

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that CLAPP MARY JE DEVS

Located At 443 CONGRESS ST

Job ID: 2011-04-865-OPB

CBL: 027 - - B - 002 - 001 - - - -

has permission to install a master box fire alarm system

provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of the Statutes of Maine and of the Ordinances of the City of Portland regulating the construction, maintenance and use of the buildings and structures, and of the application on file in the department.

Notification of inspection and written permission procured before this building or part thereof is lathed or otherwise closed-in. 48 HOUR NOTICE IS REQUIRED.

A final inspection must be completed by owner before this building or part thereof is occupied. If a certificate of occupancy is required, it must be

Bj. A. Walcott (58) 5/16/11
Fire Prevention Officer

Code Enforcement Officer / Plan Reviewer

THIS CARD MUST BE POSTED ON THE STREET SIDE OF THE PROPERTY
PENALTY FOR REMOVING THIS CARD

BUILDING PERMIT INSPECTION PROCEDURES

Please call 874-8703 or 874-8693 (ONLY)

or email: buildinginspections@portlandmaine.gov

With the issuance of this permit, the owner, builder or their designee is required to provide adequate notice to the city of Portland Inspections Services for the following inspections. Appointments must be requested 48 to 72 hours in advance of the required inspection. The inspection date will need to be confirmed by this office.

- **Please read the conditions of approval that is attached to this permit!! Contact this office if you have any questions.**
- **Permits expire in 6 months. If the project is not started or ceases for 6 months.**
- **If the inspection requirements are not followed as stated below additional fees may be incurred due to the issuance of a "Stop Work Order" and subsequent release to continue.**

The project cannot move to the next phase prior to the required inspection and approval to continue, REGARDLESS OF THE NOTICE OF CIRCUMSTANCES.

IF THE PERMIT REQUIRES A CERTIFICATE OF OCCUPANCY, IT MUST BE PAID FOR AND ISSUED TO THE OWNER OR DESIGNEE BEFORE THE SPACE MAY BE OCCUPIED.



PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Director of Planning and Urban Development
Penny St. Louis

Job ID: 2011-04-865-OPB

Located At: 443 CONGRESS ST

CBL: 027 - - B - 002 - 001 - - - -

Conditions of Approval:

Zoning

1. ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within an Historic District.
2. This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Fire

The fire alarm system shall comply with the City of Portland Standard for Signaling Systems for the Protection of Life and Property. All fire alarm installation and servicing companies shall have a Certificate of Fitness from the Fire Department.

In field installation shall be installed per code as conditions dictate.

Records cabinet, FACP, annunciator(s), and pull stations shall be keyed alike.

Central Station monitoring for addressable fire alarm systems shall be by point.

All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS".

Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance.

System acceptance and commissioning must be coordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.

Fire Alarm system shall be maintained. If system is to be off line over 4 hours a fire watch shall be in place. Dispatch notification required 874-8576.

Fire alarm system requires a wireless master box connection per city ordinance. Masterbox design and installation shall be as approved by City Electrical Division.

AES zones shall be as follows:

Zone 1: water flow

Zone 2: city disconnect

Zone 3: Basement through Floor 3 pull stations and detectors

Zone 4: Floor 4 through penthouse pull stations and detectors

Zone 8: non-alarm AES tamper

When the silence switch is activated the horns shall silence and the strobes will continue to flash.

Water flow will be silenceable as required above.

Duct detectors shall be supervisory devices.

Master Box Approval

Applicant: Northland Enterprises, LLC

App Phone #: (207)780-0223

Building Name: Clapp Building

Building Address: 443 Congress St

Occupancy: Existing Business

Assembly OL>300, 20 unit apartment building, etc.

Emergency Contact: Joshua Benthien

Emergency phone #: (207)780-0223

Date of Application:

Billing Address: 1 City Center

Portland, ME 04101

Comments:

Applicant completes red box and submits with Fire Alarm Permit

1

FIRE PREVENTION:

☒ Approved

☐ Denied

05/16/2011
Date

Bjambay (50)
Fire Prevention Officer

Comments: See attached zone list.

2

FIRE ALARM:

Box #: _____

ELECTRICAL DIVISION: ☐ Approved

☐ Denied

Box Type: AES Radio Box /
New Other

3

Test Date: ____/____/____ **In Service Date:** ____/____/____
Fire Alarm Technician

AES

Circuit if applicable:

4

FIRE ALARM: Same Running Assignment As Box: _____

Notifications: ☐ All Stations ☐ Run Books ☐ Digitizer ☐ Computer ☐ Cad Box Test

☐ South Portland

☐ _____

Other

Dispatcher

5

BILLING: ☐ Entered

Financial Officer

6

FIRE PREVENTION:

☐ Filed ____/____/____
Date

5/16/2011

443 Congress St – Clapp Building

AES Zone list

- 1) Water Flow
- 2) City Disconnect
- 3) Basement through 3rd floor - pull stations and detectors
- 4) 4th floor through penthouse – pull stations and detectors
- 5) Unassigned
- 6) Unassigned
- 7) Unassigned
- 8) AES door tamper – non-alarm

Approved revision

SECTION 16721 – FIRE ALARM SYSTEM

198-POINT INTELLIGENT COMMUNICATING FIRE DETECTION SYSTEM

PART 1.0 - GENERAL

1.1 DESCRIPTION:

- A. This section of the specification includes the furnishing, installation, connection and testing of the microprocessor controlled, intelligent reporting fire alarm equipment required to form a complete, operative, coordinated system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, Fire Alarm Control Panel (FACP), auxiliary control devices, annunciators, Ethernet and/or digital alarm communications to central stations and wiring as shown on the drawings and specified herein.
- B. The fire alarm system shall comply with requirements of NFPA Standard No. 72 for Local Protected Premises Signaling Systems except as modified and supplemented by this specification. The system field wiring shall be supervised either electrically or by software-directed polling of field devices.
 - 1. The Secondary Power Source of the fire alarm control panel will be capable of providing at least 24 hours of backup power with the ability to sustain 5 minutes in alarm at the end of the backup period.
- C. The fire alarm system shall be manufactured by an ISO 9001 certified company and meet the requirements of BS EN9001: ANSI/ASQC Q9001-1994.
- D. The FACP and peripheral devices shall be manufactured or supplied 100% by a single U.S. manufacturer (or division thereof).
- E. Underwriters Laboratories Inc. (UL) - USA:
 - 1. No. 38 Manually Actuated Signaling Boxes
 - 2. No. 50 Cabinets and Boxes
 - 3. No. 864 Control Units for Fire Protective Signaling Systems
 - 4. No. 268 Smoke Detectors for Fire Protective Signaling Systems
 - 5. No. 268A Smoke Detectors for Duct Applications
 - 6. No. 346 Waterflow Indicators for Fire Protective Signaling Systems
 - 7. No. 464 Audible Signaling Appliances
 - 8. No. 521 Heat Detectors for Fire Protective Signaling Systems
 - 9. No. 1971 Visual Notification Appliances
- F. The installing company shall employ NICET (minimum Level II Fire Alarm Technology) technicians on site to guide the final check-out and to ensure the systems integrity.
- G. The FACP shall meet requirements of UL ANSI 864 Ninth Edition.

3. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
2. Include manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
3. Show annunciator layout, configurations, and terminations.

C. Manuals:

1. Submit simultaneously with the shop drawings, complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets.
2. Wiring diagrams shall indicate internal wiring for each device and the interconnections between the items of equipment.
3. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system.

D. Software Modifications

1. Provide the services of a qualified technician to perform all system software modifications, upgrades or changes.
2. Provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system on site. Modification includes addition and deletion of devices, circuits, zones and changes to system operation and custom label changes for devices or zones. The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made.

1.5 GUARANTY:

- A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance. The full cost of maintenance, labor and materials required to correct any defect during this one year period shall be included in the submittal bid.

1.6 POST CONTRACT EXPANSIONS:

- A. The contractor shall have the ability to provide parts and labor to expand the system specified, if so requested, for a period of five (5) years from the date of acceptance.

1.7 APPLICABLE STANDARDS AND SPECIFICATIONS:

- A. The specifications and standards listed below form a part of this specification. The

- A. All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a fire protective signaling system, meeting the National Fire Alarm Code.
- B. All equipment and components shall be installed in strict compliance with manufacturers' recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.
- C. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.
- D. All equipment must be available "over the counter" through the Security Equipment Distributor (SED) market and can be installed by dealerships independent of the manufacturer.

2.2 CONDUIT, SURFACE RACEWAY AND WIRE:

- A. Conduit:
 - 1. Rigid Steel Conduit: ANSI C80.1.
 - 2. Fittings and Conduit Bodies: ANSI/NEMA FB 1; threaded type, material to match conduit.
- B. Surface Raceway:
 - 1. Surface raceway shall be series 500 as manufactured by *Wiremold*, or equal. All necessary fittings and boxes shall be provided to make a complete raceway system. Surface raceway and boxes shall be painted to match the surface to which it is installed..
 - 2. Raceway fill shall not exceed 40 percent of interior cross sectional area where three or more cables are contained within a single raceway
 - 3. Cable must be separated from any open conductors of power, or Class 1 circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors, per NEC Article 760-29.
 - 4. Wiring for 24 volt DC control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.
 - 5. Raceway shall not enter the fire alarm control panel, or any other remotely mounted control panel equipment or backboxes, except where raceway entry is specified by the FACP manufacturer.
- C. Wire:
 - 1. All fire alarm system wiring shall be new.
 - 2. Wiring shall be in accordance with local, state and national codes (e.g., NEC Article

- b) Depression of the Acknowledge switch shall also silence all remote annunciator piezo sounders.
 - 2. Alarm Silence Switch: Activation of the alarm silence switch shall cause all programmed alarm notification appliances and relays to return to the normal condition after an alarm condition. The selection of notification circuits and relays that are silenceable by this switch shall be fully field programmable within the confines of all applicable standards. The FACP software shall include silence inhibit and auto-silence timers.
 - 3. Alarm Activate (Drill) Switch: The Alarm Activate switch shall activate all notification appliance circuits. The drill function shall latch until the panel is silenced or reset.
 - 4. System Reset Switch: Activation of the System Reset switch shall cause all electronically-latched initiating devices, appliances or software zones, as well as all associated output devices and circuits, to return to their normal condition.
 - 5. Lamp Test: The Lamp Test switch shall activate all system LEDs and light each segment of the liquid crystal display.
- C. System Capacity and General Operation
- 1. The control panel shall provide, or be capable of, expansion to 198 intelligent/addressable devices.
 - 2. The control panel shall include Form-C Alarm, Trouble and Supervisory relays rated at a minimum of 2.0 amps @ 30 VDC. It shall also include programmable Notification Appliance Circuits (NACs) capable of being wired as NFPA Style Y (Class B) or NFPA Style Z (Class A).
 - 3. The fire alarm control panel shall include an operator interface control and annunciation panel that shall include a backlit Liquid Crystal Display (LCD), individual color-coded system status LEDs, and an alphanumeric keypad for the field programming and control of the fire alarm system.
 - 4. All programming or editing of the existing program in the system shall be achieved without special equipment and without interrupting the alarm monitoring functions of the fire alarm control panel. The system shall be fully programmable, configurable, and expandable in the field without the need for special tools, PROM programmers or PC based programmers. It shall not require replacement of memory ICs to facilitate programming changes. The control unit will support the ability to upgrade its operating program using FLASH memory technology. The unit shall provide the user with the ability to program from either the included keypad, a standard PS2-style PC keyboard or from a computer running upload/download software.
 - 5. The system shall allow the programming of any input to activate any output or group of outputs. Systems which have limited programming (such as general alarm), have complicated programming (such as a diode matrix), are not considered suitable substitutes.
 - 6. The FACP shall provide the following features:
 - a) Drift compensation to extend detector accuracy over life. Drift compensation shall also include a smoothing feature, allowing transient noise signals to be filtered out.
 - b) Detector sensitivity test, meeting requirements of NFPA 72, Maintenance alert,

- and may also be used to program all system operational parameters.
2. The display shall include status information and custom alphanumeric labels for all intelligent detectors, addressable modules, internal panel circuits, and software zones.
 3. The display shall contain an alphanumeric, text-type display and dedicated LEDs for the annunciation of AC POWER, FIRE ALARM, SUPERVISORY, TROUBLE, MAINTENANCE, ALARM SILENCED, DISABLED, BATTERY, and GROUND conditions.
 4. The display keypad shall be part of the standard system and have the capability to command all system functions, entry of any alphabetic or numeric information, and field programming. Two different password levels shall be provided to prevent unauthorized system control or programming.
 5. The display shall include the following operator control switches: ACKNOWLEDGE, ALARM SILENCE, DRILL (alarm activate), and SYSTEM RESET.
- G. Signaling Line Circuit (SLC)
1. The SLC interface shall provide power to and communicate with up to 99 intelligent detectors (ionization, photoelectric or thermal) addressable Beam Detectors, and 99 addressable pull stations, intelligent modules (monitor or control) for a system capacity of 198 devices. Each SLC shall be capable of NFPA 72 Style 4, Style 6, or Style 7 (Class A or B) wiring.
 2. The CPU shall receive information from all intelligent detectors to be processed to determine whether normal, alarm, pre-alarm, or trouble conditions exist for each detector. The software shall automatically compensate for the accumulation of dust in each detector up to allowable limits. The information shall also be used for automatic detector testing and for the determination of detector maintenance conditions.
 3. The detector software shall meet NFPA 72, Chapter 10 requirements and be
 - a) certified by UL as a calibrated sensitivity test instrument.
- H. Serial Interfaces
1. The system shall provide a means of interfacing to UL Listed Electronic Data Processing (EDP) peripherals using the EIA-232 communications standard.
 2. One EIA-232 interface shall be used to connect an UL-Listed 80-column printer. The printer shall communicate with the control panel using an interface complying with Electrical Industries Association standard EIA-232D. Power to the printer shall be 120 VAC @ 60 Hz.
- I. The control panel will have the capability of Reverse Polarity Transmission or connection to a Municipal Box for compliance with applicable NFPA standards.
- J. Digital Alarm Communicator Transmitter (DACT) and Internet Protocol Digital Alarm Communicator Transmitter (IPDACT). The DACT is an interface for communicating digital information between a fire alarm control panel and a UL- Listed central station. When the optional IPDACT Ethernet module is connected to the on board DACT, the system shall be capable of transmitting contact ID formatted alarms to a central station

4. The cabinet shall accept a chassis containing the PCB and to assist in quick replacement of all the electronics including power supply shall require no more than two bolts to secure the panel to the enclosure back box.
- L. Field Charging Power Supply: The FCPS is a device designed for use as either a remote 24-volt power supply or as a booster for powering Notification Appliances.
1. The FCPS shall offer up to 8.0 amps (6.0 amps continuous) of regulated 24 volt power. It shall include an integral charger designed to charge 18.0 amp hour batteries.
 2. The Field Charging Power Supply shall have two input triggers. The input trigger shall be a Notification Appliance Circuit (from the fire alarm control panel) or a control relay. Four NAC outputs, wired NFPA Style Y or Z, shall be available for connection to the Notification devices.
 3. The FCPS shall optionally provide synchronization of all connected strobes or horn strobe combinations when either System Sensor, Wheelock or Gentex devices are installed.
 4. The FCPS shall function as a sync follower as well as a sync generator.
 5. The FCPS shall include a surface mount backbox.
 6. The Field Charging Power Supply shall include the ability to delay the reporting of an AC fail condition per NFPA requirements.
 7. The FCPS shall provide 24 VDC regulated and power-limited circuitry per UL standards.
- M. Power Supply:
1. The main power supply for the fire alarm control panel shall provide up to 6.0 amps of available power for the control panel and peripheral devices.
 2. Provisions will be made to allow the audio-visual power to be increased as required by adding modular expansion audio-visual power supplies.
 3. Positive-Temperature-Coefficient (PTC) thermistors, circuit breakers, or other over-current protection shall be provided on all power outputs. The power supply shall provide an integral battery charger or may be used with an external battery and charger systems. Battery arrangement may be configured in the field.
 4. The main power supply shall continuously monitor all field wires for earth ground conditions.
 5. The main power supply shall operate on 120 VAC, 60 Hz, and shall provide all necessary power for the FACP.
- N. Specific System Operations
1. Alarm Verification: Each of the intelligent addressable smoke detectors in the system may be independently programmed for verification of alarm signals. The alarm verification time period shall not exceed 2 minutes.
 2. Point Disable: Any addressable device or conventional circuit in the system may be enabled or disabled through the system keypad.
 3. Point Read: The system shall be able to display the following point status diagnostic functions:
 - a) Device status
 - b) Device type

circuit (notification circuit or relay) to deactivate upon depression of the Signal Silence switch.

12. Non-Alarm Input Operation: Any addressable initiating device in the system may be used as a non-alarm input to monitor normally open contact type devices. Non-alarm functions are a lower priority than fire alarm initiating devices.

2.4 SYSTEM COMPONENTS:

A. Addressable Pull Box (manual station)

1. Addressable pull boxes shall be as manufactured by *Fire-Lite*, series BG-12LX.
2. Addressable pull boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test-reset lock, and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.
3. All operated stations shall have a positive, visual indication of operation and utilize a key type reset.
4. Manual pull stations shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger.

B. Intelligent Photoelectric Smoke Detector

1. Intelligent photoelectric smoke detectors shall be as manufactured by *Fire-Lite*, series SD355(A).
2. The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.
3. The detectors shall be ceiling-mounted.
4. Each detector shall contain a remote LED output and a built-in test switch.
5. Detector shall be provided on a twist-lock base.
6. It shall be possible to perform a calibrated sensitivity and performance test on the detector without the need for the generation of smoke. The test method shall test all detector circuits.
7. A visual indication of an alarm shall be provided by dual latching Light Emitting Diodes (LEDs), on the detector, which may be seen from ground level over 360 degrees. These LEDs shall periodically flash to indicate that the detector is in communication with the control panel.
8. The detector shall not go into alarm when exposed to air velocities of up to 1500 feet per minute (fpm).
9. The detector screen and cover assembly shall be easily removable for field cleaning of the detector chamber.
10. All field wire connections shall be made to the base through the use of a clamping plate and screw.

C. Intelligent Thermal Detectors

1. Intelligent thermal detectors shall be as manufactured by *Fire-Lite*, series H355(A).

on an SLC Style 6 (Class A) or Style 4 (Class B branch). The isolator module shall limit the number of modules or detectors that may be rendered inoperative by a short circuit fault on the SLC loop segment or branch. At least one isolator module shall be provided for each floor or protected zone of the building.

3. If a wire-to-wire short occurs, the isolator module shall automatically open-circuit (disconnect) the SLC. When the short circuit condition is corrected, the isolator module shall automatically reconnect the isolated section.
4. The isolator module shall not require any address-setting, and its operations shall be totally automatic. It shall not be necessary to replace or reset an isolator module after its normal operation.
5. The isolator module shall mount in a standard 4-inch (101.6 mm) deep electrical box or in a surface mounted backbox. It shall provide a single LED that shall flash to indicate that the isolator is operational and shall illuminate steadily to indicate that a short circuit condition has been detected and isolated.

H. Alphanumeric LCD Type Annunciator (terminal mode):

1. Annunciator shall be as manufactured by *Fire-Lite*, series LCD-80F.
2. The alphanumeric display annunciator shall be a supervised, remotely located back-lit LCD display containing a minimum of eighty (80) characters for alarm annunciation in clear English text.
3. The LCD annunciator shall display all alarm and trouble conditions in the system.
4. An audible indication of alarm shall be integral to the alphanumeric display.
5. The display shall be UL listed for fire alarm application.
6. It shall be possible to connect up to 32 LCD displays and be capable of wiring distances up to 6,000 feet from the control panel.
7. The annunciator shall connect to a separate, dedicated "terminal mode" EIA-485 interface. This is a two-wire loop connection and shall be capable of distances to 6,000 feet. Each terminal mode LCD display shall mimic the main control panel.

I. Horn-Strobes

1. *Sensor System* series *SpectrAlert* P4R
2. The horn strobe shall be listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1Hz over the strobe's entire operating voltage range. The strobe shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three-pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn on horn/strobe models shall operate on a coded or non-coded power supply.
3. The horn strobe shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, double-gang back box or for two wire products a single-gang 2 × 4 × 17/8-inch back box. A universal mounting plate shall be used for mounting ceiling and

5. Detectors shall be ceiling-mount and shall include a separate twist-lock base with tamper proof feature.
6. Detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel.
7. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (ION, PHOTO, THERMAL).
8. Detectors shall provide address-setting means using decimal switches.

2.6 BATTERIES:

- A. Upon loss of Primary (AC) power to the control panel, the batteries shall have sufficient capacity to power the fire alarm system for required standby time (24 hours) followed by 5 minutes of alarm.
- B. The batteries are to be completely maintenance free. No liquids are required. Fluid level checks for refilling, spills, and leakage shall not be required.
- C. If necessary to meet standby requirements, external battery/charger systems may be used.

2.7 AREA OF REFUGE CONTROL PANEL

- A. Manufacturer:
 1. *Cornell* model A-4208/BB-41/BB-41/B5243A
- B. Description: The *Cornell Annunciator Panel* shall include one alternate action switch with two internal LED indicators for each zone.
 1. An audible alarm on the Annunciator Panel will emit a minimum sound level of 90dB at 300cm.
 2. A yellow LED light for each zone will illuminate and the alarm will emit a repeating sound if any of the supervised lines are faulted.
 3. The panel shall be constructed of aluminum with permanently silk-screened zone designations on the panel as well as a designation strip.
 4. The station shall be wall-mounted on a stainless steel plate and be vandal-resistant.
 5. Install power supply unit in basement.
 6. Install Annunciator Panel in first floor Elevator Lobby.
- C. Wiring Requirements
 1. Provide four conductors plus one shielded pair between each Call Station and the Annunciator Panel, not to exceed 3000 feet.
 2. Power wire shall be 18-gauge (minimum).
 3. Provide two conductors between the Power Supply and the Annunciator Panel.

2.8 MUNICIPAL FIRE ALARM MASTER BOX

- A. Municipal radio master box shall be as manufactured by AES model 7788F. The radio master box shall include transmitter, antenna, and battery power supply.

- D. All fire detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.
- E. Manual pull stations shall be suitable for surface mounting or semi flush mounting as shown on the plans, and shall be installed not less than 42 inches (1067 mm), nor more than 48 inches (122 mm) above the finished floor.
- F. Interlock alarm system heat detectors at the top and bottom of elevator shaft, and in the elevator penthouse with the elevator power service shunt trips such that an alarm condition at any of these detectors shall automatically disable the associated elevator electrical service feeder. Provide an interlock between the fire alarm system smoke detectors at the Elevator Lobbies on each floor, and the smoke detector in the elevator penthouse, such that:
 - 1. An alarm activation by the detector at the basement lobby, or the detectors at the elevator lobbies at the second through seventh floors, or the detector in the elevator penthouse, shall automatically send the elevator to the first floor lobby.
 - 2. An alarm condition activated by the first floor lobby smoke detector shall automatically send the elevator car to the second floor.
- G. Wire sprinkler system flow switches and tamper switches such that the activation of any sprinkler system low pressure switch, or valve tamper switch, shall cause a system supervisory alarm indication.
- H. Wire HVAC Duct type smoke detectors such that, in addition to initiating an alarm condition, they shall also shut down the associated HVAC unit or close associated control dampers as appropriate.
- I. Municipal radio master box installation shall be in full conformance with the City of Portland Requirements.

3.2 TEST:

- A. The service of a competent, NICET level II technician shall be provided to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with NFPA 72, Chapter 10.
- B. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.
- C. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACP.
- D. Verify activation of all waterflow switches.
- E. Open initiating device circuits and verify that the trouble signal actuates.

Benjamin Wallace - Re: 443 Congress Street

From: Benjamin Wallace
To: Bartlett Design
Date: 5/16/2011 11:40 AM
Subject: Re: 443 Congress Street
Attachments: Benjamin Wallace.vcf

Great. I'm approving the permit and sending it in the mail. Other than the standard conditions I place on every permit the following conditions will be called out specifically to comply with our rules:

- When the silence switch is activated the horns shall silence and the strobes will continue to flash;
- Water flow will be silenceable as required above;
- Duct detectors shall be supervisory devices;

Questions regarding the elevator recall and stair re-entry:

- How will stair re-entry be complied with for the building as required by section 7.2.1.5.7 of the Life Safety Code?
- With secondary recall floor being the second floor lobby, how will access be provided to the rear stair? If the first floor lobby smoke detector activates and sends them to the second floor then their exit path can not be via the front stair as it discharges through the first floor elevator lobby space.

Thanks,
Ben

Lt. Benjamin Wallace Jr.
Fire Prevention Officer
Portland Fire Department
380 Congress Street
Portland, Maine 04101
(207)756-8096

wallaceb@portlandmaine.gov>>> Bartlett Design <bartlettdesigninc@comcast.net> 5/13/2011 11:07 AM >>>
Ben:

Attached are our revised drawings and spec per the items that you identified. A summary of our changes is as below:

1. Spacing of notification appliances in hallways/corridors has been adjusted to conform with section 18.5.4.4 of NFPA 72.
2. The specified radio meter box model number has been revised to 7788F with a model GRI TSW-01S tamper switch.
3. The smoke detectors shown previously on the unsprinklered floors (4, 6, and 7) have been revised to heat detectors (this does not include the smoke detectors in the elevator lobbies or in the stairs).
4. Automatic initiation devices have been removed from the bathrooms on the unsprinklered floors.

Larry Bartlett
Bartlett Design, Inc.
942 Washington Street
Bath, ME 04530
Tel: 207-443-5447
Fax: 207-443-5560

Benjamin Wallace - Re: 443 Congress St, Portland fire alarm permit

From: Benjamin Wallace
To: Bartlett Design
Date: 5/11/2011 8:32 AM
Subject: Re: 443 Congress St, Portland fire alarm permit
CC: Michael J. Major
Attachments: Benjamin Wallace.vcf

Hi Larry,

Have you have the amendment for the fire alarm at 443 Congress ready yet? Michael Major is rearing to go I guess.

Also I just wanted to remind you that per Life Safety Code "in areas protected by automatic sprinklers, automatic heat-detection devices required by other sections of this *Code* shall not be required (section 9.7.1.3)." So on the sprinklered floors in areas other than the stairs, elevator lobbies and over the fire alarm control equipment where smoke detection is required, you can omit the heat detectors all together, so long as the sprinkler system is supervised by floor and there is manual pull stations and proper occupant notification as our rules require.

Thanks,

Ben

Lt. Benjamin Wallace Jr.
Fire Prevention Officer
Portland Fire Department
380 Congress Street
Portland, Maine 04101
(207)756-8096

wallaceb@portlandmaine.gov>>> Benjamin Wallace 5/3/2011 10:46 AM >>>

The heat vs. smoke detector requirement is in Section 5.3 - 5.4 of the fire alarm rules. It can be viewed here:

<http://www.portlandmaine.gov/fireprevention/signalingssystemrules021011.pdf>

Thanks,

Ben

Lt. Benjamin Wallace Jr.
Fire Prevention Officer
Portland Fire Department
380 Congress Street
Portland, Maine 04101
(207)756-8096

wallaceb@portlandmaine.gov>>> Bartlett Design <bartlettdesigninc@comcast.net> 5/3/2011 8:50 AM >>>

Benjamin,

Thank you for your review and comments on this project. We are trying to determine the specific requirements that you outlined in item 3, referring to the location of heat detectors. Can you let us know the part of the city code you are referencing so that we can review our drawings and make the necessary corrections.

Thank you again,

Larry Bartlett

At 03:30 PM 5/2/2011, Benjamin Wallace wrote:

Good afternoon Larry,

I have the permit submittal for 443 Congress St and the following are my comments:

1. Spacing for corridor strobes must comply with section 18.5.4.4 of NFPA 72 (2010 edition).
2. The correct model of AES radio master box is 7788F and it requires a GRI TSW-01S tamper switch installed to supervise access to the AES radio box. There should be no price difference between the 7744F and the 7788F though the tamper switch will cost a couple dollars.
3. City fire alarm requirements specify heat detectors in the tenant spaces. Smoke detectors in the stairs, for elevator control and over fire alarm control equipment. They are not allowed in bathrooms.

If you can have the spacing and device location updated I'll just make a note of the correct AES model on the permit.

Thanks,

Lt. Benjamin Wallace Jr.
Fire Prevention Officer
Portland Fire Department
380 Congress Street
Portland, Maine 04101
(207)756-8096
wallaceb@portlandmaine.gov

City of Portland, Maine - Building or Use Permit Application

389 Congress Street, 04101 Tel: (207) 874-8703, FAX: (207) 8716

Job No: 2011-04-865-OPB	Date Applied: 4/22/2011	CBL: 027 - - B - 002 - 001 - - - -	
Location of Construction: 443 CONGRESS ST	Owner Name: JJR 443 Congress Street, LLC	Owner Address: 134 Sheridan St PORTLAND, ME 04101	Phone:
Business Name:	Contractor Name: Cunningham Security	Contractor Address: 10 Princes Point Rd, Yarmouth, ME 04096	Phone: (207)846-3350
Lessee/Buyer's Name:	Phone:	Permit Type: FIRE ALARM - Fire Alarm	Zone: B-3
Past Use: Offices	Proposed Use: Offices – install fire alarm	Cost of Work: 31000.00	CEO District:
		Fire Dept: <input checked="" type="checkbox"/> Approved w/ conditions <input type="checkbox"/> Denied <input type="checkbox"/> N/A	Inspection: Use Group: Type:
		Signature: <i>[Signature]</i> (58)	Signature:
Proposed Project Description: 443 Congress St. – install fire alarm		Pedestrian Activities District (P.A.D.)	
Permit Taken By:		Zoning Approval	

- This permit application does not preclude the Applicant(s) from meeting applicable State and Federal Rules.
- Building Permits do not include plumbing, septic or electrical work.
- Building permits are void if work is not started within six (6) months of the date of issuance. False informatin may invalidate a building permit and stop all work.

Special Zone or Reviews	Zoning Appeal	Historic Preservation
<input type="checkbox"/> Shoreland	<input type="checkbox"/> Variance	<input type="checkbox"/> Not in Dist or Landmark
<input type="checkbox"/> Wetlands	<input type="checkbox"/> Miscellaneous	<input type="checkbox"/> Does not Require Review
<input type="checkbox"/> Flood Zone	<input type="checkbox"/> Conditional Use	<input type="checkbox"/> Requires Review
<input type="checkbox"/> Subdivision	<input type="checkbox"/> Interpretation	<input type="checkbox"/> Approved
<input type="checkbox"/> Site Plan	<input type="checkbox"/> Approved	<input type="checkbox"/> Approved w/Conditions
<input type="checkbox"/> Maj <input type="checkbox"/> Min <input type="checkbox"/> MM	<input type="checkbox"/> Denied	<input type="checkbox"/> Denied
Date: 4/26/11 OK w/ conditions ARB	Date:	Date: Any exterior work requires a separate review approval thru historic preservation

CERTIFICATION

I hereby certify that I am the owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his authorized agent and I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in the appication is issued, I certify that the code official's authorized representative shall have the authority to enter all areas covered by such permit at any reasonable hour to enforce the provision of the code(s) applicable to such permit.

SIGNATURE OF APPLICANT	ADDRESS	DATE	PHONE
RESPONSIBLE PERSON IN CHARGE OF WORK, TITLE		DATE	PHON

Job Summary Report
Job ID: 2011-04-865-OPB

Report generated on Apr 25, 2011 2:52:08 PM

Page 1

Job Type:	New Office & Professional Buildings	Job Description:	443 Congress St.	Job Year:	2011
Building Job Status Code:	Initiate Plan Review	Pin Value:	1211	Tenant Name:	
Job Application Date:		Public Building Flag:	N	Tenant Number:	
Estimated Value:	31,000	Square Footage:			
Related Parties:	JJR 443 Congress Street LLC 134 Sheridan St 04101	MARY J E CLAPP Cunningham Security - Cunningham Security Cunningham Security		Property Owner FIRE ALARM INSTALLER	

Job Charges

Fee Code Description	Charge Amount	Permit Charge Adjustment	Net Charge Amount	Payment Date	Receipt Number	Payment Amount	Payment Adjustment Amount	Net Payment Amount	Outstanding Balance
----------------------	---------------	--------------------------	-------------------	--------------	----------------	----------------	---------------------------	--------------------	---------------------

Location ID: 3704

Location Details

Alternate Id	Parcel Number	Census Tract	GIS X	GIS Y	GIS Z	GIS Reference	Longitude	Latitude
C38400	027 B 002 001		M				-70.258758	43.658026

Location Type	Subdivision Code	Subdivision Sub Code	Related Persons	Address(es)
1				443 CONGRESS STREET WEST

Location Use Code	Variance Code	Use Zone Code	Fire Zone Code	Inside Outside Code	District Code	General Location Code	Inspection Area Code	Jurisdiction Code
OFFICE & BUSINESS SERVICE		DOWNTOWN BUSINESS	B-3		✓ Historic District		DISTRICT 4	CENTRAL BUSINESS DISTRICT

Structure Details

Structure: Loc id 000003703 Alt id 000046

Occupancy Type Code:

Structure Type Code	Structure Status Type	Square Footage	Estimated Value	Address
Office & Professional Buildings	6	8624,88		443 CONGRESS STREET WEST

Longitude	Latitude	GIS X	GIS Y	GIS Z	GIS Reference	User Defined Property	Value
0	0	M					

Structure: office building

Occupancy Type Code:

GG



Fire Alarm Permit

notes ok office Bldg

If you or the property owner owes real estate or property taxes or user charges on any property within the city, payment arrangements must be made before permits of any kind are accepted.

Installation address: 443 Congress St CBL: 027 B002

Exact location: (within structure) Entire Building

Type of occupancy(s) (NFPA & ICC): Existing Business

Building owner: Northland Enterprises, LLC 1 City Center, 4th Floor, Portland, ME 04141

System Designer (point of contact): Must be Bartlett Design 942 Washington Street, Bath, ME 04530

Designer phone: (207)443-5447 E-mail: bartlettdesigninc@comcast.net

Installing contractor: Cunningham Security Certificate of Fitness No: _____

Contractor phone: (207)846-3350 E-mail: mmajor@cunninghamsecurity.com

This is a new application: YES ☐ NO ☐ New AES Master Box: YES ☒ NO ☐
(Include Master Box approval form)

Amendment to an existing permit: YES ☐ NO ☒ Permit no: _____

The following documents shall be provided with this application:

- | | |
|---|---|
| <input checked="" type="checkbox"/> Floor plans | <input checked="" type="checkbox"/> Scope of Work |
| <input checked="" type="checkbox"/> Wiring diagram | <input checked="" type="checkbox"/> 11 1/2 x 17s |
| <input checked="" type="checkbox"/> Annunciator details | <input checked="" type="checkbox"/> pdf copy (may be e-mailed) |
| <input checked="" type="checkbox"/> Input/ Output Matrix | <input checked="" type="checkbox"/> Designer qualifications |
| <input checked="" type="checkbox"/> Equipment data sheets | <input checked="" type="checkbox"/> Battery/ voltage drop calcs |
| <input type="checkbox"/> Electrical Permit Pulled (check alarm/com) | |

Master box approval only: YES ☐ NO ☐
(If yes check New AES Master Box above)

COST OF WORK: 31,000

PERMIT FEE: 330.00
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED

Design

The designer shall be the responsible party for this application. Download a new copy of this application at www.portlandmaine.gov/fire for every submittal. Submit all plans in electronic PDF in addition to readable 11 1/2 x 17s to the Building Inspections Department, 389 Congress Street, Room 315, Portland, Maine 04101.

Prior to acceptance of any fire alarm system, a complete commissioning and acceptance test must be coordinated with all fire system contractors and the Fire Department, and proper documentation of such test(s) provided.

All installation(s) must comply with the City of Portland Technical Standard for Signaling Systems for the Protection of Life and Property, available at www.portlandmaine.gov/fire.

Applicant signature: [Signature] Date: 4.21.11

City of Portland, Maine
FIRE ALARM PERMIT APPLICATION

Clapp Building
443 Congress Street

April 20, 2011

1. Fire Alarm Permit
2. Master Box Approval
3. Floor Plans
4. Wiring Diagrams
5. Annunciator Details
6. Input/Output Matrix
7. Equipment Data Sheets
8. Scope of Work
9. 11 ½ x 17s
10. Designer Qualifications
11. Battery/Voltage Drop Calcs
12. System Specifications

Prepared By:

Bartlett Design, Inc.
942 Washington Street
Bath, Maine 04530

Fire Alarm Supplier/Installer:

CUNNINGHAM

SECURITY SYSTEMS

10 Princes Point Road
Yarmouth, Maine 04096

**City of Portland, Maine
FIRE ALARM PERMIT APPLICATION**

Clapp Building
443 Congress Street

April 20, 2011

FLOOR PLANS AND WIRING DIAGRAMS ARE INCLUDED IN THE REAR POCKET OF THIS
SUBMISSION BOOK

CUNNINGHAM

SECURITY SYSTEMS

10 Princes Point Road
Yarmouth, Maine 04096

LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET BATH, ME 04530
TEL (207) 443-5447 FAX (207) 443-5560
e-mail: bartlettdesigninc@comcast.net

443 Congress Street
11-0024
April 20, 2011

FIRE ALARM INPUT/OUTPUT MATRIX

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET BATH, ME 04530
TEL (207) 443-5447 FAX (207) 443-5560
e-mail: bartlettdesigninc@comcast.net

443 Congress Street
11-0024
April 20, 2011

FIRE ALARM INPUT/OUTPUT MATRIX

		System Outputs																																		
		Control Unit Annunciation								Notification								Required Fire Safety Control										Supplementary								
		Actuate common alarm signal indicator	Actuate audible alarm signal	Actuate common supervisory signal indicator	Actuate audible supervisory signal	Actuate common trouble signal indicator	Actuate audible common trouble signal	Actuate Appropriate Location Indicator			Actuate all audible evacuation signals	Actuate all visible evacuation signals	Display/print change of status	Transmit alarm signal to supervising station	Transmit supervisory signal to supervising station	Transmit trouble signal to supervising station		Elevator shunt trip	Recall elevators to primary recall floor	Recall elevators to alternate recall floor	Elevator flash			t		e		Remotely display active status	Fan shut down							
System Inputs		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG		
1	Smoke sensor/detector	•	•					•			•	•	•	•															•	•					1	
2	Manual pull station	•	•					•			•	•	•	•															•						2	
3	Heat sensor/detector	•	•					•			•	•	•	•															•						3	
4																																			4	
5	HVAC duct sensor/detector			•	•			•					•		•															•	•					5
6	1 st floor elevator lobby smoke detector	•	•					•			•	•	•	•						•										•	•					6
7	Elevator lobby smoke detectors (exc. 1 st fl.)	•	•					•			•	•	•	•					•											•	•					7
8	Elevator penthouse heat detector	•	•					•			•	•	•	•				•												•	•					8
9	Elevator penthouse smoke detector	•	•					•			•	•	•	•					•		•									•	•					9
10	Elevator shaft heat detector	•	•					•			•	•	•	•				•												•						10
11	Elevator shaft smoke detector	•	•					•			•	•	•	•					•		•									•						11
12	Water flow switch	•	•					•			•	•	•	•																•						12
13	Tamper switch			•	•			•					•		•															•						13
14	Fire alarm AC power failure					•	•						•			•														•						14
15	Fire alarm system low battery					•	•						•			•														•						15
16	Open circuit					•	•						•			•														•						16
17	Ground fault					•	•						•			•														•						17
18	Notification appliance circuit – Class B wire-to-wire short					•	•						•			•														•						18
19																																				19
20																																				20
21																																				21
22																																				22

**City of Portland, Maine
FIRE ALARM PERMIT APPLICATION**

Clapp Building
443 Congress Street

April 20, 2011

EQUIPMENT DATA SHEETS

FIRE ALARM SYSTEM EQUIPMENT

Fire Alarm Control Panel
Remote Power Supply
Horn/Strobe Notification Appliances
Addressable Manual Pull Stations
Addressable Smoke Detectors
Addressable Thermal Detectors
Addressable Duct Smoke Detectors
Fault Isolator Modules
Control Modules
Flow Switches
Batteries
Radio Master Box

AREA OF REFUGE SYSTEM EQUIPMENT

Control Panel

CUNNINGHAM

SECURITY SYSTEMS

**10 Princes Point Road
Yarmouth, Maine 04096**

MS-9200UDLS(E) Rev 2

Intelligent Addressable FACP with Built-In Communicator



Addressable

General

The Fire•Lite MS-9200UDLS Rev 2 with Version 4.0 firmware is a combination FACP (Fire Alarm Control Panel) and DACT (Digital Alarm Communicator/Transmitter) all on one circuit board. This compact intelligent addressable control panel has an extensive list of powerful features.

While the MS-9200UDLS Rev 2 may be used with an SLC configured in the CLIP (Classic Loop Interface Protocol) mode, it can also operate in LiteSpeed™ mode—Fire•Lite's latest polling technology—for a quicker device response time. LiteSpeed's patented technology polls 10 devices at a time. This improvement allows a fully-loaded panel with up to 198 devices to report an incident and activate the notification circuits in under 10 seconds. With Litespeed polling, devices can be wired on standard twisted, unshielded wire up to a distance of 10,000 feet.

The MS-9200UDLS Rev 2's quick-remove chassis protects the electronics during construction. The backbox can be installed allowing field wiring to be pulled. When construction is completed, the electronics can be quickly installed with just two bolts.

Available accessories include ANN-BUS devices as well as ACS LED, graphic and LCD annunciators, and reverse polarity/city box transmitter.

The integral DACT transmits system status (alarms, supervisories, troubles, AC loss, etc.) to a Central Station via the public switched telephone network. It also allows remote and local programming of the control panel using the PS-Tools Upload/Download utility. In addition, the control panel may be programmed or interrogated off-site via the public switched telephone network. Any personal computer with Windows® XP or greater, a compatible modem, and PS-Tools, the Fire•Lite Upload/Download software kit, may serve as a Service Terminal. This allows download of the entire program or upload of the entire program, history file, walktest data, current status and system voltages. The panel can also be programmed through the FACP's keypad or via a standard PS-2 computer keyboard, which can be plugged directly into the printed circuit board. This permits easy typing of address labels and other programming information.

Version 4.0 firmware supports the following: ANN-bus devices, AD355 (LiteSpeed), USB port, NAC circuit diagnostics, a new report has been added to the walk-test that lists untested devices, new device types added: audio telephone type code for ACC 25/50ZST, Photo Supervisory and auto-resettable Drill (non-latching).

The FireWatch Series internet monitoring modules IPDACT-2 and IPDACT-2UD permit monitoring of alarm signals over the Internet saving the monthly cost of two dedicated business telephone lines. Although not required, the secondary telephone line may be retained providing backup communication over the public switched telephone line.

NOTE: Unless otherwise specified, the term MS-9200UDLS is used in this document to refer to both the MS-9200UDLS and the MS-9200UDLS(E) FACP's (Fire Alarm Control Panels).



Features

- Listed to UL standard 864, 9th edition.
- On-board DACT.
- Remote site or local USB port upload/download, using PS-Tools.
- Four Style Y (Class B) or two Class A (Style Z) NAC circuits. (Up to 6.0 amps total NAC power when using optional XRM-24B.)
- Selectable strobe synchronization for System Sensor, Wheelock, and Gentex devices.
- Remote Acknowledge, Silence, Reset and Drill via addressable monitor modules or LCD-80F, ANN-80 or ACS Annunciators.
- ANN-BUS for connection to following optional modules (cannot be used if ACS annunciators are used):
 - ANN-80(-W) Remote LCD Annunciator
 - ANN-I/O LED Driver
 - ANN-S/PG Printer Module
 - ANN-RLY Relay Module
 - ANN-LED Annunciator Module
 - ANN-RLED Annunciator Module alarms only
- ACS/TERM:
 - ACS Annunciators: Up to 32 ACM Series annunciators (ACM-16AT or ACM-32 series). Cannot be used if ANN-BUS devices are used.
 - Terminal-mode Annunciators: Up to 32 LCD-80F remote annunciators.
- EIA-232 printer/PC interface (variable baud rate) on main circuit board, for use with optional UL-listed printer PRN-6F.
- Integral 80-character LCD display with backlighting.

play. Recommended wire type is un-shielded. (Basic model is red; order -W version for white; see DF-52417.)

ANN-LED: Annunciator Module provides three LEDs for each zone: Alarm, Trouble and Supervisory. Ships with red enclosure (see DF-60241).

ANN-RLED: Provides alarm (red) indicators for up to 30 input zones or addressable points. (See DF-60241).

ANN-RLY: Relay Module, which can be mounted inside the cabinet, provides 10 programmable Form-C relays. (See DF-52431.)

ANN-S/PG: Serial/Parallel Printer Gateway module provides a connection for a serial or parallel printer. (See DF-52429.)

ANN-I/O: LED Driver Module provides connections to a user supplied graphic annunciator. (See DF-52430.)

ACM-8RF: Relay module provides 8 Form-C 5.0 amp relays.

ACS-LED Zone Series: LED-type fire annunciators capable of providing up to 99 software zones of annunciation. Available in increments of 16 or 32 points to meet a variety of applications.

LDM Graphic Series: Lamp Driver Module series for use with custom graphic annunciators.

LCD-80F (Liquid Crystal Display) point annunciator: 80-character, backlit LCD-type fire annunciators capable of displaying English-language text.

NOTE: For more information on *Compatible Annunciators for use with the MS-9200UDLS Rev 2*, see the following data sheets (document numbers) **ACM-8RF** (DF-51555), **ACS/ACMSeries** (DF-52378), **LDM Series** (DF-51384), **LCD-80F** (DF-52185).

LITESPEED COMPATIBLE ADDRESSABLE DEVICES

All feature a polling LED and rotary switches for addressing.

CP355: Addressable low-profile ionization smoke detector.

SD355: Addressable low-profile photoelectric smoke detector.

SD355T: Addressable low-profile photoelectric smoke detector with thermal sensor.

H355: Fast-response, low-profile heat detector.

H355R: Fast-response, low-profile heat detector with rate-of-rise option.

H355HT: Fixed high-temperature detector that activates at 190F/88C.

AD355(A): Low-profile, intelligent, "Adapt" multi-sensor detector (B350LP base included).

BEAM355: Intelligent beam smoke detector.

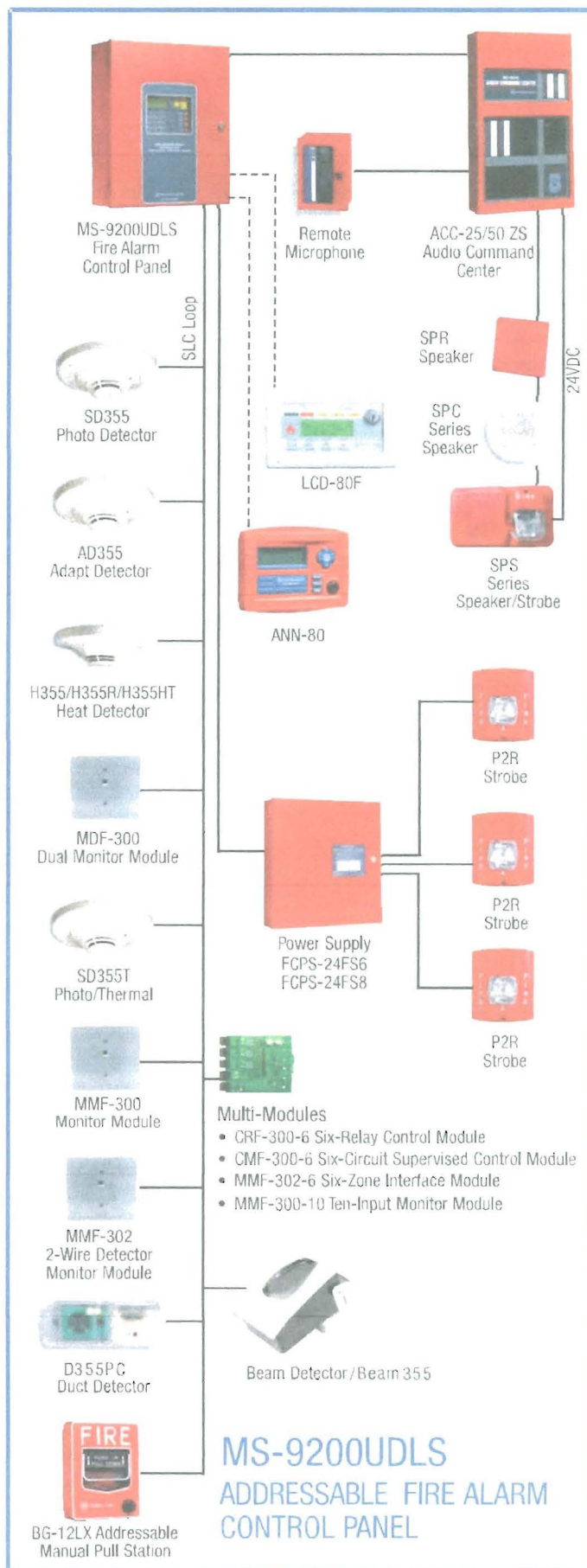
BEAM355S: Intelligent beam smoke detector with integral sensitivity test.

D350PL: Photoelectric low-flow duct smoke detector.

D350RPL: Photoelectric low-flow duct smoke detector with relay option.

DNR(A): Innovair Flex low-flow non-relay duct-detector housing. (Order SD355 separately.)

DNRW: Innovair Flex low-flow non-relay duct-detector housing, with NEMA-4 rating. Watertight. (Order SD355 separately.)





www.firelite.com

July 8, 2004

DF-52301 • D-025

FCPS-24FS6 24 Volt, 6 Amp Remote Power Supply

Section: Power Supplies/Accessories

GENERAL

The **FCPS-24FS6** is a compact, cost-effective, 6-amp remote power supply with battery charger. The FCPS-24FS6 may be connected to any 12- or 24-volt Fire Alarm Control Panel (FACP) or may stand alone. Primary applications include Notification Appliance (bell) Circuit (NAC) expansion (to support ADA requirements and NAC synchronization) or auxiliary power to support 24-volt system accessories. The FCPS-24FS6 provides *regulated* and *filtered* 24 VDC power to four Notification Appliance Circuits configured as either four Class B (Style Y) or Class A (Style A, with ZNAC-4 option module). Alternately, the four outputs may be configured as all non-resettable or all resettable or two non-resettable and two resettable. The FCPS-24FS6 also contains a battery charger capable of charging up to 18 Amp Hour batteries.

FEATURES

- UL Listed NAC Synchronization using System Sensor, Wheelock or Gentex (Commander Series) appliances.
- Cascadable up to 10 power supplies (four with Gentex) with strobe timing maintained.
- Operates as a sync follower or a sync generator (default).
* See note on reverse side.
- Contains two, fully-isolated input/control circuits (triggered from FACP Notification Appliance Circuit [NAC expander mode] or jumpered permanently on [stand-alone mode]).
- Optional mounting kit, P/N 90286, to internally house addressable SLC control module (CRF-300 or CMF-300) for alarm activation.
- Four Class B (Style Y) or four Class A (Style Z) (with ZNAC-4 Module) Notification Appliance Circuits.
- 6.0 A full load output (3.0 A maximum per circuit) in NAC expander mode (UL 864).
- 4.0 A continuous output in stand-alone mode (UL 1481).
- In stand-alone mode, output power circuits may be configured as resettable (reset line from FACP required) or non-resettable or a mix of two and two.
- Fully *regulated* and *filtered* power output (optimal for powering four-wire smoke detectors, annunciators and other system peripherals requiring regulated/filtered power).
- Power-limiting technology meets UL power-limiting requirements.
- Form-C normally-closed trouble relay.
- Fully supervised power supply, battery and Notification Appliance Circuits.
- Selectable earth fault detection.
- AC trouble report selectable for immediate or 8 hour delay.
- Works with virtually any UL 864 fire alarm control which utilizes an industry-standard reverse-polarity notification circuit (including unfiltered and unregulated bell power).
- Requires input trigger voltage of 9.0 - 32 VDC.
- Self-contained in compact, lockable cabinet (15" [38.1 cm] H x 14.5" [36.8 cm] W x 2.75" [7.0 cm] D).
- Includes integral battery charger capable of charging up to 18 AH batteries. Cabinet capable of housing 7.0 AH batteries.
- Battery charger may be disabled via dip switch for applications requiring larger batteries.
- Fixed, clamp-type terminal blocks accommodate up to 12 AWG (3.1 mm²) wire.



California
State Fire
Marshal
7315-0075:206

MEA

219-02-E



Fire-Lite® Alarms is a Honeywell company.

This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice.

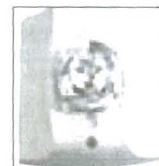
For more information, contact **Fire-Lite Alarms**, One Fire-Lite Place, Northford, Connecticut 06472.
Phone: (800) 627-3473, Toll-Free FAX: (877) 699-4105.

ISO 9001
CERTIFIED
ENGINEERING & MANUFACTURING
QUALITY SYSTEMS



Selectable-Output Horns, Strobes, and Horn Strobes

SpectrAlert® Advance selectable-output horns, strobes, and horn strobes are rich with features guaranteed to cut installation times and maximize profits.



SPECTRAlert®
ADVANCE
from System Sensor

Features

- Plug-in design with minimal intrusion into the back box
- Lamp-resistant construction
- Automatic selection of 12- or 24-volt operation at 15 and 15/75 candela
- Field-selectable candela settings on wall and ceiling units: 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185
- Horn rated at 88+ dBA at 16 volts
- Rotary switch for horn tone and three volume selections
- Universal mounting plate for wall and ceiling units
- Mounting plate shorting spring checks wiring continuity before device installation
- Electrically compatible with existing SpectrAlert products
- Compatible with MDL sync module

The SpectrAlert Advance series offers the most versatile and easy-to-use line of horns, strobes, and horn strobes in the industry. With white and red plastic housings, wall and ceiling mounting options, and plain and FIRE-printed devices, SpectrAlert Advance can meet virtually any application requirement.

Like the entire SpectrAlert Advance product line, horns, strobes, and horn strobes include a variety of features that increase their application versatility while simplifying installation. All devices feature plug-in designs with minimal intrusion into the back box, which make installations fast and foolproof while virtually eliminating costly and time-consuming ground faults. Furthermore, a universal mounting plate with an onboard shorting spring tests wiring continuity before the device is installed, protecting devices from damage.

In addition, field-selectable candela settings, automatic selection of 12- or 24-volt operation, and a rotary switch for horn tones with three volume selections enables installers to easily adapt devices to suit a wide range of application requirements.

Agency Listings



ASTM 100 Series, 100 Series, 100 Series



100 Series, 100 Series, 100 Series
100 Series, 100 Series, 100 Series
100 Series, 100 Series, 100 Series

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

	Candela	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR
Standard Candela Range	15	123	128	66	71
	15/75	142	148	77	81
	30	NA	NA	94	96
	75	NA	NA	158	153
	95	NA	NA	181	176
	110	NA	NA	202	195
	115	NA	NA	210	205
High Candela Range	135	NA	NA	228	207
	150	NA	NA	246	220
	177	NA	NA	281	251
	185	NA	NA	286	258

UL Max. Horn Current Draw (mA RMS)

Sound Pattern	dB	8–17.5 Volts		16–33 Volts	
		DC	FWR	DC	FWR
Temporal	High	57	55	69	75
Temporal	Medium	44	49	58	69
Temporal	Low	38	44	44	48
Non temporal	High	57	56	69	75
Non temporal	Medium	42	50	60	69
Non temporal	Low	41	44	50	50
Coded	High	57	55	69	75
Coded	Medium	44	51	56	69
Coded	Low	40	46	52	50

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, Standard Candela Range (15–115 cd)

DC Input	8–17.5 Volts		16–33 Volts		30	75	95	110	115
	15	15/75	15	15/75					
Temporal High	137	147	79	90	107	176	194	212	218
Temporal Medium	132	144	69	80	97	157	182	201	210
Temporal Low	132	143	66	77	93	154	179	198	207
Non Temporal High	141	152	91	100	116	176	201	221	229
Non Temporal Medium	133	145	75	85	102	163	187	207	216
Non Temporal Low	131	144	68	79	96	156	182	201	210
FWR Input									
Temporal High	136	155	88	97	112	168	190	210	218
Temporal Medium	129	152	78	88	103	160	184	202	206
Temporal Low	129	151	76	86	101	160	184	194	201
Non Temporal High	142	161	103	112	126	181	203	221	229
Non Temporal Medium	134	155	85	95	110	166	189	208	216
Non Temporal Low	132	154	80	90	105	161	184	202	211

UL Max. Current Draw (mA RMS), 2-Wire Horn Strobe, High Candela Range (135–185 cd)

DC Input	16–33 Volts				FWR Input	16–33 Volts			
	135	150	177	185		135	150	177	185
Temporal High	245	259	290	297	Temporal High	215	231	258	265
Temporal Medium	235	253	288	297	Temporal Medium	209	224	250	258
Temporal Low	232	251	282	292	Temporal Low	207	221	248	256
Non Temporal High	255	270	303	309	Non Temporal High	233	248	275	281
Non Temporal Medium	242	259	293	299	Non Temporal Medium	219	232	262	267
Non Temporal Low	238	254	291	295	Non Temporal Low	214	229	256	262

Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)

Switch Position	Sound Pattern	dB	8–17.5 Volts		16–33 Volts		24-Volt Nominal			
			DC	FWR	DC	FWR	Reverberant		Anechoic	
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non Temporal	High	82	82	88	88	93	92	100	100
5	Non Temporal	Medium	78	78	85	85	90	90	98	98
6	Non Temporal	Low	75	75	81	81	88	84	96	92
7*	Coded	High	82	82	88	88	93	92	101	101
8*	Coded	Medium	78	78	85	85	90	90	97	98
9*	Coded	Low	75	75	81	81	88	85	96	92

*Settings 7, 8, and 9 are not available on 2-wire horn strobe.

BG-12LX

Addressable Manual Pull Station



Addressable Devices

General

The Fire-Lite BG-12LX is a state-of-the-art, dual-action (i.e., requires two motions to activate the station) pull station that includes an addressable interface (mounted inside) for Fire-Lite's addressable fire alarm control panels (FACPs). Because the BG-12LX is addressable, the control panel can display the exact location of the activated manual station. This leads fire personnel quickly to the location of the alarm.

Features

- Maintenance personnel can open station for inspection and address setting without causing an alarm condition.
- Built-in bicolor LED, which is visible through the handle of the station, flashes in normal operation and latches steady red when in alarm.
- Handle latches in down position and the word "ACTIVATED" appears to clearly indicate the station has been operated.
- Captive screw terminals wire-ready for easy connection to SLC loop (accepts up to 12 AWG/3.25 mm² wire).
- Can be surface mounted (with SB-10 or SB-I/O) or semi-flush mounted. Semi-flush mount to a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box.
- Smooth dual-action design.
- Meets ADAAG controls and operating mechanisms guidelines (Section 4.1.3[13]); meets ADA requirement for 5 lb. maximum activation force.
- Highly visible.
- Attractive shape and textured finish.
- Key reset.
- Includes Braille text on station handle.
- Optional trim ring (BG12TR).
- Meets UL 38, Standard for Manually Actuated Signaling Boxes.

Construction

Shell, door, and handle are molded of durable polycarbonate material with a textured finish.

Specifications

- **Shipping Weight:** 9.6 oz. (272.15 g)
- **Normal operating voltage:** 24 VDC.
- **Maximum SLC loop voltage:** 28.0 VDC.
- **Maximum SLC loop current:** 230 μ A.
- **Temperature Range:** 32°F to 120°F (0°C to 49°C)
- **Relative Humidity:** 10% to 93% (noncondensing)
- **For use indoors in a dry location**

Installation

The BG-12LX will mount semi-flush into a single-gang, double-gang, or standard 4" (10.16 cm) square electrical outlet box, or will surface mount to the model SB-10 or SB-I/O surface backbox. If the BG-12LX is being semi-flush mounted, then the optional trim ring (BG12TR) may be used. The BG12TR is



FL Pull Station.jpg

usually needed for semi-flush mounting with 4" (10.16 cm) or double-gang boxes (not with single-gang boxes).

Operation

Pushing in, then pulling down on the handle causes it to latch in the down/activated position. Once latched, the word "ACTIVATED" (in bright yellow) appears at the top of the handle, while a portion of the handle protrudes from the bottom of the station. To reset the station, simply unlock the station with the key and pull the door open. This action resets the handle; closing the door automatically resets the switch.

Each manual station, on command from the control panel, sends data to the panel representing the state of the manual switch. Two rotary decimal switches allow address settings (1 – 159 with Breakaway Tab removed for MS-9600 Series, 1 – 99 and MS-9200UDLS, 1 – 50 for MS-9050UD).

Architectural/Engineering Specifications

Manual Fire Alarm Stations shall be non-coded, with a key-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red-colored polycarbonate material with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching backbox SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box, and shall be installed within

SD355(A), SD355T(A), SD355R(A)

df-52384:b • E-160

Addressable Photoelectric Smoke Detectors



Addressable Devices

General

The **SD355(A)** and **SD355T(A)** addressable, low-profile plug-in photoelectric detectors use a state-of-the-art photoelectric sensing chamber with communications to provide open area protection and are used exclusively with Fire-Lite's Addressable Fire Alarm Control Panels (FACPs). The **SD355T(A)** adds thermal sensors that will alarm at a fixed temperature of 135°F (57°C). Since these detectors are addressable, they will help emergency personnel quickly locate a fire during its early stages, potentially saving precious rescue time while also reducing property damage. Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory (P/N **RA100Z(A)**). The **SD355R** is a remote test capable detector for use with **D355PL** or **DNR(W)** duct smoke detector housings.

Features

SLC loop:

- Two-wire loop connection
- Unit uses base for wiring.

Addressing:

- Addressable by device.
- Direct Decode entry of address: 01 – 99 with MS-9200 series, and 01 – 159 with MS-9600 series.

Architecture:

- Unique single-source, dual-chamber design to respond quickly and dependably to a broad range of fires.
- Sleek, low-profile design.
- Integral communications and built-in type identification.
- Built-in tamper-resistant feature.
- Removable cover and insect-resistant screen for simple field cleaning.

Operation:

- Withstands air velocities up to 4,000 feet-per-minute (20 m/sec.) without triggering a false alarm.
- Factory preset at 1.5% nominal sensitivity for panel alarm threshold level.
- Visible LED "blinks" when the unit is addressed (communicating with the fire panel) and latches on in alarm.

Mechanicals:

- Sealed against back pressure.
- Direct surface mounting or electrical box mounting.
- Mounts to: single-gang box, 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box, or 4.0" (10.16 cm) square electrical box (using a plaster ring — included).

Other system features:

- Fully coated circuit boards and superior RF/transient protection.
- 94-V0 plastic flammability rating.
- Low standby current.

Options:

- Remote LED output connection (P/N **RA100Z**).



SD355 with B350LP base



SD355T with B350LP base

Applications

Use photoelectric detectors in life-safety applications to provide a broad range of fire-sensing capability, especially where smoldering fires are anticipated. Ionization detectors are often better than photoelectric detectors at sensing fast, flaming fires.

Construction

These detectors are constructed of off-white LEXAN®. SD355(T) plug-in, low-profile smoke detectors are designed to commercial standards and offer an attractive appearance.

Installation

SD355(T) plug-in detectors use a detachable mounting base to simplify installation, service and maintenance. Mount base on box which is at least 1.5 inches (3.81 cm) deep. Suitable boxes include:

- 4.0" (10.16 cm) square box with plaster ring
- 4.0" (10.16 cm) octagonal box.
- 3.5" (8.89 cm) octagonal box.
- Single-gang box.

NOTE: Because of the inherent supervision provided by the SLC loop, **end-of-line resistors** are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class B) wiring. **SD355R** mounts in a **D355PL** or **DNR(W)** duct detector housing.

H355(A) Series

Intelligent Addressable Thermal Detectors



Addressable Devices

General

The **Fire-Lite Alarms H355 Series** thermal detectors are addressable sensors that use a state-of-the-art thermistor sensing circuit for fast response. These sensors are designed to provide open-area protection and are intended for use with the **Fire-Lite's** addressable Fire Alarm Control Panels (FACPs).

The **H355(A)** and **H355R(A)** sensors provide fixed temperature alarm detection at 135°F (57°C). The **H355R(A)** sensor also responds to rate-of-rise conditions of greater than 15°F (8.3°C) per minute. The **H355HT(A)** is a fixed high-temperature detector that activates at 190°F (88°C). These thermal detectors provide cost effective, addressable property protection in a variety of applications.

Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory (P/N **RA400Z**).

Features

SLC loop:

- Two-wire SLC loop connection.
- Unit uses base for wiring.

Addressing:

- Addressable by device.
- Direct Decode entry of address: 01 – 159 with MS-9600, 01 – 99 with MS-9200UD.

Architecture:

- Sleek, low-profile, stylish design.
- State-of-the-art thermistor technology for fast response.
- Integral communications and built-in device-type identification.
- Built-in tamper resistant feature.
- Built-in functional test switch activated by external magnet.

Operation:

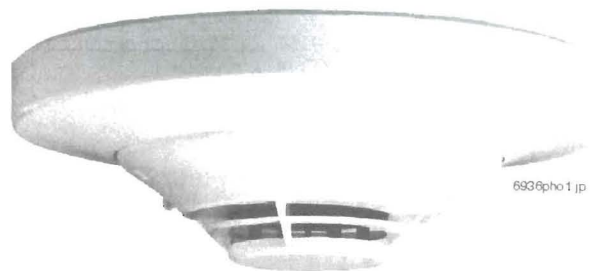
- Factory preset at 135°F (57°C) for the H355(A) and H355R(A); 190°F (88°C) for the H355HT(A).
- Rate-of-rise triggers at 15°F (8.3°C) per minute for the H355R(A).
- 360°-field viewing angle of the visual alarm indicators (two bicolor LEDs). LEDs blink green in Normal condition and turn on steady red in Alarm.
- Visible LEDs "blink" every time the unit is addressed.

Mechanicals:

- Sealed against back pressure.
- SEMS screws for wiring of the separate base.
- Designed for direct-surface or electrical-box mounting.
- Plugs into separate base for ease of installation and maintenance.
- Separate base allows interchange of photoelectric, ionization and thermal sensors.

Other system features:

- Remote test feature from the panel.
- Walk test with address display.
- Low standby current.



H355 with B350LP base

- 94-5V plastic flammability rating.

Options:

- Remote LED output connection to optional RA400Z remote LED annunciator.
- Recessed (**RMK400**) or surface (**SMK400E**) base mounting kits.

Installation

H355(A) Series plug-in intelligent thermal detectors use a detachable base to simplify installation, service and maintenance. Installation instructions are shipped with each detector.

Mount base (all base types) on box that is at least 1.5" (3.81 cm) deep. Suitable boxes include:

- 4.0" (10.16 cm) square box.
- 3.5" (8.89 cm) or 4.0" (10.16 cm) octagonal box.
- Single-gang box (except relay or isolator base).

NOTE: Because of the inherent supervision provided by the SLC loop, end-of-line resistors are not required. Wiring "T-taps" or branches are permitted for Style 4 (Class "B") wiring only.

Applications

Use thermal detectors for protection of property.

Construction

These detectors are constructed of off-white Bayblend®. The H355(A) Series plug-in intelligent thermal detectors are designed to commercial standards and offer an attractive appearance.

Operation

Each H355(A) Series detector uses one of 159 (MS-9600) or 99 (MS-9200UD) possible addresses on a control panel SLC loop. It responds to regular polls from the control panel and reports its type and the status. If it receives a test command from the panel (or a local magnet test), it stimulates its electronics and reports an alarm. It blinks its LEDs when polled and turns the LEDs on when commanded by the panel. The H355(A) Series offers features and performance that represent the latest in thermal detector technology.

InnovairFlex

Intelligent Non-Relay Photoelectric Duct Smoke Detector



Intelligent Addressable Devices

General

The Fire•Lite InnovairFlex **D355PL** intelligent non-relay photoelectric duct smoke detector and DNRW watertight non-relay photoelectric duct smoke detector feature a pivoting housing that fits both square and rectangular footprints capable of mounting to a round or rectangular duct.

DNRW duct smoke detector, with its NEMA-4 rating, is listed as a watertight, UV resistant enclosure providing protection against falling dirt, rain, and windblown dust, splashing and hose directed water, allowing operators to use the detector in the most extreme environments.

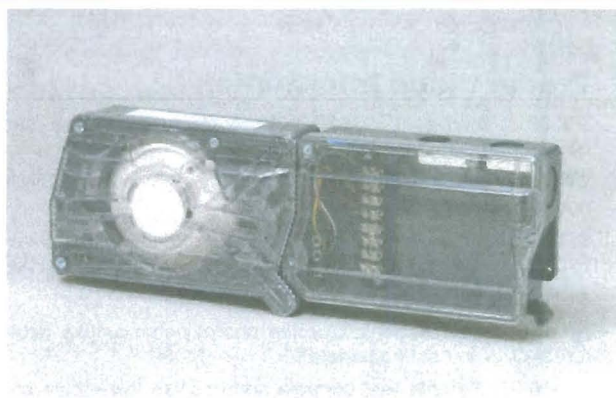
These units sense smoke in the most challenging conditions, operating in airflow speeds of 100 to 4,000 feet per minute, temperatures of -4 degrees F to 158 degrees F, and a humidity range of 0 to 95 percent (non-condensing.)

An improved cover design isolates the sensor head, which allows for ease of maintenance. A cover tamper feature indicates a trouble signal for a removed or improperly installed sensor cover. The Fire•Lite InnovairFlex housing provides a 3/4-inch conduit knockout and ample space to facilitate easy wiring and mounting of a relay module.

The Fire•Lite InnovairFlex duct smoke detector can be customized to meet local codes and specifications without additional wiring. The new InnovairFlex product line is compatible with all previous Innovair models, including remote test accessories.

Features

- Photoelectric, integrated low-flow technology
- Air velocity rating from 100 ft/min to 4,000 ft/min (0.5 m/s to 20.32 m/s)
- Versatile mounting options: square or rectangular configuration
- Broad ranges for operating temperature (-4F to 158F) and humidity (0% to 95% non-condensing)
- Patented sampling tube installs from front or back of the detector with no tools required
- Cover tamper signal
- Increased wiring space with a newly added 3/4" conduit knockout
- Available space within housing to accommodate mounting of a relay module
- Easily accessible code wheels on sensor head (sold separately)
- Clear cover for convenient visual inspection
- Remote testing capability
- Requires com line power only
- Accommodates the installation of an addressable relay module, sold separately, (CRF-300) for applications requiring a Form-C relay



Specifications

Size: (Rectangle) 14.38 in (37 cm) Length; 5 in (12.7 cm) Width; 2.5 in (6.6 cm) Depth

Size: (Square) 7.75 in (19.7 cm) Length; 9 in (22.9 cm) Width; 2.5 in (6.35 cm) Depth

Weight: 1.6 lb (0.73 kg)

Operating Temperature Range: -4 degrees F to 158 degrees F (-20 degrees C to 70 degrees C)

Storage Temperature Range: -22 degrees F to 158 degrees F (-30 degrees C to 70 degrees C)

Operating Humidity Range: 0% to 95% relative humidity (non-condensing)

Air Duct Velocity: 100 to 4,000 ft/min (0.5 to 20.32 m/s)

Accessories

Fire•Lite provides system flexibility with a variety of accessories, including two remote test stations and different means of visible and audible system annunciation. As with our duct smoke detectors, all duct smoke detectors accessories are UL listed.

D355PLs and DNRWs with a date code of 0013 or higher do not require external 24VDC for remote test applications when used with a remote-test-capable detector.

ACCESSORY CURRENT LOADS AT 24 VDC

Device	Standby	Alarm
RA100Z	0mA	12 mA Max
RTS151/ RTS151KEY	0mA	12mA Max

I300(A)

Fault Isolator Module



Addressable Devices

General

The Fire-Lite I300(A) Fault Isolator Module is used with Fire-Lite's addressable fire alarm control panels (FACPs) to protect the system against wire-to-wire short circuits on the SLC loop. The I300(A) should be placed between each device on the SLC loop to isolate a short-circuit problem between the modules. It is required for true Style 7 operation so that other devices can continue to operate normally in the event of a short-circuit on the SLC.

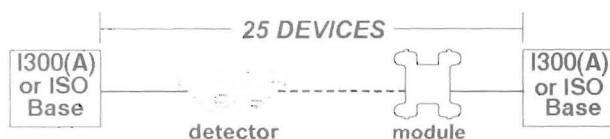
Features

- Powered by SLC loop directly, no external power required.
- Mounts in standard 4.0" (10.16 cm) square, 2.125" (5.398 cm) deep junction boxes.
- Integral LED blinks to indicate normal condition. Illuminates steady when short circuit condition is detected.
- High noise (EMF/RFI) immunity.

Applications

The Fault Isolator Modules should be spaced between groups of sensors in a loop to protect the rest of the loop. Use to isolate short circuit problems within a section of a loop so that other sections can continue to operate normally. The I300(A) supports a maximum of 25 devices in-between isolators, except when using relay bases.

NOTE: LOADS PER RELAY BASE AND ISOLATORS/ISOLATOR BASES: The maximum number of addressable devices between isolators (or B224BI isolator bases) is 25 devices.

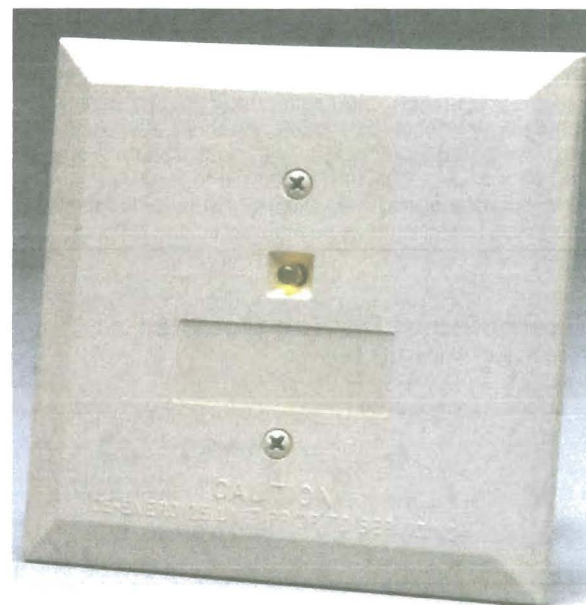


B224RB relay bases draw more current than other intelligent devices. When calculating the 25-device maximum, B224RB represents 2.5 DEVICES; see example on page 2.

NOTE: ON MAXIMUM NUMBER OF DEVICES: See the SLC Manual (51309) for information on loss of addresses due to current limitations. Each module or base added reduces the capacity of address positions in an SLC. All SLC field devices must have been purchased after February 1995 to meet the aforementioned requirements. If the SLC field devices were purchased prior to February 1995, each ISO-X used reduces the capacity of an SLC by two address positions. Requirements differ as applied to relay bases; see note above.

Specifications

- **Operating voltage:** 15 – 28 VDC (peak).
- **Maximum current upon activation due to short circuit:** refer to the manual for the main FACP.
- **Standby current:** 450 μ A maximum; I300(A) is not isolating – relay closed.
- **Temperature range:** 32°F to 120°F (0°C to 49°C).
- **Relative humidity:** 10% to 93%.
- **Weight:** 150 grams (5 oz).



I300(A)

Construction

The face plate is made of off-white plastic. Module includes yellow LED indicator that pulses when normal and illuminates steady when a short is detected.

Operation

Automatically opens circuit when the line voltage drops below four volts. Fault Isolator Modules should be spaced between groups of addressable devices (maximum 25, see notes on page 1) in a loop to protect the rest of the loop. If a short occurs between any two isolators, then both isolators immediately switch to an open circuit state and isolate the groups of sensors between them. The remaining units on the loop continue to fully operate.

In Style 4 loops, the I300(A) is generally used at each T-tap branch, to limit the effect of short circuits on a branch to the devices on that branch. The LED indicator is on continuously during a short circuit condition.

The I300(A) Fault Isolator Module automatically restores the shorted portion of the communications loop to normal.

Installation

- Mount on a standard 4" (10.16 cm) mounting junction box which is at least 2.125" (5.398 cm) deep.
- Terminal screws are provided for "in and out" wiring.
- Installation instructions are provided with each module.
- Surface-mount box is available as an option.

MMF-300(A) Series, MDF-300(A)

Addressable Monitor Modules



Addressable Devices

General

Four different monitor modules are available for Fire•Lite's intelligent control panels to suit a variety of applications. Monitor modules are used to supervise a circuit of dry-contact input devices, such as conventional heat detectors and pull stations, or monitor and power a circuit of two-wire smoke detectors (MMF-302(A)).

MMF-300(A) is a standard-sized module (typically mounts to a 4" [10.16 cm] square box) that supervises either a Style D (Class A) or Style B (Class B) circuit of dry-contact input devices.

MMF-301(A) is a miniature monitor module a mere 1.3" (3.302 cm) H x 2.75" (6.985 cm) W x 0.5" (1.270 cm) D used to supervise a Style B (Class B) circuit of dry-contact input devices. Its compact design allows the MMF-301(A) to be mounted in a single-gang box behind the device it monitors.

MMF-302(A) is a standard-sized module used to monitor and supervise compatible two-wire, 24 volt, smoke detectors on a Style D (Class A) or Style B (Class B) circuit.

MDF-300(A) is a standard-sized dual monitor module used to monitor and supervise two independent two-wire Style B (Class B) dry-contact initiating device circuits (IDCs) at two separate, consecutive addresses in intelligent, two-wire systems.

LiteSpeed™ is a communication protocol developed by Fire•Lite Engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other designs.

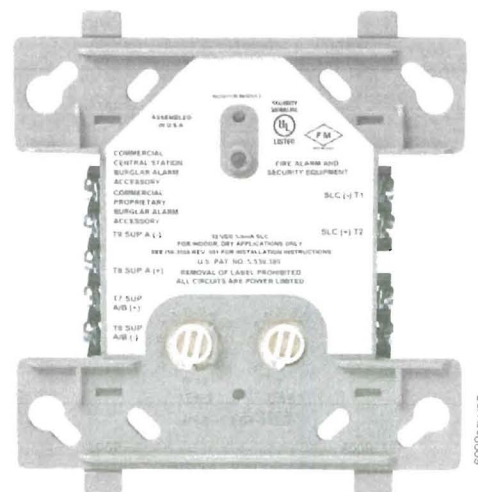
MMF-300(A) Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the control panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- SEMS screws with clamping plates for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems.
- LED flashes during normal operation and latches on steady to indicate alarm.

The MMF-300(A) Monitor Module is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a two-wire or four-wire fault-tolerant Initiating Device Circuit (IDC) for normally-open-contact fire alarm and supervisory devices. The module has a panel-controlled LED indicator. The MMF-300(A) can be used to replace M300(A) modules in existing systems.

MMF-300(A) APPLICATIONS

Use to monitor a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact alarm activation devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit



MMF-300(A) (Type H)

may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the Style B circuit. No resistor is required for supervision of the Style D circuit.

MMF-300(A) OPERATION

Each MMF-300(A) uses one of the available module addresses on an SLC loop. It responds to regular polls from the control panel and reports its type and the status (open/normal/short) of its Initiating Device Circuit (IDC). A flashing LED indicates that the module is in communication with the control panel. The LED latches steady on alarm (subject to current limitations on the loop).

MMF-300(A) SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Average operating current: 350 μ A (LED flashing), 1 communication every 5 seconds, 47K EOL.

Maximum IDC wiring resistance: 40 ohms.

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% noncondensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

MDF-300(A) Dual Monitor Module

The MDF-300(A) Dual Monitor Module is intended for use in intelligent, two-wire systems. It provides two independent two-wire initiating device circuits (IDCs) at two separate, consecutive addresses. It is capable of monitoring normally open contact fire alarm and supervisory devices. The module has a single panel-controlled LED.

NOTE: The MDF-300(A) provides two Style B (Class B) IDC circuits ONLY. Style D (Class A) IDC circuits are NOT supported in any application.

MDF-300(A) SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Average operating current: 750 μ A (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 μ A

EOL resistance: 47K ohms.

Maximum SLC Wiring resistance: 40 Ohms.

Temperature range: 32° to 120°F (0° to 49°C).

Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

MDF-300(A) AUTOMATIC ADDRESSING

The MDF-300(A) automatically assigns itself to two addressable points, starting with the original address. For example, if the MDF-300(A) is set to address "26", then it will automatically assign itself to addresses "26" and "27".

NOTE: "Ones" addresses on the MDF-300(A) are 0, 2, 4, 6, or 8 only. Terminals 6 and 7 use the first address, and terminals 8 and 9 use the second address.



CAUTION:

Avoid duplicating addresses on the system.

Installation

MMF-300(A), MMF-302(A), and MDF-300(A) modules mount directly to a standard 4" (10.16 cm) square, 2.125" (5.398 cm) deep, electrical box. They may also be mounted to the SMB500 surface-mount box. Mounting hardware and installation instructions are provided with each module. All wiring must conform to applicable local codes, ordinances, and regulations. These modules are intended for power-limited wiring only.

The MMF-301(A) module is intended to be wired and mounted without rigid connections inside a standard electrical box. All wiring must conform to applicable local codes, ordinances, and regulations.

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- UL: S2424
- ULC: S2424
- FM Approved
- CSFM: 7300-0075:0185
- MEA: 72-01-E

Product Line Information

NOTE: "A" suffix indicates ULC-listed model.

MMF-300(A): Monitor module.

MMF-301(A): Monitor module, miniature.

MMF-302(A): Monitor module, two-wire detectors.

MDF-300(A): Monitor module, dual, two independent Class B circuits.

SMB500: Optional surface-mount backbox.

NOTE: See installation instructions and refer to the SLC Wiring Manual, PN 51309.

Architects'/Engineers' Specifications

Specifications of these devices and all FireLite products are available from FireLite.

CMF-300(A)

Control Module



Addressable Devices

General

The **CMF-300(A)** Addressable Control Module provides Fire-Lite intelligent control panels a circuit for Notification Appliances (horns, strobes, etc.). Addressability allows the CMF-300(A) to be activated through panel programming, on a select (zone or area of coverage) basis.

LiteSpeed™ is a communication protocol developed by Fire-Lite Engineering that greatly enhances the speed of communication between analog intelligent devices. Intelligent devices communicate in a grouped fashion. If one of the devices within the group has new information, the panel CPU stops the group poll and concentrates on single points. The net effect is response speed greater than five times that of other designs.

Features

- Built-in type identification automatically identifies these devices to the control panel.
- Internal circuitry powered directly by two-wire SLC loop. The CMF-300(A) module requires power (for horns, strobes, etc.).
- Integral LED "blinks" green each time a communication is received from the control panel and turns on steady red when activated.
- High noise immunity (EMF/RFI).
- The CMF-300(A) may be used to switch 24-volt NAC power.
- Wide viewing angle of LED.
- SEMS screws with clamping plates for wiring ease.
- Direct-dial entry of address: 01– 159 for MS-9600 series panels, 01 – 99 on MS-9200UDLS and MS-9050UD.

Applications

The CMF-300(A) is used to switch 24 VDC audible/visual power.

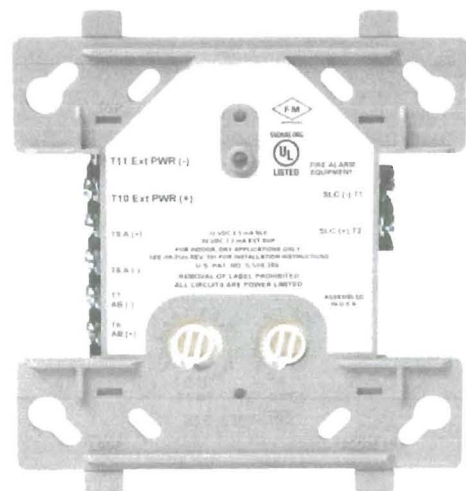
Construction

- The face plate is made of off-white heat-resistant plastic.
- Controls include two rotary switches for direct-dial entry of address setting.
- The CMF-300(A) is configured for a single Class B (Style Y) or Class A (Style Z) Notification Appliance Circuit.

Operation

Each CMF-300(A) uses one of the module addresses on a SLC loop. It responds to regular polls from the control panel and reports its type and status, including the open/normal/short status of its Notification Appliance Circuit (NAC). The LED blinks with each poll received. On command, it activates its internal relay. The CMF-300(A) supervises Class B (Style Y) or Class A (Style Z) notification or control circuits.

Upon code command from the panel, the CMF-300(A) will disconnect the supervision and connect the external power supply in the proper polarity across the load device. The disconnection of the supervision provides a positive indication to the panel that the control relay actually turned ON. The



CMF-300(A)

external power supply is always relay-isolated from the communication loop so that a trouble condition on the external power supply will never interfere with the rest of the system.

Rotary switches set a unique address for each module. The address may be set before or after mounting. The built-in TYPE CODE (not settable) will identify the module to the control panel, so as to differentiate between a module and a sensor address.

Specifications

Normal operating voltage: 15 to 32 VDC.

Maximum SLC current draw: 6.5 mA (LED on).

Average operating current: 350 μ A direct poll (CLIP mode), 375 μ A group poll (LiteSpeed mode) with LED flashing.

External supply voltage: maximum 80 volts (RMS or DC).

Drain on external supply: 2 mA maximum (using internal EOL relay).

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 1.25" (3.175 cm) deep. Mounts to a 4" (10.16 cm) square x 2.125" (5.398 cm) deep box.

Agency Listings and Approvals

In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- ULC: S2424

Product Line Information

CMF-300: Intelligent addressable control module.



Stock No. 1111100

U.S. Patent No. 3921989, Canadian Patent No. 1009680
Other Patents Pending

WARNING

Install VS-SP in systems that are not subject to variable water pressure. Failure to do so will result in false alarms.

CAUTION

This device is not intended for applications in explosive environments.

The Model VS-SP is a vane type waterflow switch for use on wet sprinkler systems. These devices may be used as sectional flow indicators on large sprinkler systems and on smaller sprinkler systems such as mobile homes and residential dwellings.

The VS-SP does not have a retard to prevent false alarms due to water surges. Therefore it should NOT be used on systems with variable water pressure supplies except in the case of elevator recall.

Installation

These devices may be mounted in horizontal or vertical pipe. On horizontal pipe they should be installed on the top side of the pipe where they will be accessible. The units should not be installed within 6" (15cm) of a valve, drain or fitting which changes the direction of the water flow. Select the proper paddle for the pipe size and type of TEE used. See Fig. 1 for instructions on how to change the paddle.

The unit has a 1" NPT bushing for threading into a non-corrosive TEE.

UL, cUL, CSFM and NYBSA Listed, CE Marked

Service Pressure: Up to 250 PSI (17.2 BAR)

Minimum Flow Rate for Alarm: 10 GPM (38 LPM)

Maximum Surge: 18 FPS (5.5 m/s)

Enclosure: Die-cast, red enamel finish
Cover held in place with tamper resistant screws

Contacts: One set of SPDT (Form C), standard
Second set optional, see below:
15 Amps at 125/250 VAC
0.5 Amps at 125VDC
0.25 Amps at 250VDC
2.5 Amps at 30 VDC resistive

Conduit Entrance: One opening for 1/2" conduit

Usage: Listed plastic, copper and schedule 40 iron pipe
For pipe sizes - 1" (25mm), 1-1/4" (32mm), 1-1/2" (38mm), and 2" (50mm)

Note: 12 paddles are furnished with each unit, one for each pipe size of threaded and sweat TEE, one for 1" CPVC, one for 1" CPVC (Central), one for 1" Nibco threaded tee, and one for 1-1/2" threaded (Japan).

Environmental Specifications:

- Suitable for indoor or outdoor use with factory installed gasket and die-cast housing.
- NEMA 4 IP55 rated enclosure - use with appropriate conduit fitting.
- Temperature range: 40°F to 120°F (4.5°C to 49°C)

Service Use:

Automatic Sprinkler	NFPA-13
One or two family dwelling	NFPA-13D
Residential occupancy up to four stories	NFPA-13R
National Fire Alarm Code	NFPA-72

Optional: Extra Contacts Switch Kit, Stock No. 0090013
(Extra Contacts Switch is Field Installed)
Cover Tamper Switch Kit, Stock No. 5420220

See Fig. 2 for proper TEE size, type and installation. Use no more than three wraps of teflon tape as thread lubricant. Screw the device into the TEE fitting as shown in Fig. 2. Care must be taken to properly orient the device for the direction of waterflow.

The vane must not rub the inside of the TEE or bind in any way. The stem should move freely when operated by hand.

Testing

Check the operation of the unit by opening the inspector's test valve at the end of the sprinkler line, or the drain and test connection if a test valve is not provided.

If there are no provisions for testing the operation of the flow detection device on the system, application of the VS-SP is not recommended or advisable.

BAT Series Batteries

Sealed Lead-Acid



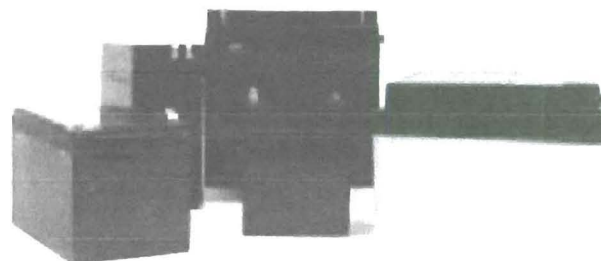
Power Supplies/Accessories

General

BAT Series Batteries are Power Sonic brand batteries. BAT Series (or Power Sonic brand) batteries are recommended for secondary power or backup power for all Fire-Lite fire alarm control equipment.

Features

- Provide secondary power for control panels.
- Sealed and maintenance-free.
- Overcharge protected.
- Easy handling with leakproof construction.
- Ruggedly constructed, high-impact case (ABS, polystyrene, or polypropylene, depending on models).
- Long service life.
- Compact design.



6933nov.jpg

Agency Listings and Approvals

The listings and approvals below apply to BAT Series Batteries. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Recognized Components:** MH20845 (*Power-Sonic*)

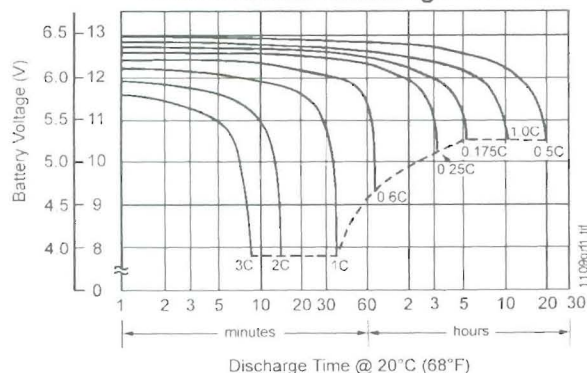
Part Number Reference & Specifications

Current Part Number	Power Sonic Part Number	Battery Description			DIMENSIONS									
		Nominal Voltage V	Nominal Capacity @ 20 hr. rate A.H.		Width		Depth		Height		Height over terminal		Weight	
					in.	mm	in.	mm	in.	mm	in.	mm	lb.	kg.
BAT-1250	PS-1250	12	5	sealed	3.54	90	2.76	70	4.02	102	4.21	107	4.1	1.9
BAT-1270	PS-1270	12	7	sealed	5.95	151	2.56	65	3.7	94	3.86	98	4.8	2.18
BAT-12120	PS-12120	12	12	sealed	5.95	151	3.86	98	3.7	94	3.94	100	7.92	3.59
BAT-12180	PS-12180	12	18	sealed	7.13	181	2.99	76	6.57	167	6.57	167	12.6	5.8
BAT-12260	PS-12260	12	26	sealed	6.56	167	6.97	177	4.92	125	4.92	125	17	7.71
BAT-12550	PS-12250	12	55	sealed	9.04	230	6.54	138	8.2	208	8.98	228	36	16.33
BAT-121000	PS-121000	12	100	sealed	12	305	6.6	168	8.2	208	8.98	228	68	30.84

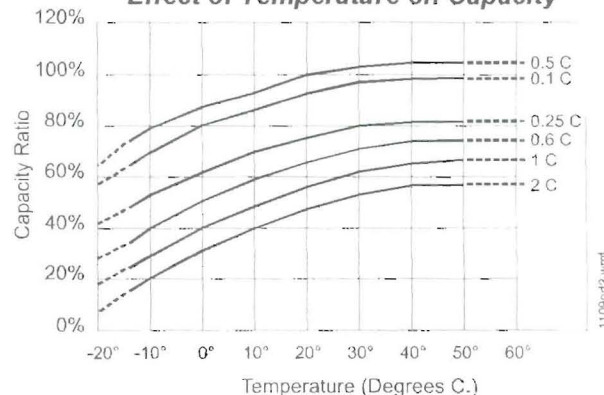
Bulk packs: Bulk packs are available for all models except BAT-12550 and BAT-12000.

- **BAT-1250-BP:** 10-unit bulk pack of BAT-1250
- **BAT-1270-BP:** 5-unit bulk pack of BAT-1270
- **BAT-12120-BP:** 4-unit bulk pack of BAT-12120
- **BAT-12180-BP:** 2-unit bulk pack of BAT-12180
- **BAT-12260-BP:** 2-unit bulk pack of BAT-12260

Characteristic Discharge Curves



Effect of Temperature on Capacity



7744/7788

UL Listed

AES IntelliNet
CORPORATION For Alarm Monitoring

NEW!

RF Subscriber Unit

UL Fire, AA Burglary and NFPA-72 Compliant

UL Listed

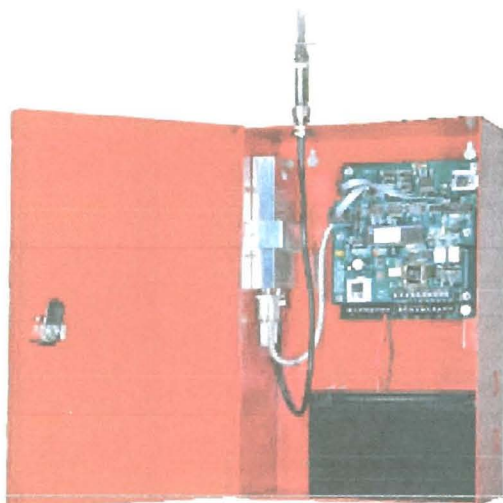
UL Listed Central
Station

Remote Station

864 Ed. 9, 827, 1610,
365, 681

CSFM

NFPA
RF Section 8.6.3.5



Advanced Wireless Alarm Monitoring

The 7744/7788 smart subscriber unit links an alarm panel to an alarm monitoring central station. This 2-way transceiver and repeater in one is housed in a full size locking steel cabinet for superior performance. The 7744/7788 supports a wide range of inputs such as NO/NC/EOL and direct voltage. It automatically senses wire and antenna cuts, and monitors battery and AC power status. Advanced status reporting, self-diagnostics and a built-in power supply make the 7744/7788 the first choice for all wireless alarm communication needs.

Full Data for Fire and Burglary

Use with the optional Firetap for full fire data or the IntelliTap for full fire and burglary data.

Available Configurations

7744 – 4 reversing
polarity inputs plus 4
programmable EOL inputs

7788 – Programmable EOL
inputs with 8 zones

Available Options

FireTap 7770
IntelliTap 7067
NEMA 4 Enclosure
High Gain Antenna
Additional Back Up Battery
Available in Burglary Beige
or Fire Red

- Options for Full Data for Fire and Burglary
- Available in 7744 & 7788 Zone Configurations
- Built-in Power Supply and Battery Charger
- Local Annunciation Options on Board



Wireless mesh networking is an innovative technology adopted by many industries with applications that need to communicate data over a large geographic area with a high level of reliability at a low total cost of ownership.

The advanced design and 2-way communications capability provides easy installation, expansion, and management when compared to alternative communication methods, both wired and wireless.



Rescue Assistance System Series 4200 Audio/Visual

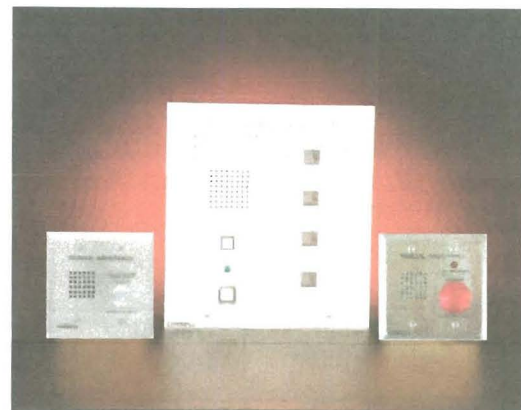
NEW!
**Vandal Resistant Stations
now Standard**



4201B/V Vandal Resistant Call Station
with Flush Switch



4201B/VM Vandal Resistant Call Station
with Mushroom Switch



A-4204 4-zone Annunciator shown above
4 to 44 Zones Available

A Communication Need: The Americans with Disabilities Act (ADA) now being enforced, requires a Rescue Assistance System in all newly constructed multi-story commercial buildings and public accommodations to provide a means to request evacuation assistance in emergencies. The ADA also applies to significant renovations of existing multi-story facilities.

A Reassuring Solution: The 4200 Series Audio Rescue Assistance System is a time proven Rescue Assistance System that has received wide industry acceptance. The 4200 includes voice communication, which is initiated by simply depressing the call station button transmitting the signal to a central annunciator panel and optional access to a public telephone line. A single pulse tone and a flashing light signals the caller that the alarm has been received. The control station can then talk to the caller. The caller need not take any other action to communicate with the control station, an important feature when a caller is under stress in an emergency situation.

Improved Surface Finish: Our new self cleaning ceramic polymer coating preserves and protects the annunciator surface finish.

Larger Sizes Available: Now available in standard sizes to 44 zones. Call factory for larger applications.

Versatile, Dependable: The control station operator, on receiving a call station signal, activates a zone switch that illuminates both a flashing red LED and a green "voice" LED. By depressing and releasing the "talk" button, voice communication is established for as long as required. Upon completion the appropriate zone button is depressed again; however, the flashing red light continues. If more than one zone is signaling, the control station accepts the calls in the same manner.

When the emergency is resolved, the control station operator pushes a reset switch that restores the entire system to stand-by status. In the event of a wiring fault, each annunciator zone is equipped with a yellow LED that will illuminate and an alarm will sound identifying the area requiring service.

Vandal Resistant: CORNELL now offers as standard, Vandal Resistant call stations. This design offers heavy duty switches and speakers along with heavy gauge stainless steel plates and tamper proof screws. The switches and speakers are also water resistant.

Signage: CORNELL offers a complete line of Rescue Assistance Signage. This includes powered signs including battery back-up and our RADIANCE™ photoluminescent room identification signs as well as direction and location signs. These signs meet ADA specifications for use with Areas of Rescue Assistance.

Cornell Communications, Inc.

Milwaukee, Wisconsin USA • Phone: 800-558-8957 • 414-351-4660 • Fax: 414-351-4657



114200

**City of Portland, Maine
FIRE ALARM PERMIT APPLICATION**

Clapp Building
443 Congress Street

April 20, 2011

SCOPE OF WORK

The project includes the provision of a completely new fire alarm system for the 443 Congress Street Clapp Building, including a new fire alarm control panel, remote annunciator, municipal radio master box, notification appliances, initiating devices, and all associated wiring. The new fire alarm system will be installed to replace the existing system.

Work will be divided into two separate contracts of construction. Initiating devices, notification appliances, and all associated wiring on the second and third floors will be installed under a tenant renovations project. All other work will be installed under a fire alarm replacement project. It is anticipated that both projects will be constructed at the same time.

In addition to fire alarm work, the existing area of refuge control panel that is presently located at the rear stair on the first floor level will be removed and be replaced with a new panel to be located in the main lobby at the first floor.

CUNNINGHAM

SECURITY SYSTEMS

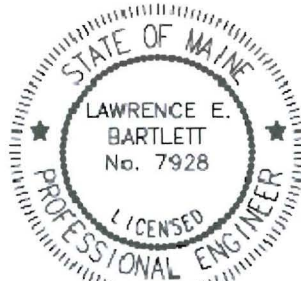
10 Princes Point Road
Yarmouth, Maine 04096

**City of Portland, Maine
FIRE ALARM PERMIT APPLICATION**

Clapp Building
443 Congress Street

April 20, 2011

This fire alarm permit application has been prepared by Lawrence E. Bartlett, a licensed professional engineer in the state of Maine.



Lawrence E. Bartlett

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET BATH, MAINE 04530
TEL (207) 443-5447 FAX (207) 443-5560
e-mail: bartlettdesigninc@comcast.net

City of Portland, Maine
FIRE ALARM PERMIT APPLICATION

Clapp Building
443 Congress Street

April 20, 2011

BATTERY CALCULATIONS

- Page 1: NAC Output Calculation Table
- Page 2: System Current Draw Calculations
Total Secondary Power Requirements at 24VDC
- Page 3: Remote Power System Current Draw Calculations
Remote Power System Total Secondary Power Requirements at 24VDC

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET BATH, MAINE 04530
TEL (207) 443-5447 FAX (207) 443-5560
e-mail: bartlettdesigninc@comcast.net

City of Portland, Maine
FIRE ALARM PERMIT APPLICATION

Clapp Building
443 Congress Street

April 20, 2011

BATTERY CALCULATIONS

Page 1	Table 1: NAC Output Calculation Table
Page 2	Table 2: FACP System Current Draw Calculations Table 3: FACP Total Secondary Power Requirements at 24VDC
Page 3	Table 4: 4 th Floor Remote Power System Current Draw Calculations Table 5: 4 th Floor Remote Power System Total Secondary Power Requirements at 24VDC
Page 4	Table 6: 6 th Floor Remote Power System Current Draw Calculations Table 7: 6 th Floor Remote Power System Total Secondary Power Requirements at 24VDC

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET BATH, MAINE 04530
TEL (207) 443-5447 FAX (207) 443-5560
e-mail: bartlettdesigninc@comcast.net

BATTERY CALCULATIONS

Page 1 of 4

Table 1: NAC/Output Calculation Table

Device Type	Qty of Devices		Current (amps)		Total Current (amps)
NAC Output Basement					
Horn/Strobe 15cd	7	X	0.066	=	0.462
Horn/Strobe 30cd	4	X	0.093	=	0.372
Strobe 15cd	2	X	0.066	=	0.132
Strobe 30cd	0	X	0.094	=	0
Total Output #1					0.966
NAC Output 1st Floor					
Horn/Strobe 15cd	7	X	0.066	=	0.462
Horn/Strobe 30cd	2	X	0.093	=	0.186
Strobe 15cd	4	X	0.066	=	0.264
Strobe 30cd	0	X	0.094	=	0
Total Output #2					0.912
NAC Output 2nd Floor					
Horn/Strobe 15cd	10	X	0.066	=	0.66
Horn/Strobe 30cd	2	X	0.093	=	0.186
Strobe 15cd	14	X	0.066	=	0.924
Strobe 30cd	0	X	0.094	=	0
Total Output #3					1.77
NAC Output 3rd Floor					
Horn/Strobe 15cd	6	X	0.066	=	0.396
Horn/Strobe 30cd	6	X	0.093	=	0.558
Strobe 15cd	4	X	0.066	=	0.264
Strobe 30cd	0	X	0.094	=	0
Total Output #4					1.218
NAC Output 4th Floor					
Horn/Strobe 15cd	8	X	0.066	=	0.528
Horn/Strobe 30cd	5	X	0.093	=	0.465
Strobe 15cd	2	X	0.066	=	0.132
Strobe 30cd	0	X	0.094	=	0
Total Output #1					1.125
NAC Output 5th Floor					
Horn/Strobe 15cd	5	X	0.066	=	0.33
Horn/Strobe 30cd	3	X	0.093	=	0.279
Strobe 15cd	2	X	0.066	=	0.132
Strobe 30cd	0	X	0.094	=	0
Total Output #2					0.741
NAC Output 6th Floor					
Horn/Strobe 15cd	5	X	0.066	=	0.33
Horn/Strobe 30cd	4	X	0.093	=	0.372
Strobe 15cd	2	X	0.066	=	0.132
Strobe 30cd	0	X	0.094	=	0
Total Output #3					0.834
NAC Output 7th Floor					
Horn/Strobe 15cd	5	X	0.066	=	0.33
Horn/Strobe 30cd	4	X	0.093	=	0.372
Strobe 15cd	2	X	0.066	=	0.132
Strobe 30cd	0	X	0.094	=	0
Total Output #4					0.834

BATTERY CALCULATIONS

Page 2 of 4

Table 2: FACP Current Draw Calculations

Device Type	Calculation Column 1				Calculation Column 2				Calculation Column 3			
	Primary, Non-Fire Alarm Current				Primary, Fire Alarm Current				Secondary, Non-Fire Alarm Current			
	Qty		Draw (amps)	Total	Qty		Draw (amps)	Total	Qty		Draw (amps)	Total
Main PC Board	1	x	0.091	= 0.091	1	x	0.145	= 0.145	1	x	0.065	= 0.065
Power Supervision Relays	1	x	0.025	= 0.025	1	x	0.025	= 0.025	1	x	0.025	= 0.025
NAC/Output #1 (Basement)					1	x	0.966	= 0.966				
NAC/Output #2 (1st Fl)					1	x	0.912	= 0.912				
NAC/Output #3 (4th Fl Pwr Sup)					1	x	0.002	= 0.002				
NAC/Output #3 (6th Fl Pwr Sup)					1	x	0.002	= 0.002				
Current Draw from TB4												
Terminals 9 & 10				= 0				= 0				= 0
Totals	Primary Non-Alarm			0.116	Primary Alarm			2.052	Secondary Alarm			0.090

Table 3: FACP Total Secondary Power Requirements at 24VDC

Secondary Standby Load (total from Table 2 Column 3)	Required Standby Time (24 or 60 hours)	
0.09	x 24	= 2.160 AH
Primary Alarm Load (total from Table 2 Column 2)	Required Alarm Time (5min = 0.084, 10min = 0.168)	
2.052	x 0.084	= 0.172 AH
Sum of Standby and Alarm Hours		= 2.332 AH
Derating Factor	x 1.2	
Battery Size, Total Ampere Hours Required		= 2.799 AH

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
 942 WASHINGTON STREET BATH, MAINE 04530
 TEL (207) 443-5447 FAX (207) 443-5560
 e-mail: bartlettdesigninc@comcast.net

BATTERY CALCULATIONS

Page 3 of 4

Table 4: 4th Floor Remote Power Supply System Current Draw Calculations

Device Type	Calculation Column 1 Primary, Non-Fire Alarm Current				Calculation Column 2 Primary, Fire Alarm Current				Calculation Column 3 Secondary, Non-Fire Alarm Current			
	Current			Total	Current			Total	Current			Total
	Qty	Draw (amps)			Qty	Draw (amps)			Qty	Draw (amps)		
Main PC Board	1	x	0.091	= 0.091	0	x	0.145	= 0.000	1	x	0.065	= 0.065
Power Supervision Relays	1	x	0.025	= 0.025	0	x	0.025	= 0.000	1	x	0.025	= 0.025
NAC/Output #1 (2nd Fl)					1	x	1.770	= 1.770				
NAC/Output #2 (3rd Fl)					1	x	1.218	= 1.218				
NAC/Output #3 (4th Fl)					1	x	1.125	= 1.125				
NAC/Output #4 (5th Fl)					1	x	0.741	= 0.741				
Current Draw from TB4												
Terminals 9 & 10				= 0				= 0				= 0
Totals	Primary Non-Alarm			0.116	Primary Alarm			4.854	Secondary Alarm			0.090

Table 5: 4th Floor Remote Power Supply Total Secondary Power Requirements at 24VDC

Secondary Standby Load (total from Table 4 Column 3) 0.09	Required Standby Time (24 or 60 hours) x 24	= 2.160 AH
Primary Alarm Load (total from Table 4 Column 2) 4.854	Required Alarm Time (5min = 0.084, 10min = 0.168) x 0.084	= 0.408 AH
Sum of Standby and Alarm Hours		= 2.568 AH
Derating Factor		x 1.2
Battery Size, Total Ampere Hours Required		= 3.081 AH

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
 942 WASHINGTON STREET BATH, MAINE 04530
 TEL (207) 443-5447 FAX (207) 443-5560
 e-mail: bartlettdesigninc@comcast.net

BATTERY CALCULATIONS

Page 4 of 4

Table 6: 6th Floor Remote Power Supply System Current Draw Calculations

Device Type	Calculation Column 1 Primary, Non-Fire Alarm Current					Calculation Column 2 Primary, Fire Alarm Current					Calculation Column 3 Secondary, Non-Fire Alarm Current				
	Qty		Current Draw (amps)		Total	Qty		Current Draw (amps)		Total	Qty		Current Draw (amps)		Total
Main PC Board	1	x	0.091	=	0.091	0	x	0.145	=	0.000	1	x	0.065	=	0.065
Power Supervision Relays	1	x	0.025	=	0.025	0	x	0.025	=	0.000	1	x	0.025	=	0.025
NAC/Output #1 (6th FI)						1	x	0.834	=	0.834					
NAC/Output #2 (7th FI)						1	x	0.834	=	0.834					
Current Draw from TB4															
Terminals 9 & 10					= 0					= 0					= 0
Totals	Primary Non-Alarm				0.116	Primary Alarm				1.668	Secondary Alarm				0.090

Table 7: 6th Floor Remote Power Supply Total Secondary Power Requirements at 24VDC

Secondary Standby Load (total from Table 6 Column 3)	Required Standby Time (24 or 60 hours)		
0.09	x 24	=	2.160 AH
Primary Alarm Load (total from Table 6 Column 2)	Required Alarm Time (5min = 0.084, 10min = 0.168)		
1.668	x 0.084	=	0.140 AH
Sum of Standby and Alarm Hours		=	2.300 AH
Derating Factor		x 1.2	
Battery Size, Total Ampere Hours Required		=	2.760 AH

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
 942 WASHINGTON STREET BATH, MAINE 04530
 TEL (207) 443-5447 FAX (207) 443-5560
 e-mail: bartlettdesigninc@comcast.net

City of Portland, Maine
FIRE ALARM PERMIT APPLICATION

Clapp Building
443 Congress Street

April 20, 2011

VOLTAGE DROP CALCULATIONS

NAC Load (Amps)	Max. allowable total loop resistance (ohms)	CLASS-B Max. allowable wire pair length (feet)				CLASS-A Max. allowable wire pair length (feet)			
		AWG 12 solid	AWG 14 solid	AWG 16 solid	AWG 18 solid	AWG 12 solid	AWG 14 solid	AWG 16 solid	AWG 18 solid
0.25	12.80	3316	2085	1309	824	1658	1042	654	412
0.5	6.40	1658	1042	654	412	829	521	327	205
0.75	4.27	1105	695	436	275	553	347	218	137
1.0	3.20	829	521	327	206	415	261	164	103
1.25	2.56	663	417	262	165	332	208	131	82
1.5	2.13	553	347	218	137	276	174	109	69
1.75	1.83	474	298	187	118	237	149	93	59
2.0	1.60	415	261	164	103	207	130	82	51
2.25	1.42	368	232	145	92	184	116	73	46
2.5	1.28	332	208	131	82	166	104	65	41
2.75	1.16	301	190	119	75	151	95	59	37
3.0	1.07	276	174	109	69	138	87	55	34

Max Amps = 1.77
Max Dist = 287 ft

Table A.1 NAC Wiring Requirements for Power Supply

Calculations are based on Direct Current Resistance data for uncoated copper wire, per National Electrical Code (2005 Edition) Table 8, Conductor Properties.

FACP

NAC #1	0.966 Amps	Loop Distance = 188.5 ft. (basement)
NAC #2	0.912 Amps	Loop Distance = 215.5 ft (1 st floor)

Remote Power Supply – 4th Floor

NAC #1	1.77 Amps	Loop Distance = 287 ft. (2 nd floor)
NAC #2	1.218 Amps	Loop Distance = 217 ft. (3 rd floor)
NAC #3	1.125 Amps	Loop Distance = 205 ft (4 th floor)
NAC #4	0.741 Amps	Loop Distance = 168 ft (5 th floor)

Remote Power Supply – 6th Floor

NAC #1	0.834 Amps	Loop Distance = 188.5 ft (6 th floor)
NAC #2	0.834 Amps	Loop Distance = 227 ft (7 th floor)

MINIMUM WIRE SIZE = #14 AWG

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET BATH, MAINE 04530
TEL (207) 443-5447 FAX (207) 443-5560
e-mail: bartlettdesigninc@comcast.net

Appendix A: Wire Requirements

Connecting external system accessories to the main circuits must be carefully considered to ensure proper operation. It is important to use the correct type of wire, gauge and run length for each circuit. The following table lists NAC wiring requirements for the FCPS-24FS6 and FCPS-24FS8 Field Charger Power Supply.

NAC Load (Amps)	Max. allowable total loop resistance (ohms)	CLASS-B Max. allowable wire pair length (feet)				CLASS-A Max. allowable wire pair length (feet)			
		AWG 12 solid	AWG 14 solid	AWG 16 solid	AWG 18 solid	AWG 12 solid	AWG 14 solid	AWG 16 solid	AWG 18 solid
0.25	12.80	3316	2085	1309	824	1658	1042	654	412
0.5	6.40	1658	1042	654	412	829	521	327	206
0.75	4.27	1105	695	436	275	553	347	218	137
1.0	3.20	829	521	327	206	415	261	164	103
1.25	2.56	663	417	262	165	332	208	131	82
1.5	2.13	553	347	218	137	276	174	109	69
1.75	1.83	474	298	187	118	237	149	93	59
2.0	1.60	415	261	164	103	207	130	82	51
2.25	1.42	368	232	145	92	184	116	73	46
2.5	1.28	332	208	131	82	166	104	65	41
2.75	1.16	301	190	119	75	151	95	59	37
3.0	1.07	276	174	109	69	138	87	55	34

Table A.1 NAC Wiring Requirements for Power Supply

Calculations are based on Direct-Current Resistance data for uncoated copper wire, per National Electrical Code (2005 Edition) Table 8, Conductor Properties.

SECTION 16721 – FIRE ALARM SYSTEM

198-POINT INTELLIGENT COMMUNICATING FIRE DETECTION SYSTEM

PART 1.0 - GENERAL

1.1 DESCRIPTION:

- A. This section of the specification includes the furnishing, installation, connection and testing of the microprocessor controlled, intelligent reporting fire alarm equipment required to form a complete, operative, coordinated system. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, Fire Alarm Control Panel (FACP), auxiliary control devices, annunciators, Ethernet and/or digital alarm communications to central stations and wiring as shown on the drawings and specified herein.
- B. The fire alarm system shall comply with requirements of NFPA Standard No. 72 for Local Protected Premises Signaling Systems except as modified and supplemented by this specification. The system field wiring shall be supervised either electrically or by software-directed polling of field devices.
 - 1. The Secondary Power Source of the fire alarm control panel will be capable of providing at least 24 hours of backup power with the ability to sustain 5 minutes in alarm at the end of the backup period.
- C. The fire alarm system shall be manufactured by an ISO 9001 certified company and meet the requirements of BS EN9001: ANSI/ASQC Q9001-1994.
- D. The FACP and peripheral devices shall be manufactured or supplied 100% by a single U.S. manufacturer (or division thereof).
- E. Underwriters Laboratories Inc. (UL) - USA:
 - 1. No. 38 Manually Actuated Signaling Boxes
 - 2. No. 50 Cabinets and Boxes
 - 3. No. 864 Control Units for Fire Protective Signaling Systems
 - 4. No. 268 Smoke Detectors for Fire Protective Signaling Systems
 - 5. No. 268A Smoke Detectors for Duct Applications
 - 6. No. 346 Waterflow Indicators for Fire Protective Signaling Systems
 - 7. No. 464 Audible Signaling Appliances
 - 8. No. 521 Heat Detectors for Fire Protective Signaling Systems
 - 9. No. 1971 Visual Notification Appliances
- F. The installing company shall employ NICET (minimum Level II Fire Alarm Technology) technicians on site to guide the final check-out and to ensure the systems integrity.
- G. The FACP shall meet requirements of UL ANSI 864 Ninth Edition.

3. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.
2. Include manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.
3. Show annunciator layout, configurations, and terminations.

C. Manuals:

1. Submit simultaneously with the shop drawings, complete operating and maintenance manuals listing the manufacturer's name(s), including technical data sheets.
2. Wiring diagrams shall indicate internal wiring for each device and the interconnections between the items of equipment.
3. Provide a clear and concise description of operation that gives, in detail, the information required to properly operate the equipment and system.

D. Software Modifications

1. Provide the services of a qualified technician to perform all system software modifications, upgrades or changes.
2. Provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system on site. Modification includes addition and deletion of devices, circuits, zones and changes to system operation and custom label changes for devices or zones. The system structure and software shall place no limit on the type or extent of software modifications on-site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made.

1.5 GUARANTY:

- A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance. The full cost of maintenance, labor and materials required to correct any defect during this one year period shall be included in the submittal bid.

1.6 POST CONTRACT EXPANSIONS:

- A. The contractor shall have the ability to provide parts and labor to expand the system specified, if so requested, for a period of five (5) years from the date of acceptance.

1.7 APPLICABLE STANDARDS AND SPECIFICATIONS:

- A. The specifications and standards listed below form a part of this specification. The

- A. All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approvals agency for use as part of a fire protective signaling system, meeting the National Fire Alarm Code.
- B. All equipment and components shall be installed in strict compliance with manufacturers' recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.
- C. All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.
- D. All equipment must be available "over the counter" through the Security Equipment Distributor (SED) market and can be installed by dealerships independent of the manufacturer.

2.2 CONDUIT, SURFACE RACEWAY AND WIRE:

- A. Conduit:
 - 1. Rigid Steel Conduit: ANSI C80.1.
 - 2. Fittings and Conduit Bodies: ANSI/NEMA FB 1; threaded type, material to match conduit.
- B. Surface Raceway:
 - 1. Surface raceway shall be series 500 as manufactured by *Wiremold*, or equal. All necessary fittings and boxes shall be provided to make a complete raceway system. Surface raceway and boxes shall be painted to match the surface to which it is installed..
 - 2. Raceway fill shall not exceed 40 percent of interior cross sectional area where three or more cables are contained within a single raceway
 - 3. Cable must be separated from any open conductors of power, or Class 1 circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors, per NEC Article 760-29.
 - 4. Wiring for 24 volt DC control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.
 - 5. Raceway shall not enter the fire alarm control panel, or any other remotely mounted control panel equipment or backboxes, except where raceway entry is specified by the FACP manufacturer.
- C. Wire:
 - 1. All fire alarm system wiring shall be new.
 - 2. Wiring shall be in accordance with local, state and national codes (e.g., NEC Article

- b) Depression of the Acknowledge switch shall also silence all remote annunciator piezo sounders.
 - 2. Alarm Silence Switch: Activation of the alarm silence switch shall cause all programmed alarm notification appliances and relays to return to the normal condition after an alarm condition. The selection of notification circuits and relays that are silenceable by this switch shall be fully field programmable within the confines of all applicable standards. The FACP software shall include silence inhibit and auto-silence timers.
 - 3. Alarm Activate (Drill) Switch: The Alarm Activate switch shall activate all notification appliance circuits. The drill function shall latch until the panel is silenced or reset.
 - 4. System Reset Switch: Activation of the System Reset switch shall cause all electronically-latched initiating devices, appliances or software zones, as well as all associated output devices and circuits, to return to their normal condition.
 - 5. Lamp Test: The Lamp Test switch shall activate all system LEDs and light each segment of the liquid crystal display.
- C. System Capacity and General Operation
- 1. The control panel shall provide, or be capable of, expansion to 198 intelligent/addressable devices.
 - 2. The control panel shall include Form-C Alarm, Trouble and Supervisory relays rated at a minimum of 2.0 amps @ 30 VDC. It shall also include programmable Notification Appliance Circuits (NACs) capable of being wired as NFPA Style Y (Class B) or NFPA Style Z (Class A).
 - 3. The fire alarm control panel shall include an operator interface control and annunciation panel that shall include a backlit Liquid Crystal Display (LCD), individual color-coded system status LEDs, and an alphanumeric keypad for the field programming and control of the fire alarm system.
 - 4. All programming or editing of the existing program in the system shall be achieved without special equipment and without interrupting the alarm monitoring functions of the fire alarm control panel. The system shall be fully programmable, configurable, and expandable in the field without the need for special tools, PROM programmers or PC based programmers. It shall not require replacement of memory ICs to facilitate programming changes. The control unit will support the ability to upgrade its operating program using FLASH memory technology. The unit shall provide the user with the ability to program from either the included keypad, a standard PS2-style PC keyboard or from a computer running upload/download software.
 - 5. The system shall allow the programming of any input to activate any output or group of outputs. Systems which have limited programming (such as general alarm), have complicated programming (such as a diode matrix), are not considered suitable substitutes.
 - 6. The FACP shall provide the following features:
 - a) Drift compensation to extend detector accuracy over life. Drift compensation shall also include a smoothing feature, allowing transient noise signals to be filtered out.
 - b) Detector sensitivity test, meeting requirements of NFPA 72, Maintenance alert,

and may also be used to program all system operational parameters.

2. The display shall include status information and custom alphanumeric labels for all intelligent detectors, addressable modules, internal panel circuits, and software zones.
3. The display shall contain an alphanumeric, text-type display and dedicated LEDs for the annunciation of AC POWER, FIRE ALARM, SUPERVISORY, TROUBLE, MAINTENANCE, ALARM SILENCED, DISABLED, BATTERY, and GROUND conditions.
4. The display keypad shall be part of the standard system and have the capability to command all system functions, entry of any alphabetic or numeric information, and field programming. Two different password levels shall be provided to prevent unauthorized system control or programming.
5. The display shall include the following operator control switches: ACKNOWLEDGE, ALARM SILENCE, DRILL (alarm activate), and SYSTEM RESET.

G. Signaling Line Circuit (SLC)

1. The SLC interface shall provide power to and communicate with up to 99 intelligent detectors (ionization, photoelectric or thermal) addressable Beam Detectors, and 99 addressable pull stations, intelligent modules (monitor or control) for a system capacity of 198 devices. Each SLC shall be capable of NFPA 72 Style 4, Style 6, or Style 7 (Class A or B) wiring.
2. The CPU shall receive information from all intelligent detectors to be processed to determine whether normal, alarm, pre-alarm, or trouble conditions exist for each detector. The software shall automatically compensate for the accumulation of dust in each detector up to allowable limits. The information shall also be used for automatic detector testing and for the determination of detector maintenance conditions.
3. The detector software shall meet NFPA 72, Chapter 10 requirements and be
 - a) certified by UL as a calibrated sensitivity test instrument.

H. Serial Interfaces

1. The system shall provide a means of interfacing to UL Listed Electronic Data Processing (EDP) peripherals using the EIA-232 communications standard.
2. One EIA-232 interface shall be used to connect an UL-Listed 80-column printer. The printer shall communicate with the control panel using an interface complying with Electrical Industries Association standard EIA-232D. Power to the printer shall be 120 VAC @ 60 Hz.

- I. The control panel will have the capability of Reverse Polarity Transmission or connection to a Municipal Box for compliance with applicable NFPA standards.

- J. Digital Alarm Communicator Transmitter (DACT) and Internet Protocol Digital Alarm Communicator Transmitter (IPDACT). The DACT is an interface for communicating digital information between a fire alarm control panel and a UL- Listed central station. When the optional IPDACT Ethernet module is connected to the on board DACT, the system shall be capable of transmitting contact ID formatted alarms to a central station

4. The cabinet shall accept a chassis containing the PCB and to assist in quick replacement of all the electronics including power supply shall require no more than two bolts to secure the panel to the enclosure back box.
- L. Field Charging Power Supply: The FCPS is a device designed for use as either a remote 24-volt power supply or as a booster for powering Notification Appliances.
1. The FCPS shall offer up to 8.0 amps (6.0 amps continuous) of regulated 24 volt power. It shall include an integral charger designed to charge 18.0 amp hour batteries.
 2. The Field Charging Power Supply shall have two input triggers. The input trigger shall be a Notification Appliance Circuit (from the fire alarm control panel) or a control relay. Four NAC outputs, wired NFPA Style Y or Z, shall be available for connection to the Notification devices.
 3. The FCPS shall optionally provide synchronization of all connected strobes or horn strobe combinations when either System Sensor, Wheelock or Gentex devices are installed.
 4. The FCPS shall function as a sync follower as well as a sync generator.
 5. The FCPS shall include a surface mount backbox.
 6. The Field Charging Power Supply shall include the ability to delay the reporting of an AC fail condition per NFPA requirements.
 7. The FCPS shall provide 24 VDC regulated and power-limited circuitry per UL standards.
- M. Power Supply:
1. The main power supply for the fire alarm control panel shall provide up to 6.0 amps of available power for the control panel and peripheral devices.
 2. Provisions will be made to allow the audio-visual power to be increased as required by adding modular expansion audio-visual power supplies.
 3. Positive-Temperature-Coefficient (PTC) thermistors, circuit breakers, or other over-current protection shall be provided on all power outputs. The power supply shall provide an integral battery charger or may be used with an external battery and charger systems. Battery arrangement may be configured in the field.
 4. The main power supply shall continuously monitor all field wires for earth ground conditions.
 5. The main power supply shall operate on 120 VAC, 60 Hz, and shall provide all necessary power for the FACP.
- N. Specific System Operations
1. Alarm Verification: Each of the intelligent addressable smoke detectors in the system may be independently programmed for verification of alarm signals. The alarm verification time period shall not exceed 2 minutes.
 2. Point Disable: Any addressable device or conventional circuit in the system may be enabled or disabled through the system keypad.
 3. Point Read: The system shall be able to display the following point status diagnostic functions:
 - a) Device status
 - b) Device type

circuit (notification circuit or relay) to deactivate upon depression of the Signal Silence switch.

12. Non-Alarm Input Operation: Any addressable initiating device in the system may be used as a non-alarm input to monitor normally open contact type devices. Non-alarm functions are a lower priority than fire alarm initiating devices.

2.4 SYSTEM COMPONENTS:

A. Addressable Pull Box (manual station)

1. Addressable pull boxes shall be as manufactured by *Fire-Lite*, series BG-12LX.
2. Addressable pull boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test-reset lock, and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.
3. All operated stations shall have a positive, visual indication of operation and utilize a key type reset.
4. Manual pull stations shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches (44 mm) or larger.

B. Intelligent Photoelectric Smoke Detector

1. Intelligent photoelectric smoke detectors shall be as manufactured by *Fire-Lite*, series SD355(A).
2. The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.
3. The detectors shall be ceiling-mounted.
4. Each detector shall contain a remote LED output and a built-in test switch.
5. Detector shall be provided on a twist-lock base.
6. It shall be possible to perform a calibrated sensitivity and performance test on the detector without the need for the generation of smoke. The test method shall test all detector circuits.
7. A visual indication of an alarm shall be provided by dual latching Light Emitting Diodes (LEDs), on the detector, which may be seen from ground level over 360 degrees. These LEDs shall periodically flash to indicate that the detector is in communication with the control panel.
8. The detector shall not go into alarm when exposed to air velocities of up to 1500 feet per minute (fpm).
9. The detector screen and cover assembly shall be easily removable for field cleaning of the detector chamber.
10. All field wire connections shall be made to the base through the use of a clamping plate and screw.

C. Intelligent Thermal Detectors

1. Intelligent thermal detectors shall be as manufactured by *Fire-Lite*, series H355(A).

on an SLC Style 6 (Class A) or Style 4 (Class B branch). The isolator module shall limit the number of modules or detectors that may be rendered inoperative by a short circuit fault on the SLC loop segment or branch. At least one isolator module shall be provided for each floor or protected zone of the building.

3. If a wire-to-wire short occurs, the isolator module shall automatically open-circuit (disconnect) the SLC. When the short circuit condition is corrected, the isolator module shall automatically reconnect the isolated section.
4. The isolator module shall not require any address-setting, and its operations shall be totally automatic. It shall not be necessary to replace or reset an isolator module after its normal operation.
5. The isolator module shall mount in a standard 4-inch (101.6 mm) deep electrical box or in a surface mounted backbox. It shall provide a single LED that shall flash to indicate that the isolator is operational and shall illuminate steadily to indicate that a short circuit condition has been detected and isolated.

H. Alphanumeric LCD Type Annunciator (terminal mode):

1. Annunciator shall be as manufactured by *Fire-Lite*, series LCD-80F.
2. The alphanumeric display annunciator shall be a supervised, remotely located back-lit LCD display containing a minimum of eighty (80) characters for alarm annunciation in clear English text.
3. The LCD annunciator shall display all alarm and trouble conditions in the system.
4. An audible indication of alarm shall be integral to the alphanumeric display.
5. The display shall be UL listed for fire alarm application.
6. It shall be possible to connect up to 32 LCD displays and be capable of wiring distances up to 6,000 feet from the control panel.
7. The annunciator shall connect to a separate, dedicated "terminal mode" EIA-485 interface. This is a two-wire loop connection and shall be capable of distances to 6,000 feet. Each terminal mode LCD display shall mimic the main control panel.

I. Horn-Strobes

1. *Sensor System* series *SpectrAlert* P4R
2. The horn strobe shall be listed to UL 1971 and UL 464 and shall be approved for fire protective service. The horn strobe shall be wired as a primary-signaling notification appliance and comply with the Americans with Disabilities Act requirements for visible signaling appliances, flashing at 1Hz over the strobe's entire operating voltage range. The strobe shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, 185. The strobe light shall consist of a xenon flash tube and associated lens/reflector system. The horn shall have three audibility options and an option to switch between a temporal three-pattern and a non-temporal (continuous) pattern. These options are set by a multiple position switch. On four-wire products, the strobe shall be powered independently of the sounder. The horn on horn/strobe models shall operate on a coded or non-coded power supply.
3. The horn strobe shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, double-gang back box or for two wire products a single-gang 2 × 4 × 17/8-inch back box. A universal mounting plate shall be used for mounting ceiling and

5. Detectors shall be ceiling-mount and shall include a separate twist-lock base with tamper proof feature.
6. Detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel.
7. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (ION, PHOTO, THERMAL).
8. Detectors shall provide address-setting means using decimal switches.

2.6 BATTERIES:

- A. Upon loss of Primary (AC) power to the control panel, the batteries shall have sufficient capacity to power the fire alarm system for required standby time (24 hours) followed by 5 minutes of alarm.
- B. The batteries are to be completely maintenance free. No liquids are required. Fluid level checks for refilling, spills, and leakage shall not be required.
- C. If necessary to meet standby requirements, external battery/charger systems may be used.

2.7 AREA OF REFUGE CONTROL PANEL

- A. Manufacturer:
 1. *Cornell* model A-4208/BB-41/BB-41/B5243A
- B. Description: The *Cornell Annunciator Panel* shall include one alternate action switch with two internal LED indicators for each zone.
 1. An audible alarm on the Annunciator Panel will emit a minimum sound level of 90dB at 300cm.
 2. A yellow LED light for each zone will illuminate and the alarm will emit a repeating sound if any of the supervised lines are faulted.
 3. The panel shall be constructed of aluminum with permanently silk-screened zone designations on the panel as well as a designation strip.
 4. The station shall be wall-mounted on a stainless steel plate and be vandal-resistant.
 5. Install power supply unit in basement.
 6. Install Annunciator Panel in first floor Elevator Lobby.
- C. Wiring Requirements
 1. Provide four conductors plus one shielded pair between each Call Station and the Annunciator Panel, not to exceed 3000 feet.
 2. Power wire shall be 18-gauge (minimum).
 3. Provide two conductors between the Power Supply and the Annunciator Panel.

2.8 MUNICIPAL FIRE ALARM MASTER BOX

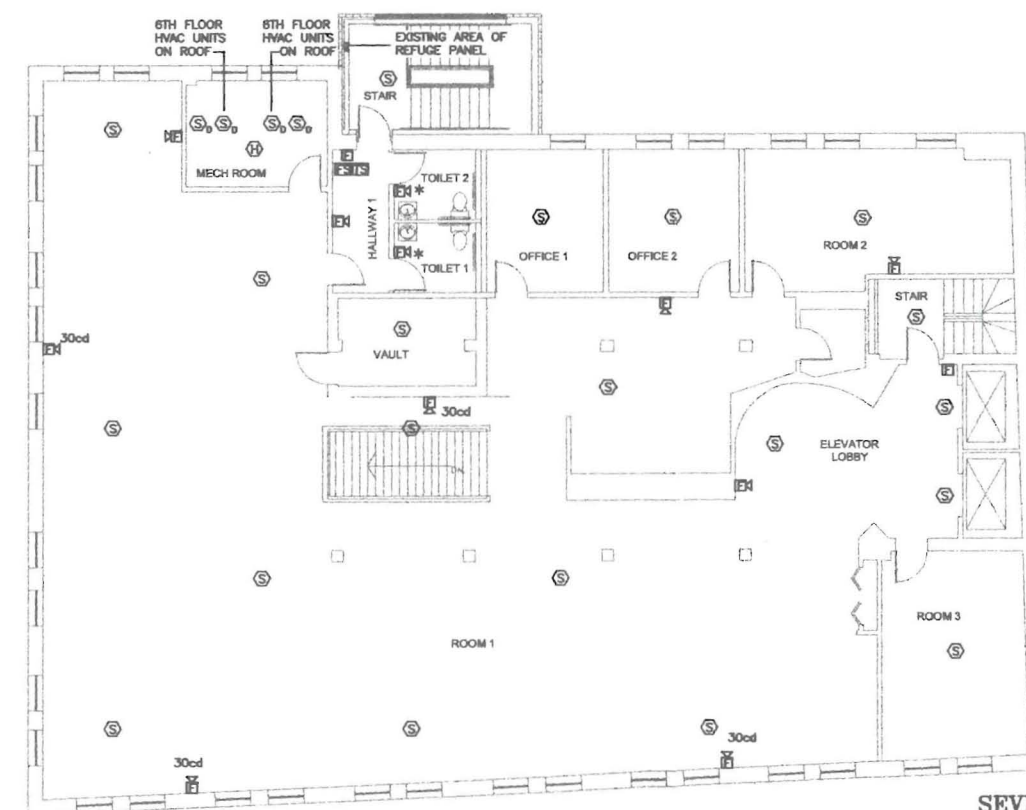
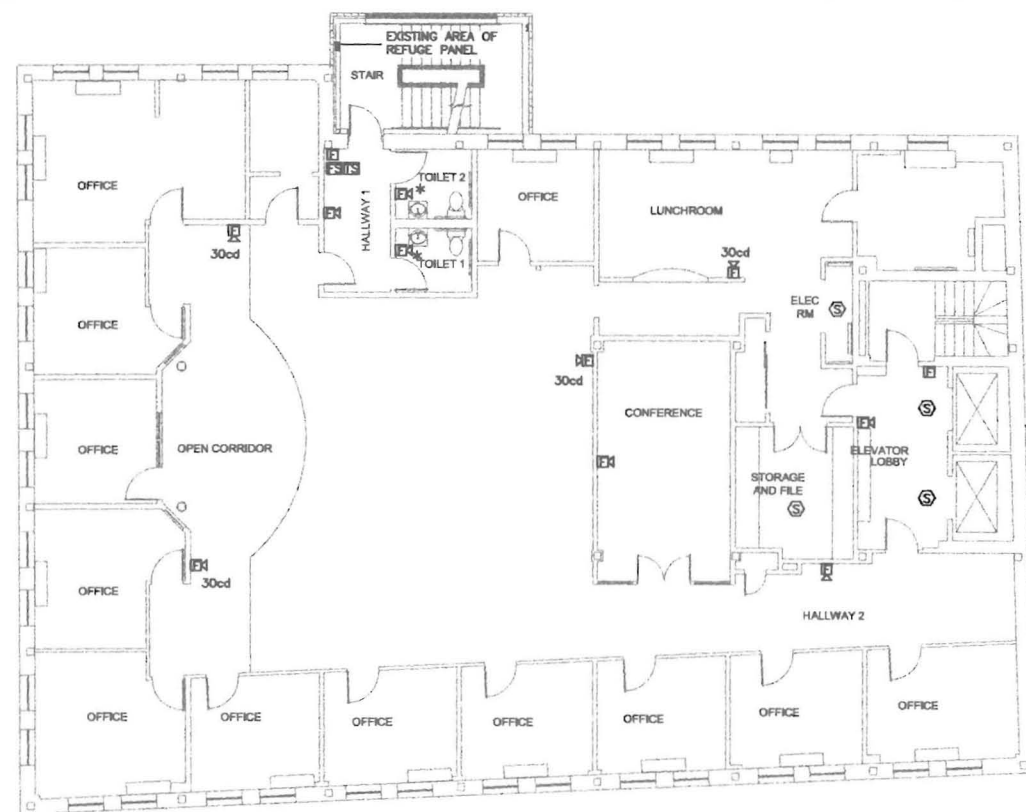
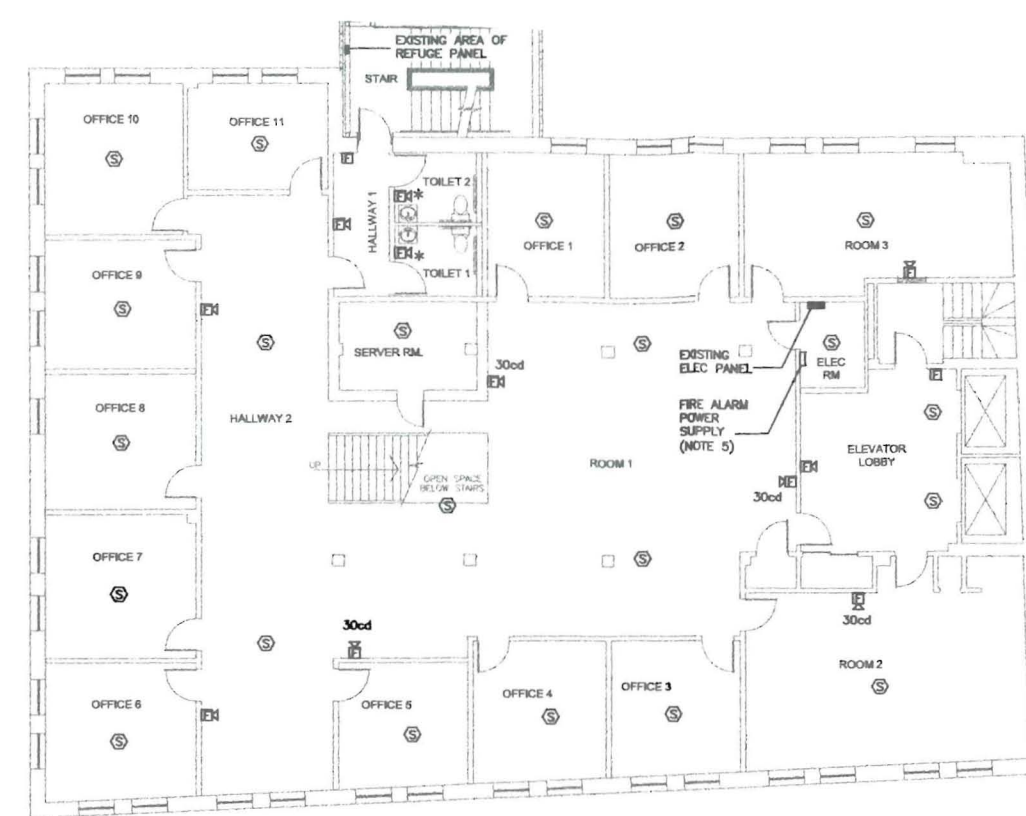
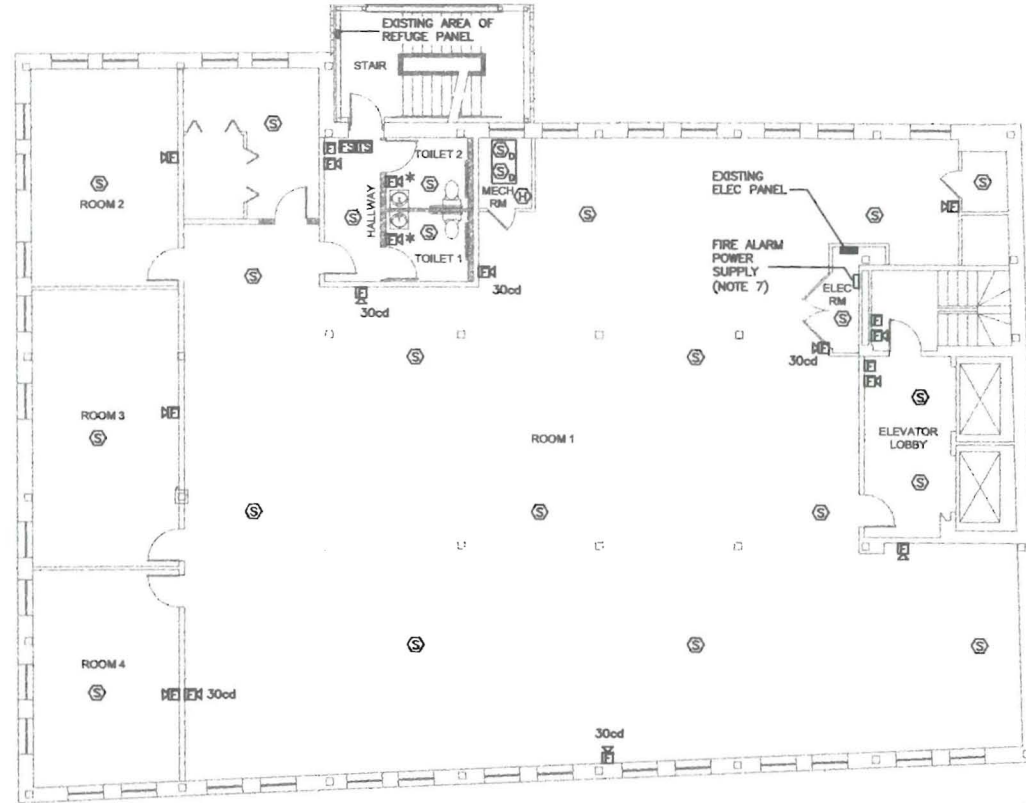
- A. Municipal radio master box shall be as manufactured by AES model 7744. The radio master box shall include transmitter, antenna, and battery power supply.

located in unfinished areas.

- E. Manual pull stations shall be suitable for surface mounting or semi flush mounting as shown on the plans, and shall be installed not less than 42 inches (1067 mm), nor more than 48 inches (122 mm) above the finished floor.
- F. Interlock alarm system heat detectors at the top and bottom of elevator shaft, and in the elevator penthouse with the elevator power service shunt trips such that an alarm condition at any of these detectors shall automatically disable the associated elevator electrical service feeder. Provide an interlock between the fire alarm system smoke detectors at the Elevator Lobbies on each floor, and the smoke detector in the elevator penthouse, such that:
 - 1. An alarm activation by the detector at the basement lobby, or the detectors at the elevator lobbies at the second through seventh floors, or the detector in the elevator penthouse, shall automatically send the elevator to the first floor lobby.
 - 2. An alarm condition activated by the first floor lobby smoke detector shall automatically send the elevator car to the second floor.
- G. Wire sprinkler system flow switches and tamper switches such that the activation of any sprinkler system low pressure switch, or valve tamper switch, shall cause a system supervisory alarm indication.
- H. Wire HVAC Duct type smoke detectors such that, in addition to initiating an alarm condition, they shall also shut down the associated HVAC unit or close associated control dampers as appropriate.
- I. Municipal radio master box installation shall be in full conformance with the City of Portland Requirements.

3.2 TEST:

- A. The service of a competent, NICET level II technician shall be provided to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with NFPA 72, Chapter 10.
- B. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.
- C. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACP.
- D. Verify activation of all waterflow switches.
- E. Open initiating device circuits and verify that the trouble signal actuates.
- F. Open and short signaling line circuits and verify that the trouble signal actuates.



CUNNINGHAM
SECURITY SYSTEMS
10 PRINCES POINT ROAD YARMOUTH, MAINE 04095



Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
645 WASHINGTON STREET, BATH, ME 04500
TEL (207) 445-5447 FAX (207) 445-9090

date drawn: 04/13/11
date issued: 04/20/11
drawn by: LEB
scale: AS NOTED

project 443 CONGRESS ST. FIRE ALARM
PORTLAND, MAINE
drawing title 4th, 5th, 6th & 7th FLOOR PLANS

project no. 11-0024
revisions:

E2

sheet number

CUNNINGHAM

SECURITY SYSTEMS

10 PRINCES POINT ROAD YARMOUTH, MAINE 04096



Bartlett Design

LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET, BATH, ME 04600
TEL (207) 443-6447 FAX (207) 443-6599

date drawn: 04/13/11

date issued: 04/20/11

drawn by: LEB

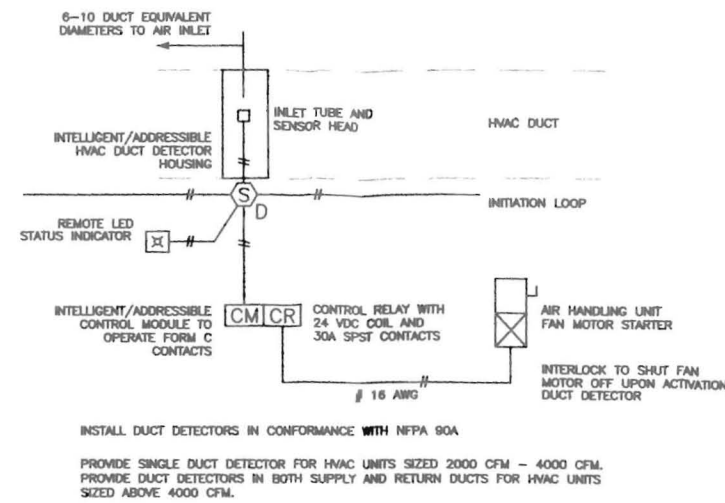
scale: AS NOTED

project 443 CONGRESS ST. FIRE ALARM
PORTLAND, MAINE

drawing title RISER DIAGRAM

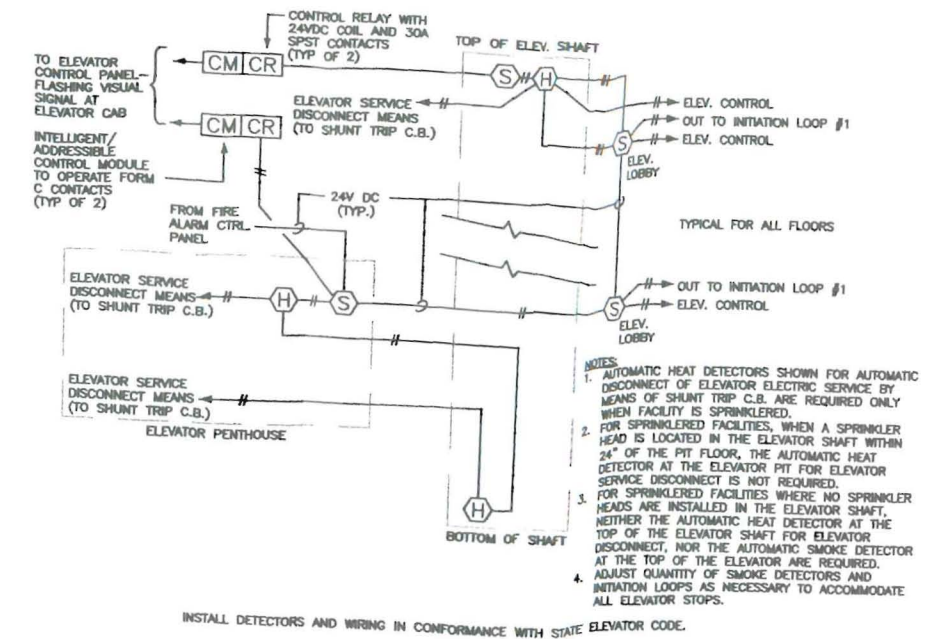
revisions:

sheet number



HVAC FIRE ALARM INTERFACE WIRING DIAGRAM

NOT TO SCALE



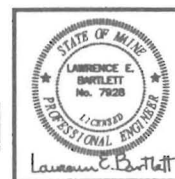
ELEVATOR FIRE ALARM INTERFACE WIRING DIAGRAM

NOT TO SCALE

- 30cd FIRE ALARM HORN/STROBE
Indicates Visual Only, No Horn
Candela Rating
- FIRE ALARM PULL STATION
- FIRE ALARM HEAT DETECTOR
- FIRE ALARM SMOKE DETECTOR
Indicates Duct Mounted
- FIRE ALARM TAMPER SWITCH
- FIRE ALARM FLOW SWITCH
- FIRE ALARM REMOTE TEST SWITCH

SYMBOLS

CUNNINGHAM
SECURITY SYSTEMS
10 PRINCES POINT ROAD YARMOUTH, MAINE 04096



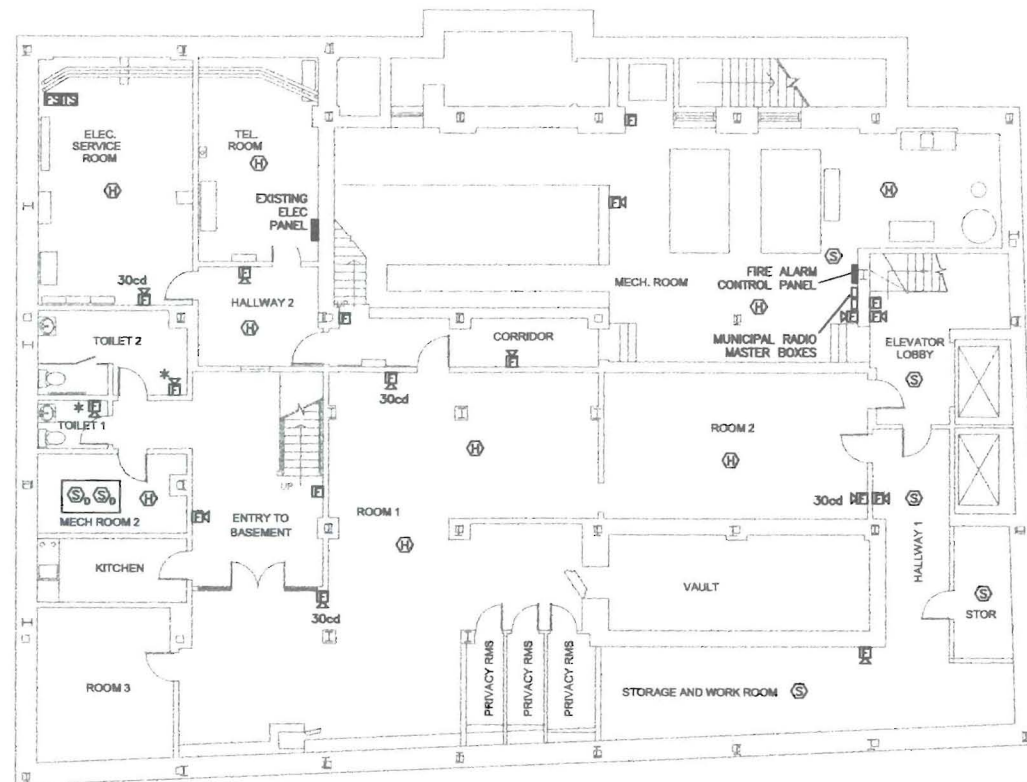
Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
948 WASHINGTON STREET, BATH, ME 04503
TEL (207) 445-6467 FAX (207) 445-6000

date drawn: 04/13/11
date issued: 04/20/11
drawn by: LEB
scale: AS NOTED

project 443 CONGRESS ST. FIRE ALARM
PORTLAND, MAINE
drawing title WIRING DEATILS & SYMBOLS

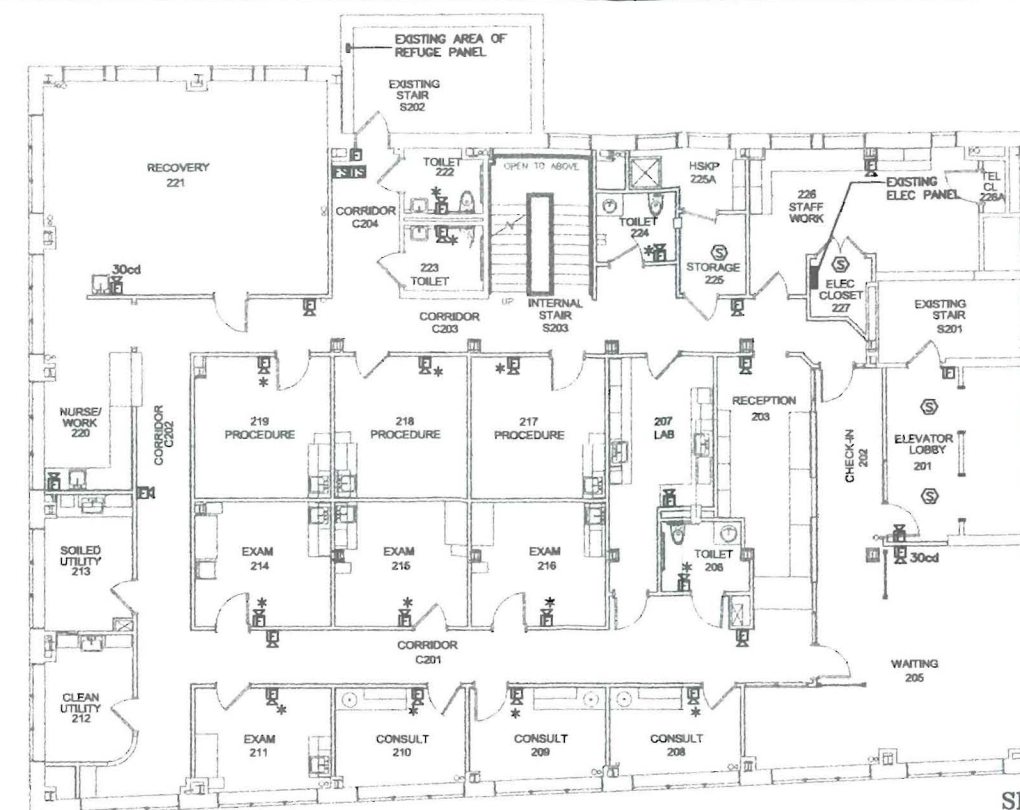
project no. 11-0084
revisions:

E4
sheet number



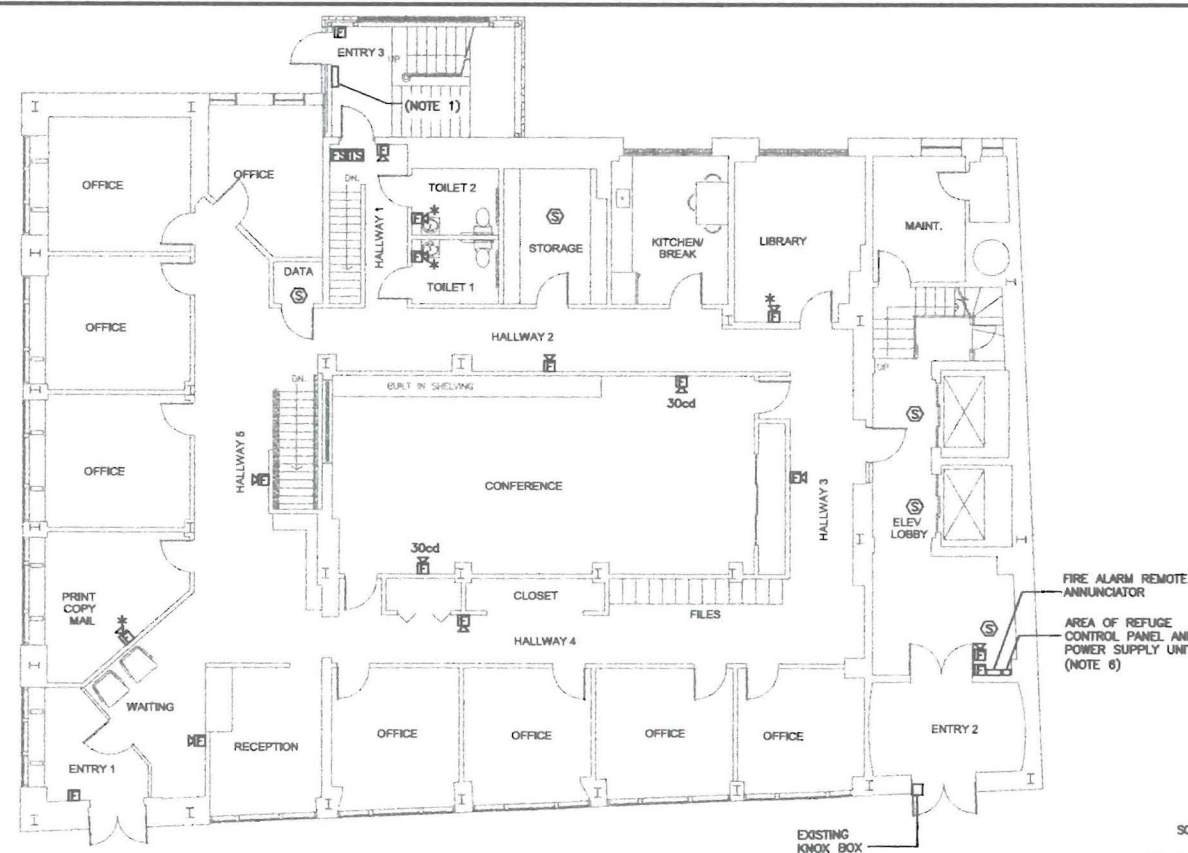
SCALE: 1/8" = 1'-0"
BASEMENT FLOOR PLAN

1



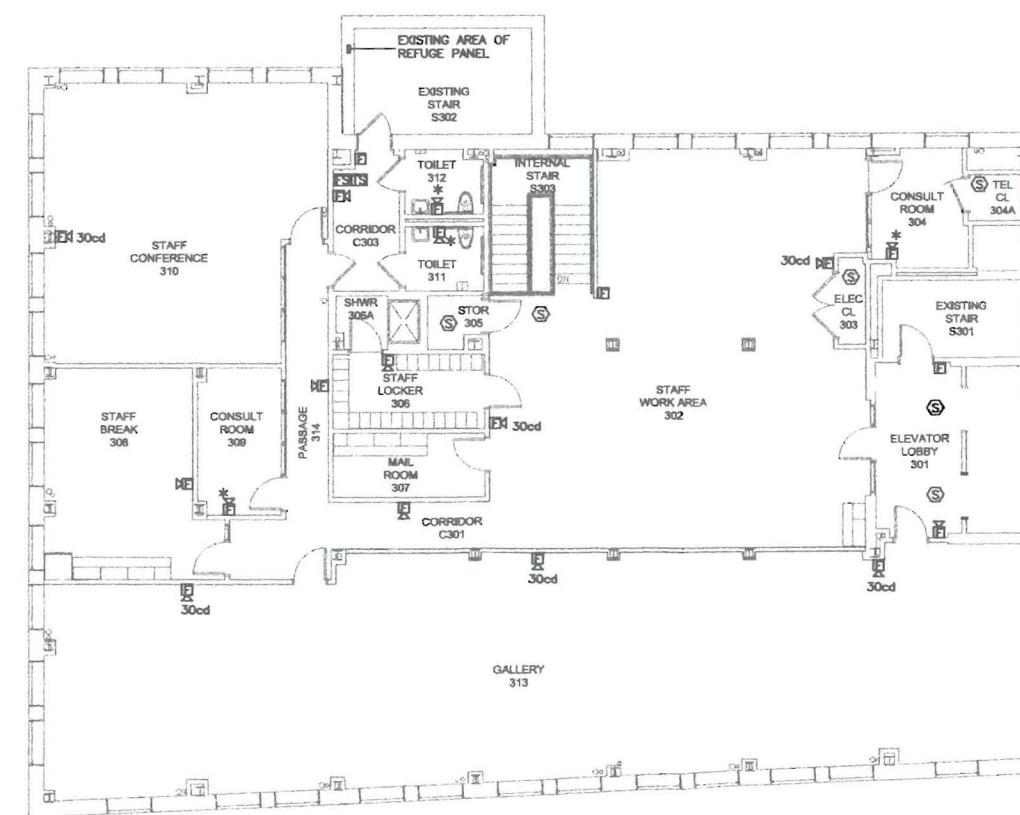
SCALE: 1/8" = 1'-0"
SECOND FLOOR PLAN

3



SCALE: 1/8" = 1'-0"
FIRST FLOOR PLAN

2



SCALE: 1/8" = 1'-0"
THIRD FLOOR PLAN

4

- NOTES:
1. DISCONNECT AND REMOVE EXISTING AREA OF REFUGE CONTROL PANEL FROM ENTRY 3. PROVIDE NEW AREA OF REFUGE CONTROL PANEL TO BE INSTALLED IN ELEVATOR LOBBY. PROVIDE ALL NECESSARY INTERCONNECTING WIRING FROM EXISTING LOCATION IN ENTRY 3 TO NEW LOCATION IN ELEVATOR LOBBY.
 2. FIRE ALARM DEVICES AND ASSOCIATED WIRING SHOWN ON THE SECOND AND THIRD FLOORS WILL BE PROVIDED BY OTHERS AS PART OF TENANT RENOVATIONS.
 3. THE FOURTH, SIXTH, AND SEVENTH FLOORS ARE NOT EQUIPPED WITH AUTOMATIC SPRINKLERS AND THEREFORE SHALL BE PROVIDED WITH FULL AUTOMATIC FIRE ALARM COVERAGE.
 4. ALL NOTIFICATION APPLIANCE STROBES ARE 15cd EXCEPT AS OTHERWISE NOTED.
 5. PROVIDE A 20A, 120VAC CIRCUIT FROM THE EXISTING CIRCUIT BREAKER PANEL TO SERVE THE NEW FIRE ALARM POWER SUPPLY PANEL ON THE SIXTH FLOOR.
 6. PROVIDE A 20A, 120VAC CIRCUIT FROM THE EXISTING CIRCUIT BREAKER PANEL IN THE BASEMENT TELEPHONE ROOM TO SERVE THE NEW AREA OF REFUGE POWER SUPPLY UNIT.
 7. PROVIDE A 20A, 120VAC CIRCUIT FROM THE EXISTING CIRCUIT BREAKER PANEL TO SERVE THE NEW FIRE ALARM POWER SUPPLY PANEL ON THE FOURTH FLOOR.

CUNNINGHAM

SECURITY SYSTEMS
10 PRINCES POINT ROAD YARMOUTH, MAINE 04095



Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
645 HANOVERSTREET, PORTLAND, ME 04101
TEL. (207) 443-5447 FAX (207) 443-5009

date drawn: 04/13/11
date issued: 04/20/11
drawn by: LEB
scale: AS NOTED

project
443 CONGRESS ST. FIRE ALARM
PORTLAND, MAINE
drawing title
BASEMENT, 1st, 2nd, & 3rd FLOOR PLANS

project no. 11-0084
revisions:

E1
sheet number