

FIRE ALARM WORK

1. GENERAL:
 - A. The "General Conditions of the Contract for Construction," AIA Document A201, latest edition, and these Specifications as applicable are part of this Contract.
 - B. All applicable codes, laws and regulations governing or relating to any portion of this work are hereby incorporated into and made a part of these Specifications, and their provisions shall be carried out by the Contractor who shall inform the Owner, prior to submitting a Proposal, of any work or material which violates any of the above laws and regulations. Any work done by the Contractor causing such violation shall be corrected by the Contractor.
 - C. These Standards include guidelines and specifications that establish a level of quality, as well as standard industry accepted practices for the design of respective electrical systems.
 - D. The Standards shall be the basis for the electrical equipment and material selection, and system design and layout – but only as applicable to this specific building project. Existing building electrical equipment and systems shall be thoroughly reviewed.
 - E. Building management and operations personnel shall be contacted to document the existing equipment and system conditions, as well as Owner standard requirements. Larger offices will have custom power and grounding requirements based on the equipment to be installed. Owner will provide this information during the project. Equipment and system specifications and guidelines that are not applicable to this project shall be disregarded.
 - F. Under no circumstances shall any electrical equipment (panel boards, transformers, disconnects, etc.) be located within the Tenant's designated Telecommunication Room unless required by code. The building's common electrical room(s), a separate electrical closet within the Tenant's lease space, or other location such as work room, admin room or break room within the Tenant's lease space are options for the location of such equipment, listed in order of preference. Telecommunication Rooms cannot be located near sources of high Electromagnetic Interference such as elevator systems, electric motors / generators or transformers.
 - G. Investigate each space through which equipment must be moved. Where necessary, equipment shall be shipped from manufacturer in sections of size suitable for moving through available restrictive spaces. Ascertain from building Owner and Tenant at what times of day equipment may be moved through all areas.
 - H. All electrical work shall be performed in compliance with the latest version of the following codes and standards: ANSI, UL, NEC, OSHA, ADA, NFPA 101, IBC, UFC and local codes, amendments and ordinances
 - I. Drawings are diagrammatic and indicate general arrangement of systems and work. Conduit routing is shown diagrammatically and does not show all offsets, drops and rises of runs. The Contractor shall allow in his price for routing of conduit to avoid obstructions. Coordination with existing services, including those of other trades, is required. Maintain headroom and space conditions.
 - J. For locations and quantities of equipment refer to floor plans, details, schedules and diagrams. Where there are discrepancies between these drawings, the greater of each quantity or cost or equipment specifications shall be used.
 - K. Install work to be readily accessible for operation, maintenance and repair. Minor deviations from drawings may be made to accomplish this, but changes that involve extra cost shall not be made without approval.
 - L. Removal and relocation of certain existing work may be necessary for the performance of the general work. Not all existing conditions can be completely detailed on the drawings. The Contractor shall survey the site and include all changes and charges in making up the work Proposal.
 - M. Connections to existing work: Install new work and connect to existing work with minimum interference to existing facilities. Temporary shutdowns of existing services shall be performed at no additional charges, at times not to interfere with normal operation of existing facilities and only with written consent of Owner. Alarm and emergency systems shall not be interrupted. Maintain continuous operation of existing facilities as required with necessary temporary connections between new and existing work. Connect new work to existing work in neat and acceptable manner. Restore existing disturbed work to original condition, including maintenance of wiring continuity as required.
 - N. Disconnect, remove and/or relocate existing material, equipment and other work as noted or required for proper installation of new work.
 - O. The Contractor shall keep all equipment and materials, and all parts of the building, exterior spaces and adjacent streets, sidewalks and pavements, free from material and debris resulting from the execution of this work. Excess materials will not be permitted to accumulate either on the interior or on the exterior.
 - P. Seal openings through partitions, walls and floors with mineral wool or other noncombustible material. All penetrations through new and existing rated fire and smoke partitions and/or floors shall be completely sealed using materials and methods described in subsequent "Fire Stopping" Specifications Sections.
 - Q. Provide all necessary flashing and counterflashing to maintain the waterproofing integrity of the building as required by the installation or removal of conduit and equipment.
 - R. All existing material, equipment and construction debris to be removed under this contract shall become the property of the Contractor with the exception of specific equipment and apparatus requested by the building representative, Architect or as noted to be relocated on the drawings. Removed equipment shall be properly disposed of by this Contractor.
 - S. The Contractor's Proposal for all work shall be predicated on the performance of the work during regular working hours. When so directed, however, the Contractor shall install work during overtime hours and the additional cost to be charged therefore shall be only the "premium" portion of the wages paid.
 - T. Unless otherwise specifically noted or specified, include all cutting and patching of existing floors, walls, partitions and other materials in the existing building. The Contractor shall restore these areas to original condition.
 - U. All material and equipment shall be new unless otherwise noted and shall be in accordance with building standards.
 - V. Submission of a Proposal shall be construed as evidence that a careful examination of the portions of the existing building, equipment, etc., which affect this work, and the access to such spaces, has been made and that the Contractor is familiar with existing conditions and difficulties that will affect the execution of the work. The Contractor is responsible to indicate any discrepancies between the contract drawings and actual field conditions prior to submittal of bid. Submission of a Proposal will be construed as evidence that such an examination has been made. Later claims shall not be made for labor, equipment or materials required because of difficulties encountered which could have been foreseen during such an examination. The on-site inspection shall verify existing feeders and equipment (sizes, clearances, etc) and conditions.
 - W. Insurance: In accordance with building requirements and shall include a Hold Harmless clause for Owner and Engineer.
 - X. All work shall be done when and as directed by the Client and in a manner satisfactory to the Building Owner. Work shall be performed so as to cause the least possible inconvenience and disturbance to other building occupants.
 - Y. The final acceptance shall be made after the Contractor has adjusted his equipment, tested the various systems, demonstrated that it fulfills the requirements of the drawings and specifications and has furnished all the required certificates of inspection and approval.
 - Z. Panel, junction and pull boxes shall be located clear of other trades. Conceal junction and pull boxes in

finished spaces. Where necessary, reroute raceways or make other arrangements for concealment. Boxes shall be accessible. Provide access doors as required for accessibility. Support boxes from building structure, independent of conduit. Provide floor-to-ceiling channels for mounting on drywall and lightweight construction. Outlet boxes for fixtures recessed in hung ceilings shall be accessible through opening created by removal of fixture. Secure to black iron support. Motor terminal boxes: coordinate with motor branch circuit conduit and wiring; add box volume where required.

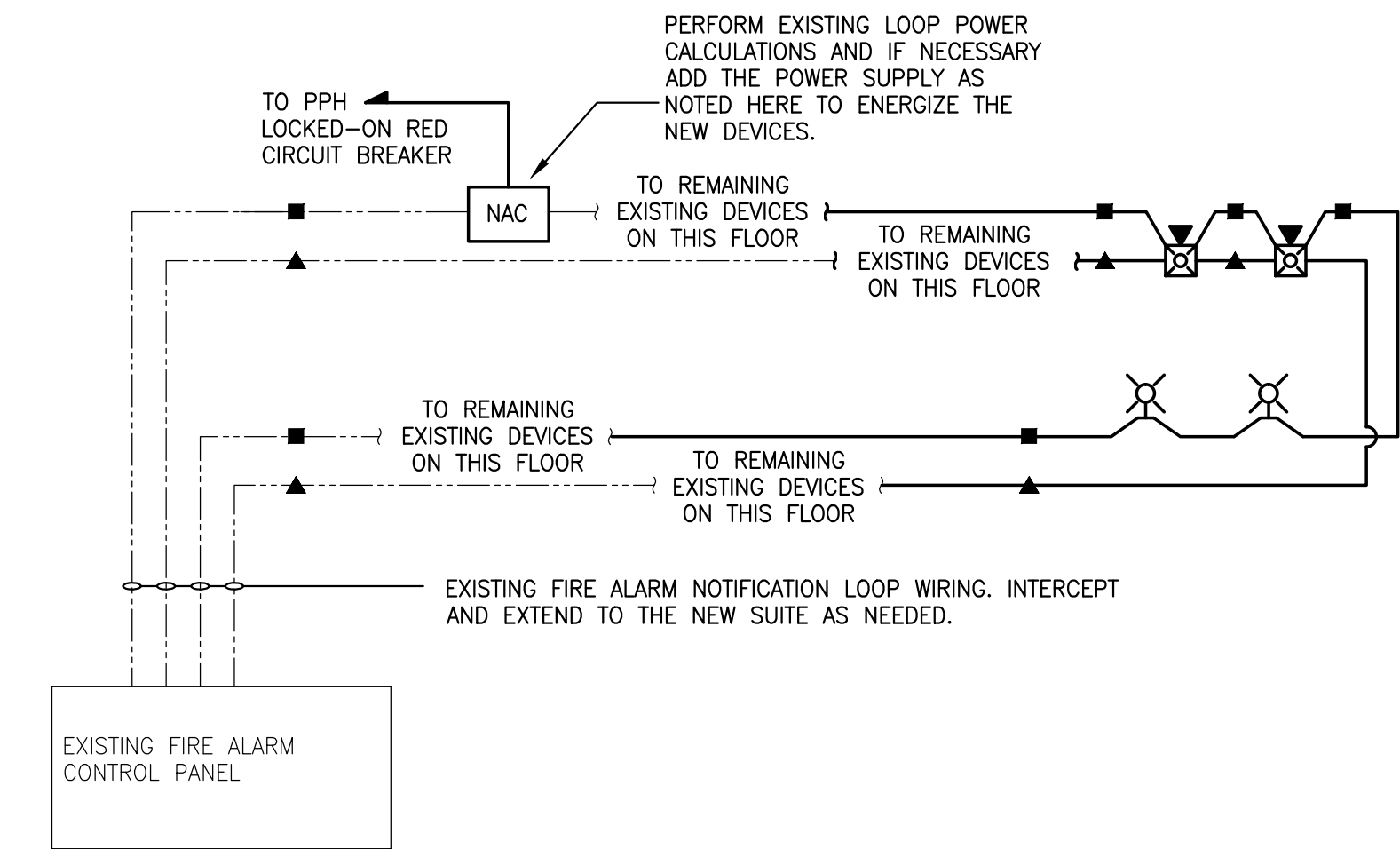
- AA. Fire sealants: Provide for raceways and wire passing through floor slots, sleeves or openings in fire-partitions.
- AB. Perform continuity tests of resistance of feeder conduits from service to point of final distribution using 1 conductor return. Maximum resistance shall be 25 ohms.

23. FIRE ALARM SYSTEM

- A. The building is served by a base building fire alarm system. The system will remain and be expanded to accommodate the renovations to the building. During the construction phase the existing system shall be protected from damage.
- B. All fire alarm equipment shall be provided to form a complete coordinated system ready for operation. It shall include, but not be limited to, alarm initiating devices, alarm indicating devices, control panel, auxiliary control devices, annunciators, power supplies, and wiring.
- C. Supervision: The system shall be electrically supervised and monitor the integrity of all conductors. Each designated initiating point shall simultaneously transmit separate and distinct alarm, supervisory and trouble signals to the fire alarm control panel and annunciator. Audible Alarm Indication: Complete building audible horns to provide a synchronized temporal code fire alarm evacuation signal.
- D. Visual Alarm Indication: Complete building visual xenon-strobe type units to provide a synchronized flash rate. The strobe units will provide the intensities as indicated on the drawings. Additional strobe units are indicated on the drawings to provide supplementary visual signaling in the elevated sound level areas of the building.
- E. Alarm acknowledging, alarm silencing and system resetting shall be accomplished only from the fire alarm control panel. The system shall only be reset by a factory trained and authorized personnel for the installed system. These three (3) functions shall be password protected.
- F. Fire Protection Systems: The system shall monitor the status of the building wet and dry sprinkler fire protection systems. Three levels of monitoring shall be provided:
 - 14) Alarm – activated when a water flow condition is detected;
 - 15) Supervisory – activated when a gate valve is closed indicating a tamper switch is activated and an off – normal system air pressure;
 - 16) Trouble – activated when a short, open or other similar condition is detected on the indicating circuit.
- G. The system shall control the building fire protection sprinkler system exterior bell. Activation of water flow indicating switch or a supervisory valve tamper switch non-silenceable circuit so that anytime a water flow condition or monitored gate valve closed is detected, the bell will sound regardless of the status of the fire alarm system. All wiring shall be supervised and the bell shall operate on 24 VDC power from the fire alarm system.
- H. Elevator Shutdown: System heat detectors will be provided in the elevator equipment rooms and the top of the elevator hoistway. Actuation of a heat detector will transmit a signal to the elevator power shut trip breaker to automatically disconnect power.
- I. Fan Shutdown: The system shall automatically shut down HVAC systems if smoke is detected in the main supply or return ducts of the unit. Duct mounted smoke detectors shall transmit an alarm condition to the control panel which shall cause an alarm condition. The control panel shall then activate an addressable control module that shall interface to the fan control circuit. Provide one addressable control module for each monitored air-handling unit.
- J. Smoke/Damper Control: The system shall automatically shut down smoke/dampers if smoke is detected in the associated duct. Duct mounted smoke detectors shall transmit a supervisory signal to the control panel. The control panel shall then activate an addressable control module that shall interface to the damper control switch. Provide one addressable control module for each monitored air-handling unit. Provide 120 volt power and connect to damper controller. Control shall be such that dampers fail closed. Control of smoke damper shall be:
 - 1) By local ceiling smoke detector when dampers are located above cross-corridor smoke doors.
 - 2) By individual duct mounted smoke detector.
- K. All new components shall be compatible with the existing system and listed to operate with the base building system.
- L. Work Included:
 - 1) Work under this section includes the installation of components to form a complete and operative fire alarm system, including removal of the existing fire alarm system devices that are not to be retained.
 - 2) Work shall include, but not limited to, the following:
 - a) Installation of new Fire Alarm System Components and associated equipment
 - b) Disconnection, removal and disposal of existing fire alarm equipment and wiring.
 - c) Testing
 - 3) Furnish and install Fire Alarm System components to work in conjunction with the existing base building fire alarm system as described herein and as shown on the plans; to be wired, connected, and left in first-class operating condition. The system shall include manual station (fire alarm boxes), automatic fire detectors, audio/visual devices, strobes, beacon, door holders, electric door strikes, all wiring, conduit, connections to devices, connections to sprinkler flow and tamper switches, zone modules, SNAC panels, outlet boxes, junction boxes and all other necessary material for a complete operating system. The new fire alarm system components will be as manufactured by the base building system manufacturer.
 - 4) The work covered by this section of the specifications includes the furnishing of all labor, equipment, materials and performance of all operations in connection with the installation of the Fire Alarm System as shown on the drawings and as herein specified.
 - 5) The complete installation is to conform to the applicable sections of NFPA-72, Local Code Requirements and Massachusetts Electrical Code.
 - 6) The work covered by this section of the specifications is to be coordinated with the related work as specified elsewhere under the project specifications.
 - 7) The electrical contractor is to coordinate the installation, final connections and testing with the building manager/owners fire alarm system contractor/service company. All costs associated with the building manager/owners contractors as it relates to this project will be paid by this contractor as part of his base bid.

FIRE ALARM SYSTEM NOTES:

1. PROVIDE ALL FILING, PERMIT & FIRE DEPARTMENT INSPECTION FEES.
2. ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUITRY REQUIREMENTS SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS WIRING DIAGRAM, SHOP DRAWINGS AND ALL CODES THAT MAY APPLY.
3. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN CONDUIT. PROVIDE CONDUIT CONCEALED IN WALLS UP TO ACCESSIBLE CEILING WITH INSULATING BUSHING FOR ALL WALL MOUNTED FIRE ALARM DEVICES.
4. PROVIDE APPROPRIATE NFPA CLASS "A" WIRING FOR ALL WIRING BETWEEN RELOCATED DEVICES, EXISTING DEVICES, AND MAIN FIRE CONTROL PANEL. RETURN CIRCUIT SHALL BE IN A SEPARATE CONDUIT.
5. REFER TO FLOOR PLAN FOR EXACT LOCATIONS AND QUANTITIES OF ALL DEVICES.
6. ALL WORK SHALL CONFIRM TO BOSTON FIRE DEPARTMENT AND NFPA 72 REQUIREMENTS.
7. EXTEND CIRCUITRY TO ADDITIONAL DEVICES AS INDICATED ON FLOOR PLANS.
8. ALL SHIELDS ON ADDRESSABLE SIGNAL CIRCUITS AND SPEAKER CIRCUITS SHALL BE COVERED WITH HEAT SHRINK TUBING BEFORE TERMINATION.
9. ELECTRICAL CONTRACTOR SHALL PROVIDE AND CONNECT ALL NEW DEVICES TO AN EXISTING FIRE ALARM SYSTEM ADDRESSABLE LOOP LOCATED WITHIN SERVING AREA. NEW DEVICES SHALL MATCH EXISTING MANUFACTURERS FIRE ALARM DEVICES. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY POWER SUPPLIES, BOOSTERS AND REPROGRAMMING OF SYSTEM TO ACCOMMODATE NEW DEVICES. COORDINATE WITH BUILDING FIRE ALARM VENDOR PRIOR TO SUBMITTING BID TO ENSURE SCOPE IS FULLY COVERED. PROVIDE AN ADDITIONAL LOOP IF SPARE CAPACITY IS NOT AVAILABLE IN EXISTING LOOP SERVING AREA.
10. ALL 120V CIRCUITS FOR THE FIRE ALARM SYSTEM SHALL BE DEDICATED CIRCUITS. PROVIDE LOCKABLE CIRCUIT BREAKERS FOR ALL FIRE ALARM CIRCUITS.
11. SEE ADDITIONAL REQUIREMENTS IN FIRE ALARM SPECIFICATIONS ON DRAWINGS E-500 SERIES.
12. SYNCHRONIZE ALL STROBES AT END OF CONSTRUCTION. REPLACE DEFECTIVE EXISTING SPEAKER/STROBE OR STROBES AS NEEDED.



1 FIRE ALARM RISER DIAGRAM
SCALE: N.T.S.

FIRE ALARM RISER LEGEND:

- ▲--- CLASS "A" ADDRESSABLE AUDIBLE SIGNAL CIRCUIT EXISTING WIRING
- CLASS "A" STROBE/HANDICAP LIGHT CIRCUIT EXISTING WIRING
- ▲--- CLASS "A" ADDRESSABLE AUDIBLE SIGNAL CIRCUIT NEW WIRING
- CLASS "A" STROBE/HANDICAP LIGHT CIRCUIT NEW WIRING
- |--- INDICATES CONTINUATION OF WIRING TYPE

NOTIFICATION APPLIANCES SYMBOLS

- SMOKE DETECTION/SENSOR FOR DUCT
- VISIBLE ONLY (STROBE) – WALL MOUNT
CD = CANDELA RATING/SETTING
- COMBINATION SPEAKER/VISIBLE
CD = CANDELA RATING/SETTING
C = CEILING MOUNT
- REMOTE INDICATOR – WALL MOUNT

CONTROL AND POWER CABINETS

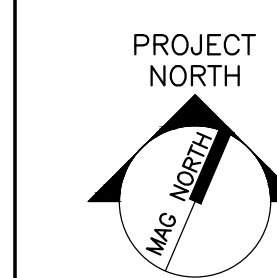
- NOTIFICATION CIRCUIT POWER BOOSTER PANEL

FIRE ALARM RISER LEGEND:

- CLASS "A" ADDRESSABLE SIGNAL CIRCUIT
- CLASS "A" STROBE/HANDICAP LIGHT CIRCUIT
- |--- INDICATES CONTINUATION OF WIRING TYPE

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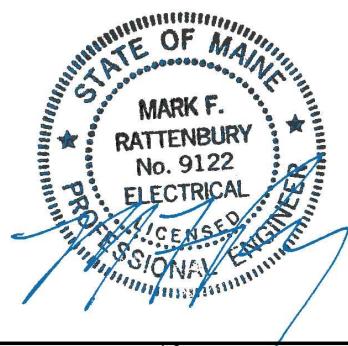


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MAINE MEDICAL CENTER
IR READING ROOM AND U/S RENOVATION
PORTLAND, MAINE

REV	DESCRIPTION	DATE
03-31-17	ISSUED FOR PERMITTING	

GRAPHIC SCALE:	0" = 1"
SCALE:	NTS
PROJECT MANAGER:	
JC/DRAWN BY:	
A/E OF RECORD:	
CAD FILE:	
PROJECT NO.:	B160305-000
DATE:	03-31-17
SHEET TITLE:	FIRE ALARM COVER SHEET



SHEET No. FA-000

SAVE DATE: 2/24/2017 10:29 AM

PLOT DATE: 3/31/2017 2:01 PM

LOGIN: Jaques, Christopher

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