

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK



CITY OF PORTLAND

BUILDING PERMIT

This is to certify that SOUTHERN MAINE CABLING
of 14 Garland Rd, Shapleigh, ME 04079

For installation at 30 PREBLE ST
Wadsworth Building

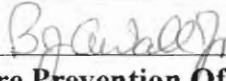
Job ID: 2011-11-2598-ELEC-RR

CBL: 037- F-005-001

has permission to repair fire alarm voice panel power supply
provided that the person or persons, firm or corporation accepting this permit shall comply with all of the provisions of
the Statues 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



Fire Prevention Officer

(58)

Code Enforcement Officer / Plan Reviewer

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



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: 2011-11-2598-ELEC-RR
Repair fire alarm voice panel power
supply

For installation at:
30 PREBLE ST
Wadsworth Building

CBL: 037- F-005-001

Conditions of Approval:

Fire

Permit is approved based upon plans and scope of work submitted: upgrade of voice panel power supply and relocation of some exiting strobes to meet corridor spacing requirements.

All work 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.

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.

The fire alarm system shall be certified by a master fire alarm company and have a new fire alarm inspection sticker.

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 and has an existing Gamewell master box connection. Upgrade of the master box to AES wireless is not required at this time due to the limited scope of work; upgrade will be required at a future date.

City of Portland, Maine - Building or Use Permit Application

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

Job No: 2011-11-2598-ELEC-RR 2011-11861 FAFS	Date Applied: 10/28/2011	CBL: 037- F-005-001	
Location of Construction: 28-30 PREBLE ST	Owner Name: EARL APARTMENTS LLC	Owner Address: 104 GRANT ST, PORTLAND, ME	Phone:
Business Name:	Contractor Name: Southern Maine Cabling - Pete	Contractor Address: 10 Broder LN, Sanford, ME 04073	Phone: 651-2918
Lessee/Buyer's Name:	Phone:	Permit Type: FAFS	Zone: B-3
Past Use: 64 residential dwelling units with some commercial space	Proposed Use: Same: 64 residential dwelling units with some commercial space - to install a fire alarm	Cost of Work: \$16,000.00	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>B. Frankel</i> (58)	Signature:
Proposed Project Description:		Pedestrian Activities District (P.A.D.)	

Permit Taken By: Gayle

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
<input type="checkbox"/> Shoreland <input type="checkbox"/> Wetlands <input type="checkbox"/> Flood Zone <input type="checkbox"/> Subdivision <input type="checkbox"/> Site Plan Date: <i>OK</i> <i>10/28/11</i> ___ Maj ___ Min ___ MM	<input type="checkbox"/> Variance <input type="checkbox"/> Miscellaneous <input type="checkbox"/> Conditional Use <input type="checkbox"/> Interpretation <input type="checkbox"/> Approved <input type="checkbox"/> Denied Date:	<i>within</i> <input type="checkbox"/> Not in Dist or Landmark <input type="checkbox"/> Does not Require Review <input type="checkbox"/> Requires Review <input type="checkbox"/> Approved <input type="checkbox"/> Approved w/Conditions <input type="checkbox"/> Denied <i>my exterior work requires a separate review & approval</i>

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 application 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	PHONE

2011-11-2598
2011-11861



Fire Alarm Permit

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: 20th 30 Preble St. CBL: 037 F 005

Exact location: (within structure) _____

Type of occupancy(s) (NEPA & ICC): _____ 64 DUE

Building owner: Port Property Management
Must be _____ Some commercial space

System Designer (point of contact): Mark Cummins #03-1178

Designer phone: 10 Bronck Ln Searsville ME 04073 E-mail: _____

Installing contractor: Southern Maine Cabling Certificate of Fitness No: M1032

Contractor phone: 207-651-2918 E-mail: Pete@SouthernMaineCabling.com

This is a new application: YES NO

This is an amendment to an existing permit: YES NO Permit no: _____

The following documents shall be provided with this application:

- Floor plans
- Wiring diagram
- Annunciator details
- Equipment data sheets
- Battery & voltage drop calculations
- Input/ Output Matrix
- Designer qualifications
- Electrical Permit Pulled (check alarm/com)

COST OF WORK: 15,300

PERMIT FEE: 180.00
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

RECEIVED

OCT 28 2011

Dept. of Building Inspections
City of Portland Maine

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 full sized plans 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: 10-25-11



Fire Alarm Permit

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: 30 Preble St., Portland, ME CBL: _____

Exact location: (within structure) FACP & Voice Evac Panel located in Basement (RAP in Entryway)

Type of occupancy(s) (NFPA & ICC): Mixed Use: Primarily Residential (2nd thru 6th), Business (1st)

Building owner: Port Property Management, Inc.

System Designer (point of contact): Must be W. Mark Cummings, P.E.

Designer phone: 442-7200 E-mail: wmark@fireriskmgt.com

Installing contractor: Southern Maine Cabling Certificate of Fitness No: M1032

Contractor phone: 651-2918 E-mail: pete@southernmainecabling.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:

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

COST OF WORK: \$15,300.00

PERMIT FEE: \$180.00
(\$10 PER \$1,000 + \$30 FOR THE FIRST \$1,000)

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

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: 21 October, 2011

SCOPE OF WORK

30 Preble St. Voice Evacuation System Repairs

The building located at 30 Preble St., Portland, ME primarily consists of a Residential Occupancy (apartments); which occupy the 2nd through the 6th floors. The main (1st) floor includes both office space and a café, along with some miscellaneous common service spaces associated with the building, such as a laundry and maintenance rooms. Although the specific height of the building has not been confirmed, it was reported by the building's management (Port Property Management) that this building had been designated as a "high rise" building.

The building currently has a fire detection/alarm/notification system, which was installed 6 or 7 years ago (approx. 2004). However, during the initial testing conducted by the Contractor (Southern Maine Cabling) that had recently taken over responsibility for the routine inspection and maintenance of this system, it was noted that the voice evacuation system was deficient, due to having insufficient power to properly operate all the speakers within the individual apartments.

The scope of this project is primarily to "fix" the voice evacuation capabilities of the existing system. This will consist of upgrading the power requirements associated with the voice evacuation panel, along with adding power extenders (amplifiers) on several floors to increase the power available to all speakers within the system. At this point in time, it is unknown if the existing speakers can, in fact, provide sufficient output to meet code requirements for notification within the apartments (bedroom areas). The initial scope does not include replacing any of the existing speakers. Subsequent to completion of the power upgrades, a test of the system will be conducted to verify proper sound levels in accordance with code requirements. If deficient, the speakers may need to be replaced or additional speakers added.

During the initial survey of the building, it was noted that some additional notification appliances were needed in the basement area to fully meet code requirements. These are to be provided as part of this effort. Equally, the notification appliances, primarily within the corridors of the apartment floors, were not originally installed in locations that would fully comply with the code requirements. These devices are simply being relocated to ensure full code compliance.

FIRE RISK MANAGEMENT, INC.

(Resume)

W. Mark Cummings, P.E.

EDUCATION:

M.Sc., Fire Protection Engineering, Worcester Polytechnic Institute, Worcester, MA

B.Sc., Civil Engineering, The Citadel, Charleston, SC

PROFESSIONAL EXPERIENCE:

Principal Engineer, Fire Risk Management, Inc., 1998-Present. Principal Engineer, responsible for the technical oversight and management of all Engineering and Systems Support services provided by FRM. Technical/Engineering responsibilities include providing fire protection engineering and analysis, research, and systems design support to a wide range of industries, including nuclear power generation and maritime, for both Government and Commercial clientele. Conducts life safety and code compliance assessments; performs fire/explosion hazards and smoke movement analyses, to include the use of computerized fire models, and provides general design guidance and recommendations regarding fire protection systems (active and passive) and strategies. Provides engineering and analysis support in the areas of fire/explosion investigation and reconstruction, including cause and origin analyses, and the development and conduct of small- and full-scale fire tests in connection with the research and analysis of fire suppression agents, agent delivery systems, and structural fire performance/resistance. Provide support to other, multi-disciplinary A/E firms as part of teaming arrangements for design and/or design/bid/build projects. Examples of recent project experience include:

- *Fire/Explosion Hazards and Life Safety Analyses of Tunneling Operations, NYC Aqueduct Project (NY)*
- *Fire Protection Program Assessment and Hazards Analysis Support, Idaho National Laboratories (ID)*
- *Fire Protection Systems Design Support for numerous USACE Projects in Afghanistan*
- *Fire Hazards Analyses (including fire model development) in support of multiple spurious operation (MSO) evaluations and circuit analyses at Seabrook Station (NH)*
- *Code Equivalency Analysis for BioTech Facility (NH)*
- *Litigation Support involving large loss industrial fire; included assessment of potential failure of dry-pipe sprinkler to mitigate fire.*
- *Atrium Smoke Control System Analysis & Design Requirements Development (MD)*
- *Fire Protection Systems Design/Build support; U.S. Embassy Complex, (Cambodia)*
- *U.S. Navy Aircraft Hanger Fire Protection Systems Design/Build support (ME)*
- *Fire Protection Program Assessment, Grand Coulee Power Office (Grand Coulee Dam, WA)*
- *Aircraft Rescue & Fire Fighting Program Requirements Analysis; McMurdo & South Pole Stations (Antarctica)*
- *Fire Protection Engineering & Technical Support to Fire Protection Program at Turkey Point Nuclear Power Plant (PTN) in connection with change in licensing basis to NFPA 805 (FL)*
- *Litigation Support for fatal residential fire; included assessment of detection and life safety/egress requirements.*
- *Fire Protection Systems Design, Evaluation, and Testing/Commissioning Support for GSA Projects for new and renovated Federal Buildings throughout the U.S.*
- *Quantitative Fire-resistance Analysis of Vehicle Deck for High-Speed Aluminum Ferry (AL)*
- *Fire-limited Shipboard Deck Design and Analysis, with scaled Fire Testing support (ME)*
- *Code Compliance and Fire Protection Program Assessment, Pilgrim Nuclear Power Station (MA)*

Fire Protection Program Manager, Niagara Mohawk Power Corp., Nine Mile Point, 1997-1998. Responsible for the oversight and management of all facets of the Fire Protection Program for the Nine Mile Point (NMP) Nuclear Power Station (2 Units). Implemented improvements to centralize and streamline NMP's 2-unit Fire Protection Program. Developed new fire protection organizational structure, redefined and realigned responsibilities, and improved inter-departmental lines of communication. The elimination of redundancies by centralizing programmatic oversight and management responsibilities resulted in a reduction of the program manpower requirements and improved overall program efficiency and effectiveness. Instituted a complete, top-down review of the program (including Appendix R issues) to ensure all regulatory commitments/requirements were being met, including NRC, State, NFPA, and insurance carrier (ANI).

Fire Protection Program Manager, Maine Yankee Atomic Power Co., 1996-1997. Responsible for the overall, day-to-day management of Maine Yankee's Fire Protection Program, including; administrative (procedural & permitting) controls; fire protection systems design, maintenance and testing; and training of fire brigade and technical support personnel. Developed and implemented an extensive Fire Protection Improvement Program (FPIP), orchestrating a complete overhaul of Maine Yankee's Fire Protection Program. This included significant changes to all procedures, updating system design and maintenance requirements to be more aligned with NFPA and other standard industry guidance, and made major revisions to the Fire Protection Plan, the Fire Hazards

FIRE RISK MANAGEMENT, INC.

(Resume)

Survey, and the Appendix R (10CFR50) documentation. Provided primary interface with the NRC, insurance carrier (ANI), and local Fire Department representatives in all matters concerning fire protection.

Senior Fire Protection Engineer, Hughes Associates, Inc., 1994-1996. Planned, executed, and analyzed fire and explosion protection engineering research, development and test/evaluation projects, primarily involving the need for full-scale fire/explosion testing. Responsible for a variety of research programs involving smoke movement and control analyses, HAZMAT storage and disposal process analyses, and development and analyses of water mist technology and other alternative fire protection strategies to Halon 1301. Performed numerous Fire Hazards and Risk Analyses for a variety of structures and processing applications, including those associated with DOE Nuclear Processing Facilities. Many of the research and risk analysis projects involved the extensive use of computer modeling (CFAST, BRI-2, FIRST), especially in support of the development of performance-based designs. Conducted extensive research and analysis in the area of fire and smoke movement within a pressurized, non-compartmented (submarine) environment.

Fire Protection Engineer, U.S. Coast Guard, Fire Research Branch, 1989-1994. Responsible for the planning, execution, and final evaluation of numerous fire and explosion protection research projects. Responsible for all facets of project management, including; development of the technical approach, financial and staffing requirements, test plan and schedule development, directing the various full-scale fire tests, and development of the final technical reports for all projects assigned. Provided engineering and technical support to various Divisions at USCG Headquarters for a multitude of fire and explosion protection projects, concerning both domestic and international (IMO) issues. Project areas of expertise included the following: explosion/detonation protection (marine terminal Vapor Recovery Systems); smoke movement control/containment and analyses of system design; evaluation of fire endurance of various structural assemblies; and development of alternatives to Halon 1301 total-flooding fire suppression systems, including water mist system applications. For projects requiring contract support, developed cost estimates, work statements, and technical specifications; evaluated technical proposals; monitored contractor performance; and provided technical direction throughout the various efforts.

Senior Program Manager/Engineer, American Systems Engineering Corporation, 1984-1989. Responsible for the overall technical and financial management of two Government engineering and technical support services contracts. Assigned as the Program Manager responsible for all commercial fire protection services. Responsibilities included daily project management, development of technical and cost proposals for bid purposes, as well as active participation in many of the ongoing engineering projects, including supervision of all junior engineers and technicians assigned to the Engineering Division. Sample projects assigned included: development of fire protection systems Standard Drawings; development of a new AFFF system design; feasibility study for the redesign of the BB-61 Class magazine sprinkler systems; management (and senior member) of the NAVSEA-sponsored Fire Protection Assist Team (FPAT); and the development of a multitude of ShipAlts dealing with Halon, APC, AFFF, and sprinkler systems. Conducted on-site surveys of fire protection systems and conducted training for shipboard personnel. Developed the NAVSEA-approved *Description, Operation, and Maintenance Handbook for Magazine Sprinkler Systems*.

U.S. Navy/Naval Reserve, 1978-2001. Retired in the Fall of 2001 with more than 22 years of service. Qualified as a Surface Warfare Officer having had a variety of shipboard and shore-side assignments, including command. Last assignment was that of Deputy Director, Afloat Safety, Naval Safety Center. Rank: Commander.

PROFESSIONAL MEMBERSHIP:

Licensed Professional (Fire Protection) Engineer; (MA, MD, ME, NH, VT)

Member, Society of Fire Protection Engineers (SFPE)

- Standards Making Committee on Calculating Thermal Response of Structures
- Task Group on Design Performance Criteria
- Task Group on Evaluation of Computer Fire Models

Member, Society of American Military Engineers (SAME)

Member, American Society of Civil Engineers (ASCE)

Member, National Fire Protection Association (NFPA)

- Principle, Technical Committee for Code on Safety to Life from Fires on Merchant Vessels (NFPA 301)
- (Past) Principle, Technical Committee on Smoke Management Systems (NFPA 92A)

Member, International Association of Arson Investigators (IAAI)

Member, National Association of Fire Investigators (NAFI)

Member, Society of American Military Engineers (SAME)

Member, Society of Naval Architects and Marine Engineers (SNAME)

- Chair, Standing Panel: (O-45), Fire Protection and Life Safety (Ship's Technical and Operations Committee)

Member, American Society of Naval Engineers (ASNE)

Firefighter, Westport Volunteer Fire Department, Westport, ME; (includes HAZMAT Response Training – Operations Level)

ACC-25/50 & ACC-25/50ZS Battery Calculation

Since the current draws listed here can be edited, the user is fully responsible for verifying these calculations.

Entries only to be made in the Yellow cell locations

Regulated Load in Standby

Page 1

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
ACC-25/50 consisting of: Main Circuit Board and one ACC-AAM25 Audio Amplifier (1 max) or	1	X	0.285	=	0.285
ACC-25/50ZS consisting of: Main Circuit Board, one ACC-AAM25 Audio Amplifier, one ACC-ZPMK Zone Page Module, and one ACC-ZSM Zone Splitter Module (1 max)	0	X	0.440	=	0.000
ACC-AAM25 Audio Amplifier Module (1 max)	1	X	0.065	=	0.065
FC-RM Remote Microphone with FC-MIM Microphone Interface Module (1 max)	1	X	0.006	=	0.006
ACC-ZPMK Zone Page Module	0	X	0.059	=	0.000
ACC-ZSM Zone Splitter Module	0	X	0.005	=	0.000
ACC-EPM External Page Module	0	X	0.005	=	0.000
Additional Current drawn from TB4 Auxiliary Power Output (0.035 amps maximum)				=	0.000
SUM COLUMN FOR STANDBY LOAD			0.356	=	AMPS

ACC-25/50 & ACC-25/50ZS Battery Calculation

Since the current draws listed here can be edited, the user is fully responsible for verifying these calculations.

Entries only to be made in the Yellow cell locations

Regulated Load in ALARM

Page 2

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
ACC-25/50 consisting of: Main Circuit Board and one ACC-AAM25 Audio Amplifier	1	X	2.385	=	2.385
or					
ACC-25/50ZS consisting of: Main Circuit Board, one ACC-AAM25 Audio Amplifier, one ACC-ZPMK Zone Page Module, and one ACC-ZSM Zone Splitter Module	0		2.505	=	0.000
ACC-AAM25 Audio Amplifier Module (1 max)	1	X	2.000	=	2.000
FC-RM Remote Microphone with FC-MIM Microphone Interface Module (1 max)	1	X	0.030	=	0.030
ACC-ZPMK Zone Page Module	0	X	0.059	=	0.000
ACC-ZSM Zone Splitter Module	0	X	0.063	=	0.000
ACC-EPM External Page Module	0	X	0.005	=	0.000
Additional Current drawn from TB4 Auxiliary Power Output (0.035 amps maximum)					0.000
SUM COLUMN FOR LOAD IN ALARM			4.415	=	AMPS

- Note 1. The FC-XRM70 Transformer Module draws no current in standby or alarm.
- Note 2. The FC-LPS Local Playback Speaker Module draws no current in standby or alarm.
- Note 3. In backup configurations, the optional ACC-AAM25 draws no current in alarm.
- Note 4. The ACC-25/50 will turn off the background music in the event AC power is lost in order to preserve battery power.

ACC-25/50 & ACC-25/50ZS Battery Calculation

Since the current draws listed here can be edited, the user is fully responsible for verifying these calculations.

Entries only to be made in the Yellow cell locations

Calculation in Total Sheet

Page 3

Use the total standby and alarm load currents calculated in tables A-2A and A-2B for the following battery calculations

Standby Load Current (Amps)	0.356	X	Required Standby Time in Hours (24 or 60 Hrs.)	
			24	=
				8.544
Alarm Load Current (Amps)	4.415	X	Required Alarm Time in Hours (5 minutes = 0.084)	
			0.084	=
				0.37086
Add Standby and Alarm Load for Required Ampere Hour Battery				8.91486
Multiply by the Derating Factor of 1.2				
Total Ampere Hours Required				=
				10.697832



FIRE-LITE ALARMS

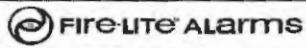
ACC-25/50DA(ZS) Battery Calculation

Note 1: You can edit all current draws and are fully responsible for verifying these calculations.

Note 2: You only need to make entries in the yellow cells

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)	=	Total Current (Amps)
ACC-25/50DA consisting of: Main Circuit Board and one ACC-AAM25 Audio Amplifier	1	X	0.2850	=	0.2850
or					
ACC-25/50ZS consisting of: Main Circuit Board, one ACC-AAM25 Audio Amplifier, one ACC-ZPMK Zone Page Module, and one ACC-ZSM Zone Splitter Module	0	X	0.4400	=	0.0000
ACC-AAM25 Audio Amplifier Module	1	X	0.0650	=	0.0650
FC-RM Remote Microphone with FC-MIM Microphone Interface Module	0	X	0.0060	=	0.0000
ACC-ZPM Zone Page Module	0	X	0.0590	=	0.0000
ACC-ZSM Zone Splitter Module	0	X	0.0050	=	0.0000
Additional Current drawn from TB9 Auxiliary Power Output (0.035 amps maximum)			0.0000	=	0.0000
Total Standby Load					0.3500



ACC-25/50DA(ZS) Battery Calculation

Note 1: You can edit all current draws and are fully responsible for verifying these calculations.

Note 2: You only need to make entries in the yellow cells

Regulated Load in ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
ACC-25/50 consisting of: Main Circuit Board and one ACC-AAM25 Audio Amplifier	1	X	2.3850	=	2.3850
or					
ACC-25/50ZS consisting of: Main Circuit Board, one ACC-AAM25 Audio Amplifier, one ACC-ZPMK Zone Page Module, and one ACC-ZSM Zone Splitter Module	0	X	2.5050	=	0.0000
ACC-AAM25 Audio Amplifier Module (1 max)	1	X	2.0000	=	2.0000
FC-RM Remote Microphone with FC-MIM Microphone Interface Module (1 max)	0	X	0.0300	=	0.0000
ACC-ZPMK Zone Page Module	0	X	0.0590	=	0.0000
ACC-ZSM Zone Splitter Module	0	X	0.0630	=	0.0000
Additional Current drawn from TB9 Auxiliary Power Output (0.035 amps maximum)			0.0000		0.0000
Total Alarm Load					4.3850

Note 1. The FC-XRM70 Transformer Module draws no current in standby or alarm.

Note 2. The FC-LPS Local Playback Speaker Module draws no current in standby or alarm.

Note 3. In backup configurations, the optional ACC-AAM25 draws no current in alarm.

Note 4. The ACC-25/50DA will turn off the background music in the event AC power is lost in order to preserve battery power.



FIRE-LITE ALARMS

ACC-25/50DA(ZS) Battery Calculation

Note 1: You can edit all current draws and are **fully responsible for verifying these calculations.**

Note 2: You only need to make entries in the **yellow** cells

Calculation in Total Sheet

Use the total standby and alarm load currents calculated in tables A-2A and A-2B for the following battery calculations

			Required Standby Time in Hours	
			(24 or 60 Hrs.)	
Standby Load Current (Amps)	0.3500	X	24	= 8.4000
			Required Alarm Time in Hours	
			(5 minutes = 0.084)	
Alarm Load Current (Amps)	4.3850	X	0.084	= 0.3683
			Total Current Load	
			8.768 AH	
Multiply by the Derating Factor			1.2	= x 1.20
			Total Ampere Hours Required	
			10.522 AH	

Battery Check

The ACC-25/50DA(ZS) can charge this size battery

The batteries can be stored in the cabinet