

## **Beth Israel Deaconess Medical Center East Campus & Shapiro Building Fire Alarm specification and guidelines**

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Hospitals present a unique environment unlike that of other construction locations. Special considerations must be given to ensure safety as well as minimize construction impacts to all patient, faculty, visitors, and contractors. The following are requirements for the design, construction and operations and maintenance of BIDMC facilities.

Released by:

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## **EAST CAMPUS & SHAPIRO BUILDING FIRE ALARM SYSTEM SPECIFICATIONS**

### **1. GENERAL REQUIREMENTS**

1.1 The requirements of the contract documents, including the general conditions and division 1 – general requirements shall apply to the work of this section.

1.2 All exceptions taken to these specifications, all variances from these specifications and all substitutions of operating capabilities or equipment called for in these specifications shall be listed in writing and forwarded to the BIDMC Project Manager and Architect/Engineer. Any such exception, variances or substitutions which were not listed at the time of bid and are identified in the submittal, shall be grounds for immediate disapproval without comment.

1.3 Fire alarm system work under this section shall include all labor, equipment, materials and services required to furnish and install a complete system of devices and wiring. The new system shall be complete with all necessary hardware, software, battery backup, power supplies, etc., as required for a complete and working system as described by the systems integrator.

1.4 Catalog numbers specified are standard equipment of Edwards Systems Technologies (EST III) and constitute type and quality of equipment required. All equipment shall be UL listed for fire alarm signaling use. The system and its installation shall be provided in accordance with the applicable editions and sections of The NFPA Standards #72, life safety code (NFPA standards #101), the Massachusetts state building and fire codes, electrical codes and all other local codes and regulations.

1.5 Programming services EST III on the east campus shall be provided by Fire Equipment Inc. - contact Dave Curreri 888-296-1381 x6351 (dcurreri@firefire.com). Products may be purchased through an authorized EST distributor.

1.6 Programming services in the Shapiro building shall be provided by fire equipment Inc. – contact Dave Curreri 888-296-1381 x6351 (dcurreri@firefire.com). Products may be purchased through an authorized EST distributor.

1.8 Related Documents:

1.8.1 Secure building and electrical permits from Inspectional Service Department of Boston and fire alarm permit from Boston Fire Department prior to the project commencement.

1.8.2 Upon completion of installation and testing with manufacture, coordinate with Electrical Maintenance to have a pre-inspection with UL list testing company. The Boston Fire Department will be contacted for final approval.

1.8.3 The electrical contractor will submit a record of completion for the installation as required by the NFPA 72 before, along with BFD Permit, Electrical Permit and a Building Permit. Will also need a copy of the electrical contractor and installing electrician electrical license.

1.9 Submittals:

1.9.1 Provide a complete list of all types of equipment and components provided. This shall be incorporated as part of a table of contents, which will also indicate the manufacturer's part number and the description of the part.

1.9.2 Provide a description of operation of the system, similar to that provided in part b products of this section of the specifications, to include any and all exceptions, variances or substitutions listed at the time of bid. Any such exceptions, variances or substitutions which were not listed at the time of bid and are identified in the submittal, shall be grounds for immediate disapproval without comment.

1.9.3 Provide manufacturer's original printed product data, catalog cuts and description of any special installation procedures.

Photocopied, faxed and/or illegible product data sheets shall not be acceptable. All product data sheets shall be highlighted or stamped with arrows to indicate the specific components being submitted for approval.

1.9.4 Provide manufacturer's installation instruction manual for specified system. Provide samples of various items when requested.

1.9.5 Provide a complete riser diagram which depicts all individual control panels, annunciators (and any particular annunciator controls and/or switches); pull boxes and conduit provisions for future device looping. The riser diagram shall also include wire specifications and wire tags on each feeder/circuit shown on the riser diagram.

#### 1.10 Warranty:

1.10.1 Manufacturer shall guarantee the system equipment for a period of one (1) year from date of substantial or final completion of the system.

1.10.2 The contractor shall guarantee all wiring and raceways to be free from inherent mechanical or electrical defects for one (1) year from date of substantial or final completion of the system.

1.10.3 upon completion of the installation of fire alarm system equipment, the electrical contractor shall provide to the engineer a signed written statement, substantially in form as follows: "the undersigned, having engaged as the contractor on the Beth Israel Deaconess Medical Center confirms that the fire alarm system equipment was installed in accordance with the wiring diagrams, instructions and directions provided to us by the manufacturer.

## 2. System Operation

2.1 Operation of system smoke (with the exception of stair well smokes & duct detectors) or heat detector or manual fire alarm station, shall automatically: Activate the Fire Alarm system, which will notify the Boston Fire Department that there is an alarm.

2.2 Activate the audible and visual alarms on all floors throughout the building: alarms shall be heard clearly by all occupants throughout the building, including elevators. Acceptable frequency and DB levels shall be required by Boston Fire Department and in accordance with 780 CMR 917.8.2. And verified by the medical center's UL certified testing agent that decibel levels have been measured throughout facility with ANSI type I sound level meter.

2.3 Shapiro-Activate the recorded message regarding the evacuation procedure. The alarm and communication system shall provide a pre-recorded message to all areas. The message shall contain the following information. "Attention please: the signal you have just heard indicates a report of an event in this building. You should await further instructions while this report is being verified. If further action is necessary, you will be instructed to follow the floor response plan." this message shall be repeated three times. A female voice shall be used for this message. Exact wording of the evacuation message shall be reviewed and coordinate with BIDMC and BFD.

\*East Campus- Activates the Coded Fire Alarm System for the Building and Floor\*

2.4 Shapiro Only- The emergency signal shall be three (3) rounds of 900 hz signal followed by the pre- recorded message (repeated three times). The evacuation signal will continue on the floor of the incident and the next floor above and below.

2.5 Display alarm condition on FACP and remote fire alarm annunciator.

2.6 Release self-closing fire barriers and smoke doors when the associated fire zone goes into alarm and disconnect power to the electric door operators. However, within the fire zone, BIDMC may have security doors that secure on loss of power and the hospital has developed standard operating procedures implemented by floor personnel.

2.7 Duct smoke detectors shall shut down respective supply fans, when detector is operated, where shown on drawings and shall signal a supervisory trouble only at the main Fire Control Panel.

2.8 Stairway smoke detectors upon initialization shall signal a supervisory trouble only at the main Fire Control Panel.

### 3. Supervision

3.1 The system shall contain class “a” independently supervised initiation circuits so that a fault in any one zone (building) shall not affect any other zone (building). The alarm activation of any initiation circuit (provided in future) shall not prevent the subsequent alarm operation of any other (future) initiation circuit.

3.2 There shall be class “a” independently supervised and independently fused indicating appliance circuits for alarm speakers and flashing alarm lamps.

3.3 All auxiliary manual controls shall be supervised so that all switches must be returned to the normal automatic position to clear system trouble.

3.4 Each independently supervised circuit shall include discrete amber “trouble” led to indicate disarrangement conditions per circuit.

3.5 The incoming power to the system shall be supervised so that any power failure shall be audible and visually indicated at the control panel, and remote annunciator. A green “power on” led shall be displayed continuously while incoming power is present.

3.6 The system batteries shall be supervised so that disconnection of a battery shall be audible and visually indicated at the control panel, the remote annunciator.

3.7 System expansion modules shall be supervised for module placement. Should a module become disconnected from the c.p.u., the system trouble indicator shall illuminate and an audible trouble signal shall sound.

3.8 Wiring to remote annunciator (as shown on plans) shall be supervised for open and ground conditions. All independent annunciator trouble indicators shall illuminate and an audible trouble signal shall sound at the control panel.

#### 4. Power Requirements:

4.1 Any required data gathering panels shall be powered from a dedicated 20 amp, 120 vac, life safety circuit. This circuit shall have a locked, red, circuit breaker.

4.2 Earth grounds shall terminate at the same power panel serving each respective control panel.

4.3 The Fire Alarm system shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 vac power in a normal supervisory mode for a period of sixty hours.

(24) Hours with ten (10) minutes of alarm indication at the end of this period per NFPA 72. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Batteries, once discharged, shall recharge at a rate to provide a minimum of 70% capacity in 12 hours.

4.4 All circuits requiring system operating power shall be 24 vdc and shall be individually fused at the control panel C.P.U.

#### 5. Equipment:

5.1 remote annunciators:

5.1.1 Each annunciator shall be EST #KPDISP with surface box, and shall include a 3" LCD module.

5.1.2 Each annunciator shall contain the following system status indicators:

5.1.2.1 Minimum of 80 character backlit liquid crystal display

5.1.2.2 System normal indicator

5.1.2.3 System common alarm indicator

5.1.2.4 System common trouble indicator

5.1.2.5 System common supervisory indicator

5.1.2.6 System ground fault indicator

5.1.2.7 System common security indicator.

5.1.2.8 System disabled point's indicator.

5.1.2.9 System reset switch with indicator

5.1.2.10 System alarm silence switch with indicator.

## 5.2 Outlying Devices:

5.2.1 Manual pull stations shall be non-coded Edwards's #SIGA-278 double action and shall be constructed of high impact, red Lexan with raised white lettering and a smooth high gloss finish. All pull stations shall have an approved terminal strip provided therein; pigtail termination shall not be acceptable. The break glass rod station shall have a hinged front with key lock. Stations which utilize screwdrivers, Allen wrenches, or other commonly available tools shall not be accepted. Stations shall be keyed alike with the fire alarm control panel. When the station is operated, the handle shall lock in a protruding manner to facilitate quick visual identification of the activated station. Station shall remain activated until the station is reset by means of that key. The same key shall be used for drill and test purposes. Stations shall be visible as activated from a distance of 100 feet front or side viewing. They shall be surface mounted, as required for each individual device.

5.2.2 Furnish and install smoke, rate anticipation, automatic photo-electric smoke detector heads where indicated on the plans, Edwards #SIGA-PD with Edwards #sb4 base. All heads shall plug into a universal twist-lock page designed to accept photo-electric detectors.

5.2.3 Remote led alarm indicators shall be installed where indicated, Edwards's #SIGA-led.

5.2.4 Alarm horn/strobes provided by the contractor for indication of fire alarm activation shall be UL approved for their intended purpose and shall be selected and installed in compliance with the American's with Disabilities Act (ADA), NFPA 72 and the uniform building code. The ADA signal appliances shall consist of a visual device or combined audible and visual devices mounted to a common assembly. Each device shall be individually serviceable and replaceable so that failure of one device shall not render the entire unit inoperable.

5.2.5 The faceplate/lens assembly shall be a permanent assembly constructed of Lexan™ 950r material to provide optimal impact resistance. The device shall have the word "fire" silkscreen printed in reflective lettering on the faceplate.

5.2.6 Tamperproof hardware shall be supplied by the device manufacturer.

5.2.7 In the public mode audible signals shall have a sound output level of 15 DB over ambient at 5' above the floor in the occupied area. The sound pressure level with all notification appliances operating shall not exceed 120 dba anywhere in the occupied area. The medical center has adopted a maximum dba limit of 90.

5.2.8 Visual devices shall be a xenon strobe which produces a predominantly horizontal light pattern.

5.2.9 Visual devices shall have an effective intensity of not less than 75 candela. Upon a side view, light output shall be not less than 75% of the rated output.

5.2.10 The flash rate shall be a minimum 1 HZ and a maximum of 3 HZ (60 – 180 per minute).

5.2.11 No place in any room, corridor or hallway shall be more than 50 feet from any signal device. In large open areas, devices may be placed 100 feet between centers around the perimeter. Signaling devices shall be mounted 80 inches above the highest floor point or 6 inches below ceiling; whichever is lowest.

5.2.12 Audio/visual devices shall be similar to Edward's #2452ths, capable of surface indoor mounting. All devices shall be mounted to a 4 inch square back-box.

5.2.13 Visual only indicating appliances shall be Edward's #G1RF-VM. These devices shall be UL listed and be capable of either ceiling or wall mounting. The Lexan lens shall be pyramidal in shape to allow better visibility. Visual units shall be of the standalone type or be incorporated as part of the horn/bell unit.

5.2.14 Automatic heat detectors shall be combination rate-of-rise and fixed-temperature (15°F (9°C)/minimum rate-of-rise/135°F. (57°C.)). When activated, the units shall be non-restorable and give visual evidence of such operation. Heat detectors shall be EST #siga-hrs with standard detector base.

5.2.15 Duct smoke detectors shall be EST #SIGA-SD intelligent duct smoke detector with EST #SD=TRK remote test station with key reset and SD-series sampling tube. SIGA-CR shall be provided for fan shutdown function. Detectors shall obtain their operating power from the supervised current in the fire alarm loop. Installation must comply with NFPA-90a

5.2.16 Remote alarm led indicator/test/reset stations shall be Est #SD-TRK. Wiring between detectors and test/reset stations shall be provided per manufacturer's requirements.

5.2.17 Single input module, siga-ct1: provide intelligent single input modules #SIGA-CT1 as required. The single input module shall provide one (1) supervised class b input circuit capable of a minimum of 4 personalities, each with a distinct operation.

5.2.18 Dual input module, SIGA-CT2: provide intelligent dual input modules #SIGA-CT2 as required. The dual input module shall provide two (2) supervised class b input circuits each capable of a minimum of four (4) personalities, each with a distinct operation.

5.2.19 Monitor module, SIGA-CT1: provide intelligent monitor modules #SIGA-CT1 as required. The monitor module shall be

factory set to support one (1) supervised class b normally-open active non-latching monitor circuit.

5.2.20 Water flow/tamper module, SIGA-WTM: provide intelligent water flow/tamper modules #SIGA-WTM as required. The water flow/tamper module shall be factory set to support two (2) supervised class b input circuits. Channel a shall support a normally-open alarm delayed latching waterflow switch circuit. Channel b shall support a normally-open active latching tamper switch.

## 6. Single Input Signal Module

6.1 Single input signal module, SIGA-CT1: provide intelligent single input signal modules #SIGA-CT1 as required. The single input (single riser select) signal module shall provide one (1) supervised class b output circuit capable of a minimum of two (2) personalities, each with a distinct operation. The single input signal module shall support the following operations:

6.2 Audible/visible signal power selector (polarized 24 vdc @ 2a, 25vrms @50w or 70 vrms @35 watts of audio).

6.3 Control relay module, SIGA-CR: provide intelligent control relay modules #SIGA\_CR as required. The control relay module shall provide one form “r” dry relay contact rated at 2 amps @ 24 vdc to control external appliances or equipment shutdown. The control relay shall be rated for pilot duty and releasing systems. The position of the relay contact shall be confirmed by the system firmware.

## 7. Wiring:

7.1 Wiring shall meet the requirements of the Massachusetts electrical code, article 760, “fire protection systems for building fire alarm system” and as indicated on the drawings. The system integrator will determine each loops device loading. “T” taps shall not be provided. Wiring for Fire

Alarm system shall be fire rated fire MC cable (red striped metal jacket) in concealed locations and red conduit in open ceilings.

7.2 Fire alarm system wire in junction boxes shall be permanently tagged and identified. Each junction box shall be oversized, so that its capacity will be 40% greater than required for associated Fire Alarm system wires. Each junction box shall be painted fire alarm red and identified with white markings Fire Alarm System.

7.3 Provide, in accordance with the manufacturer's instruction, wiring, conduit and outlet boxes required for the erection of a complete system as described herein and as shown on the drawings.

7.4 Final connections between equipment and wiring system shall be made by the system integrator or a representative of the manufacturer.

7.5 All low voltage wiring terminated to the fire alarm system shall be no less than no. 18 awg in size, and solid copper.

7.6 All line voltage (120 vac) wiring shall be no less than no. 12 awg in size, and solid copper. This shall include all system grounding.

7.7 All junction box covers shall be painted safety red and labeled fire alarm system only in white letters.

7.8 Fire Alarm system wiring shall not co-mingle with any other system wiring in the facility. Conduits shall not be shared under any circumstance.

7.9 Fire Alarm control panel enclosures shall have engraved labels indicating "Fire Alarm System", and the areas of the building served by that panel.

7.10 Auxiliary relays shall be appropriately labeled to indicate "Fire Alarm system" and their specific function (i.e. fan shutdown, if any). All Relay's should not be mounted above the ceiling.

7.11 All Fire Alarm wiring shall be continuous and unspliced. Terminations shall only occur at fire alarm devices or control panel enclosures under terminal screws. All other splicing methods are specifically disallowed (i.e. plastic wire nuts).

7.12 All Fire Alarm wiring shall be installed using a dedicated system of supports. Fire Alarm wiring shall not be bundled or strapped to existing conduit, pipe, duct work or other wire in the facility.

7.13 All Fire Alarm wiring shall be fire stopped when passing through any wall, ceiling or floor in accordance with code.

## 8. Execution

### 8.1 installations:

8.1.1 The entire system shall be installed in a workmanlike manner, in accordance with approved medical centers wiring diagram. The contractor shall furnish all conduit, wiring, outlet boxes, junction boxes, cabinets and similar devices necessary for the complete installation. All wiring shall be of the type recommended by the manufacturer, approved by the local fire department and specified herein. All Control Boxes, Power Supplies and Relay's should not be located above the ceiling.

8.1.2 All penetrations of floor slabs and firewalls, if any, shall be fire stopped in accordance with all local fire codes.

8.1.3 Fire smoke dampers will have ,KELE -TS-470-2, (2) SPDT end device switches installed in order to be monitored by the HOA panel to show "open" or "closed" position, see switch cut sheet in the submittal section.

8.1.4 All smoke control mechanical equipment (ahu's, exhaust fans, hv fans) will have a dwyer series 1620 dual pressure flow switch installed to provide the HOA panel a positive indication of the equipment disposition, see switch cut sheet in the submittal section.

### 8.2 Supports for installer and owner maintenance:

8.2.1 Allow the medical center with the use of the "sensitivity cone" to activate/restore outputs, actions, sequences, and simulate detector smoke levels.

8.2.2 Any modifications of the existing east campus system shall be performed under direct supervision of the system integrator (manufacturer's representative). The integrator shall insure all components are functional prior to BIDMC's U.L. listed fire alarm testing company's pre-acceptance test.

## 9. Testing and Guarantee:

9.1 Upon completion of each area of the Fire Alarm System installation and prior to acceptance, the system shall be independently pre-tested by a trained representative of the manufacturer and a representative from the Medical Center's UL listed testing company. All necessary tests shall be made and any deficiency found shall be corrected and the system shall be retested. Once the fire alarm system is certified by the medical center's testing company they will notify BFD and the electrical contractor will notify ISD to coordinate an acceptance at a time convenient to the Fire Department.

9.2 Upon completion of the testing of the Fire Alarm System, a Fire Alarm inspection and testing report shall be prepared by the equipment manufacturer. This report shall list all equipment tested and shall be duly signed by an authorized representative of the manufacturer and the electrical subcontractor's job site foreman. Copies of the report shall be forwarded to the electrical subcontractor for further distribution to the engineer, BIDMC Engineering and Maintenance Electrical departments for review and approval.

9.3 Upon completion of the installation and testing of the Fire Alarm System, the electrical subcontractor shall prepare and forward to the engineer, a signed written statement substantially in the form as follows: the undersigned, having been engaged as the electrical subcontractor on:

9.3.1 \_Confirms that the Fire Alarm System

9.3.2 Equipment was installed and connected in accordance with the contract specifications, state and local codes and regulations and in accordance with wiring diagrams, instructions and directions provided to us by the equipment manufacturer.

9.4 In addition, a copy of the aforementioned manufacturer's system testing report shall be attached to the subject letter and these documents shall be forwarded to the engineer.

9.5 The Medical Center will determine if fire alarm commissioning shall be performed.

#### **10. Field Quality Control:**

10.1 The electrical contractor or Fire Alarm equipment vendor shall have no less than one (1) national institute of certified electronics technicians (nicet) level iii and level IV fire alarm technicians dedicated to this project.

10.2 The electrical contractor and the Fire Alarm system vendor shall, upon the request of the design engineer or Beth Israel Deaconess Medical center, attend any and all project meetings for the purpose of accurately determining progress.

10.3 It shall be the responsibility of the electrical contractor to assure that construction debris does not adversely affect any existing sensing devices. should it be deemed necessary by the design engineer, BIDMC or AHI, the electrical contractor shall be responsible for the cleaning of all pertinent smoke detectors prior to continuing work in that particular area.

10.4 All equipment provided under this contract shall be compatible with existing Fire Command Center CPU, outlying control panels, annunciators, etc..

#### **11. Documentation and Training:**

11.1 The electrical contractor shall provide the engineer with three (3) completed system manuals, which shall include operating and maintenance instruction, catalog cuts of all equipment and components, as built wiring diagrams and a manufacturer's suggested spare parts list. The engineer shall then forward all manuals to BIDMC maintenance operations. The O&M documents will also be provided in an electronic pdf format.

11.2 The electrical contractor shall provide the services of the manufacturer's trained representative for two (2) system training sessions

(on separate calendar days), each four (4) hours in length. All owners' designed personnel shall attend these sessions. The manufacturer shall be contacted as to when all personnel will be available.

11.3 During the first training session, the electrical contractor shall be responsible for videotaping the entire session. The electrical contractor shall then turn over the DVD to BIDMC maintenance personnel for future use. All videotaping shall be provided in DVD format.

11.4 Three (3) complete sets of as-built drawings shall be provided. The as-built drawings will also be provided in an electronic AutoCAD & pdf format.

11.5 Fire department coordination: the electrical contractor shall coordinate with the owner's, UL listed, Fire Alarm, testing company through whom BFD will be scheduled for inspections.

#### 11.6 Power Operated Doors – see example

##### 11.6.1 Description

11.6.1.1 Handicap doors shall be tied into the fire alarm system via pam relays above doors so that when an event is initiated on the floor the automatic door operator is de-energized and push plates are dropped out.

11.6.2 Contractor to hire Fire Equipment Inc. to program handicap door devices into fire alarm system.

#### 11.7 Security Integration – see example

##### 11.7.1 Description

11.7.1 Any new security shall be tied into the existing security panel relay cabinets located on the floors. When an event happens on a floor and there are security doors that are affected and tied into the Fire Alarm System a signal is sent to security. The Fire Alarm and security integration is done thru UIO boards/modules installed in an EST relay cabinet.

11.7.2. Contractor to hire Fire Equipment Inc. to program security door devices into fire alarm system. The contractor will coordinate with BIDMC security and security contractor for integration.

#### 11.8 HVAC integration – see example

##### 11.8 Description

11.8.1 The HVAC system integration into the Fire Alarm will be performed through the HVAC relay cabinets. There shall be HVAC relay cabinets with UIO boards/modules installed with ct1 & ct2 devices installed onto them. ct1s & ct2s will be monitoring the end switches installed on the FSDS and the ACDS. Through these devices there will be a signal sent back to the HOA panel located in RA-100 fire command center where their status can be monitored using LEDs installed on the HOA panel. Also through the HVAC relay cabinets there will be a signal sent to the BAS.

11.8.2 Contractor to hire Fire Equipment Inc. to program HVAC devices into fire alarm system.

#### 11.9 HOA panel – see example

11.9.1 Description-the HOA panel located in ra-100 fire command center will be built in modules for future.

11.9.2 When a renovation project is constructed and fans are installed, if they are over 2000 CFMS with fire smoke dampers installed in duct work the HOA panel will need to be modified to accommodate the new fan and show HVAC duct runs work with fire smoke damper locations and their respective names.

11.9.3 Along with the HOA panel physical modifications the designing engineer will update the HOA riser diagram cad drawing file to reflect these modifications. The riser drawing needs to be revised each time so that BIDMC can keep an up to date version for their records.

11.9.4 When HOA riser is updated the designing engineer will submit the cad file to BIDMC for approval before any physical modifications to the HOA panel are performed. When BIDMC approves the new design Fire

Equipment Inc. will be notified and hired to make the appropriate modifications as needed.

## 12. BIDMC Shutdown Scheduling Procedure

12.1 Description- BIDMC is comprised of (2) campuses, east and west. on the east campus all buildings with the exception of the Shapiro building are connected to the main master-box. The Shapiro building has its own master-box. The west campus has multiple master-boxes for all its buildings. A list will be kept in the database which buildings trip which master- box.

12.2 Prior to each coming week, the Project Manager will submit all Fire Alarm shutdown requests, received from the electrical contractor, review by BIDMC's Electrical Manager.

12.2 All requests for shutdowns will be placed on an electronic calendar for BIDMC service work. This will allow for service coordinators to easily review if a shutdown is already scheduled for one of the buildings.

12.3 The shutdown request will be generated detailing which building, effected master-box, reason for shutdown, timeframe / expected duration and manpower requirements.

12.4 When a shutdown is required for a building, the master-box for that building will be disconnected and the medical center's UL listed technicians will standby the effected FACP. at the end of the shut down a second technician will assist with required re-testing of the system.

12.5 If an actual alarm comes in the technician will pull the master-box hook to send the alarm signal to the Boston Fire Dept.

## 13. The System Integrator

13.1 Description- when spaces are renovated it affects the performance of the fire alarm system. Often walls are moved or removed from spaces. Room numbers change. This has significant effect to the fire alarm system. With this in mind any contractor bidding this type of work must have the following information to accurately bid work and for the system

integrator to provide accurate pricing for the fire alarm system equipment and programming requirements.

13.2 For bidding purposes the system integrator will need the following:

13.2.1 Floor plan bid documents indicating the fire alarm devices. The plans should indicate whether devices are new, existing or to be relocated. The plans must include any changes to walls, door locations and room numbers.

13.2.2 If a renovation includes more than one building than the above information and files must be provided by the BIDMC for each building.

13.3 The successful contractor will need to provide the following:

13.3.1 The new floor plan will be in a windows metafile format (WMA). This is required to update the fireworks graphic computer system. The new floor plan must be a complete floor plan for the building. It must include any changes to walls, door locations and room numbers. It should be a clean representation of the walls, doorways, stairwells and room numbers only. It must not include any fire alarm devices. Electrical devices etc. that might appear on bid documents.

13.4 Once installation is complete the electrical contractor must supply accurate descriptions for each of the devices installed along with the bar code for each device. This is required for programming purposes and UL certification testing.