval by the Owner, a complete list of the proposed equipment with a system diagram showing how the various components are interconnected and their function. Included in the submittal shall be: a. Product Data: Submit manufacturer datasheets for the following components: 1) Bi-Directional Amplifiers (BDA) 2) Donor and Coverage Antennas 3) Coaxial Cable and Connectors 4) Splitters, Combiners and Couplers b. Shop Drawings: Submit the following items: 1) RF site survey results 2) System overview and riser diagram. 3) Overlay of system components on floor plans. 4) Donor Antenna lightning suppression and grounding details c. Statement of Work (SOW): Submit a brief description of the DAS integrator role and responsibilities on this project. At a minimum, the services included shall be to perform the RF survey, systems design, test, optimization and commissioning of the DAS system d. Acceptance Test Plan (ATP): Submit a proposed ATP including cable testing reports. At a minimum, testing requirements shall be design to satisfy requirements of section 3.02 e. Warranty Documents 1) Submit for all manufactured Components specified in this Section. 2) Submit Contractor's System Warranty. 2. Submittal Requirements at Close Out a. Drawings: Submit as-built drawings indicating: 1) A final, signed copy of all previously submitted documents reflecting the final, as-built representation, equipment used and details 2) Cable routing, splitters, couplers and coverage antenna final locations 3) Active component locations, layout, configuration and programmed parameters b. Test Reports 1) Submit Accepted ATP reports confirming the requirements of Section 1.07 have been met. c. Field Reports: Submit sweep-testing results for all cable runs. d. Field Reports: Submit OTDR test results for all fiber runs. e. Operation and Maintenance Data: Submit hardware and software manuals for all Active Components. f. Warranty Documents: 1) Submit for all manufactured components specified in this Section. 2) Submit Contractor's System Warranty.

Section 260000 Electrical (Continued)	J. Warranty 1. Contractor shall warranty that the BDA equipment furnished shall be free from defects of material for a period of 5 years, beginning on the date of substantial completion, excluding specific items of work that require a warranty of a greater period that may be set forth in this Specification. The battery backup unit may carry a standard 1 year warranty. Include any costs necessary to extend the BDA warranty to 5 years. 2. Contractor shall warranty that all other materials furnished shall be free from defects of material for a period of 1 year, from the date of Substantial Completion, excluding specific items of work that require a warranty of a greater period that may be set forth in this Specification. Contractor shall warranty the workmanship for a period of 1 year, from the date of Substantial Completion, excluding specific items of work that require a warranty of a greater period that may be set forth in this Specification. Contractor shall warranty the system's performance for a period of 1 year, from the date of Substantial Completion, excluding specific items of work that require a warranty of a greater period that may be set forth in this Specification. Immediately upon receipt of written notice from the Owner, the Contractor shall repair or replace at no expense to the Owner, any defective material or work that may be discovered before final acceptance of work or within the warranty period; any material or work damaged thereby; and adjacent material or work that may be displaced in repair or replacement. Examination of or failure to examine work by the Owner will not relieve Contractor from these obligations. 3. Manufacturer Warranty: a. Splitters, Couplers, Coverage Antennas, Coaxial Cable and Connectors: Standard manufacturer's warranty. c. Fiber-Optic Cable and Active Components: Standard. K. DAS System Integrators 1. SimplexGrinnell 2. Worad, Inc. 3. Comtronics 4. Applied Communications Services, Inc. 5. Or equal. L. Manufacturers 1. Specified BDA Manufacturers: 2. TX/RX- Bird Electronics 3. CommScope/Andrew 4. Cellwave Inc. 5. Or equal. M. General 1. System shall be completed with all components and wiring required for compliance with all applicable codes and regulations, and for its operation as described hereinafter. No exclusion from or limitation in the symbolism used on the drawings or the language used in these specifications shall be interpreted as a reason for omitting any appurtenances or accessories required to enable the system to perform the specified functions. 2. Upon completion of the installation, the work shall include making all arrangements with the OPM and providing any assistance necessary for inspection and test required for approval by the Fire Department. Modifications, adjustments and/or corrective work necessary to obtain approval along with subsequent inspection and test resulting from the issuance of a "Notice of Defect" shall precede any consideration of formal acceptance by the building Owner. In conjunction with the above, training as deemed necessary to instruct authorized building personnel in the proper operation of the system shall also form a part of the required work. Provide four hours of training.

Section 260000 Electrical (Continued)	N. Power Supply 1. The central equipment shall be supplied with an emergency power unit including batteries and battery charging equipment that maintains this cabinet and all outlying equipment that requires power operation without any change in status for a minimum period of twenty-four (24) hours. The emergency power units(s) shall be sized to meet the following minimum requirements: operating in normal (supervisory) mode, twenty-four (24) hours, followed by twelve (12) hours of emergency operation. Batteries shall be of the sealed maintenance free type. 2. System design shall be such that neither the failure of the normal power source, the transfer to an emergency source, nor the retransfer to the normal source shall cause a change in system status. 3. Serially connected battery backup. O. Equipment Location and Protection 1. Secured Space: The bi-directional radio amplifiers shall not be located in electric closets. They shall be located in a suitable non-finished space as approved by the engineer and/or where specifically shown on the drawings. The entrance to the secured space shall clearly identify the space as having the " Fire Department" radio signal repeater equipment, by the use of an attached engraved nameplate. 2. Unsecured Space: The bi-directional amplifiers shall be provided with NEMA 4 enclosures, hinged lockable doors, electric supervision against unauthorized access and the removal of any components, and shall each have an attached engraved nameplate identifying the unit. 3. The bi-directional amplifier shall be supplied with cavity style filtering in order to minimize unwanted frequencies from entering the amplifier. Cavities shall be tuned to the frequencies provided by the Fire Department. Cavity filters will be housed to allow access by technicians, but will be protected from tampering, or accidental damage. 4. The bi-directional amplifier shall contain automatic limiting control circuitry to avoid producing overdriven outputs from the amplifier. P. Maintenance 1. Inspection and Test: Provide all material and labor to test system by verifying operation of the system throughout the building. Adjust to provide optimum system performance. Parts and labor for repairs and/or replacements is excluded. Q. Components 1. Yagi Donor (Outdoor) Antennas: a. Electrical: 1) Frequency band: In accordance with Police/Fire Department requirements 2) Bandwidth > 1.5 VSWR: 20 3) Gain: ≥ 10 dB 4) Maximum input power: 250 watts 5) Vertical Beamwidth: 44 Deg. 6) Front-to-back ratio: ≥ 16 dB 7) Impedance: 50 Ω 8) Beamwidth, Horizontal, degrees: 60 9) Azimuth Pattern: As proposed by the manufacturer to meet the specifications in this Section. b. Mechanical: 1) Connector: 50 Ω N Type Female 2) Mounting: Pole

Section 260000 Electrical (Continued)	c. Environmental: 1) Temperature: -40 ℃ to +60 ℃ 2) Lighting protection: Direct ground 3) Waterproof level: IP 66 4) Wind Speed, maximum: 125 mph 5) Wind Load: 0.45 sq. ft. 2. Bi-Directional Amplifier (BDA): a. Characteristics 1) Frequency: As determined by Police & Fire Department requirements 2) Gain: +80dB maximum 3) Programmable Gain adjustment attenuation, 0-30dB, 0.5 dB steps 4) Maximum Output Power: + 32 dBm 5) Noise Figure: 8 dB maximum 6) Operating Temperature Range: -30 ℃ to +50 ℃ 7) Chassis: Shall be capable of rack or wall mounting by the DAS integrators design. 8) Filtering: Digital. 9) Separate Control: Each RF amplifier shall be capable of adjusting and controlling power levels for each WSP when multiple WSPs share a single amplifier. 10) FCC Part 90.219 Type Classification: Class A. 11) Alarming: Dry contacts for remote alarms. 12) Mounting Options: shall support rack, wall and pole mounting. 13) Power Consumption: less than 100VA b. Compliance: 1) NFPA: The BDA shall comply with NFPA-1 2009 edition Annex O In-Building Public Safety Radio Enhancement Systems. 2) FCC: Shall be FCC type certified. 3. Air Dielectric, Plenum Rated Cable: a. Material Characteristics: 1) Jacket: Halogenated, Fire-Retardant, Plenum rated. 2) Outer Conductor Material: Corrugated Aluminum or Corrugated Copper. 3) Inner Conductor Material: Copper-Clad Aluminum Wire. b. Electrical Characteristics: 1) Impedance: 50 ± 2.0 Ω 2) Frequency Band: 1 - 8800 MHz 3) Peak Power Rating: ≥ 40.0 kW c. Mechanical Characteristics: 1) Diameter Over Jacket: ≤ .627 in 2) Minimum Bending Radius: ≤ 5 in 3) One Time Minimum Bending Radius: ≤ 3 in 4) Standard Conditions: VSWR 1.0, ambient temperature 20 ℃ (68 ℉) 4. Foam Dielectric Cable: To be used for donor antenna and outdoors. a. Material Characteristics: 1) Jacket: Non-halogenated, Fire-Retardant Ployolefin. 2) Outer Conductor Material: Corrugated Copper. 3) Inner Conductor Material: Copper-Clad Aluminum Wire or Copper Tube.

Section 260000 Electrical (Continued)	b. Electrical Characteristics: 1) Impedance: 50 ± 1.0 Ω 2) Frequency Band: 1/2" Nominal: 1 - 8800 MHz, 7/8" Nominal: 1 - 5000 MHz 3) Peak Power Rating: ≥ 40.0 kW c. Mechanical Characteristics: 1) Dia. Over Jacket: 1/2" Nominal: ≤ .630 in, 7/8" Nominal: ≤ 1.1 in. 2) Min. Bending Radius: 1/2" Nominal: ≤ 5 in, 7/8" Nominal: ≤ 10 in. 3) One Time Min. Bending Radius: 1/2" Nom. ≤ 2 in, 7/8" Nom. ≤ 5 in. d. Attenuation Characteristics: 1/2" Nominal 1) Frequency (MHz) Attenuation (dB/100ft) 450 ≤ 1.447 2) Standard Conditions: VSWR 1.0, ambient temperature 20℃ (68℉) e. Attenuation Characteristics: 7/8" Nominal: 1) Frequency (MHz) Attenuation (dB/100ft) 450 ≤ .744 2) Standard Conditions: VSWR 1.0, ambient temperature 20 ℃ (68 ℉) 5. Fiber-Optic Master Unit: Active fiber system, the Fiber- Optic Master Unit shall convert radio over coax to Radio-Over-Fiber (RoF) for distribution to Fiber-Optic Remote Units. a. Characteristics 1) Transmission Media: Single-mode fiber at 1310 nm 2) Operating Temperature Range: +5℃ to +40℃ 3) Impendence: 50 Ω 4) Chassis: a) Shall be of modular design capable of supporting ≥ 32 Remote Units per 19", 4 RU chassis. b) Shall support redundant power supplies. c) Shall have the capability to remotely power the Remote Units via composite fiber-optic cable. b. Automatic Gain Control (AGC): Shall provide AGC for optical loss compensation. c. Optical Budget: Shall support ≤ 3 dB optical budget (~3 km or 2 miles) d. Auxiliary Channel: Shall provide an input to support 400 to 2700 MHz for future expandability. e. Interlink: Shall support one fiber or two fibers bi-directional optical link for distances up to 20 km with a 10 dB optical budget. f. Remote Supervision: 1) Shall support the TCP/IP protocol, SNMPv2, FTP, HTTP, Telnet, and be fully compatible with general purpose SNMP managers. 2) Remote access shall be available via Point-to-Point Protocol (PPP), over circuitswitched/ packet data and wired/wireless modems. 3) Each Active device shall be manageable via a Web GUI 4) Auto Mapping: Each board position shall be automatically mapped during system turn-up. g. Frequency Bands Supported: 800 MHz PSR. R. Installation 1. The Contractor shall install the DAS in accordance with the integrator's instructions and recommendations.

Section 260000 Electrical (Continued)	2. Cable and Equipment a. Installation shall include the delivery, unloading, setting in place, fastening to walls, floors, ceiling, or other structures and where required, penetration fire-stop, interconnecting wiring of the system components, equipment alignment and adjustments, and all other work whether or not expressly required herein which is necessary to result in complete operational system. b. All installation practices shall be in accordance with, but not limited to, these specifications and drawings. Installation shall be performed in accordance with the applicable standards, requirements and recommendations of National, State, and Local Authorities having jurisdiction. All distributed antenna cables shall be installed such that the cables are straight as possible. c. During the installation, and up to the date of final acceptance, the integrator shall be under obligation to protect his finished and unfinished work against damage and loss. In the event of such damage or loss, he shall replace or repair such work at no cost to the Owner. d. All equipment shall be properly mounted on equipment racks or walls and secured in place. Wall mounted equipment shall be mounted over a ½" plywood securely attached to the wall. e. Cables shall be properly supported with dedicated hangers or brackets. Cable trays shall be used only if they are dedicated low voltage trays and only with approval from the Owner. f. Fastenings and supports shall be adequate to support their loads with a safety factor of at least three. g. All boxes, equipment, etc shall be secured plumb, level and square. h. In the installation of equipment and cable, consideration shall be given to operational efficiency and overall aesthetic factors. Antennas shall be centered and in-line with other ceiling mounted devices. i. All cables, regardless of length, shall be marked with cable markers reading "Public Safety Radio", at regular intervals but not less than every 30 ft. There shall be no unmarked cables at any place in the system. In addition, markings codes at each end of the cables and patch panels shall correspond to codes shown on drawings and/or run sheets. j. All cables the integrator installs must be handled in accordance with the manufacturers guidelines. Transmission line cables have minimum bending radius specifications that shall be followed. In the event a cable is kinked or bent excessively during installation that section of cable cannot be used, even if subsequently straightened. The damaged area of the cable shall be removed and a new section installed using correct splice methods. Ultimately the cable must pass the testing and meet the manufacturers requirements. k. Radio communications cabling shall not be grouped with electrical cabling. It can only share sleeves and raceways with other low voltage data and communications cables. l. Connection between cables and other antenna components shall use N-Type premium connectors. No splicing is permitted. m. All power dividers shall be securely mounted in place by bolting the mount to a solid surface or securing each by suspension on the cables within 4 inches of each connector termination at the power divider. The transmission lines connecting to the device shall be routed in the shortest possible path.

Section 260000 Electrical (Continued)	S. Grounding Procedure 1. In order to minimize problems resulting from improper grounding, and to achieve maximum signal-to-noise ratios, the following grounding procedures shall be adhered to. 2. System Ground: A signal primary “system ground” shall be established for the system. All grounding conductors in that area shall connect to this primary system ground. The system ground shall consist of a copper bar of sufficient size to accommodate all secondary ground conductors. An extension of the ground shall connect to the buildings lightning protection system per the direction of the on-site electrical engineer. 3. A copper conductor, having a maximum of 0.1 Ohms total resistance, shall connect the primary system ground bar to the primary system ground ring. 4. Secondary system grounding conductors shall be provided from all racks, radio consoles, and undergrounded radio equipment in each area, to the primary system grounding point for the area. Each of these grounding conductors shall have a maximum of 0.1 Ohms total resistance. 5. Under no conditions shall the AC neutral conductor, either in the power panel or in receptacle outlets, be used for a BDA system ground. 6. Radio cable Shields: All radio cable shields shall be grounded at both ends. 7. General: Because of the great number of possible variations in grounding systems, it shall be the responsibility of the installer to follow good engineering practice, as outlined above, and to deviate from these practices only when necessary to minimize crosstalk and to maximize signal to- noise ratios and reduce interference in the radio systems. T. Cable and Conduit 1. Note the following circuitry requirements: a. Conduit intended for use with the firefighter’s communication bi-directional radio amplifier system shall be steel electric metallic tubing (EMT), except as follows: 1) It shall be galvanized steel intermediate conduit where mounted within 8’-0” of the floor in mechanical spaces or otherwise exposed to mechanical damage, or where intended for embedment in concrete. 2) It shall be galvanized steel intermediate conduit if local authorities prohibit use of EMT. 3) It shall be rigid galvanized steel conduit for the power supply to the central equipment and to all outlying equipment cabinets requiring a 120-volt or 120/208- volt supply. b. Where wires and cables are permitted to be run without conduit, they shall be independently supported from the building structure or ceiling suspension systems at intervals not exceeding four feet on center, utilizing cable supports specifically approved for the purpose. Wires and cables shall not rest on or depend on support from suspended ceiling media (tiles, lath, plaster, as well as splines, runners or bars in the plane of the ceiling), nor shall they be supported from pipes, ducts or conduits. Bundling and/or supporting ties shall be of a type suitable for a ceiling air handling plenum regardless of whether or not installed in a plenum. c. Cables shall be tagged or labeled at each termination point and in each intermediate junction box, pull box or cabinet through which they pass, as well as intervals not exceeding 50 feet on centers where cables are run without conduit. d. Comply with applicable building and electrical code requirements for locating and routing circuitry, for installing circuitry, and for fire stopping.

Section 260000 Electrical (Continued)	e. The covers of all dedicated junction, pull boxes shall be painted red and labeled "Fire Dept. Radio System". Junction and pull boxes will not be shared with other systems. f. Cables other than radiating coaxial cables shall be run in conduit where indicated by the Engineer. Where not indicated, cable shall be installed per manufacturer's recommendation. Conduit shall be electric metallic or threaded conduit subject to the restrictions specified elsewhere for light and power circuitry. g. Radiating coaxial cables shall be run without conduit. Where installed in a plenum type ceiling cable insulation shall be of a fire-resistant low-smoke producing type, with a minimum rating of CATVR. This classification shall be clearly marked on the outer surface of the cable at regular intervals. U. Acceptance Testing 1. Submit certification that system is compatible with Fire Department radio systems prior to installation. 2. Verify proper operation of system by means of field test with: 3. Fire Department requirements, and include all adjustments and modifications to the system required for proper operation. Coverage of each floor of the building to a minimum of 95% is required for acceptance. 4. No activation, or power up of any RF equipment is permitted without first obtaining permission of the Fire Department. This includes any testing or calibration. 5. The contractor shall complete the acceptance testing as prescribed in the approved Acceptance Test Plan (ATP) submittal. 6. Acceptance Test Procedure: Upon completion of installation, the building Owner will have the option to participate in the radio system tested to ensure that two-way radio coverage on each floor of the building is a minimum of 90 percent. and be tested as follows: 7. Each floor of the building shall be divided into a grid of 20 or more, approximately equal areas. No two test locations shall be greater than 50 ft apart. 8. The test shall be conducted using a calibrated portable radio of the latest brand and model used by the agency talking through the agency's radio communications system. 9. No area designated as critical and no two adjacent areas shall be allowed to fail the test. 10. In the event that any three non-adjacent, non-critical areas fail the test, in order to be more statistically accurate, the floor may be divided into smaller areas. In the event that three noncritical, non-adjacent areas still fail the test, the contractor shall reconfigure the system to meet the 90-percent coverage requirement with no three adjacent areas failing. 11. A test location approximately in the center of each grid area shall be selected for the test by the public safety or Owner's representative, then the radio shall be enabled to verify two-way communications to and from the outside of the building through the public agency's radio communications system. Once the test location has been selected, that location shall represent the entire area. If the test fails in the selected test location, that grid area shall fail, and prospecting for a better spot within the grid area shall not be allowed. 12. The gain values of all amplifiers shall be measured and the test measurement results shall be noted on the as-built drawings and the O&M manuals so that the measurements can be verified during annual tests. 14. As part of the installation a spectrum analyzer or other suitable test equipment shall be utilized to insure spurious oscillations are not being generated by the subject signal booster. This test shall be conducted at time of system acceptance.

Section 280000 Integragted Electronic Security System	1. Paragraph 2.4 MISCELLANEOUS CABLING SYSTEMS, Sub-paragraph A: DELETE in its entirety and REPLACE with the following: "A. The Owner's security vendor will furnish, install and terminate all security field devices for intrusion, access control, and CCTV IP Camera Systems. Provide all cabling per manufacturer's recommendations for a completely operations system as specified." 2. Paragraph 2.4 MICELLANEOUS CABLING SYSTEMS, Sub-paragraph B, Sub-sub paragraph 1.a: DELETE the words "and terminate." 3. Paragraph 2.4 MICELLANEOUS CABLING SYSTEMS, Sub-paragraph C, Sub-sub paragraph 1: REPLACE "Run" with "Provide".

Drawing No.:	**Description:**
Landscape	
L1.1	Replace with the attached revised Drawing in its entirety.

Drawing No.:	**Description:**
Architectural	
A301, 302 & 303	Exterior Elevation Notes - Add Item #11 as follows: "11. The Painting Filed Sub-Bid Contractor shall field paint all exposed steel lintels at the window heads located in masonry."
A500	1. Details #20 & #21 - The Waterproofing Filed Sub-Bid Contractor shall furnish the vertical silicone transition flashing in conjunction with the air/water barrier system. The Metal Window Filed Sub-Bid Contractor shall tie-into silicone transition into the aluminum curtain wall system. 2. Details #2 & #2A - Add the following note: "The Painting Filed Sub-Bid Contractor shall field paint the exposed steel lintel at the window head."
A502	Detail #1 - Add the following note at the roof edge: "Provide copper closure trim to cover wood blocking at roof edge."
A800	Ceiling Type 1: Add Ceiling Type "1B" as follows: "CLG-1B: Same as CLG-1, except provide (2) coat veneer plaster on 5/8 inch thick gypsum substrate."
A901	1820 Courthouse: Revise the ceiling type tags for soffits to be "CLG-1B" in lieu of "CLG-1"

Drawing No.:	**Description:**
Mechanical	
General Note:	Drawing Notes for the following Drawings M101, M102, M103, M105, M106, M201, M202, M203, M204, M205, M206: ADD Note, "Within the existing courthouse the HVAC Contractor shall disconnect and make safe all existing HVAC related equipment, devices, and components such as existing boiler, condensate receivers, radiators, fans, pumps, piping, control wiring, pneumatic tubing, pneumatic compressors, thermostats, unit heaters, etc. The General Contractor shall remove and dispose of all equipment, devices, and components in a legal manner. HVAC Contractor to coordinate with General Contractor and field verify all necessary disconnects for a complete demolition/removal of all HVAC related appurtenances."
M102	1. Return Duct Revision, Refer to Sketch SKM-007.
M103	Supply Duct Revision, Refer to Sketch SKM-008.
M106	1. AHU-1 Location Revision, Refer to Sketch SKM-013. 2. AHU-4 Duct Connection Revisions, Refer to Sketch SKM-014.

Drawing No.:	Description:
Mechanical	
M301	1. Exhaust Fan Schedule: ADD note that reads, "Provide Magnetic Bearing Protection for EF-1 & EF-8." 2. Air Handling Unit Schedule: ADD note that reads, "All controls shall be provided by ATC Contractor, refer to specification for further info." 3. Radiant Heating Panels Schedule: REVISE note to read: "Selection based on "Price, 160° EWT, 20° WTD, 35% Propylene Glycol Concentration by weight. Refer to drawings for panel length. Confirm mounting locations with Architect. Provide end-cap trim on each side of panel for a continuous look wall-to-wall, provide mounting arm for RPLS models. Provide dual circuits with low-loss headers for panels that exceed 4 feet of head on pressure drop. Provide trim panels for seamless appearance." 4. Water Pumps Schedule: DELETE note in its entirety, "Hot & Chilled Water Pumps are sized for future training room addition, current design GPM's are 95 for chilled water & 90 for hot water." 5. Hot Water Boiler Schedule: DELETE note in its entirety, "Boiler Plant sized for future service of training room addition." 6. Sound Attenuator Schedule Revision, Refer to Sketch SKM-015.
M303	1. Typical Variable Air Volume Duct Detail: ADD Note: "Provide 1 ½" acoustic liner a minimum of 10'-0" after VAV box outlet." 2. Typical Ceiling Mounted Displacement Diffuser Detail: REVISE, "DD-4 = 2'x2' Displacement Diffuser, DD-5 = 2'x4' Displacement Diffuser" to read, "Ceiling Displacement Diffuser."
M304	1. Typical Cabinet Unit Heater Piping Detail: ADD a strainer to the HHWS line between the ball valve & the control valve. 2. Single Circuit Radiant Heating Panel Piping Detail: ADD a strainer to the HHWS line between the ball valve & the control valve. 3. Typical Horizontal Unit Heater Piping Detail – Heating Hot Water: ADD a strainer to the HHWS line between the ball valve & the control valve. 4. Cabinet U.H. Ceiling-Type correction, Refer to Sketch SKM-009. 5. Additional Details, Refer to Sketch SKM-016.
M305	1. Refrigerant Piping Detail Addition, Refer to Sketch SKM-017. 2. AHU-1 Component Detail Addition, Refer to Sketch SKM-018. 3. AHU-2 Component Detail Addition, Refer to Sketch SKM-019. 4. AHU-3 Component Detail Addition, Refer to Sketch SKM-020. 5. AHU-4 Component Detail Addition, Refer to Sketch SKM-021.
M401	1. Generator Fuel Oil Controls Addition, Refer to Sketch SKM-010. 2. Misc. BMS Control Points Revision, Refer to Sketch, SKM-022.
M402	Special Archives Unit Text Revision, Refer to Sketch, SKM-023.
M403	Exhaust Fan Type III Control Addition, Refer to Sketch SKM-011.
M404	1. Weather Station Addition & Clarification, Refer to Sketch SKM-010. 2. AHU-4 Controls Text Revision, Refer to Sketch SKM-024. 3. AHU-4 Controls Diagram Revision, Refer to Sketch SKM-025. 4. AHU-4 VSD & Controller Revision, Refer to Sketch SKM-026. 5. AHU-4 BMS Points Revision, Refer to Sketch SKM-027.

Drawing No.:	Description:
Electrical	
E001	1. ADD to wall mounted carbon monoxide detector, "equal to System Sensor #CO1224T." 2. Incorporate the clarifications and/or revisions on the following sketch, SKE-022.

Drawing No.:	Description:
Electrical	
E003	1. Detail 3/E003: CHANGE fixture type to “SL3” in lieu of “SL2.” 2. ADD Detail 6/E003. Refer to Sketch SKE-013. 3. REVISE Note #7 to read “17”x30”x24D” in lieu of “17”x30”x12”D.” 4. Incorporate the clarifications and/or revisions on the following sketch: SKE-015.
E004	1. REVISE Detail 7/E004. Refer to sketch SKE-014. 2. REVISE Note on Detail 9/E004 to read, “17”Wx30”Lx24”D Hand hole. See Note #7, Dwg E003.”
E100	1. ADD an exit sign in Mechanical Room 005 at both doors to Corridor 000. Total of (2). 2. ADD a three-way switch at each entrance to the Electric/Generator Room 006. Total of (2). 3. CHANGE circuit number on fixture type “LSW4” in Stair A and B adjacent to Storage Room 001 and Storage Room 003. 4. CHANGE circuit number on fixtures in existing basement and connector that are on normal circuit “LP1-1” to “LP-5.” 5. ADD an exit sign in the connector into Archives 007. 6. ADD exit signs low voltage switch and change circuit to “LS8” fixture to “LP-5” in existing basement elevator lobby.
E101	1. CHANGE circuit number on fixture type “lSW4” in Stair A and B adjacent to Meeting Room 118 to “LP1-43” in lieu of “ELP1-3.” 2. CHANGE circuit of fixture “LSW4” to 43 in lieu of 5 adjacent to Woman’s Room 155. 3. CHANGE circuit “LP1-4” to circuit “LP-4” in existing building. 4. CHANGE low voltage switches in Woman’s Room 155 and Men’s Room 158 to key switches.
E102	CHANGE circuit number on fixture type “LSW4” in Stair A and B adjacent to Meeting Room 118 to “LP1-43” in lieu of “ELP1-3” shown on drawings.
E103	CHANGE circuit number on fixture type “LSW4” in Stair A & B adjacent to Meeting Room 215 to “LP1-43” in lieu of “ELP1-3.”
E104	Incorporate the following changes and/or revisions on the following sketch: SKE-019.
E203	Incorporate the following changes and/or revisions on the following sketch: SKE-020.
E301	1. REVISE feeder from UPS to panel “PCOP” from 3#2 & #1/O N & 2#8G, 2”C. to 3#2 & #1/0 N& 2#6G, 2C. 2. ATS-COP to be 200A/4P, 2477/480V, 3 phase, 4 wire. 3. ATS-OS to be 400A/4P, 277/480V, 3 phase, 4 wire. 4. Incorporate the following changes and/or revisions on the following sketch: SKE-012
E302	ADD to main switchboard schedule on Line 1 remarks column: “100% rated with GFI protection.”
E303	Incorporate the following changes and/or revisions on the following sketch: SKE-011.
E304	ADD Detail 3/E304 Distributed Antenna System DAS. Reissue sheet E304 in its entirety.
E405	Incorporate the clarifications and/or revisions on the following sketch, SKE-021.
FA001	Incorporate the clarifications and/or revisions on the following sketches: SKE-016 and SKE-017.
FA100	1. ADD smoke detector in Stair A. 2. ADD (3) smoke detectors in Room Archives 007. Refer to SKE-018. 3. Relocate pull station, speaker/strobe and add smoke detectors in existing building, refer to sketch, SKE-018.
FA101	Revise the following items: 1. DELETE speaker strobe in Room 127. 2. RELOCATE radio master box to Room 127 adjacent to fire alarm control panel (FACP). 3. REMOVE smoke detector in Room 128. 4. ADD weatherproof speaker/strobe in areaway. 5. ADD strobe only device in Room 142. 6. ADD smoke detectors at bottom of Stairs D & E.

Drawing No.:	Description:
Electrical	
FA102	1. REMOVE master box outside of Lobby 200. 2. ADD smoke detector in Secure Storage 241. 3. ADD strobe only device in Flex Office 207.
FA103	ADD smoke detector in Stair A.

Attachments:

SKA-004 First Floor Outlet/Diffuser Plan, dated 9/2/15.
SKA-005 Second Floor Outlet Plan, dated 9/2/15.
SKA-006 Third Floor Outlet Plan, dated 9/2/15.
SKA-007 Fourth Floor Outlet Plan, dated 9/2/15.

L1.1 Landscape Enlargement Plans, dated 9/2/15.

SKM-007 Return Duct Revision, dated 9/2/15.
SKM-008 Supply Duct Revision, dated 9/2/15.
SKM-009 Cabinet U.H. CLG-Type Correction, dated 9/2/15.
SKM-010 Generator Fuel Oil Controls Addition, dated 9/2/15.
SKM-011 Exh. Fan Type III Controls Addition, dated 9/2/15.
SKM-012 Weather Station Addition & Clarification, dated 9/2/15.
SKM-013 AHU-1 Location Revision, dated 9/2/15.
SKM-014 AHU-4 Duct Connection Revisions, dated 9/2/15.
SKM-015 Sound Attenuation Sched. Revision, dated 9/2/15.
SKM-016 Additional Details, dated 9/2/15.
SKM-017 Refrigerant Piping Detail Addition, dated 9/2/15.
SKM-018 AHU-1 Component Detail Addition, dated 9/2/15.
SKM-019 AHU-2 Component Detail Addition, dated 9/2/15.
SKM-020 AHU-3 Component Detail Addition, dated 9/2/15.
SKM-021 AHU-4 Component Detail Addition, dated 9/2/15.
SKM-022 Misc. BMS Control Points Revision, dated 9/2/15.
SKM-023 Special Archives Unit Text Revision, dated 9/2/15.
SKM-024 AHU-4 Controls Text Revision, dated 9/2/15.
SKM-025 AHU-4 Control Diagram Revision, dated 9/2/15.
SKM-026 AHU-4 VSD & Controller Revision, dated 9/2/15.
SKM-027 AHU-4 BMS Points Revision, dated 9/2/15.

SKE-011 Revised Mechanical Schedule, dated 9/2/15.
SKE-012 Revision to One Line riser Diagram, dated 9/2/15.
SKE-013 Revisions to Electrical Site Plan, dated 9/2/15.
SKE-014 Revised Electrical Site Details, dated 9/2/15.
SKE-015 Electrical Site Plan Revisions, dated 9/2/15.
SKE-016 Revised Fire Alarm Riser, dated 9/2/15.
SKE-017 Revised Fire Alarm Riser Diagram and Notes, dated 9/2/15.
SKE-018 Revised Basement Fire Alarm Plans, dated 9/2/15.
SKE-019 Revised Fourth Floor Lighting Plan, dated 9/2/15.
SKE-020 Revised Third Floor Power Plan, dated 9/2/15.
SKE-021 Revision to Drawing E405, dated 9/2/15.
SKE-022 Revision to Drawing E001, dated 9/2/15.

Sheet E304 Lighting Control Riser & Details, dated 9/2/15.

End of Addendum No. 3

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VIVEIROS WERENFELS
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1 FIRST FLOOR OUTLET/DIFFUSER LOCATIONS
1/8" = 1'-0"

PHASE II: PLYMOUTH TOWN HALL

PLYMOUTH, MA

TOWN OF PLYMOUTH

11 LINCOLN ST.
PLYMOUTH, MA 02360

NO	DATE	BY	DESCRIPTION
2	9/02/15		ADDENDUM 3

DATE: 09/02/15

DRAWN BY: MJ

JOB NO: 1420

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

FIRST FLOOR OUTLET/DIFFUSER PLAN

SKA004

BID AND CONSTRUCTION

DURKEE BROWN
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F 401 331 1945

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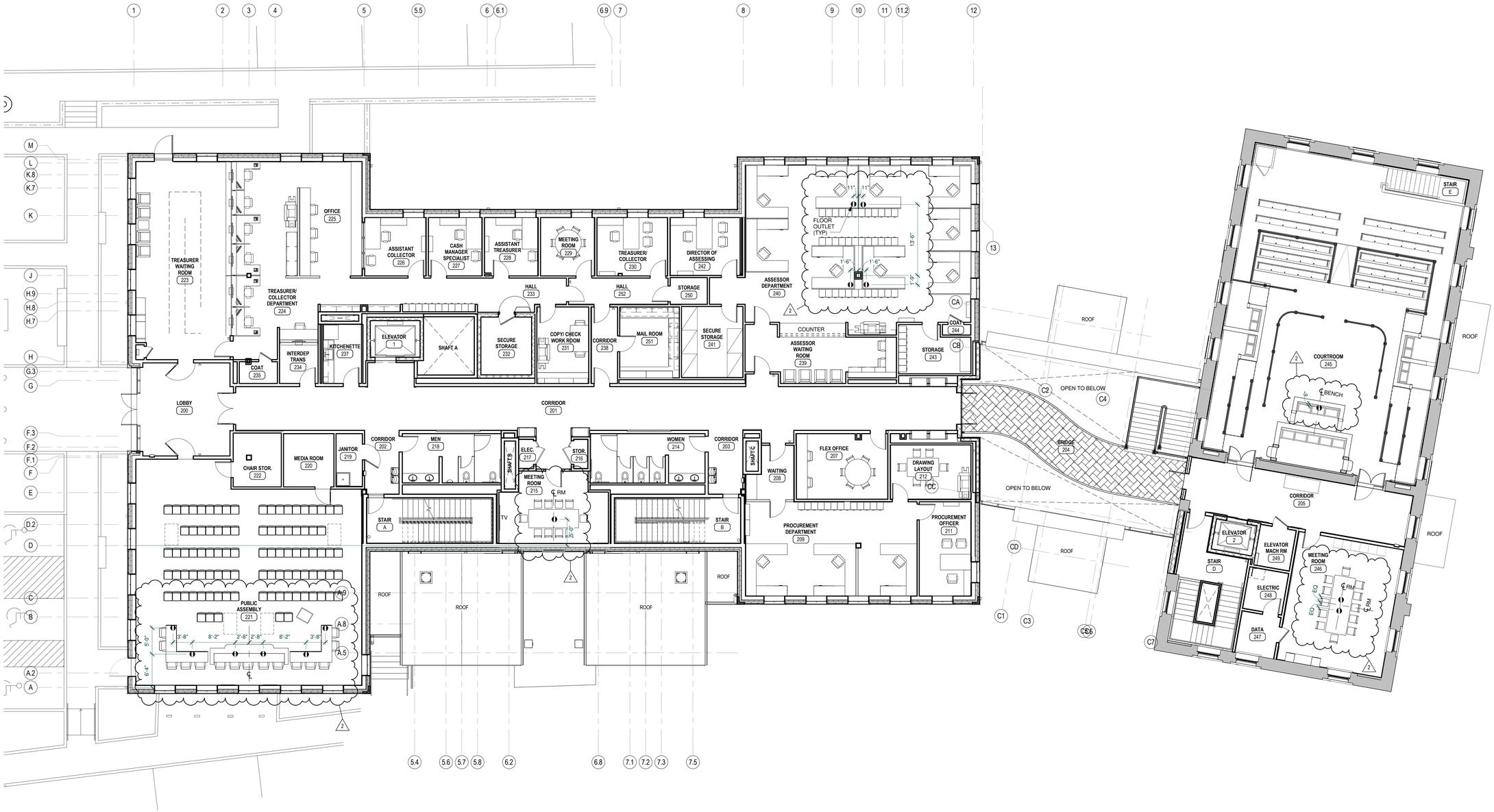

1 SECOND FLOOR FURNITURE PLAN Copy 1
1/8" = 1'-0"

PHASE II: PLYMOUTH TOWN HALL

PLYMOUTH, MA

TOWN OF PLYMOUTH

11 LINCOLN ST.
PLYMOUTH, MA 02360

NO	DATE	BY	DESCRIPTION
2	9/02/15		ADDENDUM 3

DATE: 09/02/15
DRAWN BY: Author
JOB NO: 1420
SCALE: 1/8" = 1'-0"

SECOND FLOOR OUTLET PLAN

SKA005

BID AND CONSTRUCTION

DURKEE BROWN
VIVEIROS WERENFELS
ARCHITECTS

T 401 831 1240
F 401 331 1945

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PROVIDENCE, RI 02903

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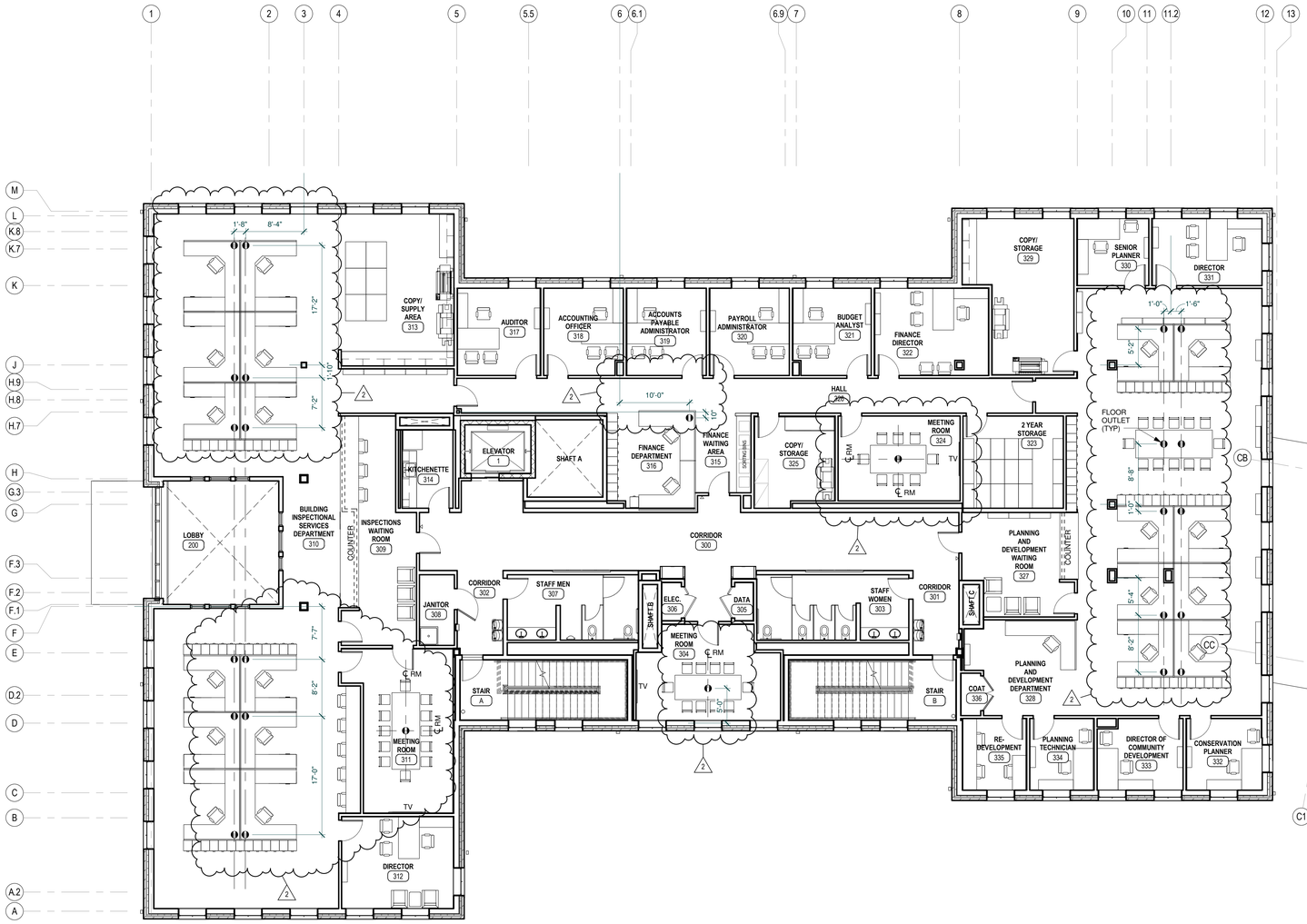

1 THIRD FLOOR OUTLET PLAN
1/8" = 1'-0"

PHASE II: PLYMOUTH TOWN HALL

PLYMOUTH, MA

TOWN OF PLYMOUTH

11 LINCOLN ST.
PLYMOUTH, MA 02360

NO	DATE	BY	DESCRIPTION
2	9/02/15		ADDENDUM 3

DATE: 09/02/15
DRAWN BY: Author
JOB NO: 1420
SCALE: 1/8" = 1'-0"

THIRD FLOOR OUTLET PLAN

SKA006

BID AND CONSTRUCTION

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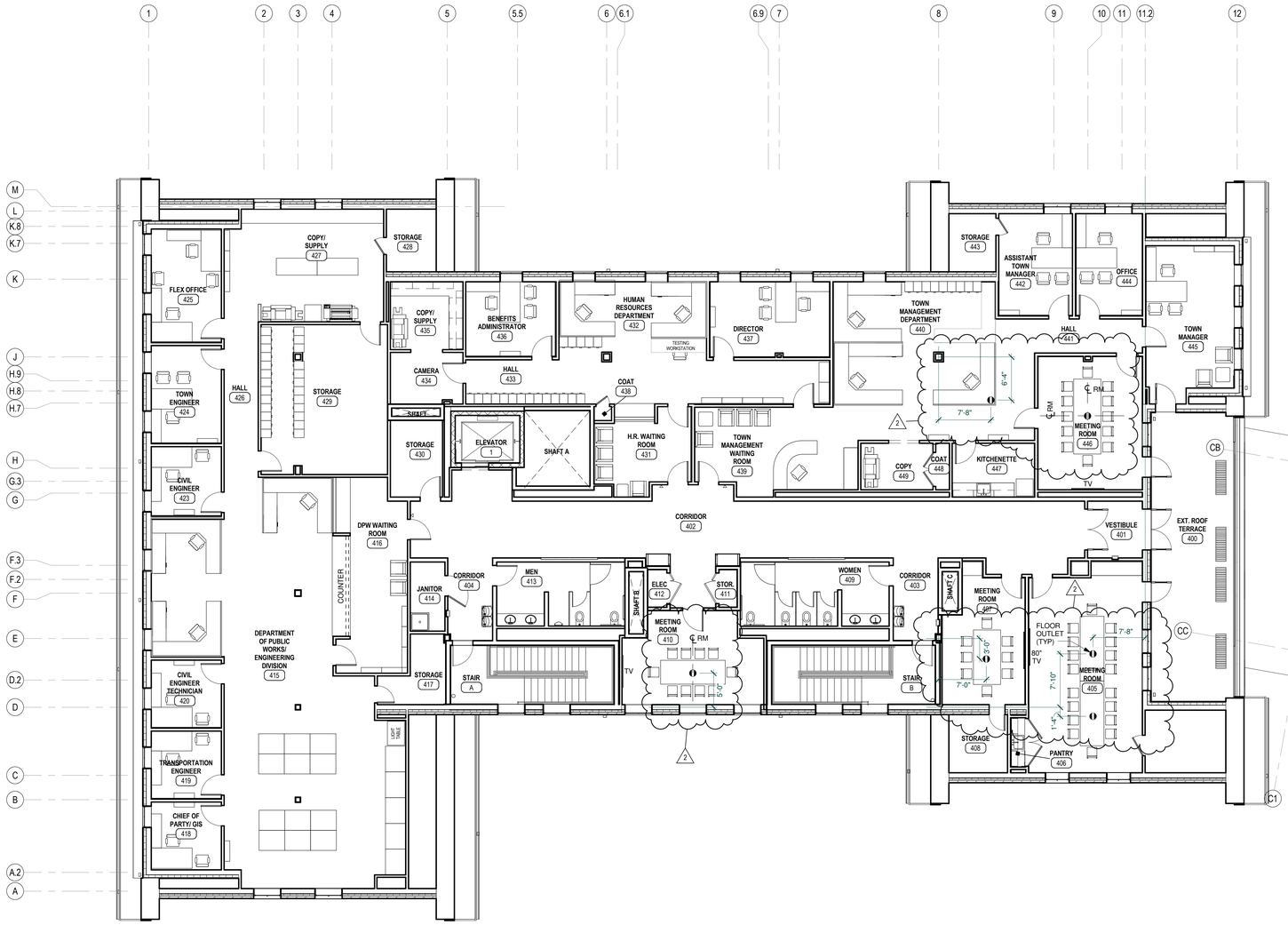


1 FOURTH FLOOR OUTLET PLAN
1/8" = 1'-0"

PHASE II: PLYMOUTH TOWN HALL

PLYMOUTH, MA

TOWN OF PLYMOUTH

11 LINCOLN ST.
PLYMOUTH, MA 02360

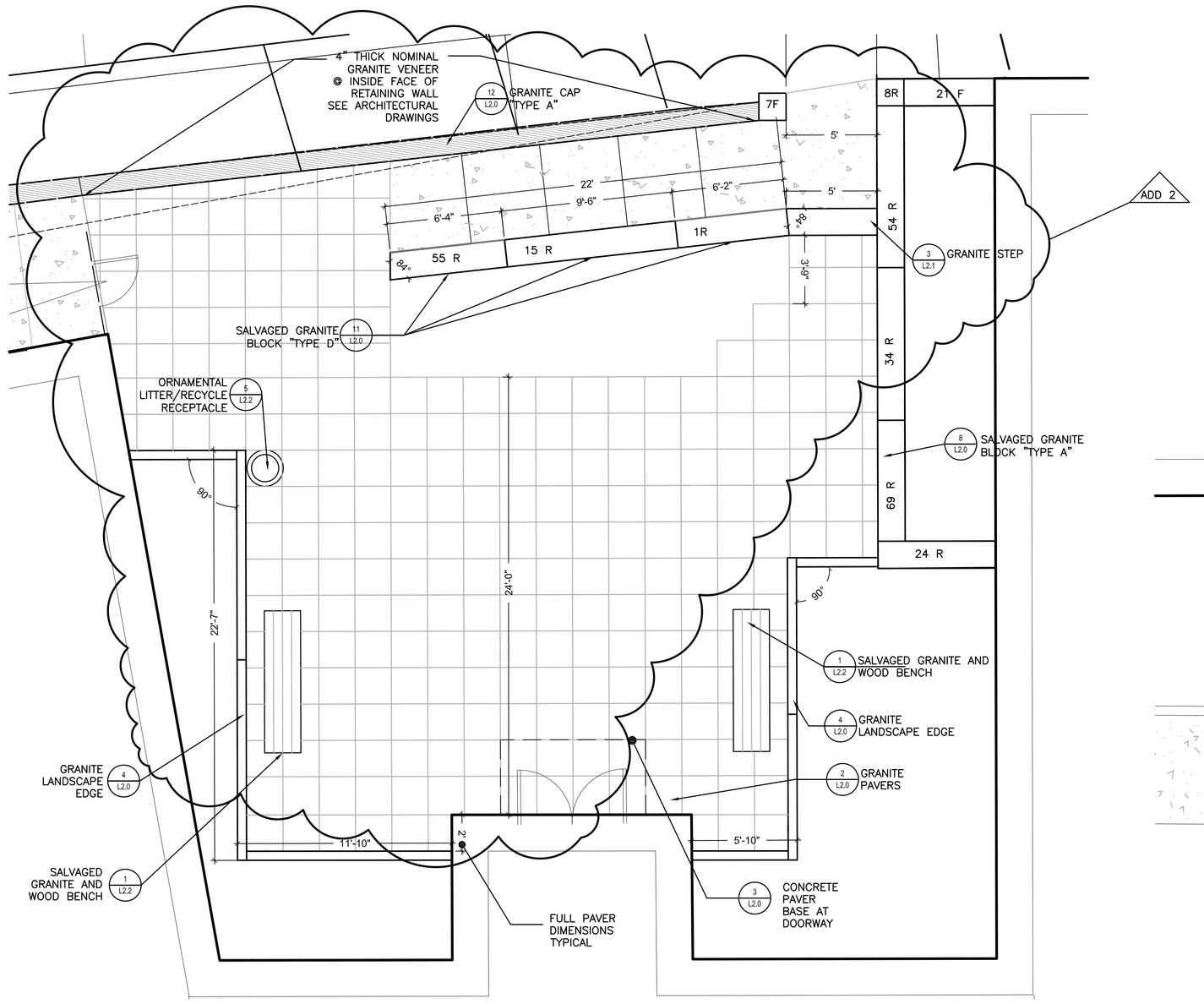
NO	DATE	BY	DESCRIPTION
2	9/02/15		ADDENDUM 3

DATE: 09/02/15
DRAWN BY: Author
JOB NO: 1420
SCALE: 1/8" = 1'-0"

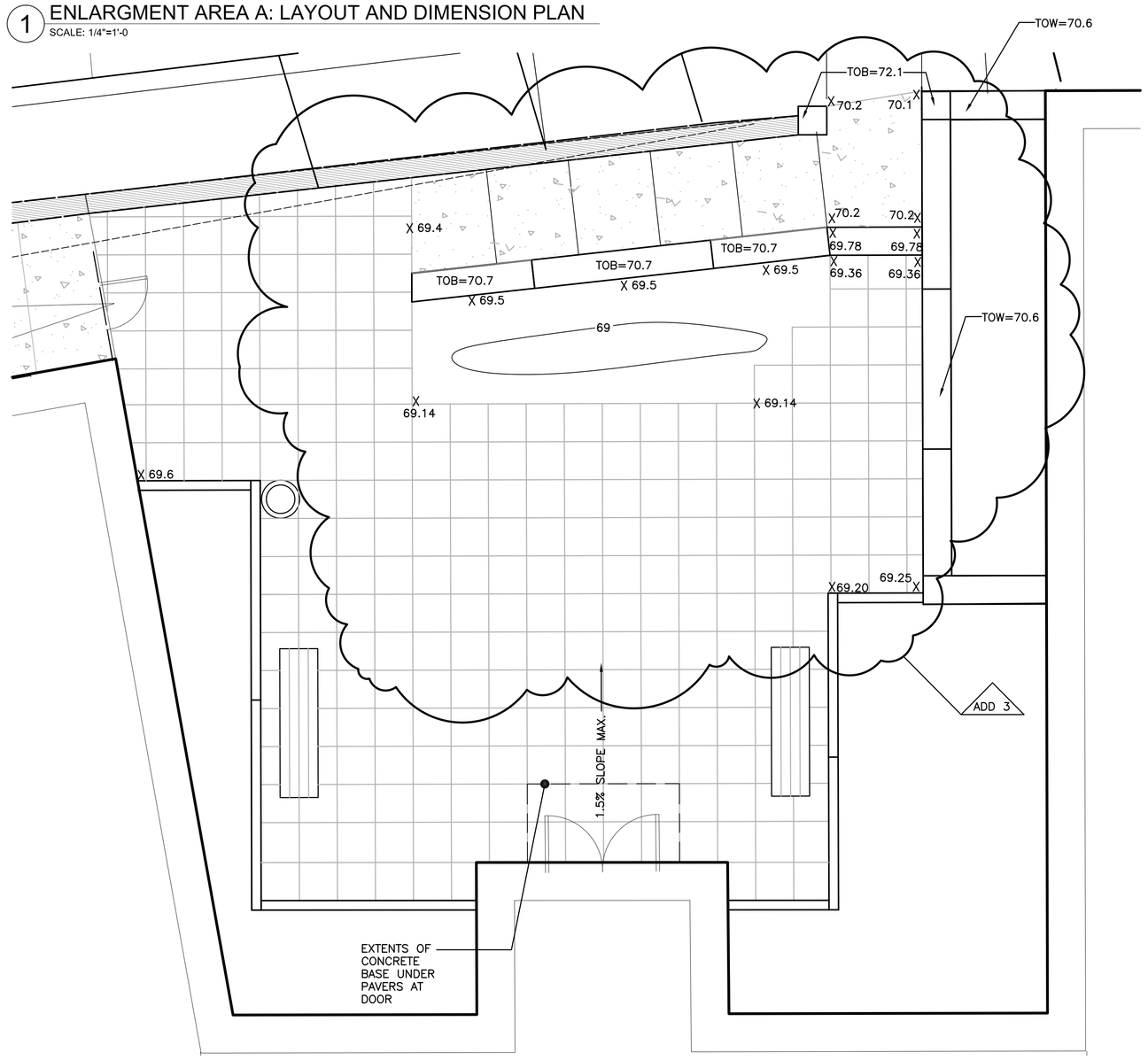
FOURTH FLOOR OUTLET PLAN

SKA007

BID AND CONSTRUCTION



1 ENLARGMENT AREA A: LAYOUT AND DIMENSION PLAN
SCALE: 1/4"=1'-0



2 ENLARGMENT AREA A: GRADING PLAN
SCALE: 1/4"=1'-0

NOTES:

1. REFER TO 1820 COURTHOUSE PROJECT GRANITE INVENTORY FOR ALL BLOCK NUMBERS AND SIZES AND FINISHES.

2. ALL GRANITE LANDSCAPE EDGE SHALL BE OFFSET A MINIMUM OF 6" AWAY FROM BUILDING CORNERS.

3. REFER TO SHEET L2.1 FOR MONOLITHIC GRANITE WALL DETAILS AND PLAN.

4. CONTRACTOR SHALL NOT SCALE FROM PLANS FOR FABRICATION. CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE LANDSCAPE ARCHITECT IMMEDIATELY.

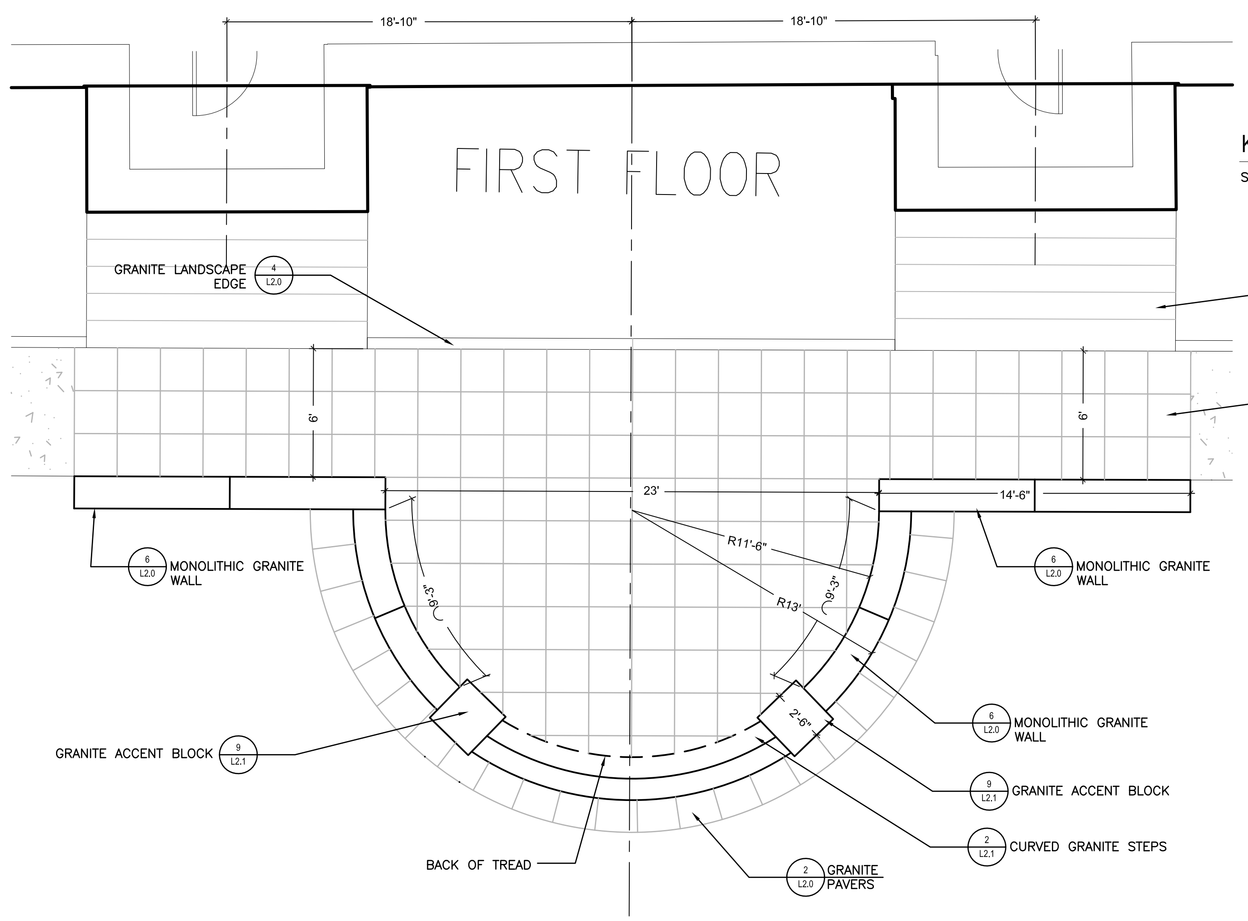
5. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSION OF SALVAGED GRANITE BLOCKS AND LANDSCAPE EDGE.

6. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ALL SALVAGED GRANITE WALLS

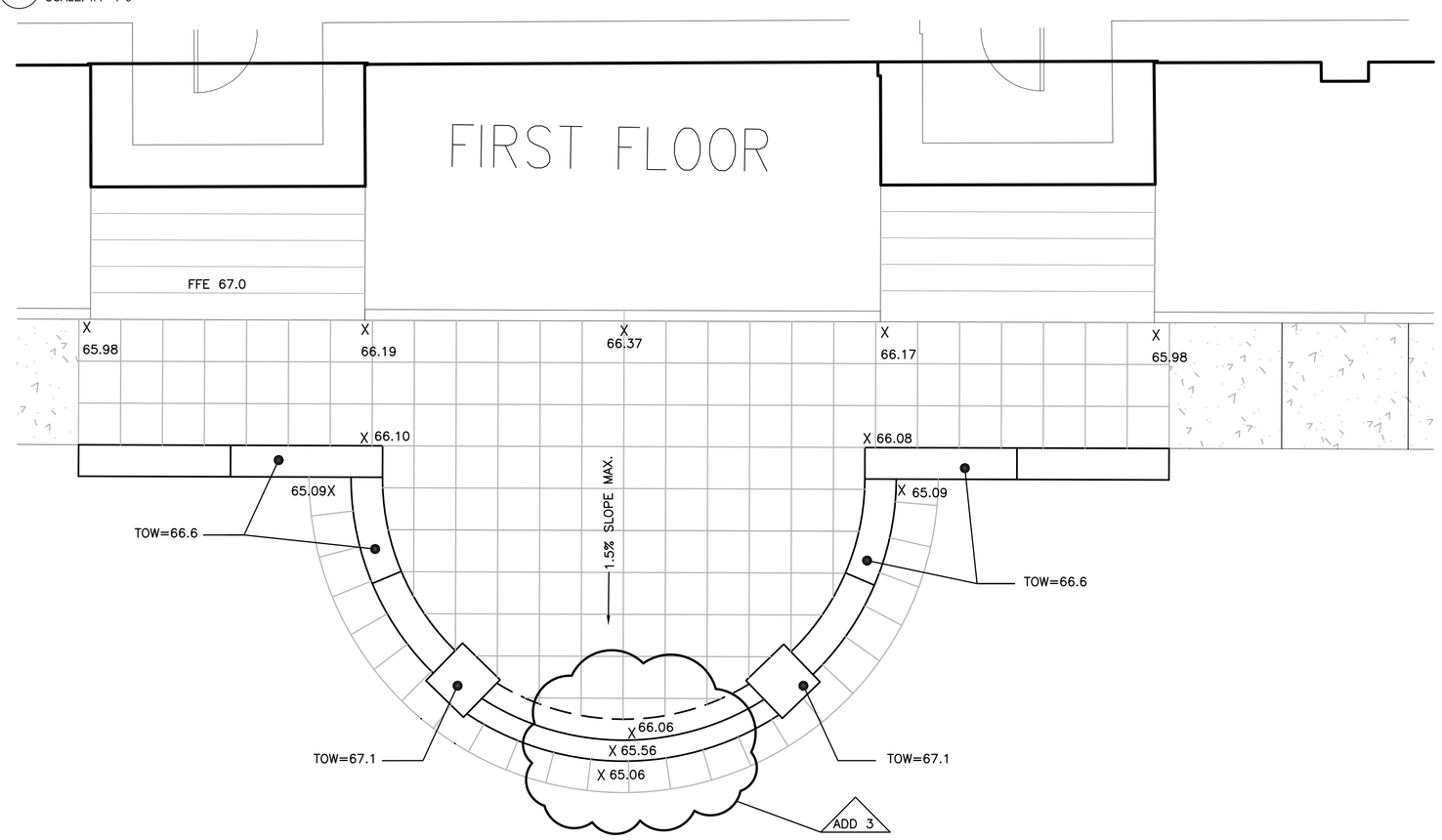
LEGEND:

TOB=	TOP OF BLOCK
TOW=	TOP OF WALL
–71.0–	CONTOUR
XX F	FLAT FACED BLOCK REFERENCE NO.
XX R	ROUGH FACE BLOCK REFERENCE NO.

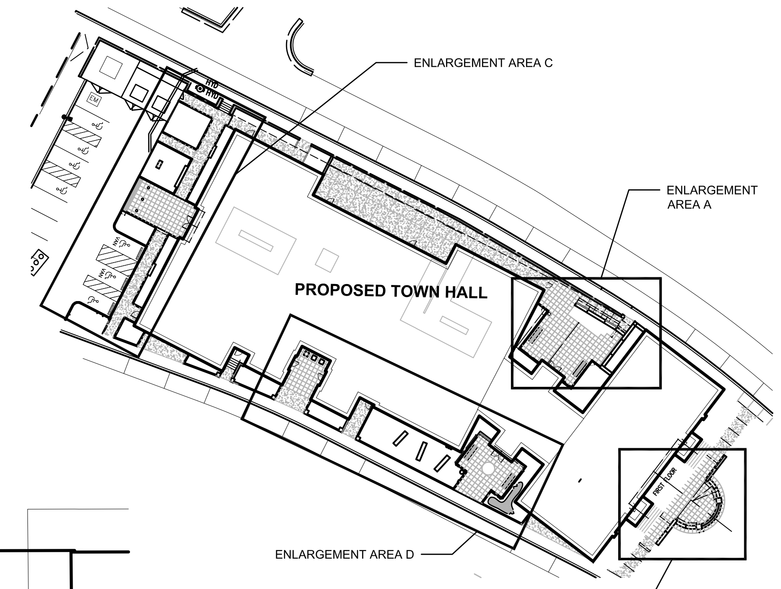
ADD 2



3 ENLARGMENT AREA B: LAYOUT AND DIMENSION PLAN
SCALE: 1/4"=1'-0



4 ENLARGMENT AREA B: GRADING PLAN
SCALE: 1/4"=1'-0



KEY PLAN
SCALE 1"=40'-0"

SCALE IN FEET
0 2 4 8 16
1/4"=1'-0

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PHASE II
PLYMOUTH TOWN HALL
PLYMOUTH, MA

TOWN OF PLYMOUTH

11 LINCOLN ST.
PLYMOUTH, MA 02360

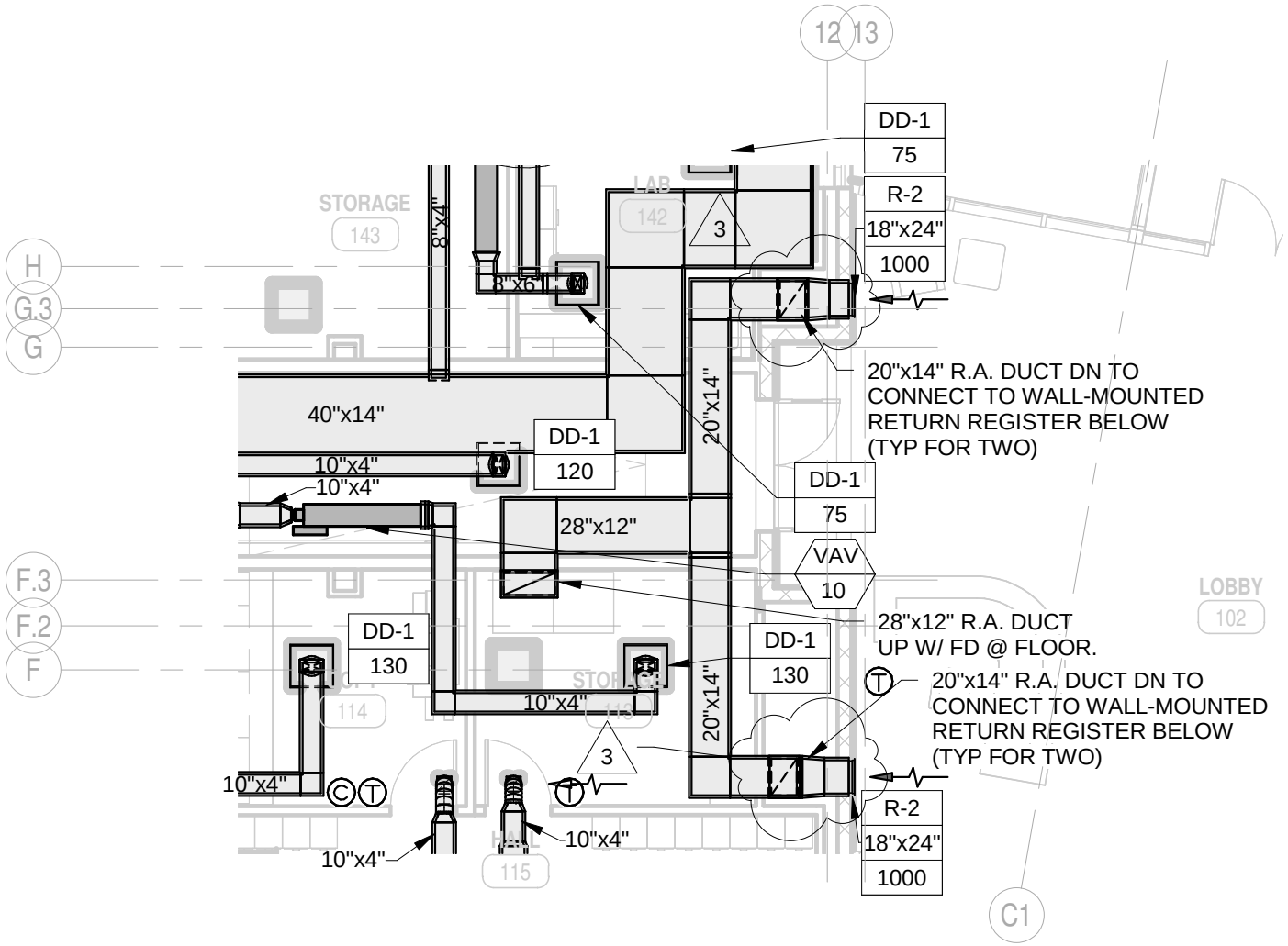
NO	DATE	BY	DESCRIPTION
1	8/28/15	TB	ADDENDUM 2
2	9/2/15	TB	ADDENDUM 3

DATE: JULY 29, 2015
DRAWN BY: JL
JOB NO: 1420
SCALE: 1"=20'-0

LANDSCAPE ENLARGEMENT PLANS

L1.1

BID AND CONSTRUCTION



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TOWN OF PLYMOUTH
11 LINCOLN ST.

PLYMOUTH, MA 02360

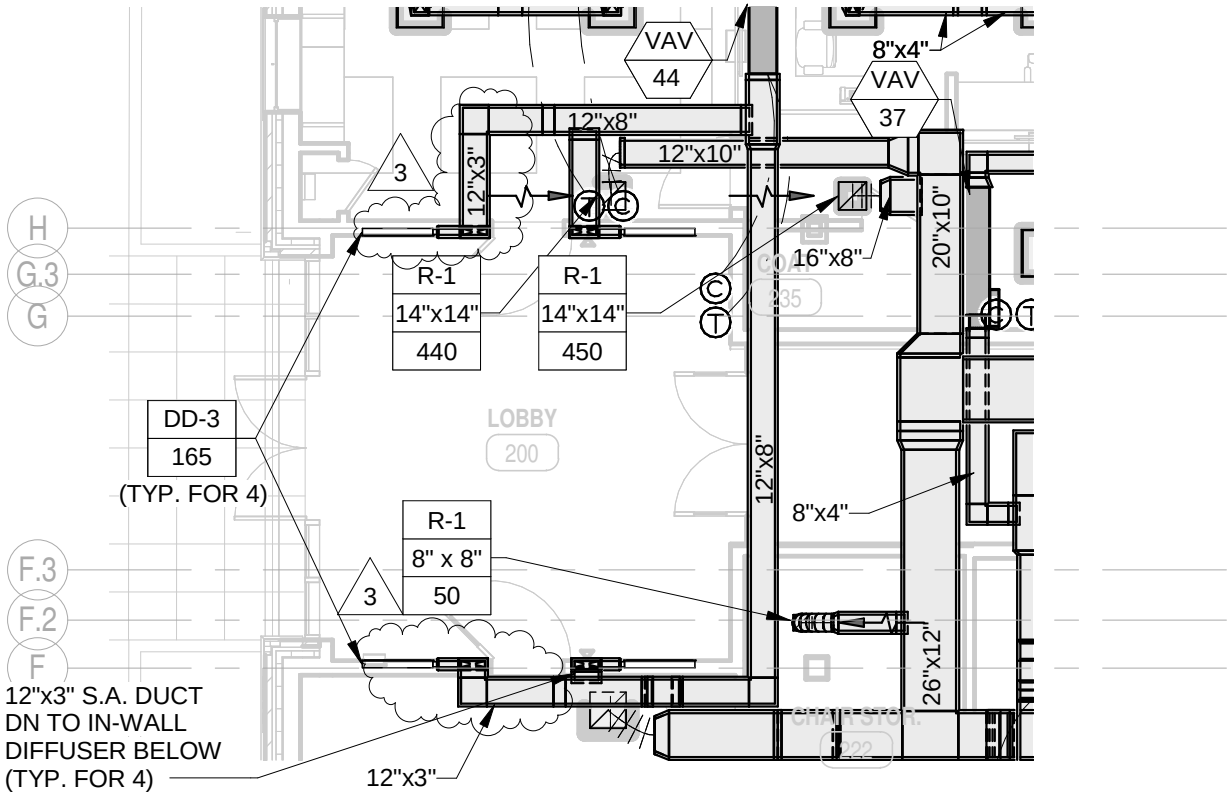
SCALE:	1/8" = 1'-0"
DRAWN:	RLP
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

RETURN DUCT REVISION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-007



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TOWN OF PLYMOUTH
11 LINCOLN ST.

PLYMOUTH, MA 02360

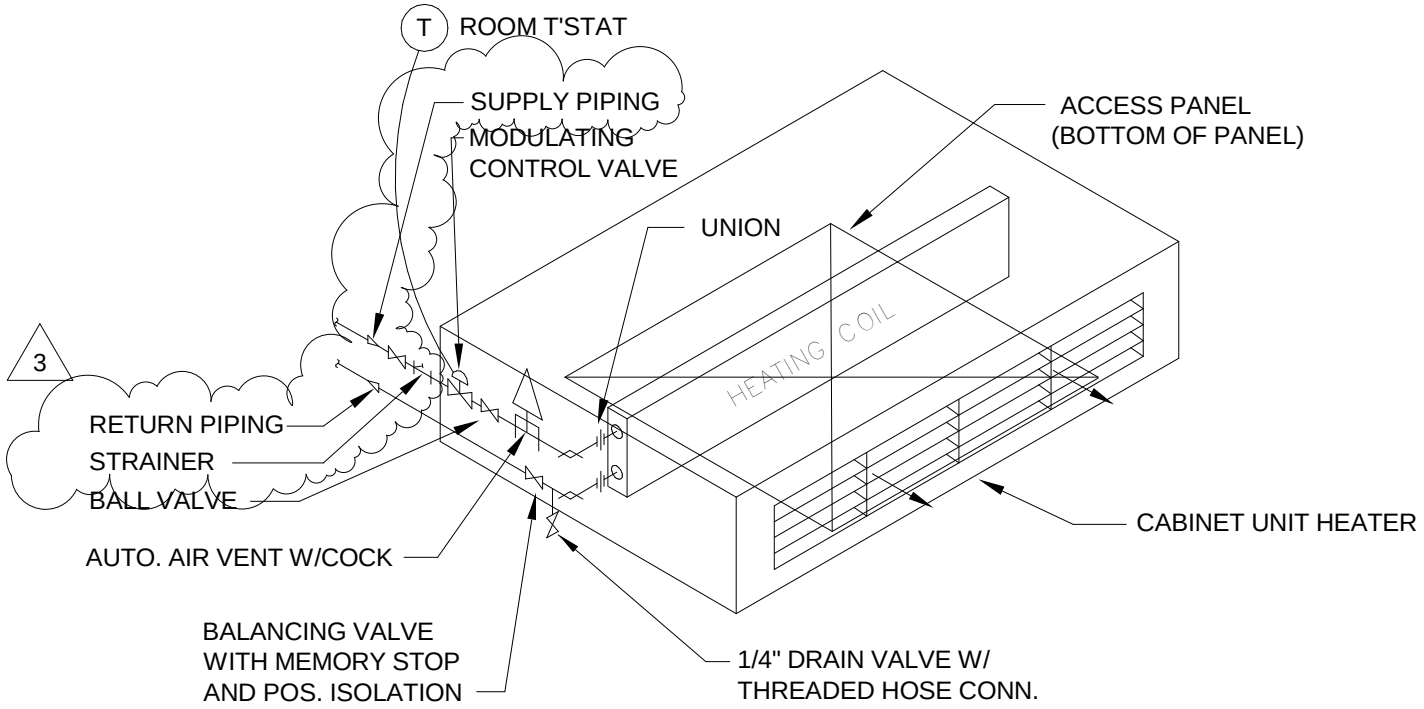
SCALE:	1/8" = 1'-0"
DRAWN:	RLP
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

SUPPLY DUCT REVISION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-008



TYPICAL CABINET UNIT HEATER
CEILING TYPE-PIPING DETAIL-HOT WATER

(NOT TO SCALE)

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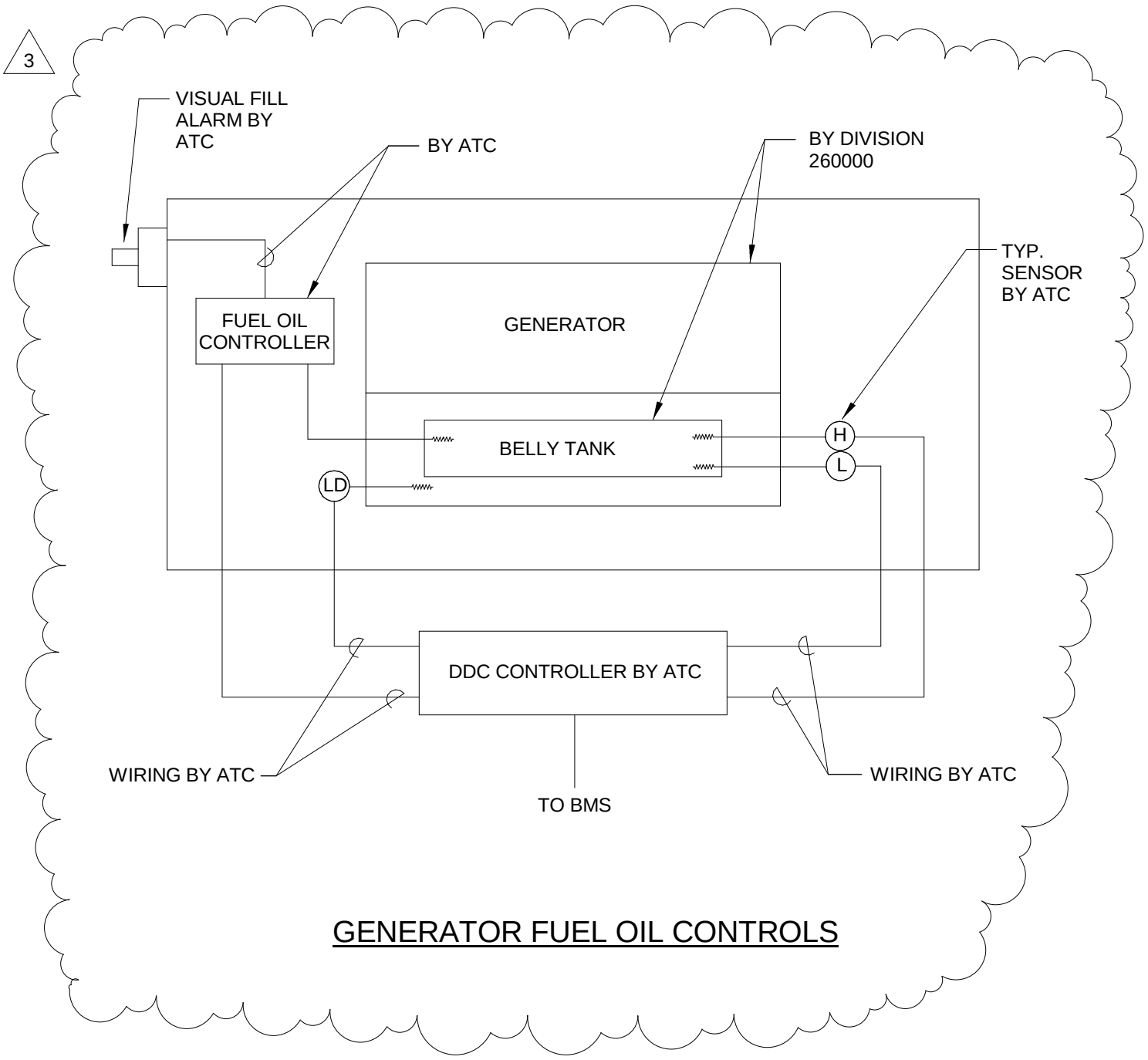
SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

CABINET U.H. CLG-TYPE CORRECTION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-009



GENERATOR FUEL OIL CONTROLS

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PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

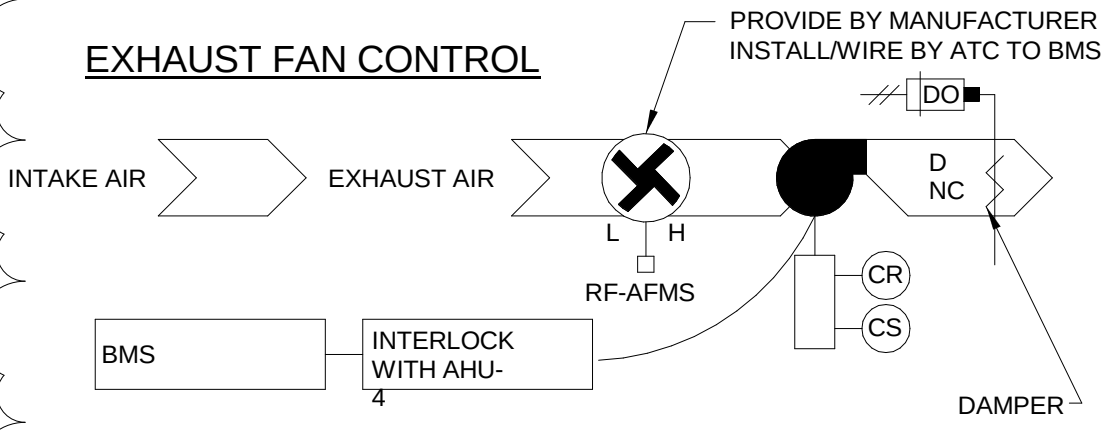
GENERATOR FUEL OIL CONTROLS ADDITION

SCALE:	1/8" = 1'-0"
DRAWN:	RLP
JOB NO:	1420
ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-010

3

EXHAUST FAN CONTROL



EXHAUST FAN - TYPE III CONTROLS

3. TYPE 3: EXHAUST FAN SHALL BE INTERLOCKED WITH NOTED AIR HANDLING UNIT TO RUN WHEN AIR HANDLING UNIT RUNS, AND DE-ENERGIZE WHEN AIR HANDLING UNIT IS OFF. EXHAUST FAN SHALL MODULATED AS REQUIRED TO MATCH THE OUTSIDE AIRFLOW UTILIZING BOTH AIRFLOW STATIONS. DURING ECONOMIZER MODE DETERMINED THROUGH DDC SYSTEM, THE EXHAUST FAN SHALL MODULATE TO 100% AIRFLOW & MATCH THE SUPPLY AIRFLOW UTILIZING BOTH AIRFLOW STATIONS.

EXHAUST FANS	AI	AO	DI	DO	ALARM	REMARKS
FAN STATUS			X		X	ALL TYPES
FAN START/STOP				X		ALL TYPES
ISOLATION DAMPER			X	X	X	ALL TYPES
SPACE TEMP.			X		X	TYPE II
EXH. AIRFLOW	X				X	TYPE III

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PHASE II: PLYMOUTH TOWN HALL
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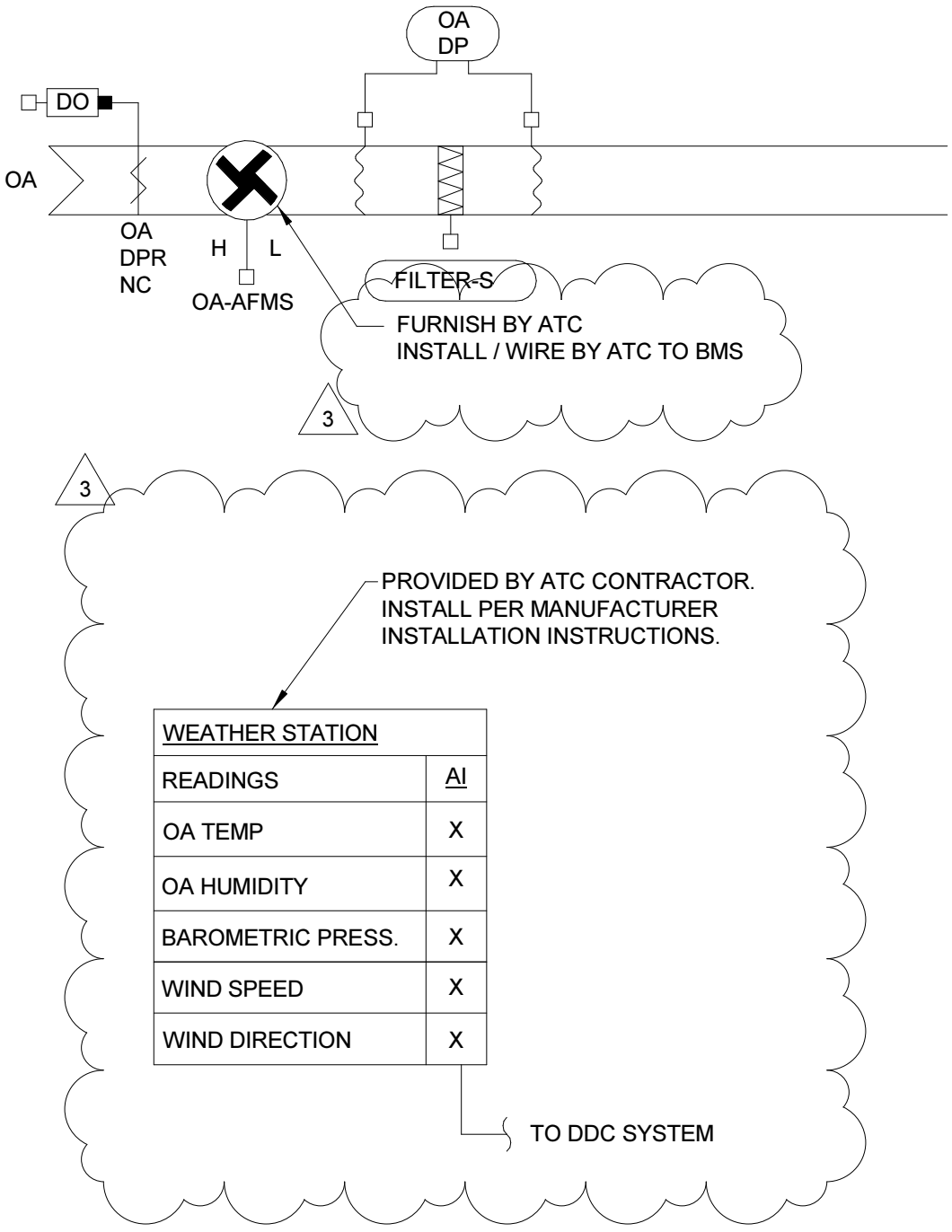
EXH. FAN TYPE III CONTROLS ADDITION

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420
ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-011



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PHASE II: PLYMOUTH TOWN HALL
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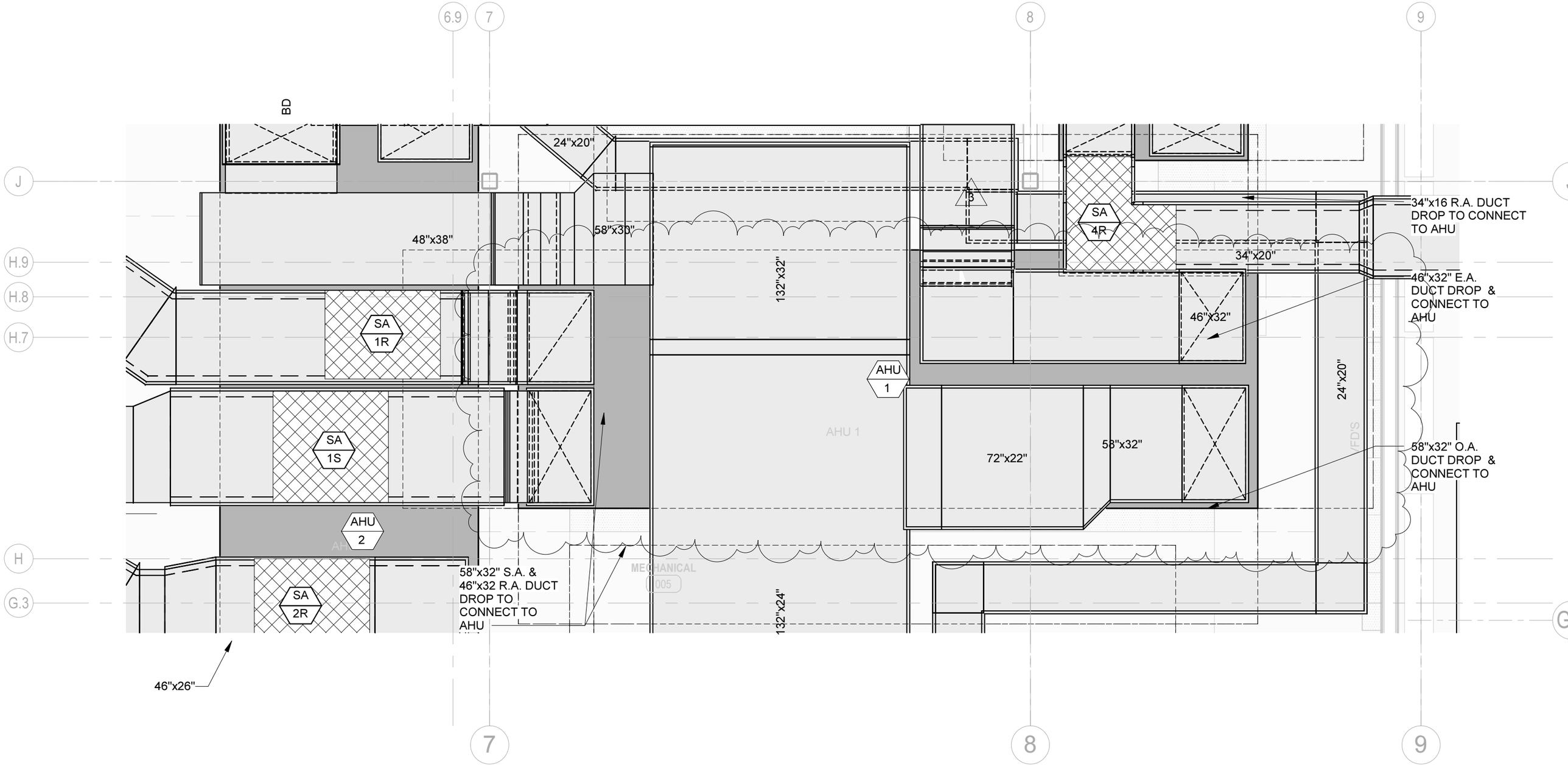
WEATHER STATION ADDITION & CLARIFICATION

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420
ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-012



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TOWN OF PLYMOUTH
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PLYMOUTH, MA 02360

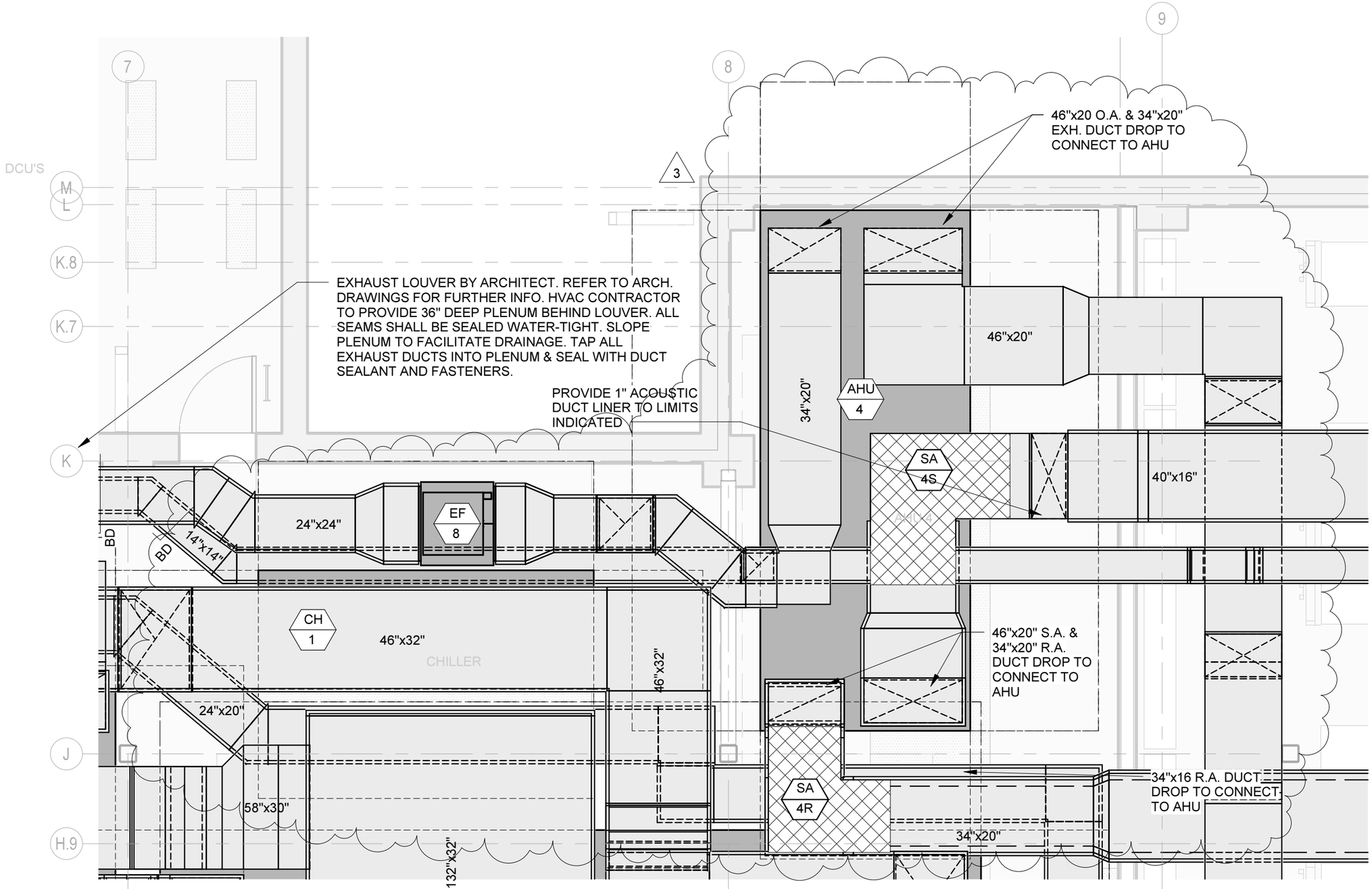
SCALE:	1/4" = 1'-0"
DRAWN:	RLP
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

AHU-1 LOCATION REVISION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-013



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TOWN OF PLYMOUTH
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PLYMOUTH, MA 02360

SCALE:	1/4" = 1'-0"
DRAWN:	RLP
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

AHU-4 DUCT CONNECTION REVISIONS

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-014

SOUND ATTENUATORS

UNIT NO.	MANUF NO.	MAX PD	AIRFLOW (CFM)	LENGTH	INLET SIZE	OUTLET SIZE	MAX VEL FPM	DYNAMIC INSERTION LOSS (dB)							SERVICE	REMARKS
								63Hz	125Hz	250Hz	500Hz	1kHz	2kHz	4kHz		
SA-1S	RMT	0.25"	16,000	60"	58"x32"	58"x32"	850	5	11	20	23	25	18	16	AHU-1 SA	--
SA-1R	RMT	0.25"	16,000	60"	46"x32"	46"x32"	850	4	9	15	24	20	15	12	AHU-1 RA	--
SA-2S	RMT	0.25"	14,000	60"	58"x26"	58"x26"	850	5	11	20	23	25	18	16	AHU-2 SA	--
SA-2R	RMT	0.25"	14,000	60"	46"x26"	46"x26"	850	7	15	23	26	25	19	15	AHU-2 RA	--
SA-3S	RMT	0.25"	2,000	60"	24"x20"	24"x20"	850	2	5	9	11	13	11	10	AHU-3 SA	--
SA-3R	RMT	0.25"	2,000	60"	24"x20"	24"x20"	850	3	8	11	12	14	13	12	AHU-3 RA	--
SA-4S	ERMT	0.25"	6,500	60"	40"x16"	40"x16"	850	2	5	9	11	13	11	10	AHU-4 SA	--
SA-4R	ERMT	0.25"	6,500	60"	34"x20"	34"x20"	850	7	15	23	26	25	19	15	AHU-4 RA	--

SELECTION BASED ON "PRICE"
PROVIDE MANUFACTURER'S ANTI-MICROBIAL CLOTH MEDIA W/O FILM LINING FOR ALL ATTENUATORS

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TOWN OF PLYMOUTH
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PLYMOUTH, MA 02360

SCALE:	1/8" = 1'-0"
DRAWN:	RLP
JOB NO:	1420

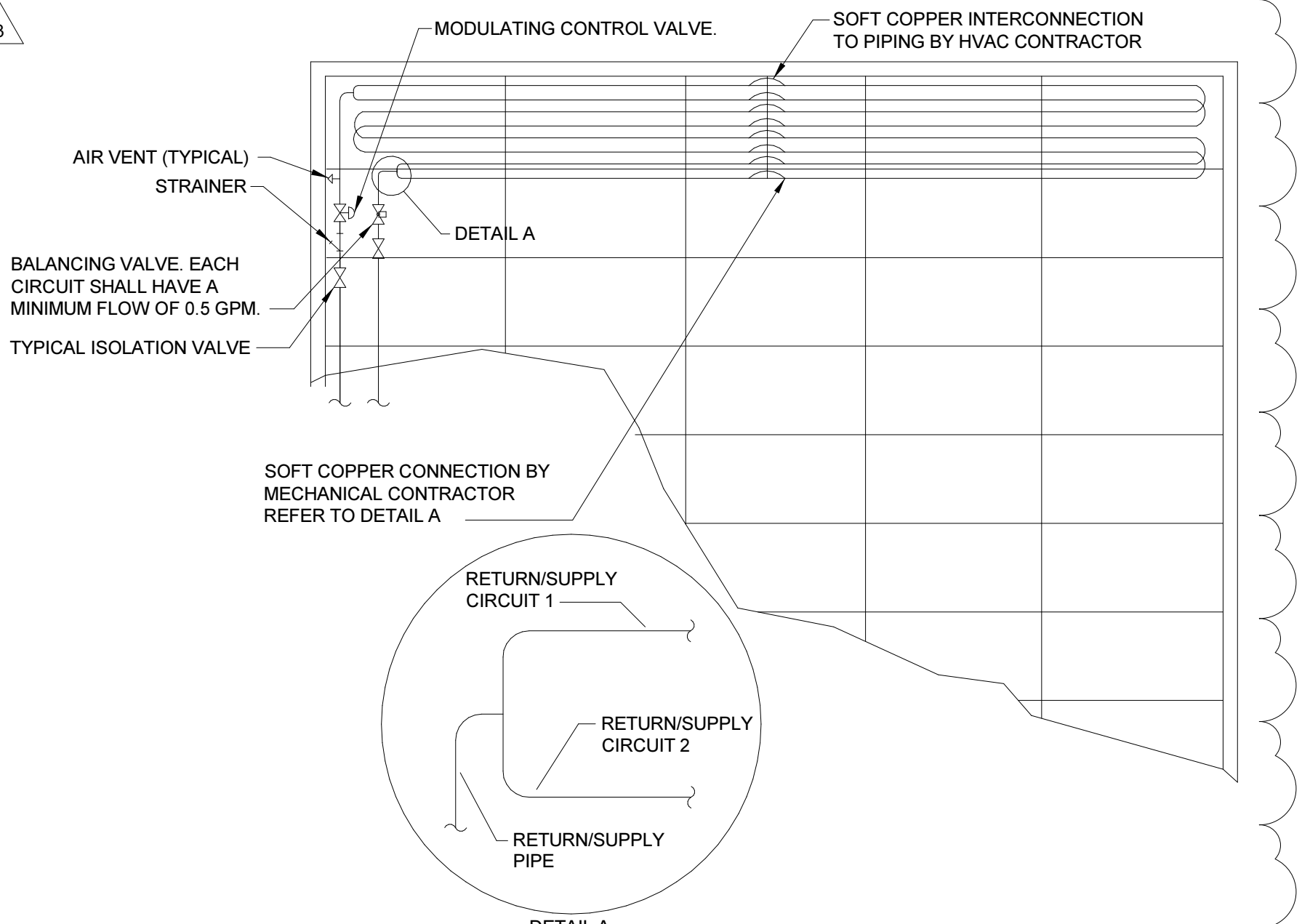
PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

SOUND ATTENUATOR SCHED. REVISION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-015

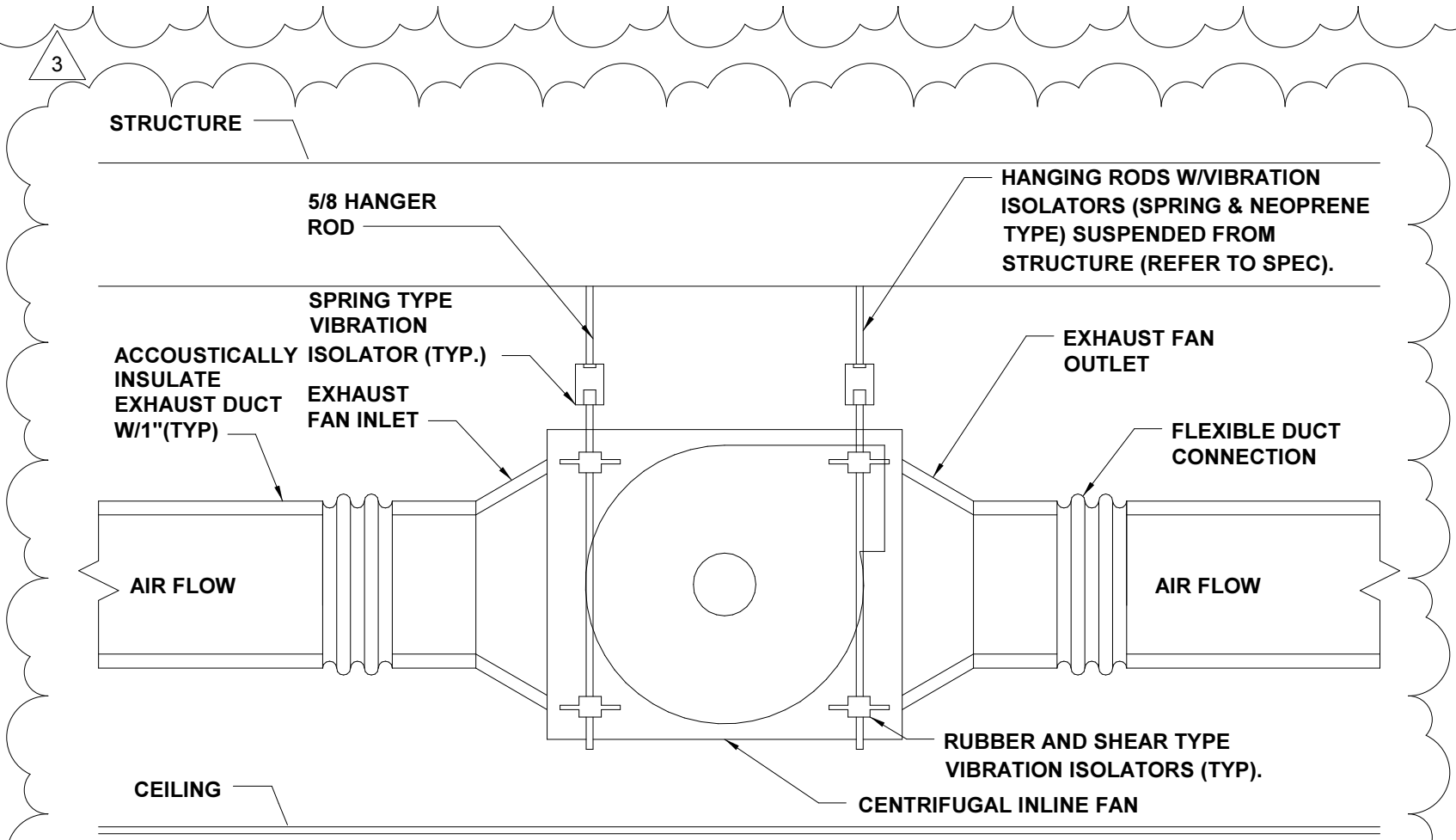
3



DOUBLE CIRCUIT RADIANT HEATING PANEL PIPING DETAIL

(NOT TO SCALE)

3



INLINE FAN MOUNTING DETAIL

NO SCALE

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TOWN OF PLYMOUTH
11 LINCOLN ST.
PLYMOUTH, MA 02360

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420

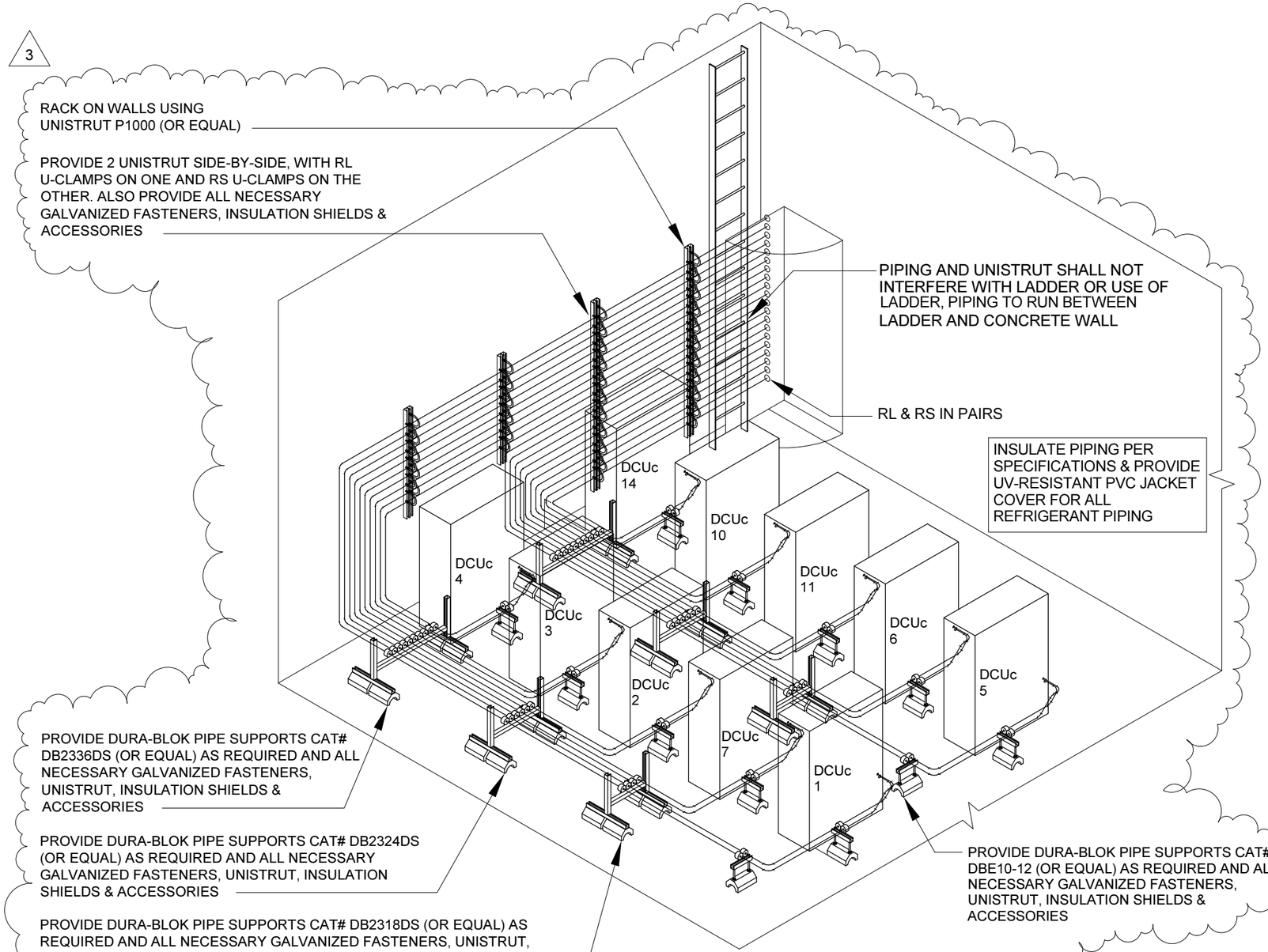
PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

ADDITIONAL DETAILS

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-016

3



REFRIGERANT PIPING LAYOUT DETAIL

(NOT TO SCALE)

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TOWN OF PLYMOUTH
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PLYMOUTH, MA 02360

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420

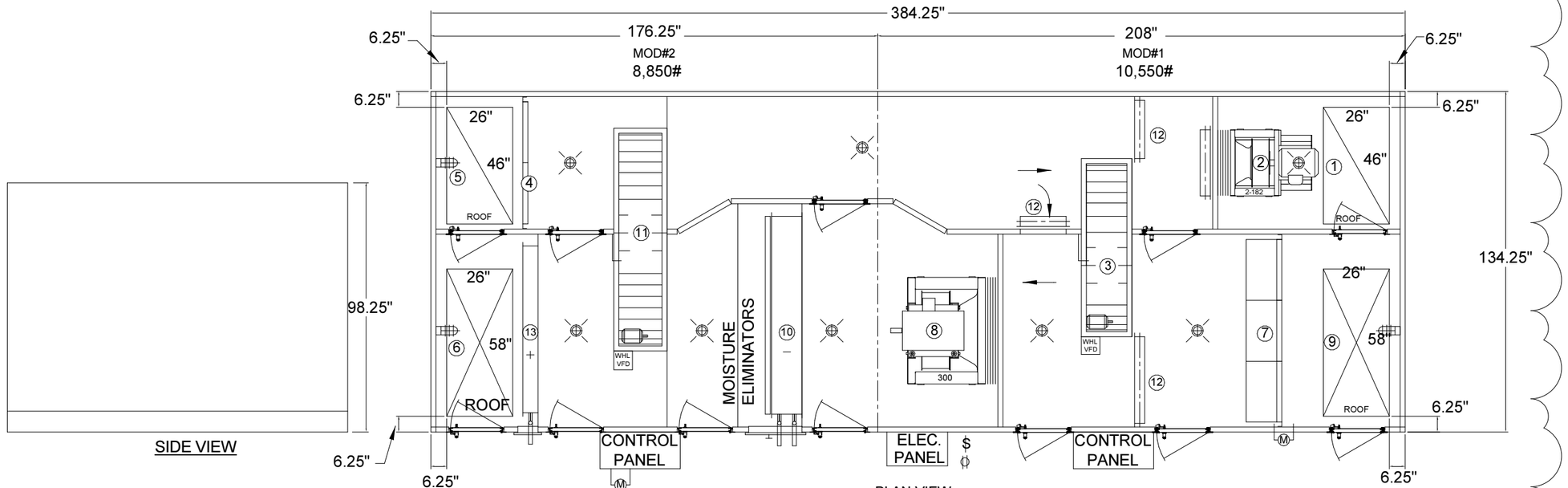
PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

REFRIGERANT PIPING DETAIL ADDITION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-017

3



AHU-1

(NOT TO SCALE)

DURKEE BROWN
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TOWN OF PLYMOUTH
11 LINCOLN ST.

PLYMOUTH, MA 02360

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420

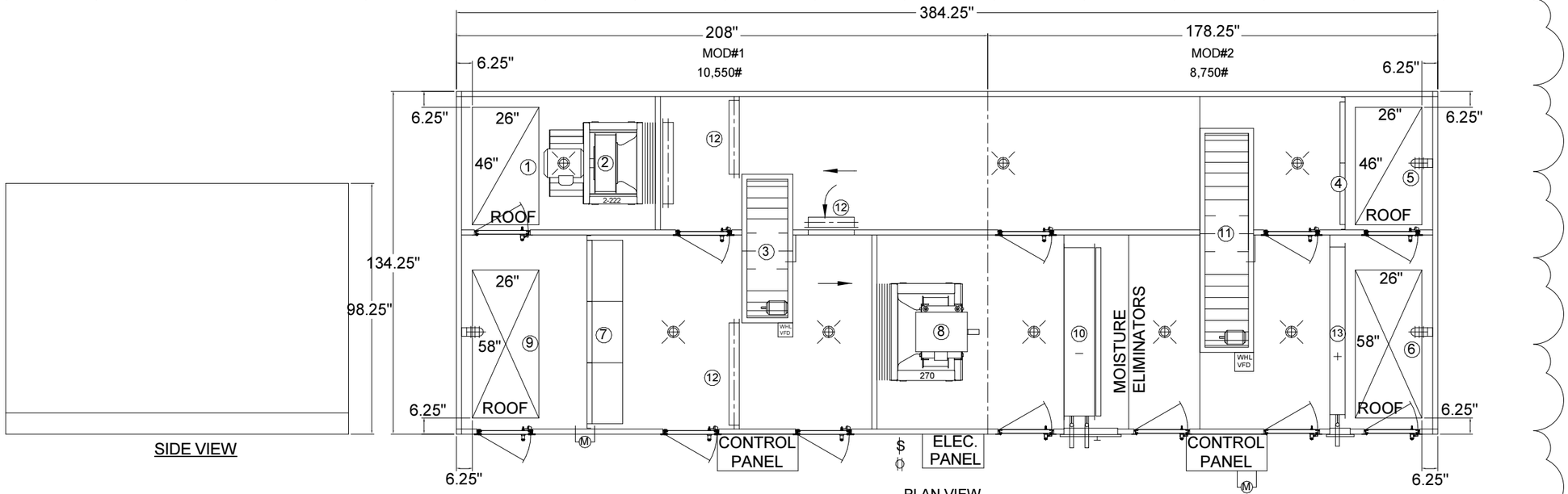
PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

AHU-1 COMPONENT DETAIL ADDITION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-018

3



AHU-2

(NOT TO SCALE)

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TOWN OF PLYMOUTH
11 LINCOLN ST.

PLYMOUTH, MA 02360

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

AHU-2 COMPONENT DETAIL ADDITION

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-019

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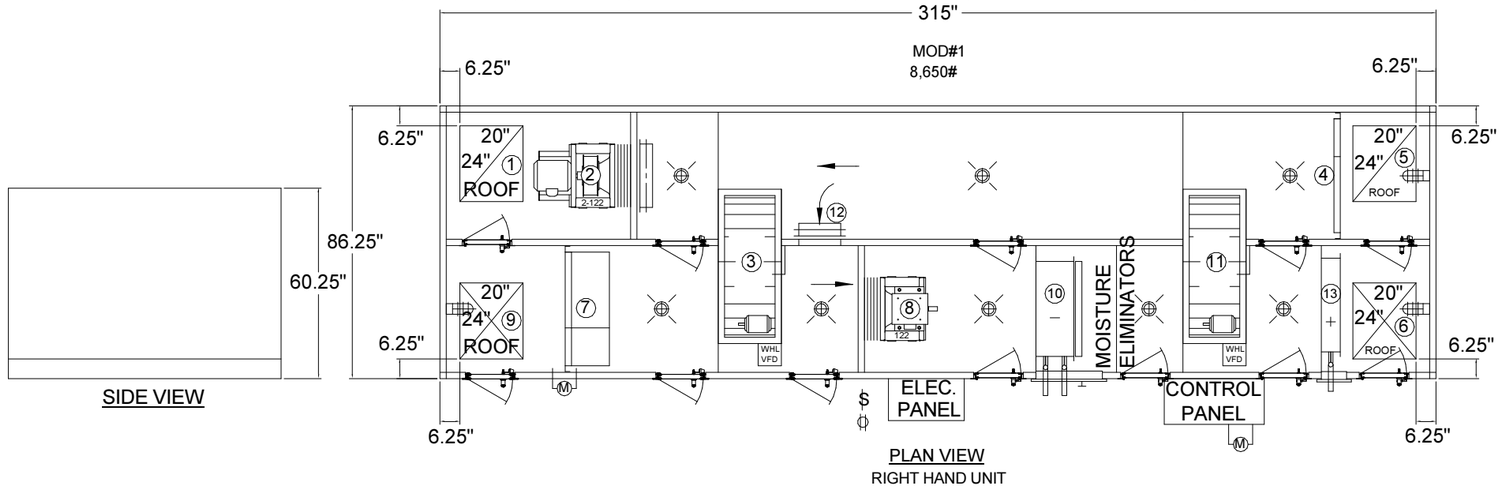

SIDE VIEW

PLAN VIEW
RIGHT HAND UNIT

AHU-3

(NOT TO SCALE)

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VIVEIROS WERENFELS
A R C H I T E C T S

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TOWN OF PLYMOUTH
11 LINCOLN ST.

PLYMOUTH, MA 02360

SCALE:	1/8" = 1'-0"
DRAWN:	PJA
JOB NO:	1420

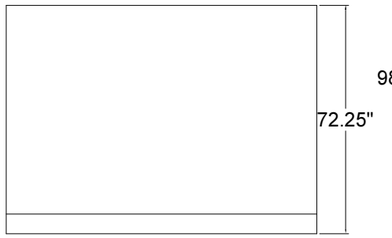
PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

AHU-3 COMPONENT DETAIL ADDITION

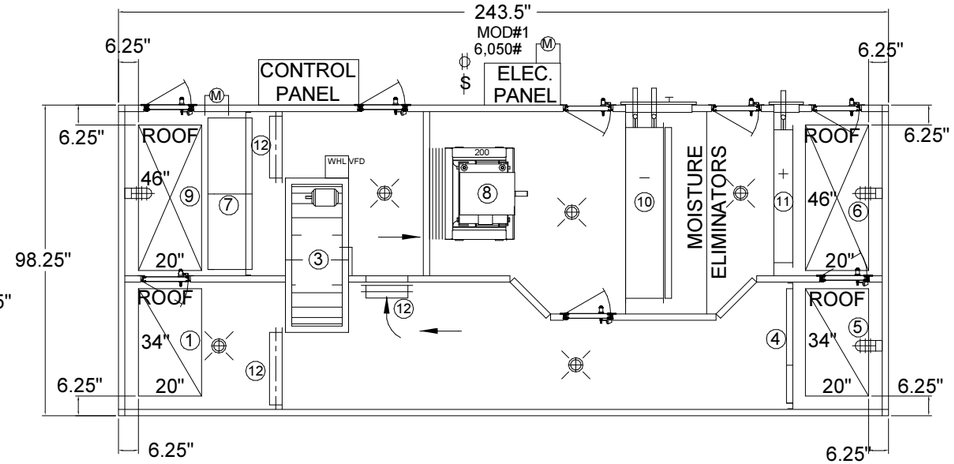
ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	02SEP2015
REVISION DATE:	02SEP2015

SKM-020

3



SIDE VIEW



PLAN VIEW
RIGHT HAND UNIT

AHU-4

(NOT TO SCALE)

APPLIES TO ALL AHU DIAGRAMS

SYMBOLS

- MOTOR
- FILTER GAUGE
- 1 1/2" NPT DRAIN
- WHEEL PURGE
- AIRFLOW DIRECTION
- LIGHTS
- LIGHT SWITCH
- RECEPTACLE

LEGEND

1. EXHAUST AIR OPENING
2. STACKED EXHAUST FANS W/DAMPERS
3. ENTHALPY WHEEL
4. RETURN AIR FILTER BANK
5. RETURN AIR OPENING
6. SUPPLY AIR OPENING
7. SUPPLY AIR FILTER BANK
8. SUPPLY FAN
9. OUTSIDE AIR OPENING W/DAMPER
10. COOLING COIL
11. PASSIVE DEHUMIDIFICATION WHEEL
12. RECIRCULATION / ERW DAMPER
13. HEATING COIL

NOTE: ALL DOORS 18" WIDE UNLESS NOTED FOR AHU-1 AND AHU-2. ALL DOORS 13.25" WIDE UNLESS NOTED FOR AHU-3 AND AHU-4.

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TOWN OF PLYMOUTH
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SCALE:	1/8" = 1'-0"
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JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

AHU-4 COMPONENT DETAIL ADDITION

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SKM-021

MISCELLANEOUS BMS CONTROL POINTS FOR MONITORING & STATUS ONLY (UNLESS OTHERWISE NOTED)

MISCELLANEOUS BMS POINTS	BUILDING LOCATION	AI	AO	DI	DO	ALARM	REMARKS
SUMP PUMP (X2)	ELEV 1 & 2	X				X	NOTE #1
DUPLEX S.W.P.	MECH. ROOM	X				X	NOTE #1
DUPLEX S.E.	EJECTOR ROOM 002	X				X	NOTE #1
DOMESTIC COLD WATER FLOW METER	WATER ROOM 128	X					NOTE #1
MAIN ELECTRIC METER SERVICE	MAIN ELECTRIC ROOM	X					NOTE #2
DOMESTIC WATER BOOSTER	WATER ROOM 128	X				X	NOTE #1
EMERGENCY GENERATOR	EMERG GEN ROOM	X				X	NOTE #2
EMERG. GEN. FUEL OIL CONTROLLER	EMERG GEN ROOM	X				X	NOTE #3
EMERG. GEN. DAY TANK HIGH/LOW LEVEL	EMERG GEN ROOM	X				X	NOTE #3
EMERG. GEN. DAY TANK LEAK DET.	EMERG GEN ROOM	X				X	NOTE #3
EMERG. GEN. DAY TANK FILL ALARM	EMERG GEN ROOM	X				X	NOTE #3

NOTE #1. COORDINATE TYPE OF SENSORS METERS OR EQUIPMENT W/ DIVISION 22 00 00 CONTRACTOR. ATC CONTRACTOR TO PROVIDE ALL CONTROL WIRING, SENSORS RELAYS, PROGRAMMING, GRAPHICS, & BMS INTERFACE FOR MONITORING OF ASSOCIATED EQUIPMENT.

NOTE #2. COORDINATE TYPE OF SENSORS METERS OR EQUIPMENT W/ DIVISION 26 00 00 CONTRACTOR. ATC CONTRACTOR TO PROVIDE ALL CONTROL WIRING, RELAYS, PROGRAMMING, GRAPHICS, & BMS INTERFACE FOR MONITORING & ENERGY USAGE.

NOTE #3. ALL SENSORS, CONTROL WIRING, FITTINGS, POWER WIRING, CONDUITS, PROGRAMMING, GRAPHICS, & VISUAL & GRAPHIC ALARMS SHALL BE PROVIDED BY THE ATC CONTRACTOR, COORDINATE WITH DIVISION 260000.

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MISC. BMS CONTROL POINTS REVISION

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SKM-022

SPECIAL ARCHIVES UNIT

RUN CONDITIONS - CONTINUOUS:
THE UNIT SHALL RUN CONTINUOUSLY AND SHALL MAINTAIN:

- A 74°F (ADJ.) COOLING SETPOINT & 50% R.H.(ADJ.)
- A 70°F (ADJ.) HEATING SETPOINT & 50% R.H.(ADJ.)

ZONE SETPOINT ADJUST:
THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING & HUMIDITY SETPOINTS AT THE ZONE SENSOR.

FAN:
THE FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.

HEATING AND COOLING - 1 COMPRESSOR STAGE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND CYCLE THE COMPRESSOR STAGES TO MAINTAIN ITS SETPOINT. TO PREVENT SHORT CYCLING, THE STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME. THE COMPRESSOR SHALL RUN SUBJECT TO ITS OWN INTERNAL SAFETIES AND CONTROLS.

THE HEATING SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE FAN IS ON.
- AND THE REVERSING VALVE IS IN HEAT MODE.

THE COOLING SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS GREATER THAN 65°F (ADJ.).
- AND THE FAN IS ON.
- AND THE REVERSING VALVE IS IN COOL MODE.

ON MODE CHANGE, THE COMPRESSOR SHALL BE DISABLED AND REMAIN OFF UNTIL AFTER THE REVERSING VALVE HAS CHANGED POSITION..

ALARMS SHALL BE PROVIDED AS FOLLOWS AT THE UNIT CONTROLLER:

- COMPRESSOR RUNTIME EXCEEDED: THE COMPRESSOR RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- DX HEAT PUMP ALARM
- HUMIDIFIER ALARM
- ELECTRIC REHEAT SAFTIES

SUPPLEMENTAL ELECTRIC HEATING STAGES:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE HEATING TO MAINTAIN ITS HEATING SETPOINT SHOULD THE COMPRESSORS NOT MEET THE HEATING DEMAND. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

DURING COOLING MODE THE ELECTRIC COIL WILL BE USED AS A REHEAT TO MAINTAIN HUMIDITY SETPOINT WITH IN THE ZONE. UPON A RISE IN HUMIDITY BUT THE TEMPERATURE SENSOR IS SATISFIED THE ELECTRIC REHEAT WILL ENGAGE UNTIL HUMIDITY SETPOINT IS SATISFIED.

HUMIDIFICATION:

THE CONTROLLER SHALL MEASURE THE ZONE HUMIDITY AND STAGE THE DUCT MOUNTED HUMIDIFIER TO MAINTAIN ITS HUMIDITY SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:

- THE HEAT PUMP IS IN HEATING MODE.
- AND THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE FAN IS ON.

FILTER HOURS:
THE DDC CONTROLLER SHALL MONITOR THE FILTER RUNTIME.

ZONE HUMIDITY & TEMP:
THE CONTROLLER SHALL MONITOR THE ZONE HUMIDITY & TEMP & ACTIVATE AN ALARM LIGHT LOCATED OUTSIDE THE ROOM NEAR THE DOOR. PROVIDED BT ATC CONTRACTOR.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH ZONE HUMIDITY & TEMP: IF THE ZONE HUMIDITY & TEMP IS GREATER THAN 70% (ADJ.) & 85°F (ADJ.), RESPECTIVELY.
- LOW ZONE HUMIDITY & TEMP: IF THE ZONE HUMIDITY & TEMP IS LESS THAN 35% (ADJ.) & 60°F (ADJ.), RESPECTIVELY.
- A DUCT-MOUNTED HIGH LEVEL HUMIDISTAT SHALL DE-ENERGIZE THE HUMIDIFIER WHEN %RH LEVEL EXCEEDS 90% RH (ADJ.)

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SPECIAL ARCHIVES UNIT TEXT REVISION

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3

100% OUTSIDE AIR VENTILATION SYSTEM AHU-4

THE VARIABLE VOLUME AIR HANDLING UNIT CONSISTS OF A SUPPLY AIR AND EXHAUST AIR FAN WITH VFD, OUTDOOR, RETURN AND EXHAUST AIR DAMPERS, RETURN AND OUTSIDE AIR FILTERS, ENERGY (HEAT) RECOVERY WHEEL WITH VFD, MODULATING HOT WATER COIL AND CHILLED WATER COOLING. THE UNIT SHALL BE DDC CONTROLLED USING ELECTRIC ACTUATION.

THE UNIT IS SCHEDULE FOR AUTOMATIC OPERATION ON A TIME OF DAY BASIS FOR OCCUPIED AND UNOCCUPIED MODES.

THE UNIT OPERATES IN OCCUPIED, UNOCCUPIED, WARM-UP AND SAFETY MODES AS FOLLOWS (ALL SUGGESTED SET POINTS AND SETTINGS ARE ADJUSTABLE)

WARM-UP
THE OUTSIDE AND EXHAUST AIR DAMPERS CLOSE AND THE RE-CIRC DAMPER OPENS AND THEIR END SWITCHES ACTIVATE THE SUPPLY FAN, THE EXHAUST FAN REMAINS OFF. THE HOT WATER VALVE MODULATES TO FULL OPEN FOR RAPID RISE IN TEMPERATURE TO MEET THE OCCUPIED SPACE SETPOINT OF 72 DEGREES (ADJ). MORNING WARM UP SHALL OCCUR (1HR ADJ) PRIOR TO UNIT SCHEDULED START TIME (TIME PERIOD SHALL BE ADJUSTED THRU THE CONTROLLERS OPTIMIZED START LOGIC UTILIZING UNIT TREND DATA).

COOL-DOWN
THE OUTSIDE AND EXHAUST AIR DAMPERS CLOSE AND THE RE-CIRC DAMPER OPENS AND THEIR END SWITCHES ACTIVATE THE SUPPLY FAN, THE HOT WATER VALVE SHALL BE FULLY CLOSED. THE CHILLED WATER VALVE SHALL OPEN TO 100% FOR A RAPID DECREASE IN SPACE TEMPERATURE TO MEET THE OCCUPIED SPACE SETPOINT OF 75 DEGREES. MORNING COOL-DOWN SHALL OCCUR (1 HR. ADJ.) PRIOR TO UNIT SCHEDULED OCCUPIED START TIME (TIME PERIOD SHALL BE ADJUSTED THRU THE CONTROLLER'S OPTIMIZED START LOGIC UTILIZING UNIT TREND DATA). ECONOMIZER MODE OF OPERATION SHALL OVER-RIDE NORMAL COOL-DOWN MODE OF OPERATION.

OCCUPIED
THE FANS START OR CONTINUE TO RUN AND THE UNIT IS CONTROLLED AS FOLLOWS:
THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE EXHAUST FAN SHALL START. THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL OPEN TO THEIR MINIMUM POSITION (25% OF SCHEDULED O.A. VALUE), THE RE-CIRCULATION DAMPER RECEIVES THE OPPOSITE SIGNAL AS THE O.A. DAMPER AND THE ENERGY RECOVERY WHEEL TRANSFERS HEAT TO PREHEAT THE OUTSIDE AIR DURING THE WINTER MONTHS OR EXTRACT HEAT FROM THE OUTSIDE AIR DURING THE COOLING MONTHS TO PRECOOL THE SUPPLY AIR. THE CHILLED WATER COOLING CONTROL VALVE OR THE MODULATING HOT WATER VALVE DEPENDING ON THE SPACE TEMPERATURE WILL MODULATE AS REQUIRED TO MAINTAIN THE SPACE AIR SET POINT OF 72 DEGREES (ADJ) IN THE WINTER AND 75 DEGREES (ADJ) IN THE SUMMER. DURING TIMES WHERE THE OUTDOOR AIR TEMPERATURE IS ABOVE 65 DEGREES (ADJ) OR IF THE OUTDOOR HUMIDITY IS ABOVE 50RH (ADJ) THE CHILLED WATER COIL SHALL MODULATE OPEN TO DEHUMIDIFY THE INCOMING AIR TO A DISCHARGE AIR SET POINT OF 52 DEGREES (ADJ) AT 50 RH (ADJ). DURING WINTER SEASON THE MODULATING HOT WATER VALVE SHALL MODULATE, AS REQUIRED TO PROVIDE HEAT TO THE SUPPLY AIR STREAM TO MAINTAIN THE SPACE SET POINT OF 72°F (ADJUSTABLE)

THE ENERGY WHEEL, HOT WATER CONTROL VALVE AND THE CHILLED WATER CONTROL VALVE MODULATE IN SEQUENCE WITHOUT OVERLAP TO MAINTAIN THE SUPPLY AIR TEMPERATURE SET POINT.

WHEEL DEFROST CYCLE
IF THE WHEEL DIFFERENTIAL PRESSURE RISES 1 INCH (ADJ.) AND THE OUTSIDE AIR TEMPERATURE IS BELOW 30 DEGREES, THE WHEEL SPEED SHALL BE REDUCED VIA WHEEL VARIABLE FREQUENCY DRIVE, OR THE ENERGY RECOVERY WHEEL FACE & BYPASS DAMPERS SHALL MODULATE OPEN TO BYPASS THE WHEEL UNTIL THE PRESSURE RETURNS TO NORMAL. WHEEL DEFROST CONTROL SEQUENCE SHALL BE CHOSEN PER MANUFACTURER'S RECOMMENDATIONS.

UNOCCUPIED (AS DETERMINED BY BMS TIMECLOCK)
UNITS SHALL BE NORMALLY OFF. IF THE SPACE UNOCCUPIED SETBACK TEMPERATURES (60°F, ADJ.) IS NOT MAINTAINED, THE RE-CIRC DAMPER SHALL OPEN, THE OUTDOOR AIR DAMPER AND EXHAUST AIR DAMPERS REMAIN CLOSED AND THE UNIT SUPPLY FAN SHALL START AND THROTTLE DOWN TO APPROXIMATELY 50% (ADJ.) OF TOTAL AIR FLOW THROUGH THE CONTROL OF FAN VARIABLE FREQUENCY DRIVE. DURING THE COOLING SEASON THE DIRECT EXPANSION COIL SHALL MODULATE TO COOL AND DEHUMIDIFY THE RETURN AIR TO MAINTAIN THE UNOCCUPIED SETBACK SPACE SET POINT CONDITION OF 80°F (ADJ.). IN THE EVENT THAT A SPACE NIGHT SETBACK HUMIDITY SETPOINT IS NOT MAINTAINED FOR 30 MINUTES (ADJ.), THE UNIT SHALL OPERATE IN COOLDOWN MODE UNTIL THE SPACE HUMIDITY SETPOINT IS MAINTAINED FOR 30 MIN. (ADJ.).

SAFETY
DISCHARGE HIGH STATIC CUT OUT, SMOKE DETECTOR, FIRE SMOKE DAMPER IN AIR STREAM DE-ENERGIZES THE SUPPLY AND RETURN FAN UPON ACTIVATION. THE DX OR GAS FIRED FURNACE SHALL SHUT DOWN AND ALL OTHER DAMPERS AND VALVES POSITION TO THEIR NORMAL UNIT OFF POSITION AFTER THE FANS ARE DE-ENERGIZED.

CURRENT SWITCHES ARE INSTALLED IN THE SUPPLY AND RETURN FAN STARTERS. THE DDC SYSTEM USES THESE SWITCHES TO CONFIRM THE FANS ARE IN THE DESIRED STATE (I.E. ON OR OFF) AND GENERATES AN ALARM IF STATUS DEVIATES FROM DDC START /STOP CONTROL. IF EITHER SUPPLY OR RETURN FAN FAILS, THE OTHER FAN SHALL SHUT DOWN AND AN ALARM SHALL BE GENERATED.

ECONOMIZER MODE
THE UNIT SHALL BE EQUIPPED WITH A COMPARATIVE ENTHALPY ECONOMIZER MODE OF OPERATION. DURING ECONOMIZER MODE OF OPERATION, THE ENERGY RECOVERY WHEEL BYPASS DAMPERS SHALL OPEN AND MECHANICAL COOLING AND HOT WATER HEATING COIL SHALL BE DE-ENERGIZED. SUPPLY FAN & EXHAUST FAN GO TO 100% SPEED TO MAINTAIN SPACE TEMPERATURE.

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AHU-4 CONTROLS TEXT REVISION

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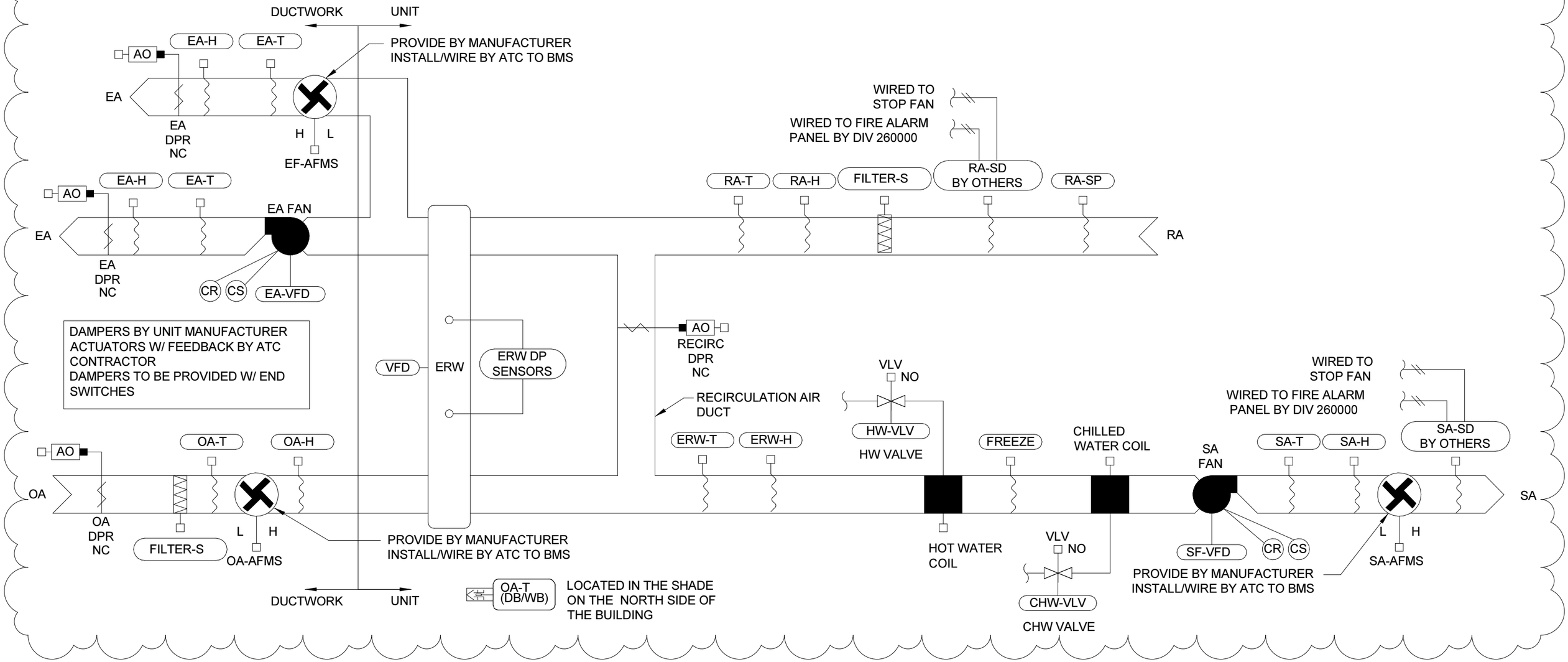
SKM-024

3

100% OUTSIDE AIR VENTILATION SYSTEM - AHU-4



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AHU-4 CONTROL DIAGRAM REVISION

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SKM-025

3

ENERGY WHEEL
VARIABLE SPEED DRIVE

RELAY IN DDC PANEL

CONTROL RELAY

CURRENT SENSOR

START/STOP

ERW - C

ERW - S

SPEED CONTROL

SPEED CONTROL SIGNAL
FROM DDC PANEL ERW-SC

0- 10 VDC

CR IN
DDC PNL

OA- HSP

LL- ALM

OA- LSP

SAFETY

STATUS CONTACT

VSD STATUS
TO DDC PANEL ERW - VSDS

DIGITAL INPUT TO DDC PANEL

BYPASS & ALARM
ANALOG INPUT TO DDC PANEL

VSD FEEDBACK

EXHAUST FAN
VARIABLE SPEED DRIVE

RELAY IN DDC PANEL

CONTROL RELAY

CURRENT SENSOR

START/STOP

EF- C

EF- S

SPEED CONTROL

SPEED CONTROL SIGNAL
FROM DDC PANEL RF - SC

0- 10 VDC

CR IN
DDC PNL

EF- HSP

EF- LSP

SUP AUX

SAFETY

STATUS CONTACT

VSD STATUS
TO DDC PANEL EF - VSDS

DIGITAL INPUT TO DDC PANEL
TYP FOR 2
BYPASS & ALARM
ANALOG INPUT TO DDC PANEL
TYP FOR 1
VSD FEEDBACK

COMMUNICATIONS
TRUNK

120 VAC
Power

TRANSFORMER

UNIT CONTROLLER
(BY ATC CONTRACTOR)

TDR

CONTROL RELAY
TYP FOR 1

P WIRED TO LOW LIMIT
& SUP FAN STARTER

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AHU-4 VSD & CONTROLLER REVISION

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SKM-026

3

100% OUTSIDE AIR VENTILATION SYSTEM AHU-4

AHU-4	HARDWARE POINTS				SOFTWARE POINTS							
POINT NAME	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALARM	SHOW ON GRAPHIC	REMARKS
OUTSIDE AIR TEMP	X				X				X		X	
OUTSIDE AIR HUMIDITY	X				X				X		X	
SUPPLY AIR TEMP	X								X		X	60°/68°
SUPPLY AIR HUMIDITY (GR/LB)	X								X		X	49GR/LB
ENERGY WHEEL LEAVING AIR TEMP	X								X		X	
ENERGY WHEEL LEAVING HUMIDITY	X								X		X	
PREFILTER DIFFERENTIAL PRESSURE	X								X		X	
RETURN FILTER DIFFERENTIAL PRESSURE	X								X		X	
RETURN AIR HUMIDITY	X								X		X	
RETURN AIR TEMP	X								X		X	
HOT WATER HEATING VALVE	X	X							X	X	X	
OUTSIDE AIR DAMPER	X	X							X	X	X	
EXHAUST AIR DAMPER	X	X							X	X	X	
RECIRCULATION AIR DAMPER	X	X							X	X	X	
FREEZESTAT			X	X					X	X	X	W/ AUTO RESET
SUPPLY AIR SMOKE DETECTOR			X						X	X	X	
RETURN AIR SMOKE DETECTOR			X						X	X	X	
SUPPLY FAN STATUS			X						X		X	
EXHAUST FAN STATUS			X						X		X	
ENERGY RECOVERY WHEEL STATUS			X						X		X	
ENERGY RECOVERY WHEEL VFD	X	X							X	X	X	
SUPPLY FAN START/STOP				X					X		X	
EXHAUST FAN START/STOP				X					X		X	
ENERGY RECOVERY WHEEL START/STOP				X					X		X	
HEATING SUPPLY AIR SET POINT		X			X				X		X	
EMERGENCY SHUT DOWN						X			X	X	X	
SCHEDULE								X				
SUPPLY FAN FAILURE										X	X	
SUPPLY FAN IN HAND										X	X	
EXHAUST FAN FAILURE										X	X	
EXHAUST FAN IN HAND										X	X	
ENERGY RECOVERY WHEEL ROTATION FAILURE										X	X	
ENERGY RECOVERY WHEEL IN HAND										X	X	
HIGH HEATING SUPPLY AIR TEMP										X	X	+10°F
LOW HEATING SUPPLY AIR TEMP										X	X	-10°F
RETURN FILTER CHANGE REQUIRED										X	X	
SUPPLY FILTER CHANGE REQUIRED									X	X	X	
SUPPLY FAN VFD	X	X								X	X	
EXHAUST FAN VFD	X	X								X	X	
SUPPLY S.P.	X									X	X	
SUPPLY AIR AIRFLOW STATION	X								X		X	
EXHAUST FAN AIRFLOW STATION	X								X		X	
OUTSIDE AIR AIRFLOW STATION	X								X		X	
ENERGY RECOVERY DELTA P	X				X					X	X	
SUPPLY S.P.	X									X	X	
TOTALS	23	8	6	4	4	1	0	1	30	24	44	

ATC CONTRACTOR TO PROVIDE ALL NECESSARY SENSORS, WIRING, PROGRAMMING, & MAPPING AS REQUIRED TO ACHIEVE SEQUENCE & OBTAIN ALL POINTS INDICATED ABOVE. ATC CONTRACTOR TO COORD. W/ BOILER/UNIT MANUFACTURER TO PROVIDE SEAMLESS COMMUNICATION BETWEEN BOILER/UNIT CONTROLS, INPUTS/OUTPUTS TO BMS SYSTEM GRAPHICS, & PROVIDE ALL READABLE/WRITEABLE POINTS. AIRFLOW MEASURING STATION PROVIDED BY UNIT MANUFACTURERS. ATC CONTRACTOR TO PROVIDE ALL RELATED CONTROL WIRING, PROGRAMMING TO BMS SYSTEM, AND CALIBRATION FOR ALL AIRFLOW MEASURING STATIONS.

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AHU-4 BMS POINTS REVISION

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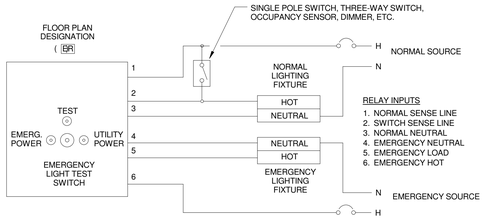
SKM-027



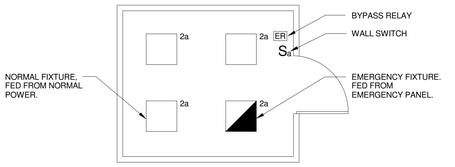
NOTES:

1. ALL SWITCH AND SENSOR CONTROLLED EMERGENCY LIGHTING IN PUBLIC AREAS, EGRESS ROUTES AND ALL "NORMALLY-OFF" EMERGENCY LIGHTING SHALL BE CONTROLLED BY AN EMERGENCY SUPERVISORY RELAY TO AUTOMATICALLY ENERGIZE EMERGENCY LIGHTS WHEN NORMAL (UTILITY) POWER FAILS. WHERE MORE THAN THREE CIRCUITS SERVE AN AREA, PROVIDE A HOMERUN(S) FROM RESPECTIVE LIGHTING PANEL(S) TO SENSING COIL.

2. THE EMERGENCY BYPASS RELAY TIES TO THE NORMAL CIRCUIT AND SWITCH TO MONITOR THE NORMAL SOURCE AND MIMIC THE SWITCH POSITION. THE RELAY ALLOWS THE ROOM SWITCH TO CONTROL THE EMERGENCY FIXTURE(S) DURING NORMAL OPERATION AND BYPASS THE SWITCH TO TURN LIGHTS ON DURING EMERGENCY OPERATION REGARDLESS OF THE SWITCH POSITION.

3. RELAY SHALL BE UL 924 LISTED, SOLID STATE, AND HAVE MECHANICALLY HELD RELAYS IN COMPLIANCE WITH NEC 700 AS MANUFACTURED BY BODINE, SCHNEIDER, BLTC, OR EQUAL.

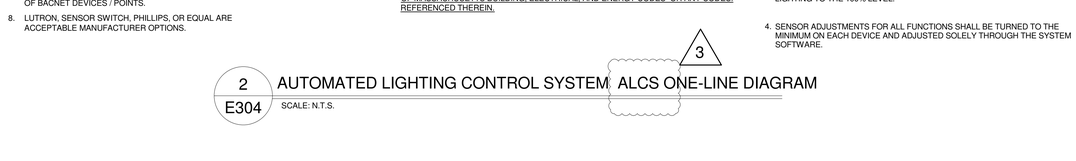
4. MOUNT RELAY IN A SQUARE 4 11/16" JUNCTION BOX TO BE LOCATED ABOVE THE CEILING DIRECTLY ABOVE THE WALL SWITCH LOCATION OR IN A REMOTE LOCATION WHERE HARD CEILINGS WOULD PREVENT ACCESS. COORDINATE FINAL LOCATION WITH BUILDING CONSTRUCTION AND THE WORK OF OTHER TRADES TO ENSURE A READILY ACCESSIBLE MOUNTING LOCATION..



APPLICATION EXAMPLE

1 / E304 EMERGENCY SUPERVISORY BY-PASS RELAY DETAIL

SCALE: N.T.S.



AUTOMATED LIGHTING CONTROL SYSTEM NOTES:

1. PROVIDE SWITCHING AND 0-10V DIMMING CONTROL FOR ALL LIGHTING (REFER TO PLANS) WITH PRESETS VIA I/O MODULES AND ACCESSORY POWER PACKS..
2. PROVIDE ALL SYSTEM COMPONENTS (AND WARRANTIES) FROM A SINGLE MANUFACTURER EXCEPT WHERE OTHERWISE SPECIFIED.
3. PROVIDE GANGED MASTER AND LOCAL SWITCHES AT LOCATION AS INDICATED FOR USER CONTROL OF LIGHTING (UNDER COMMON MULTI-GANG PLATE).ALL SWITCHES SHALL BE PROVIDED WITH ENGRAVED LABELS ON PLATES DESIGNATING THEIR FUNCTION. FILL FOR ENGRAVED LETTERING SHALL BE AS DIRECTED BY THE ARCHITECT.
4. PROVIDE ENERGY MONITORING AND REPORTING MODULE TO ALLOW FOR ALL LIGHTING ELECTRICAL CONSUMPTION TO BE RECORDED, TRENDED, AND PASSED TO THE BMS SYSTEM VIA THE BACNET IP INTERFACE.
5. THE BASIS-OF-DESIGN FOR THIS SYSTEM IS THE OSRAM ENCELIUM SYSTEM (W/ POLARIS 3D AND PCS SOFTWARE) INCLUDING THE FOLLOWING COMPONENTS:

MASTER TOUCHSCREEN STATION:	#RTI-K4-M-BZW-K4-CO
LOCAL TOUCHSCREEN STATION:	#RTI-K4-L-BZW-K4-CO
LOCAL SWITCHING / DIMMING STATION:	#EN-WS-SC3D-GB2
MASTER SWITCHING / DIMMING STATION:	#EN-WS-ZC3-GB2
CEILING DUAL-TECH OCCUPANCY SENSORS:	#SCM-2000
WALL DUAL-TECH OCCUPANCY SENSORS	#SCM-2000-W
CEILING PHOTOSENSOR:	#CES/I
EXTERIOR PHOTOCELL:	#CES/O
POWER PACK / SWITCHING RELAY:	#PPK-020
RELAY PANEL:	#EN-RP-24C-GB2

6. REFER TO THE "ALCS METHODS OF OPERATION NOTES" FOR SYSTEM SETUP REQUIREMENTS..
7. ALCS VENDOR SHALL ASSIST THE BMS SUB-SUB CONTRACTOR WITH ALL MAPPING OF BACNET DEVICES / POINTS.
8. LUTRON, SENSOR SWITCH, PHILLIPS, OR EQUAL ARE ACCEPTABLE MANUFACTURER OPTIONS.

ALCS METHODS OF OPERATION NOTES

ZONING & PRESET LEVELS :

1. INTERIOR SPACES SHALL BE PROGRAMMED FOR 50% AND 100% DIMMING LEVELS TO BE ACTIVATED VIA LOCAL SWITCH STATIONS. LEVELS MAY BE ADJUSTED OUTSIDE OF THESE PRESETS VIA THE LOCAL WALL STATION, HOWEVER, WHERE PHOTOSENSORS ARE PRESENT THE LIGHTING SHALL NOT BE ALLOWED EXCEED THE FOOTCANDLE LEVEL ESTABLISHED BY THE SPACE'S PHOTOSENSOR BASED ON AVAILABLE DAYLIGHT CONTRIBUTION AT ANY GIVEN TIME.
2. LIGHTING WITHIN THE DAYLIGHT ZONE ADJACENT TO OPENINGS TO THE EXTERIOR SUCH AS WINDOWS AND SKYLIGHTS (DEPTH OF EACH DAYLIGHT ZONE RELATIVE TO THE DAYLIGHT OPENING SHALL BE AS DEFINED BY UTILITY COMPANY ADVANCED BUILDING PROGRAM CORE REQUIREMENTS AND COMMONWEALTH OF MASSACHUSETTS ENERGY CODE) SHALL BE PROGRAMMED TO ALLOW FOR CONTROL SEPARATE FROM THE REMAINDER OF THE SPACE.
3. EXTERIOR LIGHTING SHALL BE PROGRAMMED FOR 50% (POST-CURFEW) AND 100% (PRE-CURFEW) DIMMING LEVELS TO BE ACTIVATED VIA PHOTOCELL SETPOINTS AND TIMED SCHEDULES.
4. INTERIOR AND EXTERIOR PATHS OF EGRESS SHALL BE PROGRAMMED TO ACTIVATE AT 100% LEVELS UPON RECEIPT OF AN ALARM SIGNAL FROM THE LIFE SAFETY AUTOMATIC TRANSFER SWITCH, FIRE ALARM SYSTEM, AND SECURITY SYSTEM. LIGHTING LEVELS SHALL BE MAINTAINED AT 100% LEVELS REGARDLESS OF SUBSEQUENT INPUT REQUESTS UNTIL THE ORIGINATING ALARM SIGNAL IS RESTORED TO A NORMAL CONDITION. CONTACT CLOSURE OUTPUTS FROM EACH PIECE OF EQUIPMENT / SYSTEM SHALL BE PROVIDED BY THE RESPECTIVE VENDOR WITH COORDINATION OF ALL PROGRAMMING REQUIRED TO PROVIDE THE FUNCTIONALITY DESCRIBED.
5. REFER TO SPECIFICATIONS FOR FURTHER CONTROL SCENARIOS SUCH AS LOAD SHEDDING, PEAK LIMITING, TASK TUNING, ETC..
6. EXACT ZONING AND LEVEL PROGRAMMING SHALL BE TO MAPPED OUT (VIA BUILDING FLOOR & SITE GRAPHICS IN SYSTEM SOFTWARE) WITH THE OWNER OR THEIR REPRESENTATIVE PRIOR TO SYSTEM SETUP AND PROGRAMMING OF THE SYSTEM. ALL PROGRAMMING SHALL BE CONFIRMED AND COMPLETED PRIOR TO COMMISSIONING NO OWNER REQUESTED PROGRAMMING SHALL BE ALLOWED. WHICH WILL VIOLATE THE LEED PROGRAM REQUIREMENTS OR COMMONWEALTH OF MASSACHUSETTS BUILDING, ELECTRICAL, AND ENERGY CODES OR ANY CODES, REFERENCED THEREIN.

SWITCH STATION OPERATIONS :

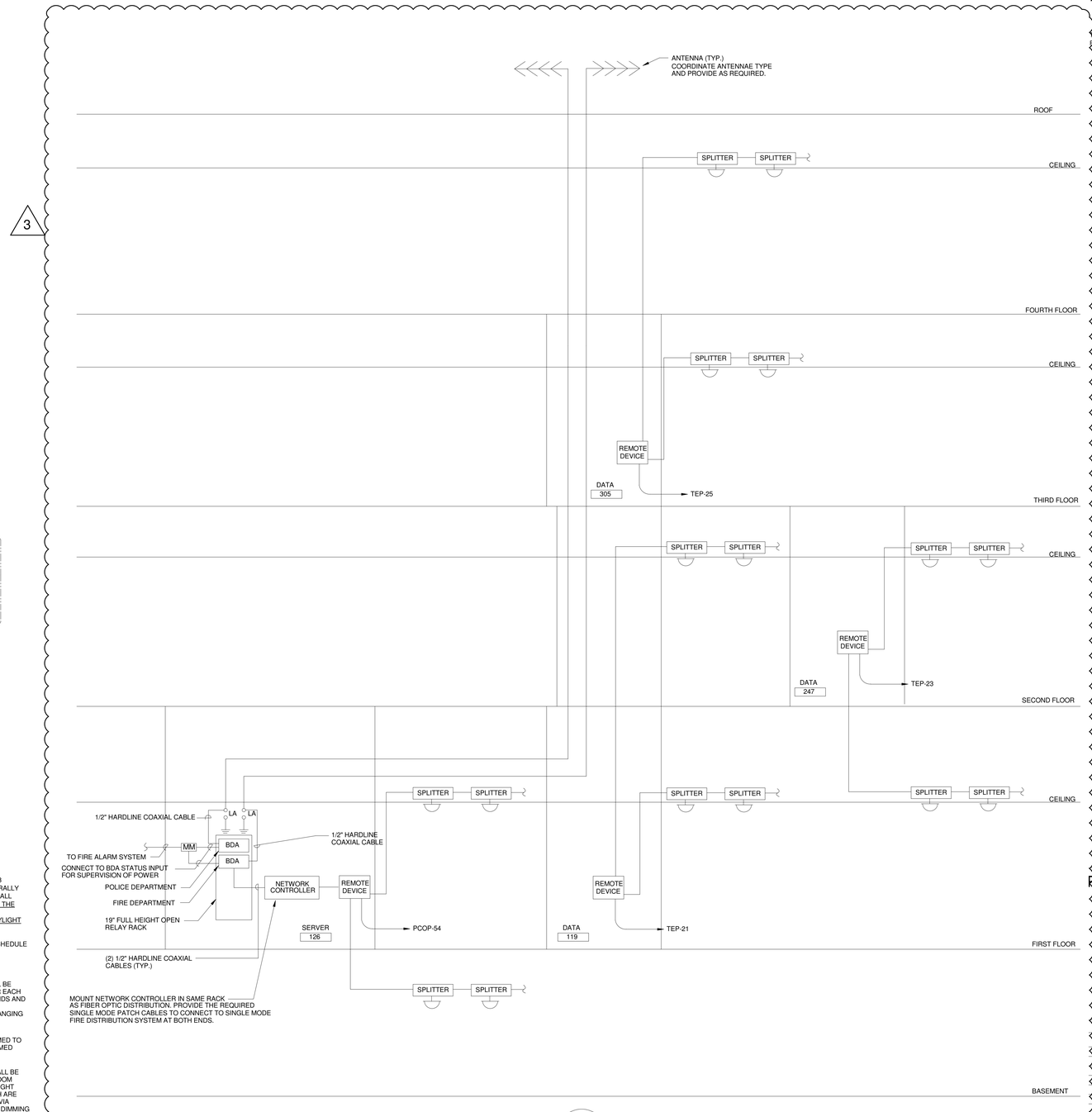
1. INTERIOR SPACES SHALL BE PROVIDED WITH SWITCH STATIONS OF THE 3 BUTTON + RAISE/LOWER TYPE. BUTTONS SHALL BE PROGRAMMED GENERALLY AS FOLLOWS: BUTTON 1 = "ON" 100%, BUTTON 2 = "ON" 50%, BUTTON 3 = "ALL OFF". BUTTON 4 = RAISE/LOWER. WHERE PHOTOSENSORS ARE PRESENT THE LIGHTING SHALL NOT BE ALLOWED EXCEED THE FOOTCANDLE LEVEL ESTABLISHED BY THE SPACE'S PHOTOSENSOR BASED ON AVAILABLE DAYLIGHT CONTRIBUTION AT ANY GIVEN TIME.
2. SWITCH STATIONS SHALL BE PROGRAMMED FOR OVERRIDE OF TIMED SCHEDULE "OFF" PERIODS FOR A MAXIMUM OF 90 MINUTES.

SENSOR OPERATIONS :

1. INTERIOR PHOTOSENSORS (ADDRESSABLE): EACH PHOTOSENSOR SHALL BE PROGRAMMED TO MAINTAIN FOOTCANDLE SETPOINTS ESTABLISHED FOR EACH SPACE DURING SYSTEM SETUP AND COMMISSIONING. DIMMING DEADBANDS AND FADE-RISE RATES SHALL BE ESTABLISHED TO PROVIDE SMOOTH, NON-INTRUSIVE, CHANGES IN SPACE LIGHT LEVELS IN RESPONSE TO CHANGING DAYLIGHT CONTRIBUTIONS AT ANY GIVEN TIME.
2. EXTERIOR PHOTOCELLS (ADDRESSABLE): SENSOR SHALL BE PROGRAMMED TO TURN SITE LIGHTING "ON" AT DUSK AND TURN LIGHTS "OFF" AT DAWN. TIMED SCHEDULE PRESETS WILL DETERMINE OUTPUT LEVELS.
3. OCCUPANCY SENSORS (ADDRESSABLE): EACH OCCUPANCY SENSOR SHALL BE PROGRAMMED TO OPERATE SO THAT LIGHTS TO 50% OF LIGHT LEVEL ROOM PRESET SWITCH WILL ALLOW OCCUPANT TO INCREASE LEVEL TO FULL LIGHT OUTPUT. (CORRIDORS, STAIRS, AND ALL PORTIONS OF THE EGRESS PATH ARE GENERAL EXCEPTIONS) SO THAT MANUAL ACTIVATION OF THE LIGHTING VIA LOCAL SWITCH STATIONS IS REQUIRED. SENSORS SHALL MAINTAIN 100% DIMMING LEVELS LIGHTING FOR AS LONG AS MOTION IS DETECTED. ABSENCE OF MOTION DETECTION FOR THE FOLLOWING TIME PERIODS SHALL TRIGGER THE LIGHTING TO DIM TO THE LEVELS ASSOCIATED WITH EACH TIME PERIOD: 5 MINUTES = 50%, 10 MINUTES = 25%, 15 MINUTES = 10%, 30 MINUTES = OFF. NON-DIMMED FIXTURES SHALL SWITCH TO THE LEVELS ASSOCIATED WITH EACH TIME PERIOD: 5 MINUTES = 50%, 15 MINUTES = OFF. FADE/RISE RATES SHALL BE ESTABLISHED TO PROVIDE SMOOTH, NON-INTRUSIVE, CHANGES IN SPACE LIGHT LEVELS. MOTION DETECTED AT ANYTIME PRIOR TO THE 30 MINUTE FULL TIME-OUT SHALL RETURN THE LIGHTING TO THE 100% LEVEL.
4. SENSOR ADJUSTMENTS FOR ALL FUNCTIONS SHALL BE TURNED TO THE MINIMUM ON EACH DEVICE AND ADJUSTED SOLELY THROUGH THE SYSTEM SOFTWARE.

2 / E304 AUTOMATED LIGHTING CONTROL SYSTEM ALCS ONE-LINE DIAGRAM

SCALE: N.T.S.



3 / E304 DISTRIBUTED ANTENNA SYSTEM (DAS)

SCALE: N.T.S.

DAS NOTES:

1. PROVIDE ALL BONDING HARDWARE REQUIRED FOR A COMPLETE GROUNDING SYSTEM TO ASSOCIATED PANELS, EQUIPMENT, SHELVES, RACKS, AND ANY OTHER METALLIC COMPONENTS TO ENSURE ELECTRICAL CONTINUITY BETWEEN METALIC COMPONENTS AND THE GROUNDED RACK OR CABINET.
2. MAXIMUM FOUR ANTENNAE PER REMOTE DEVICE. PROVIDE AND LOCATE DEVICES IN SUFFICIENT QUANTITY TO PROVIDE A MINIMUM SIGNAL COVERAGE OF 95% AT NEG. 85dBM WITHIN THE BUILDING.
3. PRIORITY AREAS OF COVERAGE INCLUDE THE GYMNASIUM, AUDITORIUM, COMMONS, CAFETERIA, CORRIDORS, MAIN ENTRANCE LOBBY AND STAIR WELLS.
4. ALL COMPONENTS THAT REQUIRE 120V SHALL BE FED FROM CONDITIONED/UPS POWER NEAREST "TEP" PANEL.
5. PUBLIC SAFTEY BI-DIRECTIONAL AMPLIFIERS, ANTENNAE "POLICE" AND "FIRE" SHALL BE PROVIDED. COORDINATE EXACT FREQUENCIES WITH THE GRAFTON PUBLIC SAFETY AUTHORITIES. AMPLIFIED DISTRIBUTION OF PUBLIC SAFETY FREQUENCIES SHALL BE OPERATIONAL AT SUBSTANTIAL COMPLETION OF THE PROJECT.
6. PROVIDE ADEQUATE RACK SPACE FOR FUTURE CELLULAR CARRIER BIDIRECTIONAL AMPLIFIERS, OWNER SHALL BE RESPONSIBLE FOR SELECTING AND NEGOTIATION WITH CELLULAR CARRIER.

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508 - 866 - 5700 FAX 508 - 866 - 5866 E - MAIL info@g - g - d . com

PHASE II: PLYMOUTH TOWN HALL

PLYMOUTH, MA

TOWN OF PLYMOUTH

11 LINCOLN ST.
PLYMOUTH, MA 02360

NO	DATE	BY	DESCRIPTION
2	09/02/2015	MLP	ADDENDUM #3

DATE: 07/29/15
DRAWN BY: SH
JOB NO: 1420
SCALE:

LIGHTING CONTROL RISER & DETAILS

E304

Bid and Construction

SCHEDULE OF MECHANICAL EQUIPMENT

UNIT NO.	DESCRIPTION	LOCATION	LOAD CHARACTERISTICS	VOLT	PH	PANEL CIRCUIT	CIRCUIT BREAKER	FEEDER
ACC-1	AIR COOLED CONDENSING	MECHANICAL 005	25.2 kW	480	3	MSB1-11	100A-3P	SEE "MSB1" SCHEDULE
AHU-1	AIR HANDLING UNIT	MECHANICAL 005	128.1 MCA	480	3	MSB1-12	150A-3P	SEE "MSB1" SCHEDULE
AHU-2	AIR HANDLING UNIT	MECHANICAL 005	128.1 MCA	480	3	MSB1-13	150A-3P	SEE "MSB1" SCHEDULE
AHU-3	AIR HANDLING UNIT	MECHANICAL 005	31.4 MCA	480	3	MHP1-1,3,5	40A-3P	4#8+1#10G-3/4"C
AHU-4	AIR HANDLING UNIT	MECHANICAL 005	35.4 MCA	480	3	MHP1-2,4,6	50A-3P	4#6+1#10G-1"C

SCHEDULE OF MECHANICAL EQUIPMENT

EQUIPMENT AND CONNCECTIONS												REMARKS
	TS					S D	WP		J	S WP J	VFD	
			X		X		X		X	X		CONNECT LIGHT & "WP" RECEPTACLE TO MP 3
			X		X	(2) X			X	X	(5) X	CONNECT LIGHT & "WP" RECEPTACLE TO MP1-98 , REFER TO DETAIL 2/E306 3
			X		X	(2) X			X	X	(5) X	CONNECT LIGHT & "WP" RECEPTACLE TO MP1-98, REFER TO DETAIL 3/E306 3
			X		X	(2) X			X	X	(5) X	CONNECT LIGHT & "WP" RECEPTACLE TO MP1-98, REFER TO DETAIL 4/E306 3
			X		X	(2) X			X	X	(2) X	CONNECT LIGHT & "WP" RECEPTACLE TO MP1-98 , REFER TO DETAIL 5/E306 3

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DRAWN:	MLP
JOB NO:	1420

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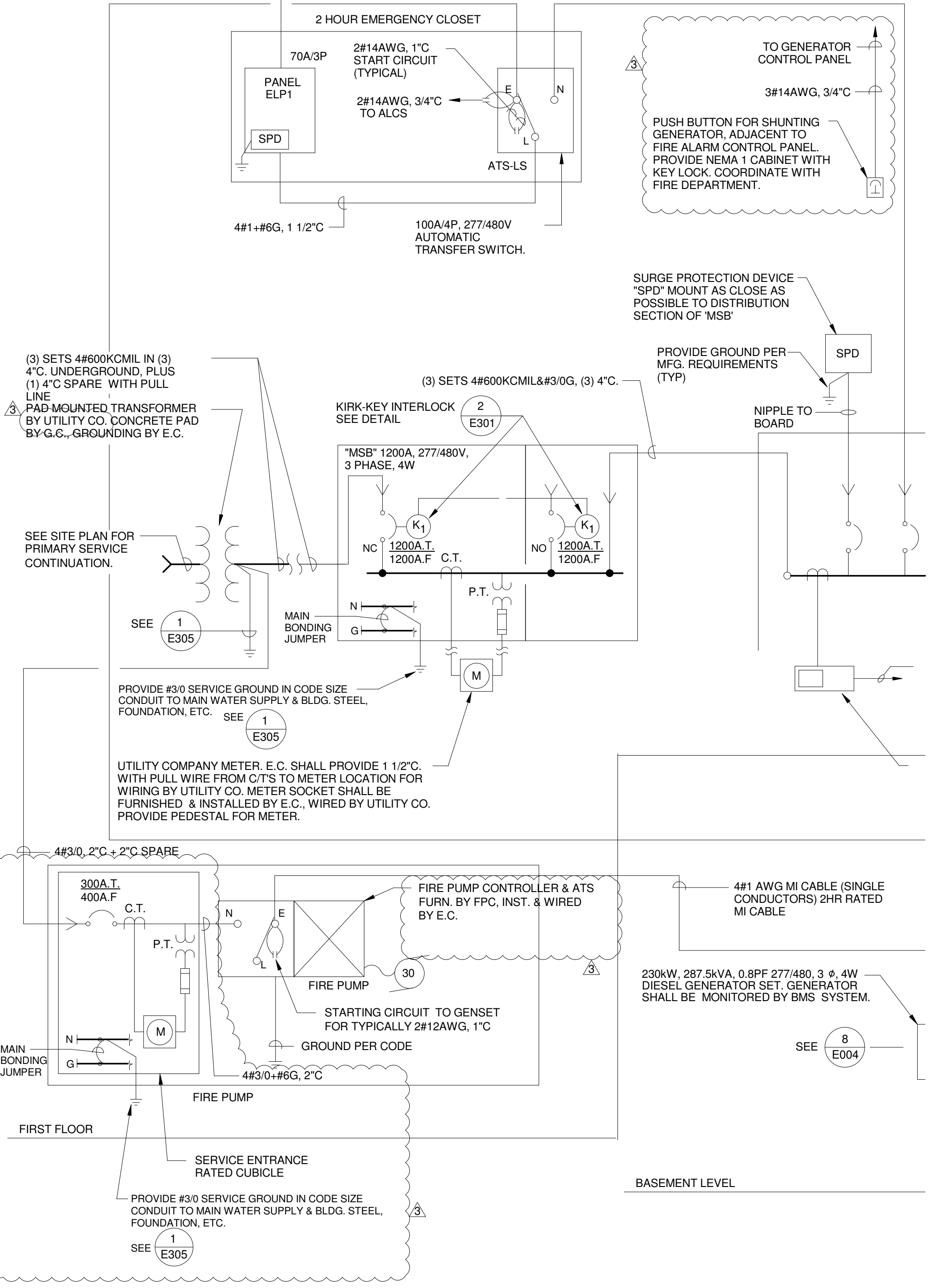
PLYMOUTH, MA
REVISED MWCHANICAL SCHEDULE

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE011



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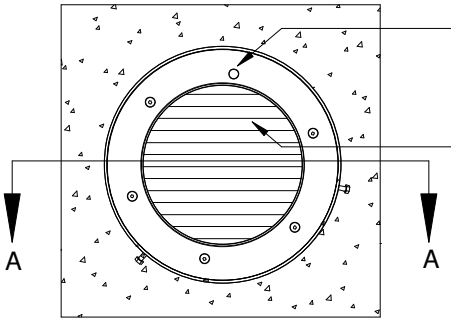
PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

REVISION TO ONE LINE RISER DIAGRAM

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE012

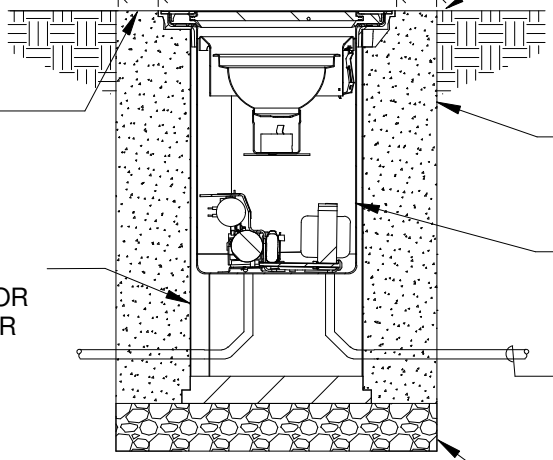
3



PROVIDE TAMPER PROOF BOLTS ON LENS RETENSION RING.

PROVIDE INTERNAL GLARE CONTROL GRID / HEX-CELL TYPE LOUVER.

PLAN



PITCH FINISHED GRADE AWAY FROM FIXTURE.

PITCH

PROVIDE CAST-IN-PLACE CONCRETE ENCASEMENT, (6"MIN)

FIXTURE ROUGH-IN KIT FOR CONCRETE POUR

INTERNAL FEATURES OF FIXTURE ARE GENERIC AND FOR REFERENCE ONLY

BRANCH CIRCUIT RECEWAY(S); 1" MIN. UNLESS NOTED OTHERWISE ON PLANS.

SECTION A-A

PROVIDE 6" GRAVEL BASE

6
E003

IN GRADE ACCENT FIXTURE

SCALE: N.T.S

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PHASE II: PLYMOUTH TOWN HALL
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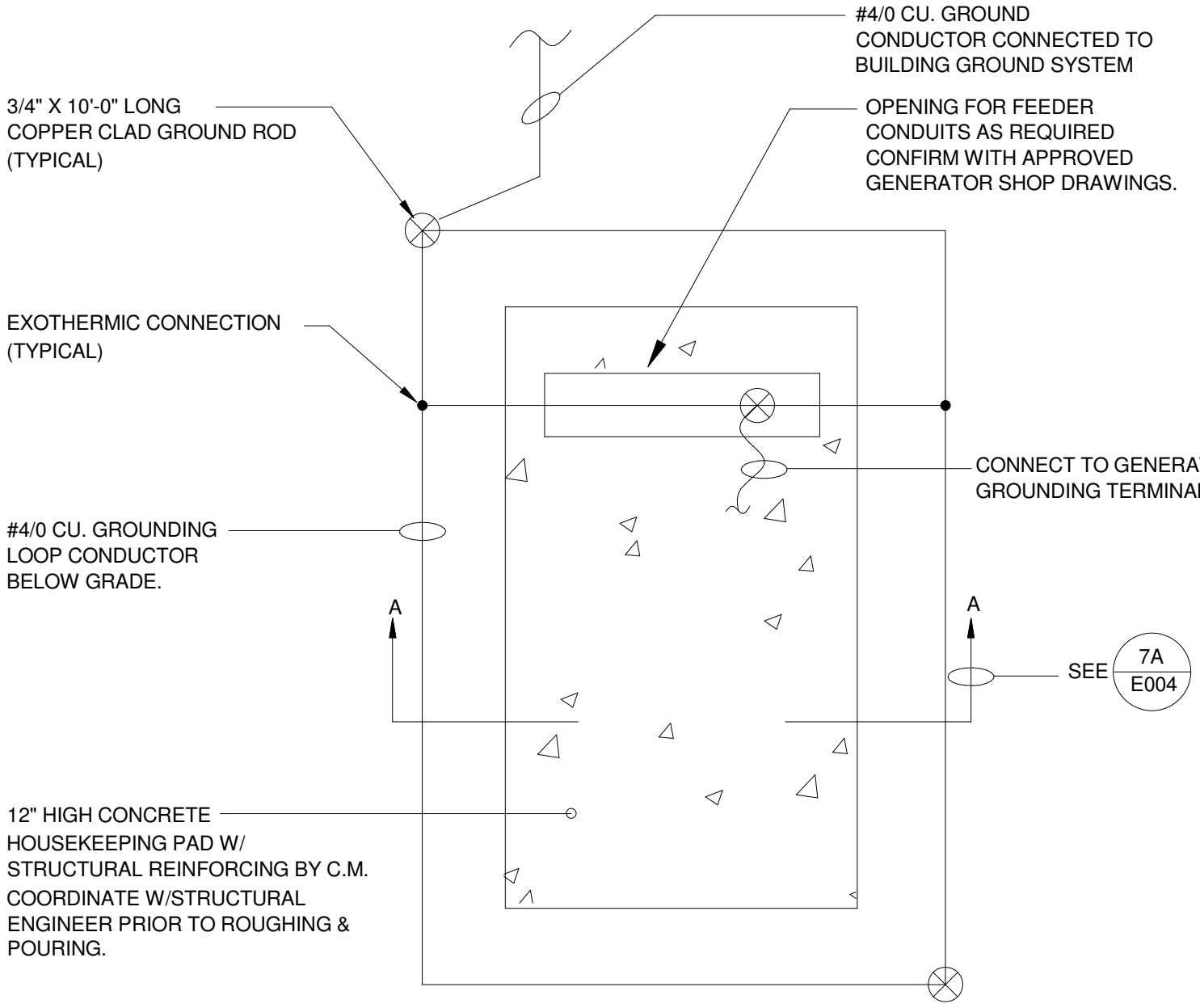
REVISIONS TO ELECTRICAL SITE PLAN

SCALE:	NOT TO SCALE
DRAWN:	MLP
JOB NO:	1420
ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

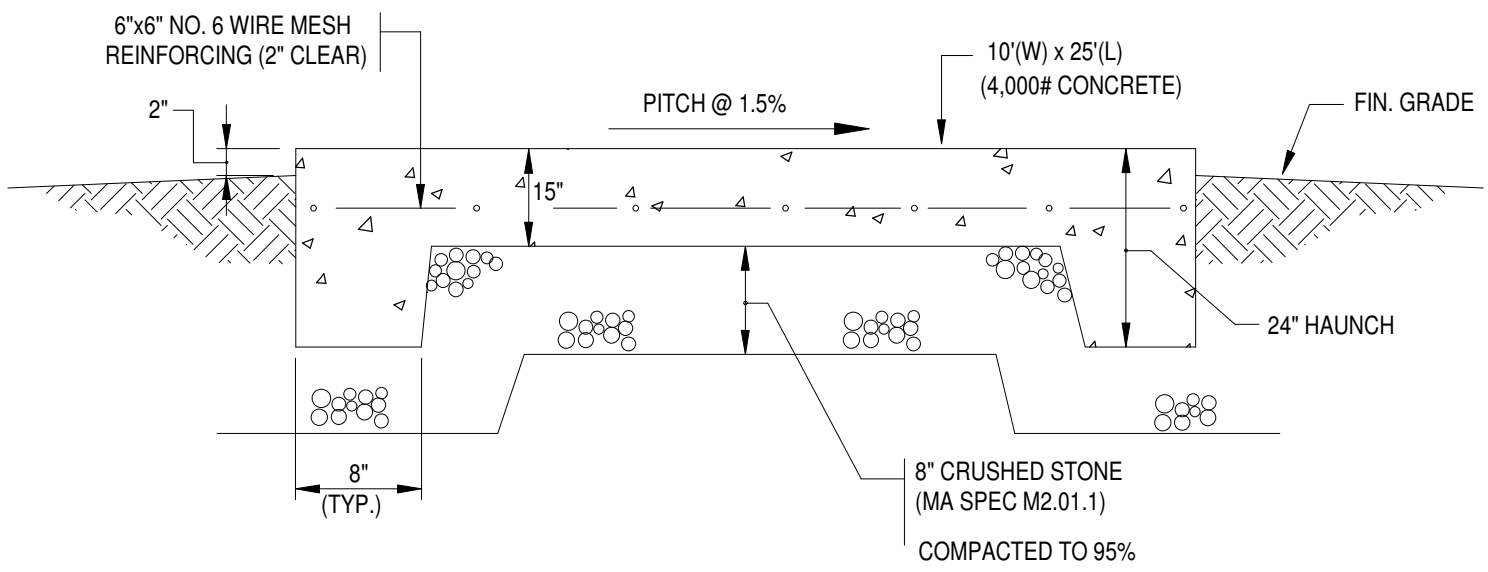
SKE013



3 / 7 / E004

GENERATOR PAD DETAIL (SEPARATELY DERIVED SYSTEM)

SCALE: N.T.S.



SECTION 'A-A'

NOTE:

1. PAD SHALL BE PROVIDED BY G.C. IN ACCORDANCE WITH APPROVED GENERATOR SHOP DRAWINGS. REFER TO STRUCTURAL DRAWINGS.

7A / E004

GENERATOR PAD SECTION 'A-A'

SCALE: N.T.S

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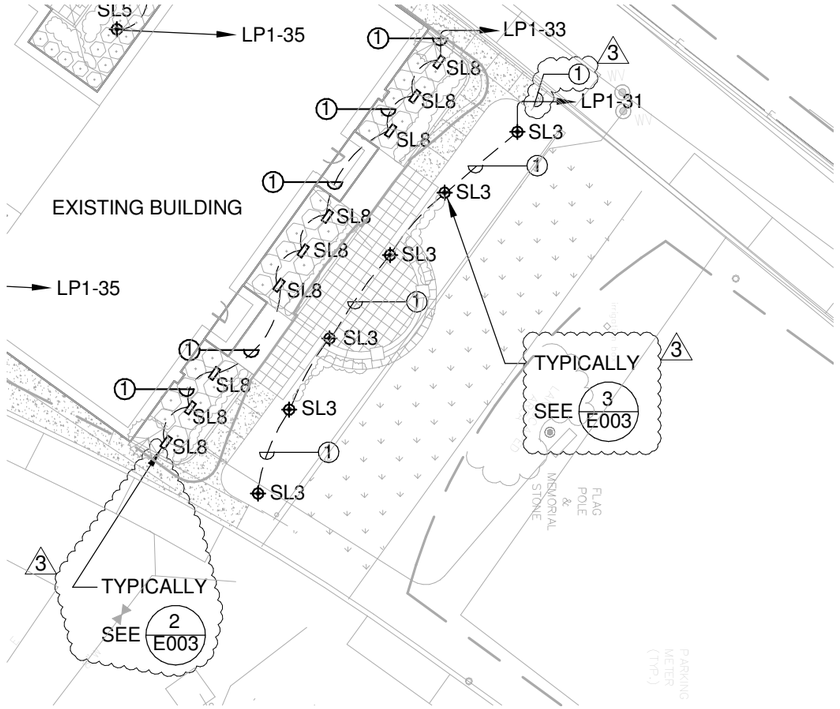
REVISED ELECTRICAL SITE DETAILS

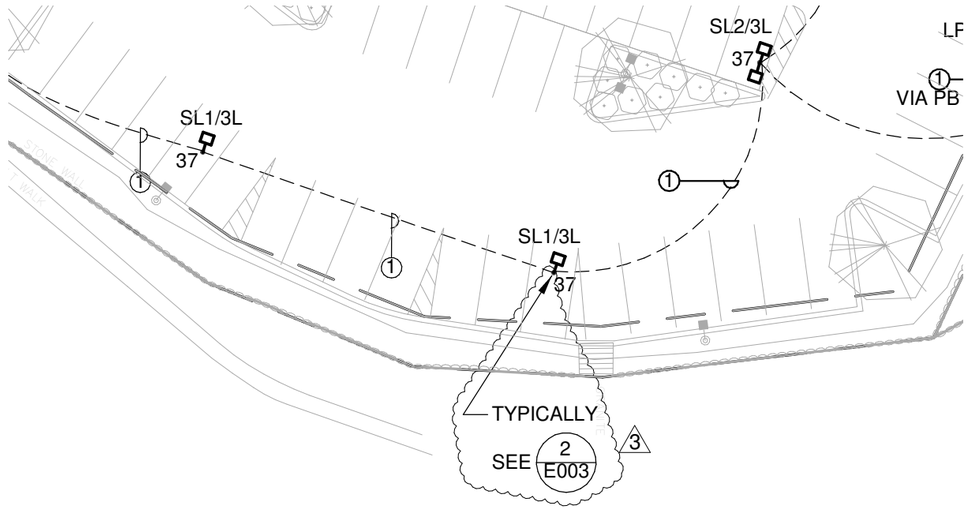
ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE014



1 SKE015 FIRST FLOOR PLAN - POWER

SCALE: 1" = 30'-0"



2 SKE015 FIRST FLOOR PLAN - POWER

SCALE: 1" = 30'-0"

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SCALE:	1" = 30'-0"
DRAWN:	MLP
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PHASE II: PLYMOUTH TOWN HALL
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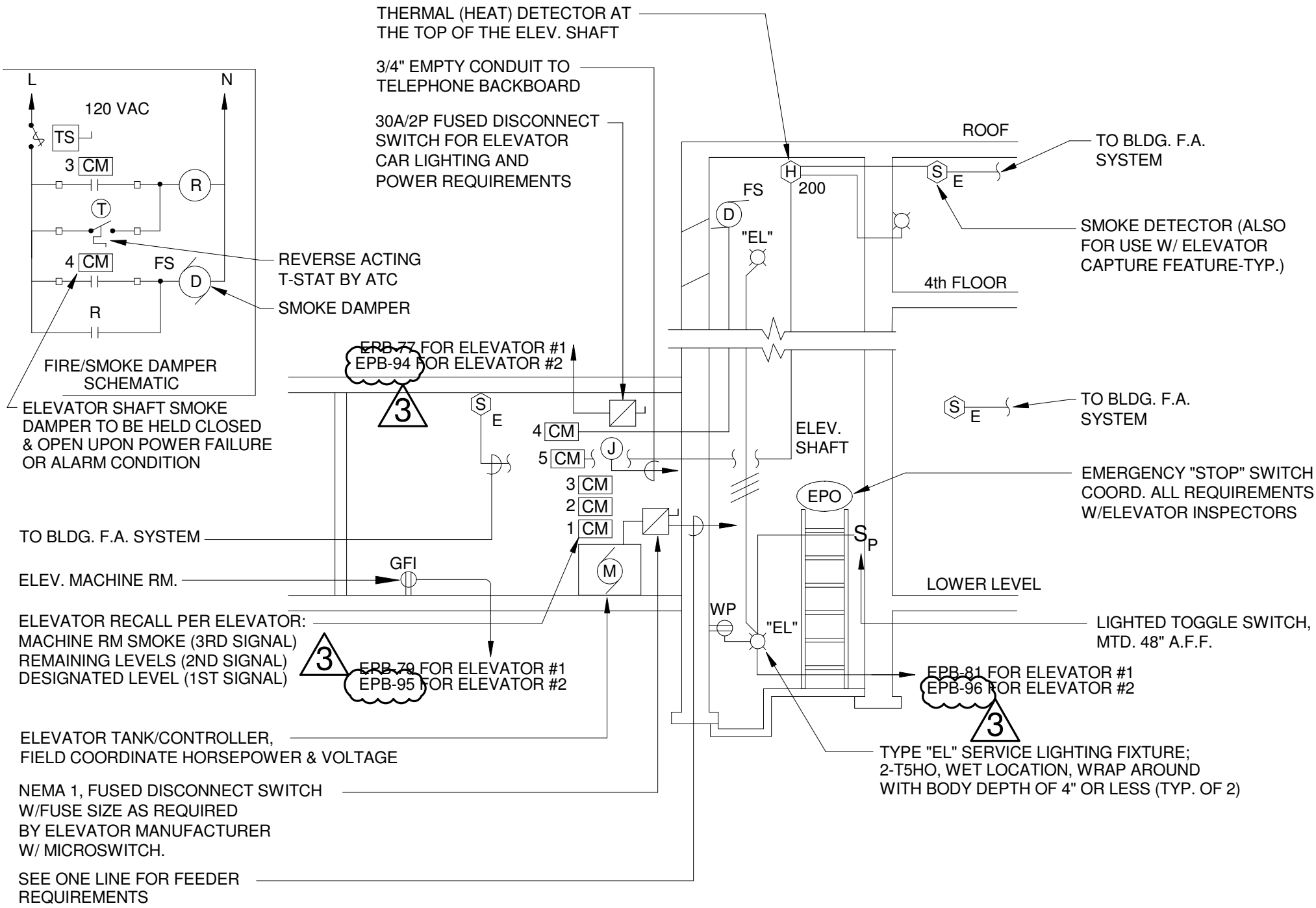
ELECTRICAL SITE PLAN REVISIONS

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE015



SEQUENCE OF OPERATION

1. SMOKE DETECTORS LOCATED IN EACH ELEVATOR LOBBY, MACHINE ROOM AND A FIXED TEMPERATURE HEAT DETECTOR AT TOP OF HOISTWAY SHALL INITIATE ELEVATOR RECALL IN ADDITION TO SENDING SYSTEM INTO "AUTO" ALARM MODE FOR FIRE FIGHTERS SERVICE.
2. FIVE (5) CONTROL MODULES WILL BE LOCATED IN THE ELEVATOR MACHINE ROOM.
3. THE SMOKE DETECTOR LOCATED ON THE DESIGNATED LEVEL WILL ACTUATE THE FIRST CONTROL MODULE OF EACH ELEVATOR AND INITIATE THE ALTERNATE LEVEL RECALL.
4. THE SMOKE DETECTORS ON THE REMAINING ELEVATOR LEVELS WILL ACTUATE THE SECOND CONTROL MODULE FOR DESIGNATED LEVEL RECALL FOR EACH ELEVATOR.
5. THE THIRD CONTROL MODULE WILL BE ACTUATED BY A FIRE ALARM INITIATING DEVICE IN THE MACHINE ROOM, CONTROL SPACE, CONTROL ROOM AND/OR HOISTWAY AND WILL ILLUMINATE THE ASSOCIATED FIREFIGHTERS HAT.
6. WHERE THE ELEVATOR MACHINE ROOM IS LOCATED AT THE DESIGNATED LEVEL, THAT MACHINE ROOM SMOKE DETECTOR WILL ALSO ACTUATE THE FIRST CONTROL MODULE TO RECALL ELEVATOR TO THE ALTERNATE LEVEL.
7. THE FOURTH CONTROL MODULE WILL BE ACTUATED BY A FIRE ALARM INITIATING DEVICE IN THE MACHINE ROOM, CONTROL SPACE, CONTROL ROOM AND/OR HOISTWAY AND WILL ENERGIZE THE MACHINE ROOM EXHAUST FAN.
8. THE FIFTH CONTROL MODULE WILL BE ACTUATED BY A FIRE ALARM INITIATING DEVICE IN THE MACHINE ROOM, CONTROL SPACE, CONTROL ROOM AND/OR HOISTWAY AND WILL DE-ENERGIZE THE FIRE/SMOKE DAMPER CAUSING IT TO OPEN.
9. THE HEAT DETECTOR AT THE TOP OF THE HOISTWAY WILL ALSO ACTUATE THE THIRD CONTROL MODULE IF NEEDED BY ELEVATOR MANUFACTURER OR REQUIRED BY AUTHORITY HAVING JURISDICTION.

2
FA001

ELEVATOR SHAFT AND MACHINE ROOM (NO SPRINKLER) DETAIL (TYP. OF 2)

N.T.S.

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SCALE:	NOT TO SCALE
DRAWN:	MLP
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

REVISED FIRE ALARM RISER

ISSUED FOR:	ADDENDUM #3
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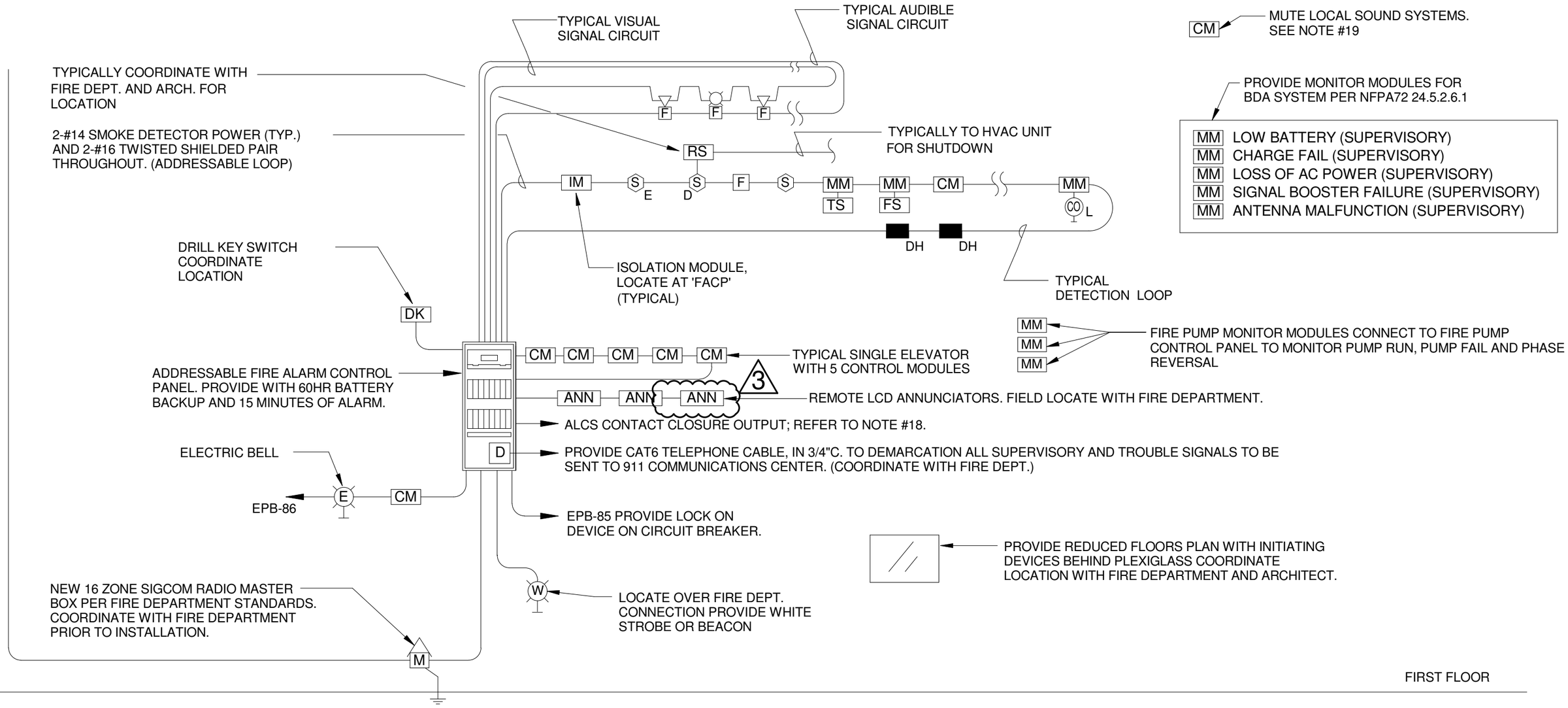
REVISION DATE:	09/02/2015

SKE016



1
FA001

FIRE ALARM RISER DIAGRAM

SCALE: N.T.S.

FIRE ALARM NOTES

5. 3 ALL SPEAKER/STROBES SHALL BE MULTI-TAPPED TYPE. E.C. SHALL OWN dB ADJUSTING DURING FIRE DEPARTMENT TESTING.
6. ALL SPEAKER/STROBES SHALL BE MOUNTED IN ACCORDANCE WITH ADA/NFPA ROOM SPACING

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PHASE II: PLYMOUTH TOWN HALL
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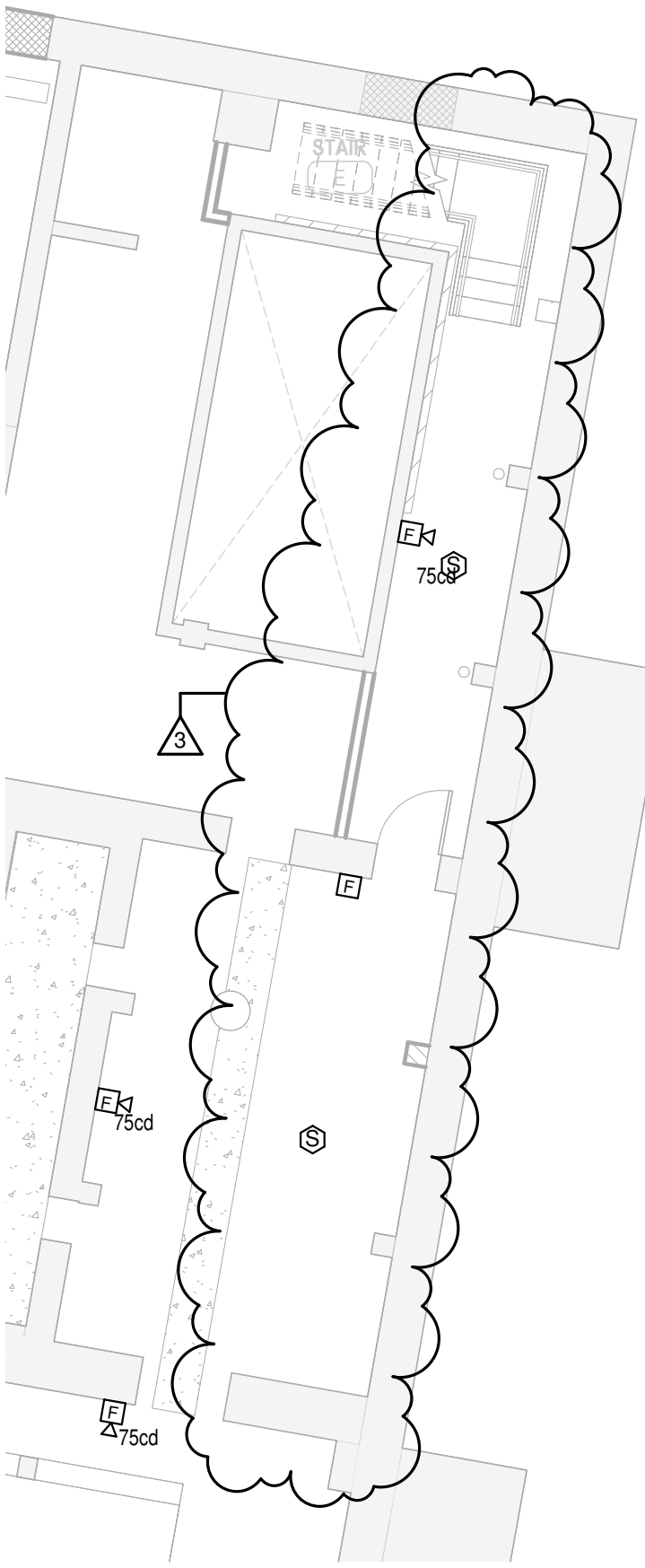
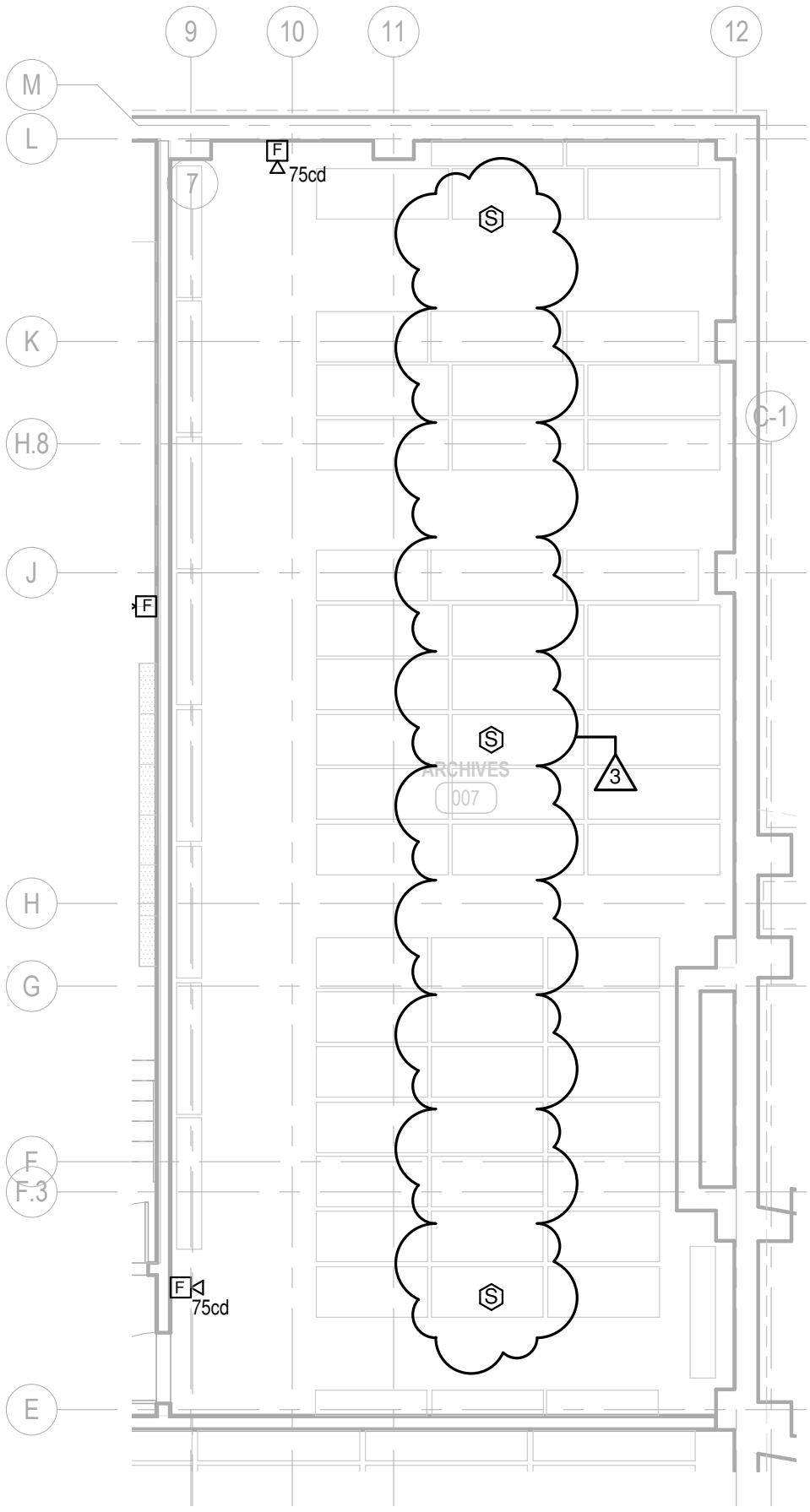
REVISED FIRE ALARM RISER DIAGRAM AND NOTES

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE017



1 SKE018 BASEMENT PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"



2 SKE018 BASEMENT PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

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PLYMOUTH, MA 02360

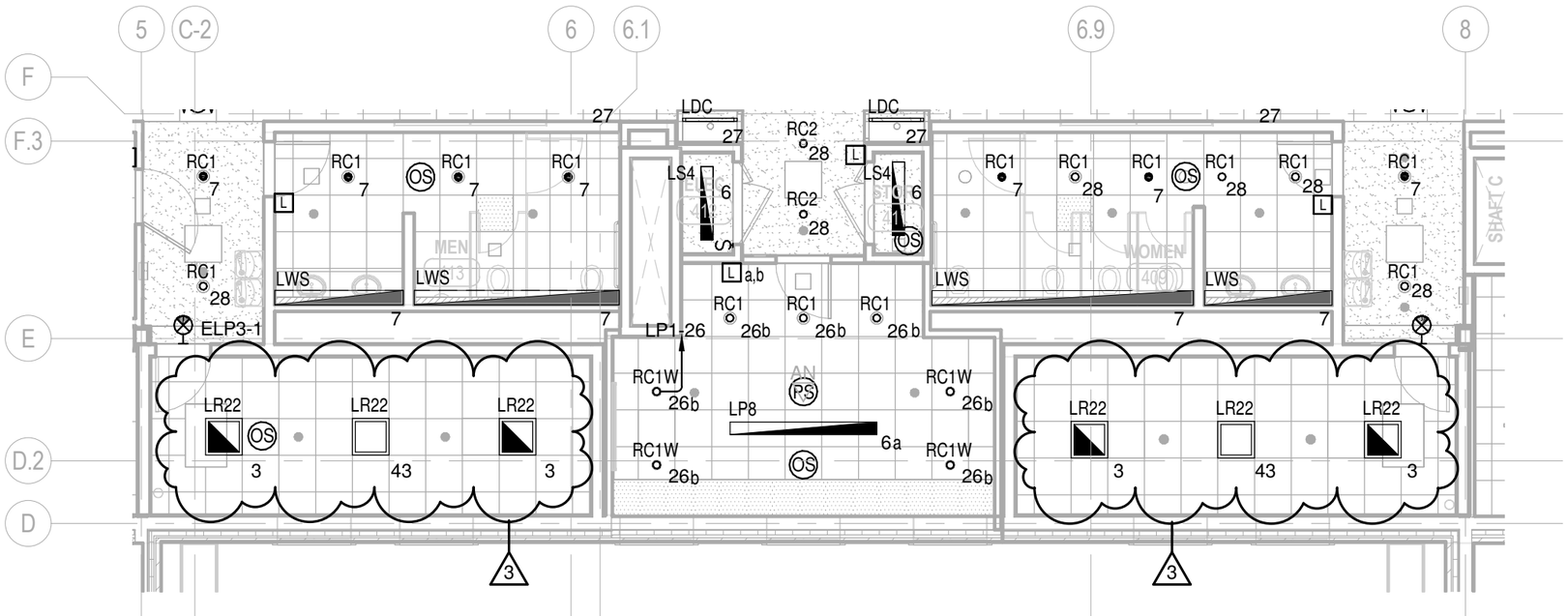
SCALE:	1/8" = 1'-0"
DRAWN:	MLP
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

REVISED BASEMENT FIRE ALARM PLANS

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE018



1 SKE019 FOUTH FLOOR PLAN - LIGHTING

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

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TOWN OF PLYMOUTH
11 LINCOLN ST.

PLYMOUTH, MA 02360

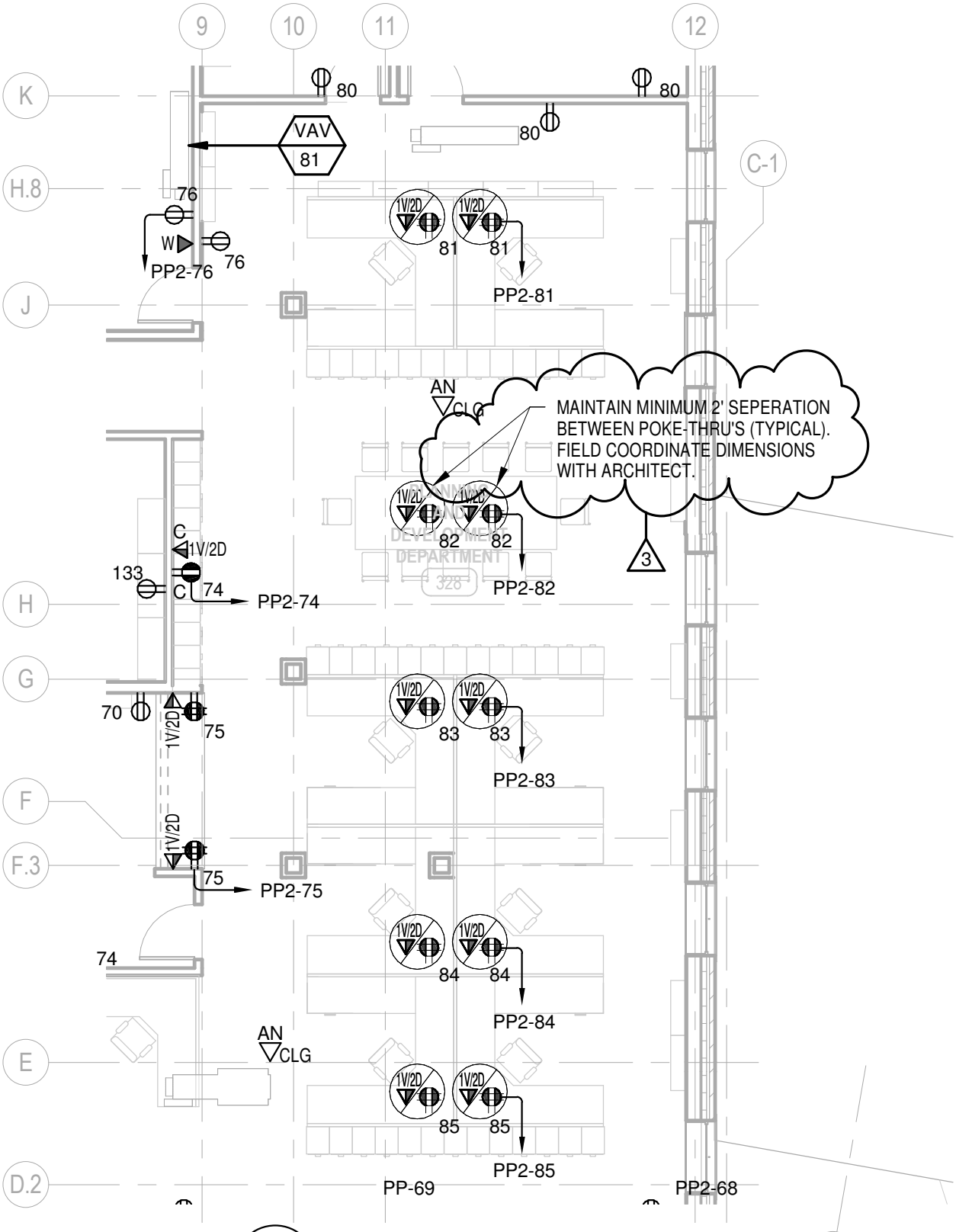
SCALE:	1/8" = 1'-0"
DRAWN:	Author
JOB NO:	1420

PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

REVISED FOURTH FLOOR LIGHTING PLAN

ISSUED FOR:	ADDENDUM #3
DATE ISSUED:	09/02/2015
REVISION DATE:	09/02/2015

SKE019



1 / SKE020 THIRD FLOOR PLAN - POWER

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

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PHASE II: PLYMOUTH TOWN HALL
PLYMOUTH, MA

REVISED THIRD FLOOR POWER PLAN

SCALE:	1/8" = 1'-0"
DRAWN:	MLP
JOB NO:	1420
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SKE020

SECURITY SYSTEM NOTES

1. PROVIDE FIRE ALARM INTERFACE. PROVIDE FIRE ALARM OVERRIDE AS REQUIRED, (2#18GAUGE WIRES BY DIV. 28)
2. PROVIDE CONTACT CLOSURE INTERFACE TO AUTOMATED LIGHTING CONTROL SYSTEM (ALCS) VIA A SINGLE PAIR OF 2#18 CONDUCTORS. WHEN INTRUSION SYSTEM GOES INTO ALARM A SIGNAL SHALL BE ISSUED TO DIRECT THE ALCS TO TURN ALL INTERIOR AND EXTERIOR LIGHTING "ON".

3

3. NOT USED
4. NOT USED

5. ALL WIRING SHALL BE FURNISHED AND INSTALLED BY SECURITY SUB-SUB CONTRACTOR DIV. 28

3

6. THE ACCESS CONTROL SYSTEM, INTRUSION SYSTEM AND VIDEO SURVEILLANCE SYSTEM HEAD END EQUIPMENT & FIELD DEVICES WILL BE PROVIDED BY THE OWNERS SECURITY VENDOR. ALL CABLING FOR ACCESS CONTROL DEVICES, INTRUSION SYSTEM DEVICES, VIDEO SURVEILLANCE, CCTV SYSTEM AND ANY REFERENCE TO INTEGRATION WITH ACCESS CONTROL SYSTEM SHALL MEAN WIRING TO BE PROVIDED BY SECURITY SUBCONTRACTOR. LEAVE 20' OF WIRING COILED IN THE NEAREST IDF/MDF ROOM. ALL CABLING SHALL BE CLEARLY LABELED BY THE DIV. 28 AND TESTED FOR CONTINUITY.

3

2 / E405 NOT USED

SCALE: N.T.S.

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PLYMOUTH, MA

REVISION TO DRAWING E405

ISSUED FOR:	ADDENDUM #3
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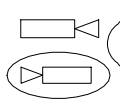
SKE021

SECURITY SYSTEM (addressable)



DOME IP CAMERA. E.C. TO PROVIDE SINGLE GANG OPENING AND 4"SQ.X2 1/2"DP. J.B. & 3/4" CONDUIT WITH PULL STRING TO ACCESSIBLE ABOVE CEILING SPACE AT EACH LOCATION. WIRING BY DIV 28. 3
WP = WEATHERPROOF AND HAVE INFRARED ILLUMINATOR
PTZ = PAN/TILT/ZOOM

INTRUSION ALARM LCD KEYPAD SINGLE GANG BOX AT 48" A.F.F., 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV. 28.

PT — POWER SUPPLY FOR ELECTRIFIED HARDWARE FURNISHED BY DOOR HARDWARE CONTRACTOR. INSTALLED & WIRED BY E.C. 120VAC EMERGENCY BY E.C. INTERFACE WIRING BY DIV. 28.

REX — REQUEST TO EXIT PANIC DEVICE SHALL BE CRASH BAR W/BUILT IN MICROSWITCH. CRASH BAR FURNISHED AND INSTALLED BY DOOR HARDWARE CONTRACTOR AND WIRED BY DIV.28. PROVIDE 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

DC — DOOR POSITION SWITCH - GE/SENTROL 1076DB DOUBLE POLE DEVICE ONE POLE TO ACCESS CONTROL, SECOND POLE TO INTRUSION, COORDINATE HOLE WITH DOOR HARDWARE. PROVIDE 3/4" CONDUIT w/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

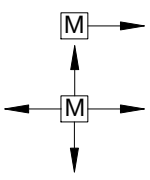
CR — HID iCLASS RK40 COMBINATION ICLASS READER AND KEYPAD AT 48" A.F.F.. CUSTOM BACK BOX FURNISHED BY OWNER'S VENDOR AND INSTALL BY E.C. 3/4" CONDUIT W/PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.. WIRING BY DIV. 28.

AM — ADDRESSABLE INPUT MODULE - SEE ONE LINE FOR REQUIRED ADDRESSING - EACH DEVICE COMES WITH THE APPROPRIATE EOL RESISTOR. DOES NOT REQ/ BACK BOX. WIRING BY DIV. 28.

M — MOTION SENSOR - WALL MOUNTED 6" BELOW CEILING SINGLE GANG BACK BOX W/3/4"C WITH PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28.

M — MOTION SENSOR - CEILING MOUNTED, 360° SINGLE GANG BACK BOX AND 3/4"C WITH PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28.

M — MOTION SENSOR - CORNER MOUNTED FOR 90° PATTERN SINGLE GANG BACK BOX AND 3/4"C WITH PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28.



MOTION SENSOR - FOR LONG RANGE, CEILING MOUNTED SINGLE GANG BACK BOX AND 3/4"C WITH PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28.

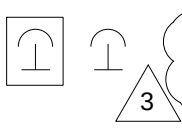
MOTION SENSOR - FOR 360° PATTERN SINGLE GANG BACK BOX AND 3/4"C WITH PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28.

716 — INTRUSION ALARM REMOTE ADDRESSABLE MODULE BY OWNER'S VENDOR IN ENCLOSURE SURFACE MOUNT ENCLOSURE - INCLUDE IN LOOP AS REQUIRED/AS SHOW. WIRING BY DIV.28.

IACP — INTRUSION ALARM CONTROL PANEL WITH BUILD IN DIGITAL COMMUNICATOR BY OWNER'S VENDOR, REQUIRES 120VAC, INTERFACE TO ACCESS CONTROL AND TELEPHONE CONNECTION TO POD WITH BATTERIES BY E.C. WIRING BY DIV.28.

IAPS — INTRUSION ALARM POWER SUPPLY BY OWNER VENDOR - ONE LOCATED AT EACH IDF DESIGNATED - SUPPORT MOTION DETECTOR DC VOLTAGE - REQUIRES 120VAC, MODEL DMP 502-12-G W/ BATTERIES BY E.C. WIRING BY DIV.28.

BLUE SECURITY ALARM BEACON, WEATHERPROOF, PROVIDED BY OWNERS VENDOR. SINGLE GANG BOX, 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28.



SECURITY PANIC BUTTON, FURNISHED BY OWNER'S VENDOR SINGLE GANG BOX, 3/4" CONDUIT & PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C. WIRING BY DIV.28. 3

IESS — INTEGRATED ELECTRONIC SAFETY & SECURITY SYSTEM HEADEND

ACP — WALL MOUNTED ACCESS CONTROLLER BY OWNER'S VENDOR. E.C. SHALL PROVIDE 20A EMERGENCY CIRCUIT AND DOUBLE DUPLEX RECEPTACLE. WIRING BY DIV.28.

KVM — RACK MOUNTED MONITOR AND KVM SWITCH BY OWNER'S VENDOR.

ACS — ACCESS CONTROL SYSTEM SERVER RACK BY OWNER VENDORS. E.C. SHALL PROVIDE 20A EMERGENCY CIRCUIT AND DOUBLE DUPLEX RECEPTACLE. WIRING BY DIV. 28. 3

TVM — 42" LCD CCTV COLOR MONITOR W/ WALL/CEILING MOUNT BRACKET BY OWNER'S VENDOR. E.C. TO PROVIDE 120 VAC EMERGENCY POWER RECEPTACLE, & 3/4" CONDUIT IN SINGLE GANG BOX W/ PULL STRING. MOUNT OUTLET AND BOX AT 96" A.F.F. U.N.O. WIRING BY DIV 28. 3

EH — ELECTRIC HINGE OR ELECTRONIC POWER TRANSFER BETWEEN DOOR AND FRAME. FURNISHED AND INSTALLED BY DOOR HARDWARE CONTRACTOR (SEE DOOR HARDWARE SECTIONS FOR DETAILS), WIRED BY DIV. 28. 4"SQ.X2 1/2"DP. J.B. WITH 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

EL — ELECTRIC LOCK FURNISHED AND INSTALLED BY HARDWARE CONTRACTOR, WIRED BY DIV. 28.. 4"SQ.X2 1/2"DP. J.B. WITH 3/4" CONDUIT W/ PULL STRING TO NEAREST ACCESSIBLE CEILING SPACE BY E.C.

DJ — 4" SQ. DOOR JUNCTION BOX BY EC.

SC — SECURITY MONITOR MODULE BY OWNER'S VENDOR

UPS — RACK MOUNTED UNINTERRUPTIBLE POWER SUPPLY BY OWNER'S VENDOR

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PLYMOUTH, MA

REVISION TO DRAWING E001

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SKE022