PERMIT ISSUED

NOV 24 2010

City of Portland

Form # P 04

DISPLAY THIS CARD ON PRINCIPAL FRONTAGE OF WORK

CITY OF PORTLAND

BUILDING INSPECTION

PERMIT

Please Read Application And Notes, If Any, Attached

Permit Number: 101426

This is to certify that LARSDOTTER GUNNEL /Cunningham Security Systems

has permission to Install Fire Alarm

AT 30 PLEASANT ST CBL 040 B009001

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 buildings and structures, and of the application on file in this department.

Apply to Public Works for street line and grade if nature of work requires such information.

Notification of inspection must be given and written permission procured before this building or part thereof is lathed or otherwise closed-in. 24 HOUR NOTICE IS REQUIRED.

A certificate of occupancy must be procured by owner before this building or part thereof is occupied.

OTHER REQUIRED APPROVALS

Fire Dept. Signature (SA)

Health Dept.

Appeal Board

Other

Department Name

11/24/10

Director - Building & Inspection Services

PENALTY FOR REMOVING THIS CARD

City of Portland, Maine - Building or Use Permit Application

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

Permit No:	Issue Date:	CBL:
10-1426		040 B009001

Location of Construction:	Owner Name:	Owner Address:	Phone:
30 PLEASANT ST	LARSDOTTER GUNNEL	726 SEASHORE AVE	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Cunningham Security Systems	10 Prince Point Road Yarmouth	2078463350
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	**Zone:**
		Fire Alarm System	B-3

Past Use:	Proposed Use:	Permit Fee:	Cost of Work:	CEO District:
Commercial - Mixed Use	Commercial - Mixed Use - Install fire alarm	$180.00	$16,000.00	1

legal use: 1st floor comercial - 2nd flr = 1 DU
3rd flr = 1 DU

Proposed Project Description:
Install Fire Alarm

FIRE DEPT: ☒ Approved ☐ Denied
w/ conditions
11/17/10
Signature: [signature]

INSPECTION:
Use Group: B/R-3 Type: Fire Alarm
IBC-2003
Signature: [signature] 11/24/10

PEDESTRIAN ACTIVITIES DISTRICT (P.A.D.)
Action: ☐ Approved ☐ Approved w/Conditions ☐ Denied
Signature: Date:

Permit Taken By:	Date Applied For:
ldobson	11/15/2010

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

PERMIT ISSUED

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City of Portland

Zoning Approval

Special Zone or Reviews	Zoning Appeal	Historic Preservation
☐ Shoreland	☐ Variance	☐ Not in District or Landmark
☐ Wetland	☐ Miscellaneous	☐ Does Not Require Review
☐ Flood Zone	☐ Conditional Use	☐ Requires Review
☐ Subdivision	☐ Interpretation	☐ Approved
☐ Site Plan	☐ Approved	☐ Approved w/Conditions
Maj ☐ Minor ☐ MM ☐	☐ Denied	☐ Denied
ok with conditions		Any exterior work requires
Date: 11/16/10	Date:	Date:

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

City of Portland, Maine - Building or Use Permit

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

Permit No:	Date Applied For:	CBL:
10-1426	11/15/2010	040 B009001

Location of Construction:	Owner Name:	Owner Address:	Phone:
30 PLEASANT ST	LARSDOTTER GUNNEL	726 SEASHORE AVE	
Business Name:	**Contractor Name:**	**Contractor Address:**	**Phone**
	Cunningham Security Systems	10 Prince Point Road Yarmouth	(207) 846-3350
Lessee/Buyer's Name	**Phone:**	**Permit Type:**	
		Fire Alarm System	

Proposed Use:	Proposed Project Description:
Commercial - Mixed Use - Install fire alarm	Install Fire Alarm

Dept: Zoning **Status:** Approved with Conditions **Reviewer:** Marge Schmuckal **Approval Date:** 11/16/2010

Note: **Ok to Issue:** ☑

1) ANY exterior work requires a separate review and approval thru Historic Preservation. This property is located within an Historic District.
2) This is NOT an approval for an additional dwelling unit. You SHALL NOT add any additional kitchen equipment including, but not limited to items such as stoves, microwaves, refrigerators, or kitchen sinks, etc. Without special approvals.
3) This property shall remain a commercial use on the first floor and 1 du on the 2nd floor and 1 du on the 3rd floor. Any change of use shall require a separate permit application for review and approval.
4) This permit is being approved on the basis of plans submitted. Any deviations shall require a separate approval before starting that work.

Dept: Building **Status:** Approved with Conditions **Reviewer:** Jeanine Bourke **Approval Date:** 11/24/2010

Note: **Ok to Issue:** ☑

1) Fire Alarm systems shall be installed per Sec. 907 of the IBC 2003
2) Separate permits are required for any electrical, plumbing, sprinkler, fire alarm HVAC systems, heating appliances, including pellet/wood stoves, commercial kitchen exhaust hood systems and fuel tanks. Separate plans may need to be submitted for approval as a part of this process.

Dept: Fire **Status:** Approved with Conditions **Reviewer:** Ben Wallace Jr. **Approval Date:** 11/17/2010

Note: **Ok to Issue:** ☑

1) 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.
2) Installation of a Fire Alarm system requires a Knox Box to be installed per city ordinance
3) Central Station monitoring for addressable fire alarm systems shall be by point.
4) As-built documents shall be submitted in pdf to the Building Inspections Office upon completion of job.
5) System acceptance and commissioning must be co-ordinated with alarm and suppression system contractors and the Fire Department. Call 874-8703 to schedule.
6) All fire alarm records required by NFPA 72 should be stored in an approved cabinet located at the FACP labeled "FIRE ALARM RECORDS". Records cabinate, FACP, annunciator(s), and pull stations shall be keyed alike.
7) Office detectors shall be heat detectors, not smoke detectors.
If the top of the stair into the loft at # 30 is interior to the unit the smoke detector must be a smoke alarm.
Supervisory and trouble points shall not activate the evacuation signal.

PERMIT ISSUED

NOV 24

City of Portland

Form # P 01

ELECTRICAL PERMIT
City of Portland, Me.

To the Chief Electrical Inspector, Portland Maine:
The undersigned hereby applies for a permit to make electrical installations in accordance with the laws of Maine, the City of Portland Electrical Ordinance, National Electrical Code and the following specifications:

Date 11-15-10
Permit # 2010-4803
CBL# 40 B5

LOCATION: 30-32 Pleasant St **METER MAKE & #**
CMP ACCOUNT # **OWNER**
TENANT **PHONE #**

						TOTAL	EACH	FEE
OUTLETS		Receptacles		Switches	29	Smoke Detector	.20	
FIXTURES		Incandescent		Fluorescent		Strips	.20	
SERVICES		Overhead		Underground		TTL AMPS <800	15.00	
		Overhead		Underground		>800	25.00	
Temporary Service		Overhead		Underground		TTL AMPS	25.00	
							25.00	
METERS		(number of)					1.00	
MOTORS		(number of)					2.00	
RESID/COM		Electric units					1.00	
HEATING		oil/gas units		Interior		Exterior	5.00	
APPLIANCES		Ranges		Cook Tops		Wall Ovens	2.00	
		Insta-Hot		Water heaters		Fans	2.00	
		Dryers		Disposals		Dishwasher	2.00	
		Compactors		Spa		Washing Machine	2.00	
		Others (denote)					2.00	
MISC. (number of)		Air Cond/win					3.00	
		Air Cond/cent				Pools	10.00	
		HVAC		EMS		Thermostat	5.00	
		Signs					10.00	
	1	Alarms/res					5.00	
		Alarms/com					15.00	
		Heavy Duty(CRKT)					2.00	
		Circus/Carnv					25.00	
		Alterations					5.00	
		Fire Repairs					15.00	
		E Lights					1.00	
		E Generators					20.00	
PANELS		Service		Remote		Main	4.00	
TRANSFORMER		0-25 Kva					5.00	
		25-200 Kva					8.00	
		Over 200 Kva					10.00	
						TOTAL AMOUNT DUE		
		MINIMUM FEE/COMMERCIAL 55.00				**MINIMUM FEE 45.00**		

CONTRACTORS NAME Cunningham Security **MASTER LIC. #** M560008944
ADDRESS 10 Princes Point Road Yarmouth **LIMITED LIC. #**
TELEPHONE 846-3350

SIGNATURE OF CONTRACTOR

White Copy - Office • Yellow Copy - Applicant

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: 30-32 Pleasant Street CBL: 40-B-8 and 40-B-9

Exact location: (within structure) Panel to be in basement

Type of occupancy(s) (NFPA & ICC): Mixed Use Office And Residential

Building owner:

System Designer (point of contact): Michael Major/Cunningham Security Must be Mail

Designer phone: 207-846-3350 E-mail: mmajor@cunninghamsecurity.cc

Installing contractor: Cunningham Security Certificate of Fitness No: 1004

Contractor phone: 207-846-3350 E-mail: mmajor@cunninghamsecurity.cc

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 ½ x 17s
- ☑ pdf copy (may be e-mailed)
- ☐ Designer qualifications
- ☑ Battery/ voltage drop calcs

COST OF WORK: $16,000

PERMIT FEE: 180

($10 PER $1,000 + $50 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 ½ 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: Date: 11-15-10

CUNNINGHAM

Security Systems
10 Princes Point Road Yarmouth Maine 04096
207-846-3350

November 14, 2010

Benjamin Wallace
Fire Prevention Officer
City of Portland Fire Department
380 Congress Street
Portland Maine 04101

Scope of Work

Please find attached fire alarm permit documents for 30-32 Pleasant Street. This is a brick duplex building consisting of three full stories and a loft space at each address. 30 Pleasant is comprised of one commercial condominium unit and two residential units. 32 Pleasant consists of a single 3 ½ story commercial condominium unit. There are full basements in both buildings. The FACP is located in the basement of the 30 Pleasant building and there is a fully functional LCD annunciator located in the first floor hallway of the same building.

We were originally proposing to utilize a Honeywell Vista 128FBP fire panel in anticipation of needing wireless technology however during the prewire we were able to completely wire all device locations so we will be using a Fire Lite addressable panel. We have included mini horns in each of the two sleeping rooms and each room of each residential unit has a heat detector.

Michael Major

PLEASANT ST

Fire-Lite Alarms
by Honeywell

MS-9200UDLS Rev.2 Battery Calculation

Secondary Power Source Requirements

	Standby Current (amps)					Secondary Alarm Current (amps)				
Device Type	Qty		Current Draw		Total	Qty		Current Draw		Total
Main Circuit Board	1	x	0.137000	=	0.137000	1	x	0.360000	=	0.360000
XRM-24B	0	x	0.000000	=		0	x	0.000000	=	
4XTMF	0	x	0.005000	=		0	x	0.011000	=	
IPDACT-2	0	x	0.093000	=		0	x	0.136000	=	
IPDACT-2/2UD	0	x	0.098000	=		0	x	0.155000	=	
ANN-BUS Devices										
ANN-80(-W)	1	x	0.015000	=	0.015000	1	x	0.040000	=	0.040000
ANN-LED	0	x	0.028000	=		0	x	0.068000	=	
ANN-RLED	0	x	0.028000	=		0	x	0.068000	=	
ANN-RLY	0	x	0.015000	=		0	x	0.075000	=	
ANN-I/O	0	x	0.035000	=		0	x	0.200000	=	
ANN-S/PG	0	x	0.045000	=		0	x	0.045000	=	
ACS Annunciators										
ACM-8RF	0	x	0.030000	=		0	x	0.158000	=	
ACM-16ATF	0	x	0.040000	=		0	x	0.056000	=	
ACM-32AF	0	x	0.040000	=		0	x	0.056000	=	
AEM-16ATF	0	x	0.002000	=		0	x	0.018000	=	
AEM-32AF	0	x	0.002000	=		0	x	0.018000	=	
AFM-16ATF	0	x	0.040000	=		0	x	0.056000	=	
AFM-32AF	0	x	0.040000	=		0	x	0.056000	=	
AFM-16AF	0	x	0.025000	=		0	x	0.065000	=	
LDM-32F	0	x	0.040000	=		0	x	0.056000	=	
LDM-E32F	0	x	0.002000	=		0	x	0.018000	=	
LCD-80F	0	x	0.025000	=		0	x	0.064000	=	
Resettable Power										
4-Wire Smoke Detectors	0	x	0.000000	=		0	x	0.000000	=	
Addressable Devices										
BEAM355	0	x	0.002000	=						
BEAM355S	0	x	0.002000	=						
BEAM1224	0	x	0.017000	=						
CP355	0	x	0.000300	=						
SD355	30	x	0.000300	=	0.009000					
SD355T	0	x	0.000300	=						
AD355	0	x	0.000300	=						
H355	16	x	0.000300	=	0.004800					
H355R	0	x	0.000300	=						
H355HT	0	x	0.000300	=						
D350P	0	x	0.000300	=						
D350RP	0	x	0.000300	=						
D350PL	0	x	0.000300	=						
D350RPL	0	x	0.000300	=						
D355PL	0	x	0.000300	=						
MMF-300	0	x	0.000400	=						
MMF-300-10	0	x	0.003500	=						
MDF-300	0	x	0.000750	=						
MMF-301	0	x	0.000375	=						
MMF-302	0	x	0.000270	=						
MMF-302-6	0	x	0.002000	=						
BG-12LX	15	x	0.000230	=	0.003450					
CMF-300	0	x	0.000390	=						
CMF-300-6	0	x	0.002250	=						
CRF-300	0	x	0.000270	=						
CRF-300-6	0	x	0.001450	=						
I300	0	x	0.000400	=						
B501BH-2	0	x	0.001000	=						
B501BHT-2	0	x	0.001000	=						
B224RB	0	x	0.000500	=						
B224BI	0	x	0.000450	=						

B200SR	0	x	0.000500	=						
	Maximum alarm draw for all Addressable devices ---------->									0.400000
EOLR-1	1	x	0.020000	=	0.020000	1	x	0.020000	=	0.020000
Miscellaneous Device 1	0	x	0.000000	=		0	x	0.000000	=	
Miscellaneous Device 2	0	x	0.000000	=		0	x	0.000000	=	
Miscellaneous Device 3	0	x	0.000000	=		0	x	0.000000	=	
Miscellaneous Device 4	0	x	0.000000	=		0	x	0.000000	=	
Miscellaneous Device 5	0	x	0.000000	=		0	x	0.000000	=	
NAC 1						6	x	0.017500	=	0.105000
NAC 2						2	x	0.017500	=	0.035000
NAC 3						0	x	0.000000	=	
NAC 4						0	x	0.000000	=	
Current Draw from TB3			0.000000	=				0.000000	=	
			Total Standby Load		0.189250			**Total Alarm Load**		**0.960000**

Fire-Lite Alarms by Honeywell

MS-9200UDLS Rev.2 Battery Calculation

Calculation in Total Sheet

		Required Standby Time in Hours			
		24 Hours			
Standby Load Current	0.18925 Amps	x	24	=	4.542 AH
		Required Alarm Time in Minutes			
		5 Minutes			
Alarm Load Current (Amps)	0.96000 Amps	x	0.084	=	0.081 AH
				Total Current Load	4.623 AH
	Multiply by the Derating Factor		1.2	=	x 1.20
				Total Ampere Hours Required	5.55 AH

Recommended Batteries:	BAT-1270 - 7AH Batteries

Battery Check
The batteries can be charged by the MS-9200UDLS Charger.
The batteries can be housed in the MS-9200UDLS Cabinet.

Current Draw Check
NAC#1 current is within the limitations of the circuit.
NAC#2 current is within the limitations of the circuit.
NAC#3 current is within the limitations of the circuit.
NAC#4 current is within the limitations of the circuit.
MS 9200UDLS Control Panel: The output current is within the panel's limitations.

Jobsite Information:

FCPS-24FS6 / 8 Battery Calculation

Entries only to be made in the Yellow cell locations

Regulated Load in Standby

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Main PC Board	1	X	0.065	=	0.065
Power Supervision Relays	1	X	0.025	=	0.025
Auxiliary Current Draw from TB4 Terminals 9 & 10		X		=	0
		STANDBY LOAD		=	0.09

Regulated Load In ALARM

Device Type	Number of Devices		Current (Amps)		Total Current (Amps)
Main PC Board without AC	1	X	0.145	=	0.145
Power Supervision Relays	1	X	0.025	=	0.025
Auxiliary Current Draw from TB4 Terminals 9 & 10		X		=	0
NAC / Output # 1	8	X	0.175	=	1.4
NAC / Output # 2	8	X	0.175	=	1.4
NAC / Output # 3	6	X	0.175	=	1.05
NAC / Output # 4		X		=	0
		ALARM LOAD		=	4.020

Battery Amp Hour Calculation

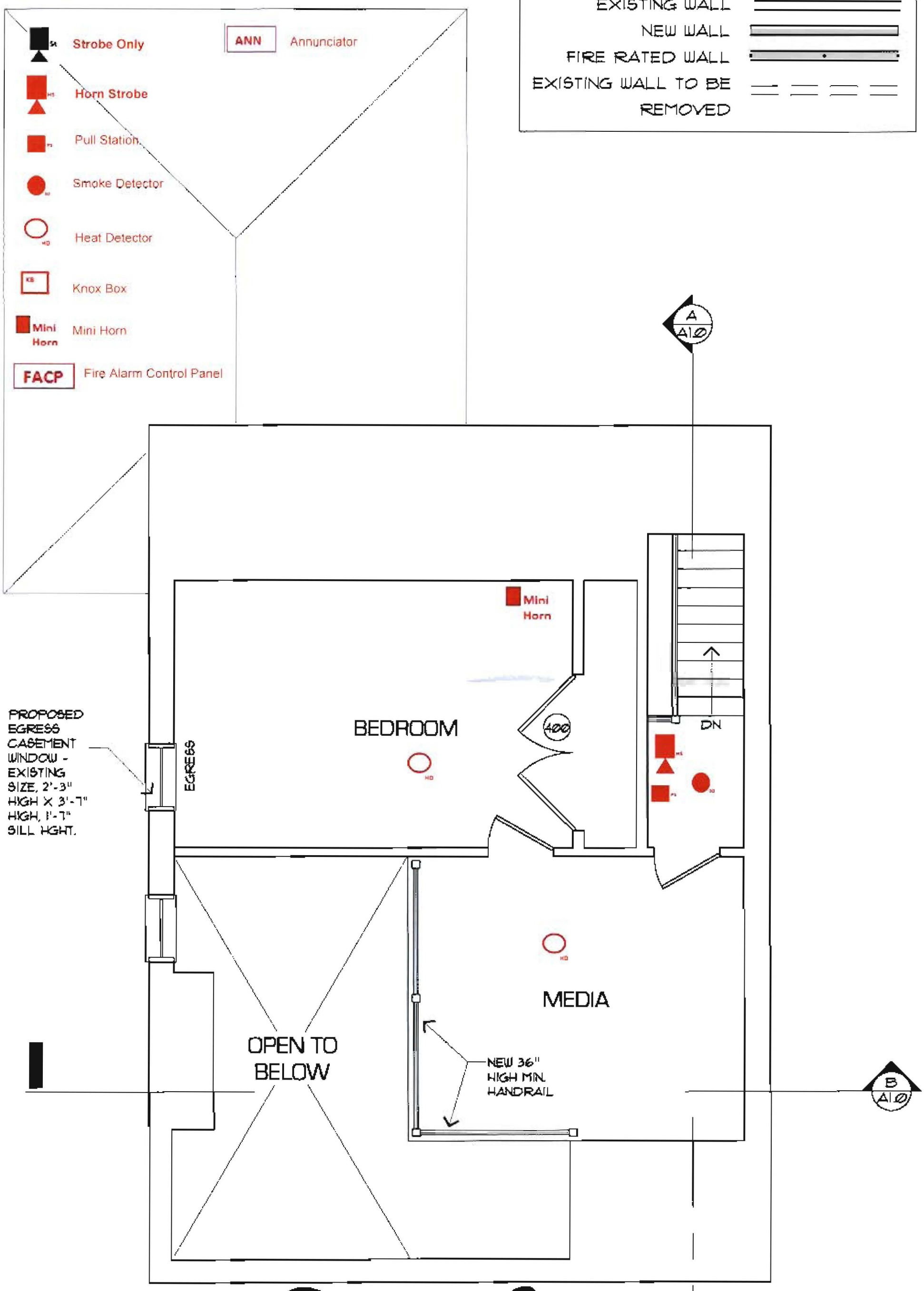
Standby Load Current (Amps)		Required Standby Time (Typically 24 or 60 *Hours*)		
0.09	X	24	=	2.16 AH
Alarm Load Current (Amps)		Required Alarm Time (Typically 5 or 10 *Minutes*)		
4.02	X	10	=	0.67 AH
		Sub Total Standby / Alarm Amp Hours		2.83 AH
		Multiply by the Derating Factor	X	1.2 *
		Total Ampere Hours Required	=	**4 AH**

* Derating Factor required to compensate for the non-linear discharge characteristic of a battery.

	A Activate Audible Alarm Indicator & Signals	B Activate Supervisory Signal Indicator & Signals	C Activate Common Trouble Indicator & Signals	D Activate Graphic Annunciator Light for Smoke Control Mode	E Activate Graphic Trouble Indicator for associated HVAC not running when required	F Activate Graphic Light for associated devices	G Activate Central Station Communications	H	I	J	K	L	M	N	O
Area Smoke Detectors															
30 Pleasant Basement Smoke	●						●								
30 Pleasant Front Hall Smokes	●						●								
30 Pleasant Rear Hall Smokes	●						●								
30 Pleasant First Floor Office Smokes	●						●								
32 Pleasant Basement Smoke	●						●								
32 Pleasant Front Hall Smokes	●						●								
32 Pleasant Rear Hall Smokes	●						●								
32 Pleasant First Floor Office Smokes	●						●								
32 Pleasant Second Floor Office Smokes	●						●								
32 Pleasant Third Floor Office Smokes	●						●								
32 Pleasant Loft Smokes	●						●								
Heat Detectors	●						●								
30 Pleasant Basement Heats	●						●								
30 Pleasant Second Floor Unit Heats	●						●								
30 Pleasant Third Floor Unit Heats	●						●								
30 Pleasant Loft Heats	●						●								
32 Pleasant Basement Heat	●						●								
32 Pleasant Kitchen Area Heat	●						●								
32 Pleasant Employee Lounge Heat	●						●								
Pull Stations															
30 Pleasant First Floor Front Pull	●						●								
30 Pleasant First Floor Rear Pull	●						●								
30 Pleasant Second Floor Front Pull	●						●								
30 Pleasant Second Floor Rear Pull	●						●								
30 Pleasant Third Floor Front Pull	●						●								
30 Pleasant Third Floor Rear Pull	●						●								
30 Pleasant Basement Pull	●						●								
32 Pleasant Basement Pull	●						●								
32 Pleasant First Floor Front Pull	●						●								
32 Pleasant First Floor Rear Pull	●						●								
32 Pleasant Second Floor Front Pull	●						●								
32 Pleasant Second Floor Rear Pull	●						●								
32 Pleasant Third Floor Front Pull	●						●								
32 Pleasant Third Floor Rear Pull	●						●								
32 Pleasant Loft Pull	●						●								
Supervisory Switches															
Dialer One Failure	●	●					●								
Dialer Two Failure	●	●					●								
Fire Alarm A/C Power Failure	●	●					●								
FACP Battery Backup Failure	●	●					●								
Trouble Points															
Open Circuit	●		●				●								
Ground Fault	●		●				●								
Notification Appliance Circuit Short	●		●				●								
Signal Line Circuit Short	●		●				●								

WALL LEGEND

EXISTING WALL	
NEW WALL	
FIRE RATED WALL	
EXISTING WALL TO BE REMOVED	

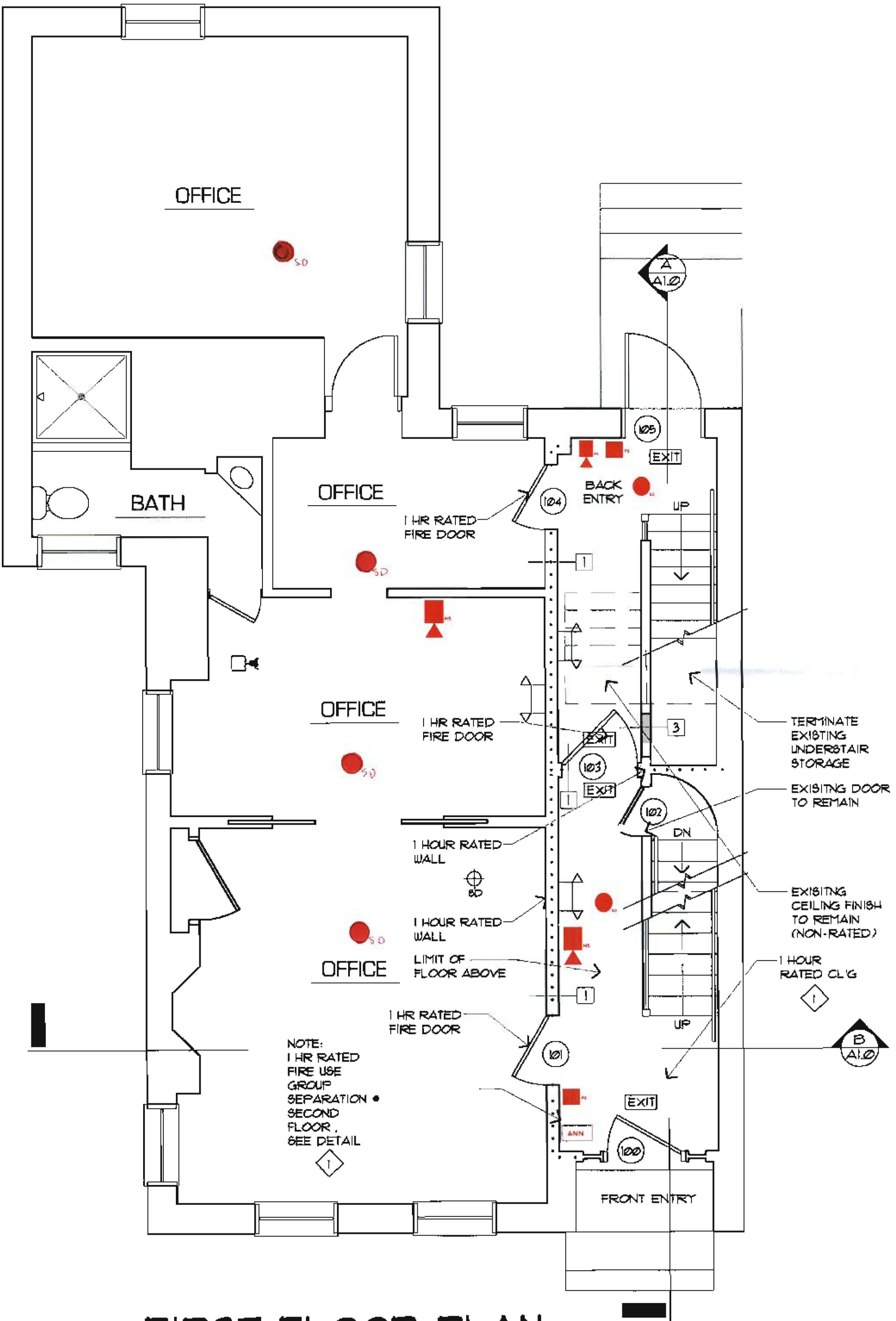


30 PLEASANT ST

LOFT FLOOR PLAN

SCALE: 1/4" = 1'-0"

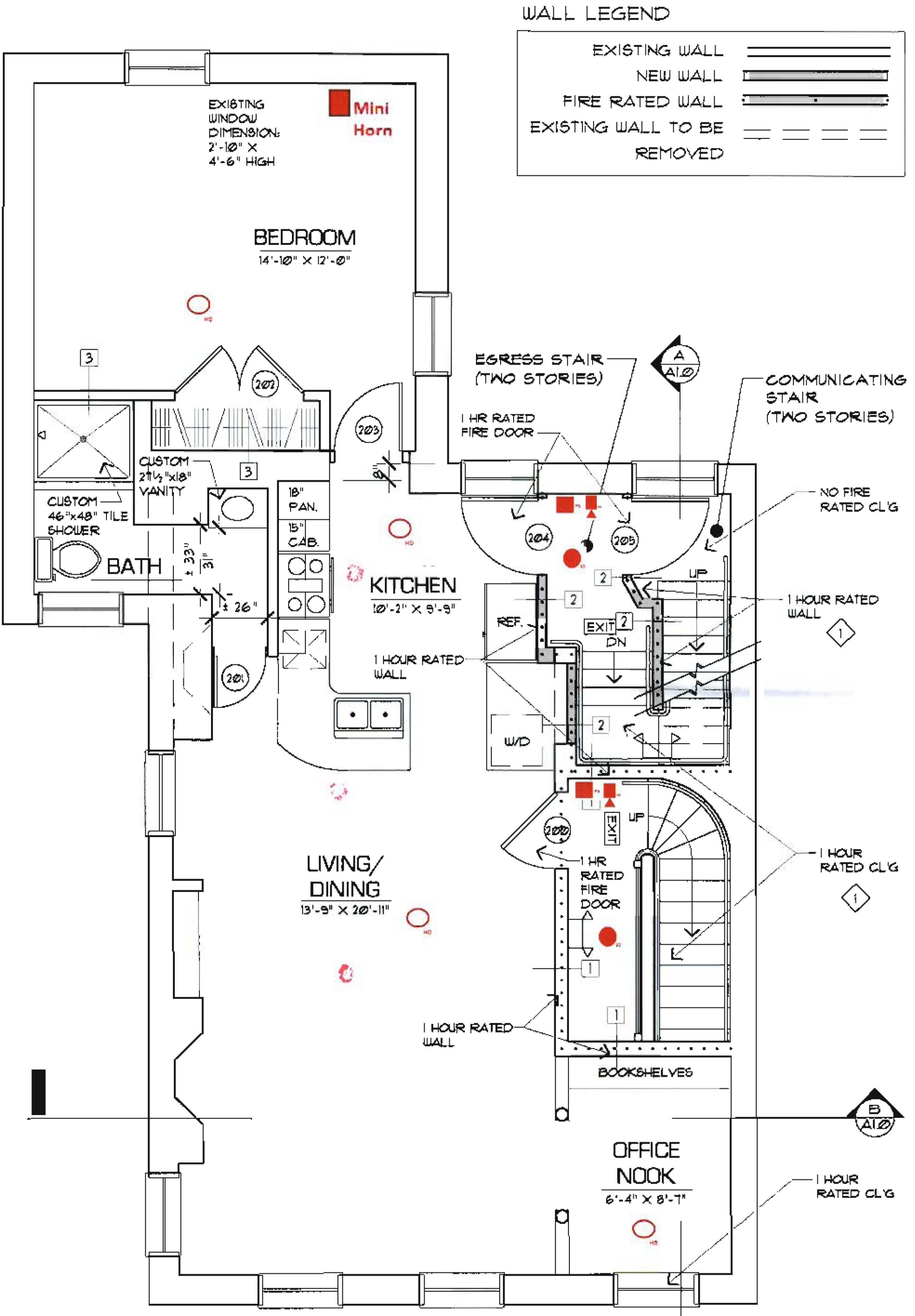
350 S.F.



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

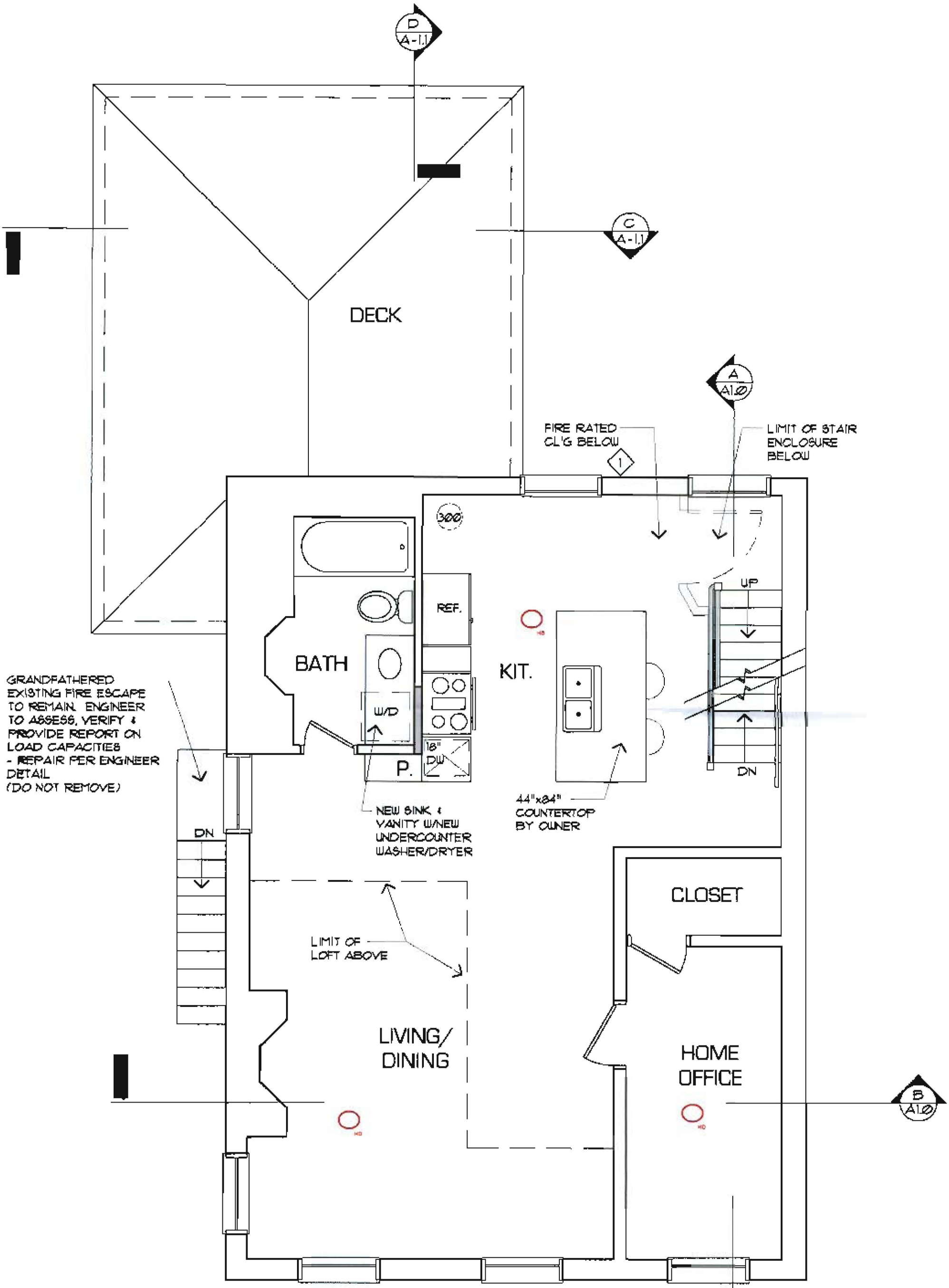
1,094 S.F.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

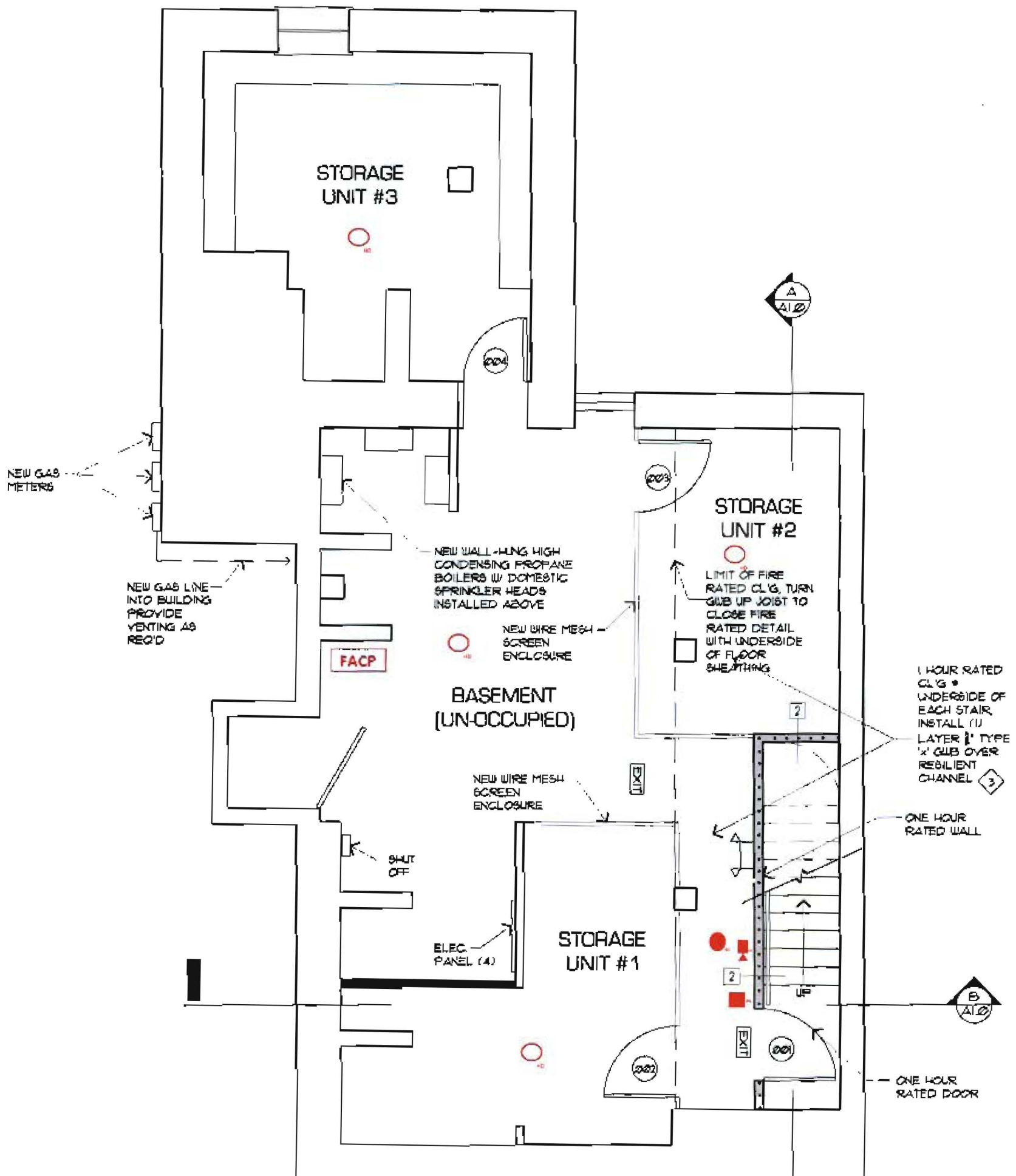
1,094 S.F.



THIRD FLOOR PLAN

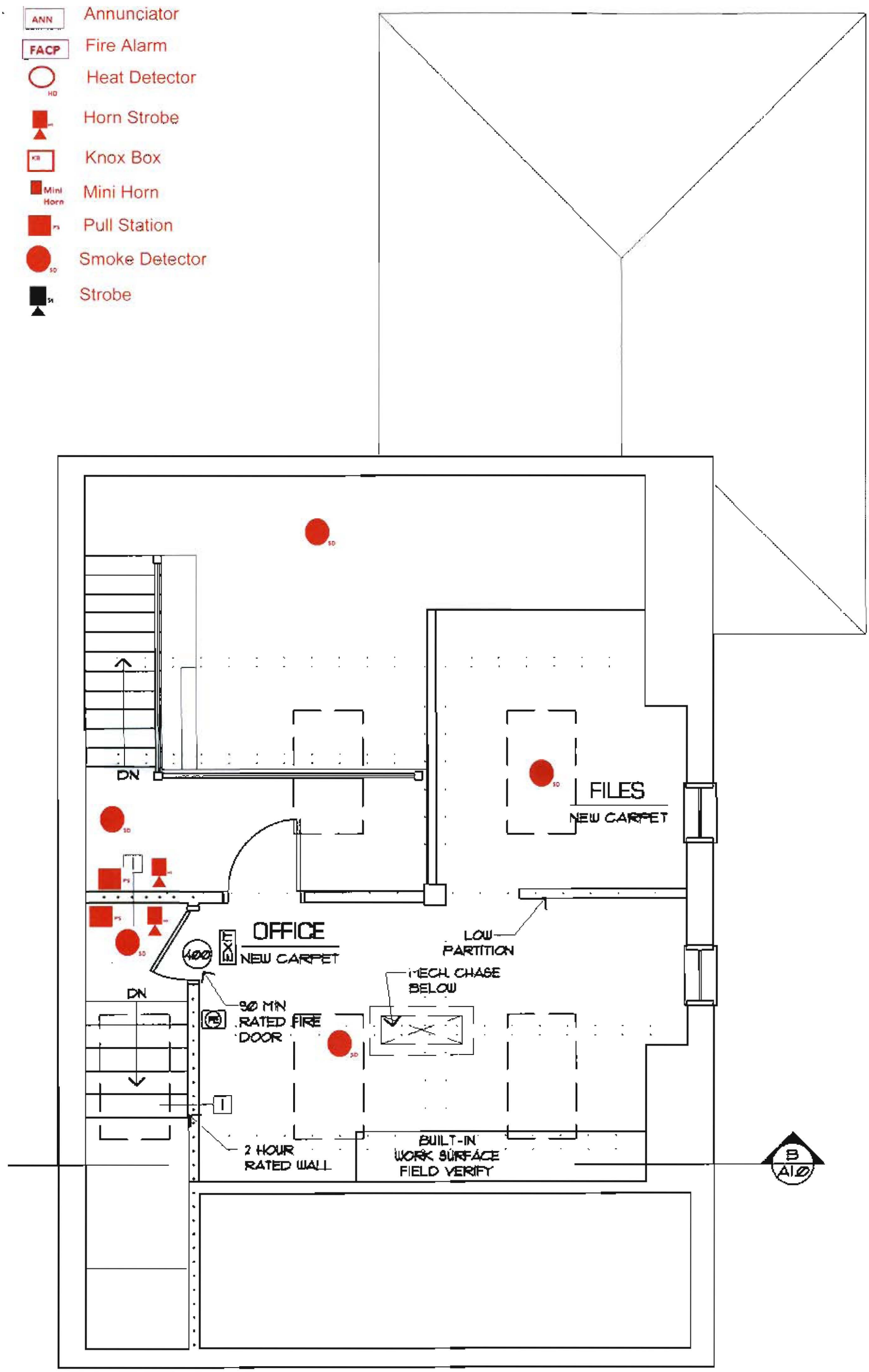
SCALE: 1/4" = 1'-0"

780 S.F.



BASEMENT PLAN

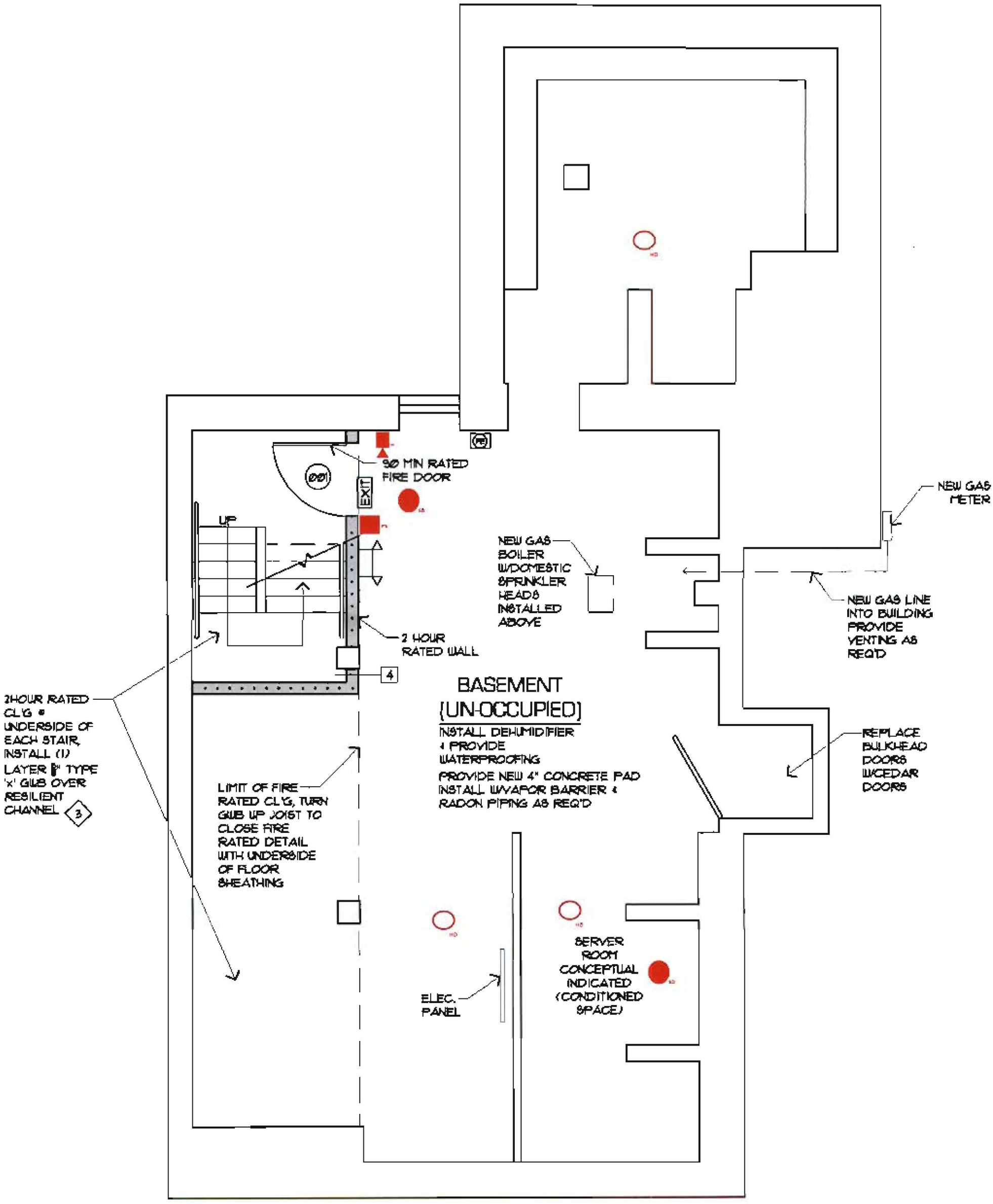
SCALE: 1/4" = 1'-0"

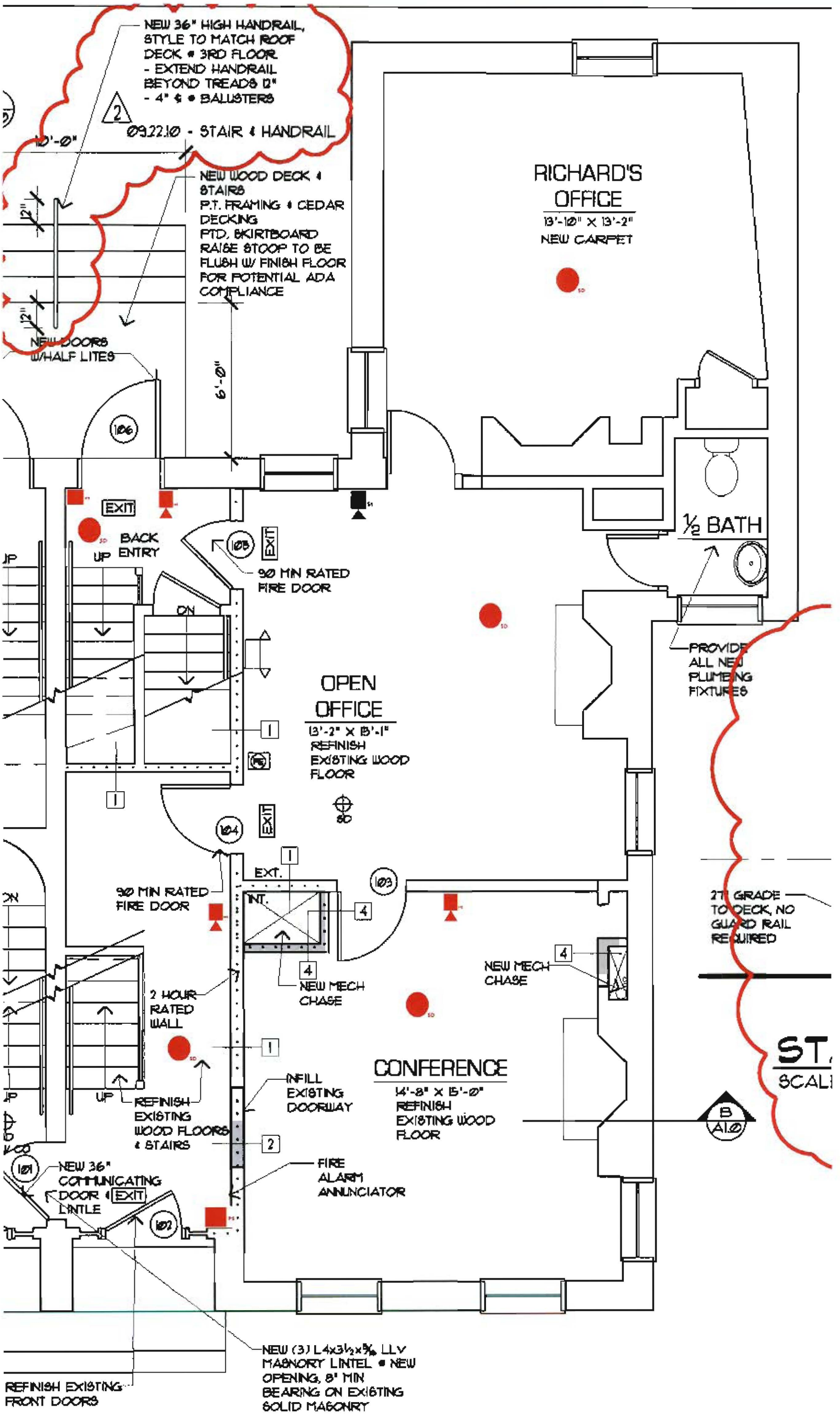


32 Pleasant St

LOFT FLOOR PLAN

SCALE: 1/4" = 1'-0" 350 S.F.

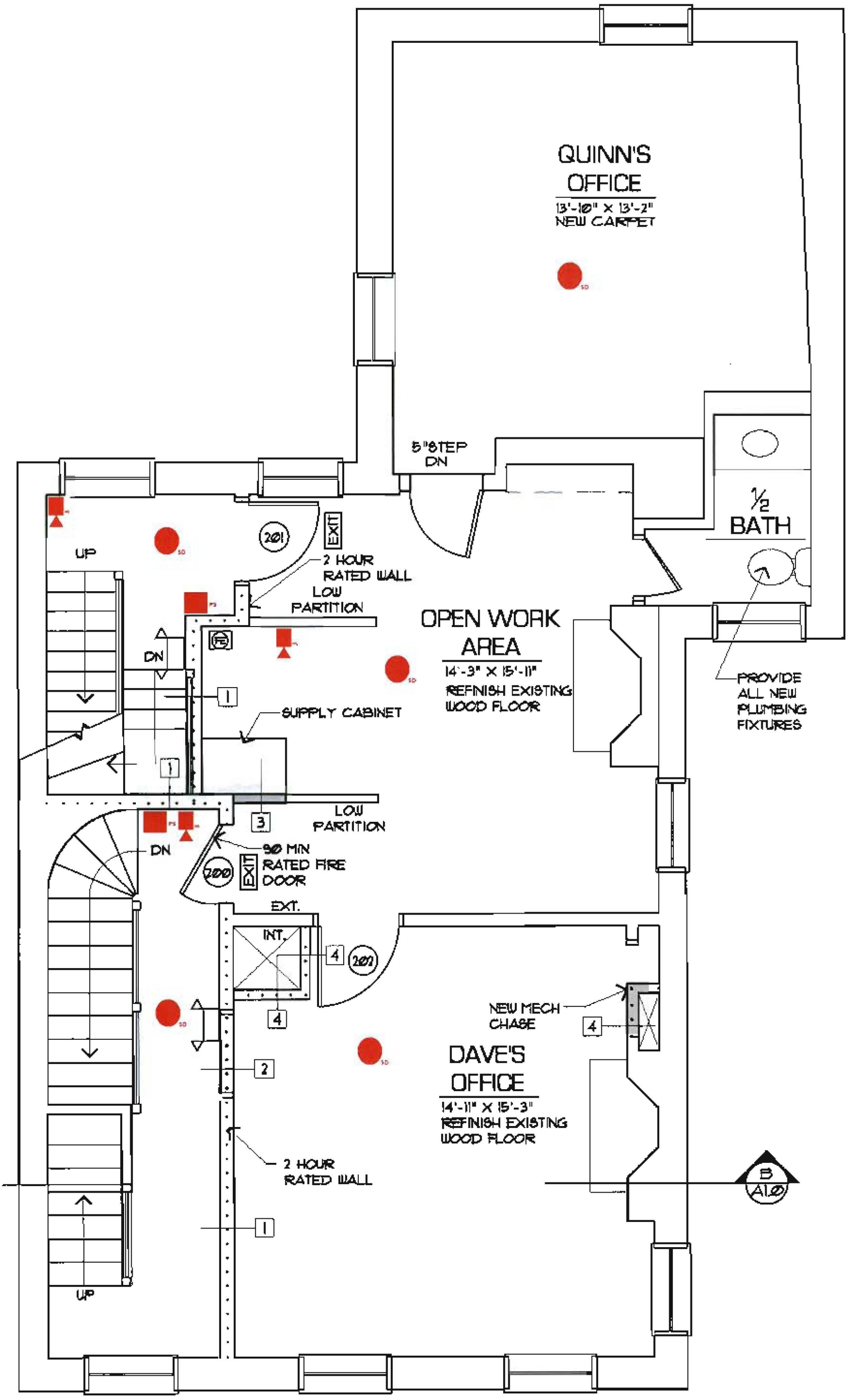

90 MIN RATED
FIRE DOOR
001
EXIT
UP
NEW GAS
BOILER
W/DOMESTIC
SPRINKLER
HEADS
INSTALLED
ABOVE
NEW GAS
METER
NEW GAS LINE
INTO BUILDING
PROVIDE
VENTING AS
REQ'D
2 HOUR
RATED WALL
4
BASEMENT
(UN-OCCUPIED)
INSTALL DEHUMIDIFIER
& PROVIDE
WATERPROOFING
PROVIDE NEW 4" CONCRETE PAD
INSTALL W/VAPOR BARRIER &
RADON PIPING AS REQ'D
2HOUR RATED
CL'G @
UNDERSIDE OF
EACH STAIR,
INSTALL (1)
LAYER ⅝" TYPE
'X' GWB OVER
RESILIENT
CHANNEL
3
LIMIT OF FIRE
RATED CL'G, TURN
GWB UP JOIST TO
CLOSE FIRE
RATED DETAIL
WITH UNDERSIDE
OF FLOOR
SHEATHING
REPLACE
BULKHEAD
DOORS
W/CEDAR
DOORS
SERVER
ROOM
CONCEPTUAL
INDICATED
(CONDITIONED
SPACE)
ELEC.
PANEL



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

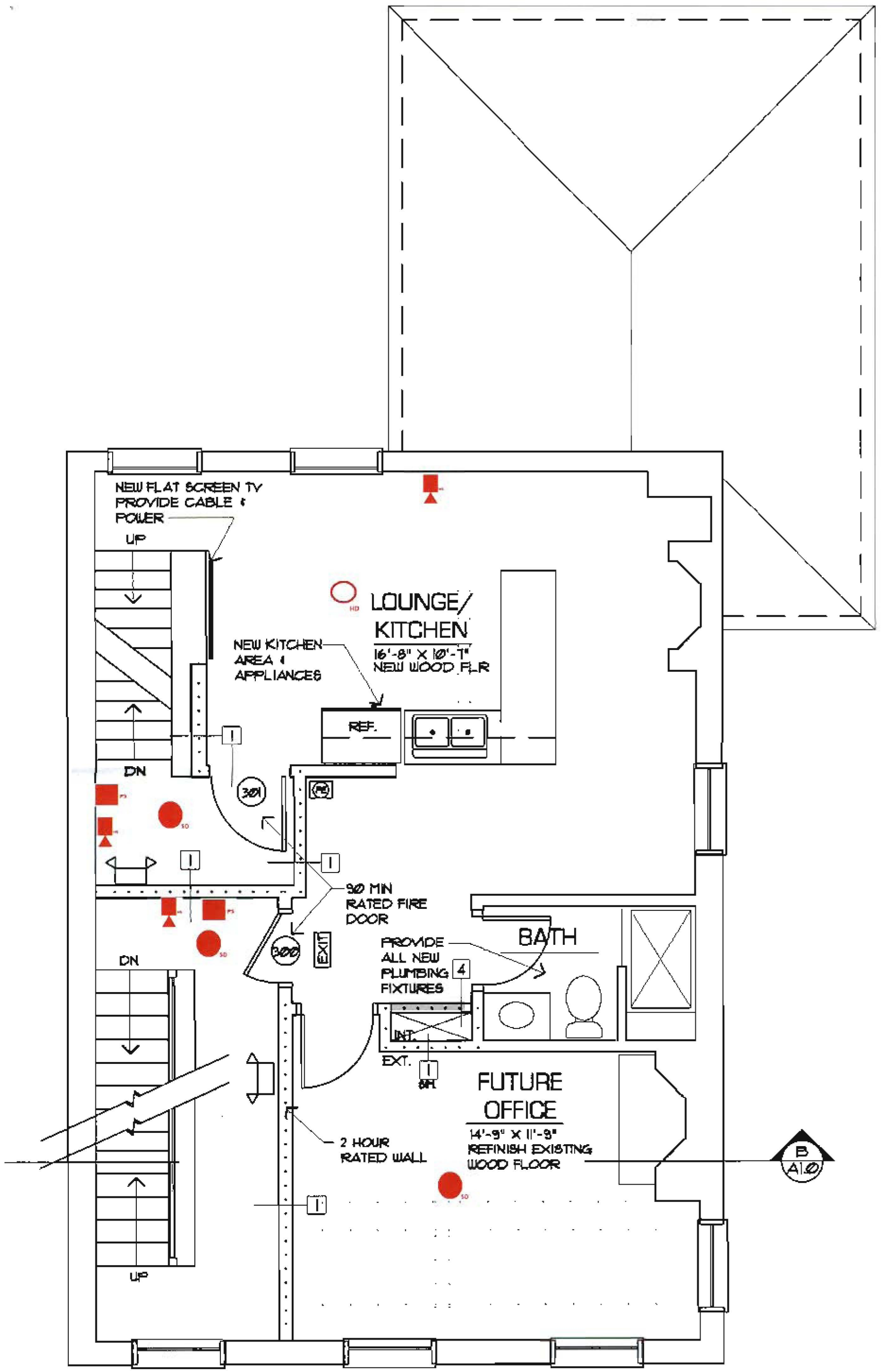
1,094 S.F.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

1,094 S.F.



THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"

780 S.F.

BG-12LX

Addressable Manual Pull Station

Fire-Lite Alarms by Honeywell

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 µA.
- **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 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 – 99and 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

the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Underwriters Laboratories listed.

Manual stations shall connect with two wires to one of the control panel SLC loops. The manual station shall, on command from the control panel, send data to the panel representing the state of the manual switch. Manual stations shall provide address setting by use of rotary decimal switches.

Product Line Information

BG-12LX: Dual-action addressable pull station. Includes key locking feature.

SB-10: Surface backbox; metal.

SB-I/O: Surface backbox; plastic.

BG12TR: Optional trim ring.

17003: Keys, set of two.

Agency Listings and Approvals

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

- **UL Listed:** S711
- **MEA:** 67-02-E
- **CSFM:** 7150-0075:184
- **FM** Approved

Patented:
U.S. Patent No. D428,351; 6,380,846; 6,314,772; 6,632,108.

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ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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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.

Made in the U.S.A.

For more information, contact Fire•Lite Alarms. Phone: (800) 627-3473, FAX: (877) 699-4105.
www.firelite.com

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

Addressable Monitor Modules

FIRE-LITE ALARMS by Honeywell

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).

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

MMF-301 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 Class B (Style B) circuit of dry-contact input devices. Its compact design allows the MMF-301 to often be mounted in a single-gang box behind the device it monitors.

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

MDF-300 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.

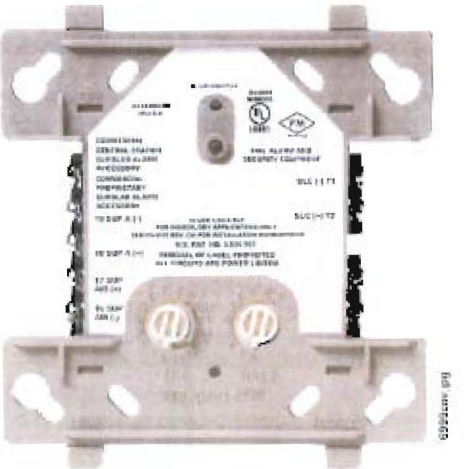
MMF-300 Monitor Module

- 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 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 can be used to replace M300 modules in existing systems.

MMF-300 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 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 (Type H)

MMF-300 OPERATION

Each MMF-300 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 SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.0 mA (LED on).

Maximum operating current: 375 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

EOL resistance: 47K ohms.

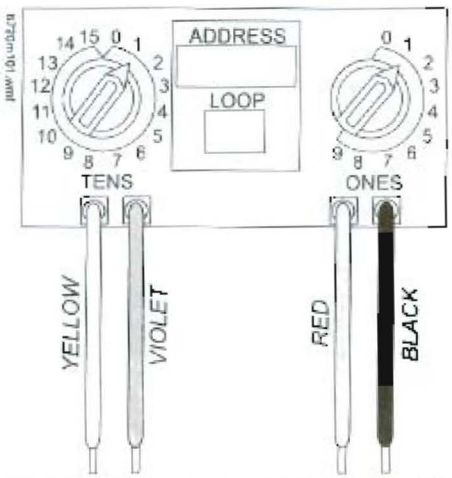
Temperature range: 32°F to 120°F (0°C to 49°C).

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.

MMF-301 Mini Monitor Module

- Built-in type identification automatically identifies this device as a monitor module to the panel.
- Powered directly by two-wire SLC loop. No additional power required.
- High noise (EMF/RFI) immunity.
- Tinned, stripped leads for ease of wiring.
- Direct-dial entry of address: 01 – 159 on MS-9600 series panels, 01 – 99 on other compatible systems.



The MMF-301 Mini Monitor Module can be installed in a single-gang junction directly behind the monitored unit. Its small size and light weight allow it to be installed without rigid mounting. The MMF-301 is intended for use in intelligent, two-wire systems where the individual address of each module is selected using rotary switches. It provides a two-wire initiating device circuit for normally-open-contact fire alarm devices. The MMF-301 can be used to replace M301 modules in existing systems.

MMF-301 APPLICATIONS

Use to monitor a single device or a zone of four-wire smoke detectors, manual fire alarm pull stations, waterflow devices, or other normally-open dry-contact devices. May also be used to monitor normally-open supervisory devices with special supervisory indication at the control panel. Monitored circuit/device is wired as an NFPA Style B (Class B) Initiating Device Circuit. A 47K ohm End-of-Line Resistor (provided) terminates the circuit.

MMF-301 OPERATION

Each MMF-301 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).

MMF-301 SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum operating current: 375 µA.

Maximum IDC wiring resistance: 1,500 ohms.

EOL resistance: 47K ohms.

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

Humidity range: 10% to 93% noncondensing.

Dimensions: 1.3" (3.302 cm) high x 2.75" (6.985 cm) wide x 0.65" (1.651 cm) deep.

Wire length: 6" (15.24 cm) minimum.

MMF-302 Interface Module

- Supports compatible two-wire smoke detectors.
- Supervises IDC wiring and connection of external power source.
- 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.
- LED latches steady to indicate alarm on command from control panel.

The MMF-302 Interface Module is intended for use in intelligent, addressable systems, where the individual address of each module is selected using built-in rotary switches. This module allows intelligent panels to interface and monitor two-wire conventional smoke detectors. It transmits the status (normal, open, or alarm) of one full zone of conventional detectors back to the control panel. All two-wire detectors being monitored must be UL compatible with the module. The MMF-302 can be used to replace M302 modules in existing systems.

MMF-302 APPLICATIONS

Use the MMF-302 to monitor a zone of two-wire smoke detectors. The monitored circuit may be wired as an NFPA Style B (Class B) or Style D (Class A) Initiating Device Circuit. A 3.9 K ohm End-of-Line Resistor (provided) terminates the end of the Style B or D (class B or A) circuit (maximum IDC loop resistance is 25 ohms). Install ELR across terminals 8 and 9 for Style D application.

MMF-302 OPERATION

Each MMF-302 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-302 SPECIFICATIONS

Nominal operating voltage: 15 to 32 VDC.

Maximum current draw: 5.1 mA (LED on).

Maximum IDC wiring resistance: 25 ohms.

Maximum operating current: 270 µA (LED flashing).

EOL resistance: 3.9K ohms.

External supply voltage (between Terminals T3 and T4): DC voltage: 24 volts power limited. Ripple voltage: 0.1 Vrms maximum. Current: 90 mA per module maximum.

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 Dual Monitor Module

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

MDF-300 SPECIFICATIONS

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Maximum operating current: 750 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

EOL resistance: 47K 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 AUTOMATIC ADDRESSING

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

NOTE: *"Ones" addresses on the MDF-300 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, MMF-302, and MDF-300 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 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:** *S3705 ("A" suffix models)*
- **FM Approved**
- **CSFM:** 7300-0075-185
- **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.

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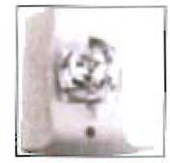
SYSTEM SENSOR

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
- Tamper-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

SIGNALING UL LISTED

FM APPROVED

MEA approved

SpectrAlert Advance Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance horns, strobes, and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 1¾-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync-Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync-Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts, 24-volt rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177, and 185.

Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and shall be approved for fire protective service. The 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 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model _____ 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 1 Hz over the strobe's entire operating voltage range. 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.

Synchronization Module

The module shall be a System Sensor Sync-Circuit model MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4 9/16 × 4 9/16 × 2⅛-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications

Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling-Mount Dimensions (including lens)	6.8" diameter × 2.5" high (173 mm diameter × 64 mm high)
Wall-Mount Dimensions (including lens)	5.6" L × 4.7" W × 2.5" D (142 mm L × 119 mm W × 64 mm D)
Horn Dimensions	5.6" L × 4.7" W × 1.3" D (142 mm L × 119 mm W × 33 mm D)
Wall-Mount Back Box Skirt Dimensions (BBS-2, BBSW-2)	5.9" L × 5.0" W × 2.2" D (151 mm L × 128 mm W × 56 mm D)
Ceiling-Mount Back Box Skirt Dimensions (BBSC-2, BBSCW-2)	7.1" diameter × 2.2" high (180 mm diameter × 57 mm high)
Wall Mount Trim Ring Dimensions (sold as a 5 pack) (TR-HS, TRW-HS)	5.7" L × 4.8" W × 0.35" D (145 mm L × 122 mm W × 9 mm D)
Ceiling Mount Trim Ring Dimensions (sold as a 5 pack) (TRC-HS, TRCW-HS)	6.9" diameter × 0.35" high (175 mm diameter × 9 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

		8–17.5 Volts		16–33 Volts	
	Candela	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)

		8–17.5 Volts		16–33 Volts	
Sound Pattern	dB	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)

	8–17.5 Volts		16–33 Volts						
DC Input	15	15/75	15	15/75	30	75	95	110	115
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)

	16–33 Volts					16–33 Volts			
DC Input	135	150	177	185	FWR Input	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

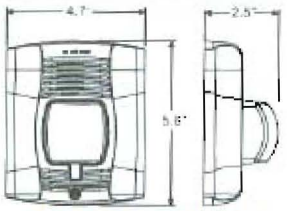
Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)

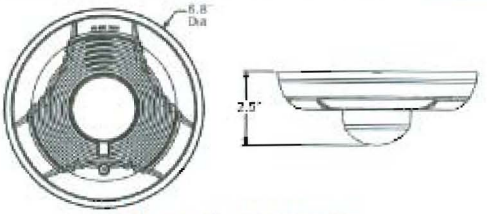
			8–17.5 Volts		16–33 Volts		24-Volt Nominal			
							Reverberant		Anechoic	
Switch Position	Sound Pattern	dB	DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100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

[1]Settings 7, 8, and 9 are not available on 2-wire horn strobe

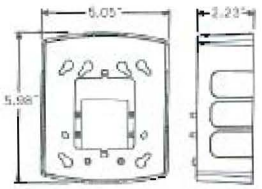
SpectrAlert Advance Dimensions



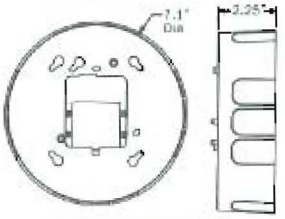
Wall-mount horn strobes



Ceiling-mount horn strobes



Wall back box skirt



Ceiling back box skirt

SpectrAlert Advance Ordering Information

Model	Description
Wall Horn Strobes	
P2R*†	2-Wire Horn Strobe, Standard cd‡, Red
P2RH*	2-Wire Horn Strobe, High cd, Red
P2W*	2-Wire Horn Strobe, Standard cd, White
P2WH*	2-Wire Horn Strobe, High cd, White
P4R*	4-Wire Horn Strobe, Standard cd, Red
P4RH	4-Wire Horn Strobe, High cd, Red
P4W	4-Wire Horn Strobe, Standard cd, White
Wall Strobes	
SR*†	Strobe, Standard cd, Red
SRH*†	Strobe, High cd, Red
SW*	Strobe, Standard cd, White
SWH*	Strobe, High cd, White
Ceiling Horn Strobes	
PC2R*	2-Wire Horn Strobe, Standard cd, Red
PC2RH	2-Wire Horn Strobe, High cd, Red
PC2W*†	2-Wire Horn Strobe, Standard cd, White
PC2WH*	2-Wire Horn Strobe, High cd, White
PC4R	4-Wire Horn Strobe, Standard cd, Red
PC4RH	4-Wire Horn Strobe, High cd, Red
PC4W	4-Wire Horn Strobe, Standard cd, White

Model	Description
Ceiling Strobes	
SCR	Strobe, Standard cd, Red
SCRH	Strobe, High cd, Red
SCW*	Strobe, Standard cd, White
SCWH	Strobe, High cd, White
Horns	
HR	Horn, Red
HW	Horn, White
Accessories	
BBS-2	Back Box Skirt, Wall, Red
BBSW-2	Back Box Skirt, Wall, White
BBSC-2	Back Box Skirt, Ceiling, Red
BBSCW-2	Back Box Skirt, Ceiling, White
TR-HS	Trim Ring, Wall, Red
TRW-HS	Trim Ring, Wall White
TRC-HS	Trim Ring, Ceiling, Red
TRCW-HS	Trim Ring, Ceiling, White

Notes:

* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g., P2R-P
† Add "-SP" to model number for "FUEGO" marking on cover, e.g., P2R-SP
‡ "Standard cd" refers to strobes that include 15, 15/75, 30, 75, 95, 110, and 115 candela settings. "High cd" refers to strobes that include 135, 150, 177, and 185 candela settings.

SYSTEM SENSOR
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Product specifications subject to change without notice. Visit www.systemsensor.com for current product information, including the latest version of this data sheet.
ADS-SA-SPEC-001 Rev. B 11/05

DTK-HW Series

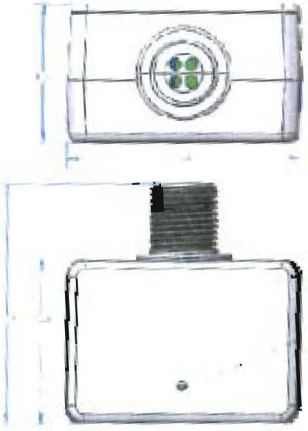
Equipment Panel/Dedicated Circuit Surge Protective Device
General Product Specifications

DITEK's HW series of surge protectors are designed and manufactured to meet the exacting standards of the life safety industry. These compact parallel mount surge protectors are widely used to protect fire alarm panels and other dedicated branch circuit loads.

DTK-120HW DTK-120/240HW

Product Features

- Diagnostic LED indicates ground presence, system power and SPD function
- Small footprint enables installation in a variety of locations
- Available for popular 120V, and 120/240V systems
- Ten Year Limited Warranty



Specifications

Agency Approvals: UL 1449, 3rd Edition, cUL
IEEE Location Category: Category B
Protector Type: SPD Type 2
Protection Modes: L-G, L-N, N-G
Response Time: <1ns
Temperature Range: -40°F – 185°F (-40°C – 85°C)
Maximum Humidity: 95% non-condensing
Operating Frequency: 0Hz – 400Hz
Dimensions: 2.93" x 2.83" x 1.68"
(74.4mm x 71.9mm x 42.7mm)
Connection: ¾" diameter threaded fitting
Weight: .5lb. (227g)
Housing: ABS

Model Selection: DTK-	Service Wiring	Peak Surge Current	MCOV	UL 1449, 3rd Ed. V.P.R.	Short Circuit Current Rating	UL1449, 3rd Ed. I_n Rating
120HW	Single Φ (2W + G), 120VAC	19,500A	130V	700V L-N, L-G; 600V N-G	10,000A	3,000A
120/240HW	Split Φ (3W + G), 120/240VAC	13,000A/ Phase 6,500A/ Mode	130/260V	700V L-N, L-G; 600V N-G; 1200V L-L	10,000A	3,000A

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Specification Subject to Change

FCPS-24FS8

8-Amp, 24-Volt Power Supply

Fire-Lite Alarms by Honeywell

Power Supplies/Accessories

General

The **Fire•Lite FCPS-24FS8(C/E)** is a compact, cost-effective, 8-amp remote power supplies with battery charger. The FCPS-24FS8C/E) 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 provides *regulated and filtered* 24 VDC power to four notification appliance circuits configured as either two Class B (Style Y) and Class A (Style Z, with ZNAC-4 option module) or four class B only. Alternately, the four outputs may be configured as any combination of resettable/non-resettable power outputs (optimal for powering four-wire smoke detectors. The FFCPS-24FS8(C/E) also contains a battery charger capable of charging up to 18.0 Amp hour batteries. FCPS-24FS8C/E) is ULC-listed.

NOTE: *Unless otherwise specified, the term FCPS-24FS8 used in this document refers to the standard FCPS-24FS8, FCPS-24FS8C, FCPS-24FS8E*

Features

- UL-Listed Notification Appliance Circuit (NAC) synchronization using System Sensor, Wheelock, or Gentex "Commander^{2}" appliances.
- Operates as a "sync-follower" or as a "sync-generator" (default). *See note on page 2.*
- Contains two fully-isolated input/control circuits - triggered from FACP NAC (NAC expander mode) or jumped permanently "ON" (stand-alone mode).
- Two Class B (Style Y) or Class A (Style Z, with ZNAC-4 module) NACs (circuits 1 & 3)
- 8-amp full load output, with 3 amps maximum/circuit, in NAC expander mode (UL 864).
- 6-amp continuous output in stand-alone mode (UL 1481).
- Compatible with coded inputs; signals passed through.
- Optional power-supervision relay (EOLR-1)
- In stand-alone mode, output power circuits may be configured as: resettable, (reset line from FACP required), 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 NACs.
- Selectable earth fault detection.
- AC trouble report selectable for immediate 2-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 - 32 VDC.
- Self-contained in compact, locking cabinet - 15"H x 14.5"W x 2.75"D (cm: 38.1H x 36.83W x 6.985D).
- 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 (3.1mm^2) wire.

Specifications

Primary (AC) Power:

- FCPS-24FS8: 120 VAC, 60 Hz, 3.2A maximum.
- FCPS-24FS8/E: 240 VAC, 50 Hz, 1.6A maximum.
- Wire Size: minimum #14 AWG (2.0mm^2) with 600 V insulation.

Control Input Circuit:

- **Trigger Input Voltage:** 9 to 32 VDC.
- **Trigger Current:** 2.0 mA (16 - 32 V); Per Input: 1.0 mA (9 - 16 V).

Trouble Contact Rating: 5 A at 24 VDC.

Auxiliary Power Output: Specific application power 500 mA maximum.

Output Circuits:

- +24 VDC filtered, regulated
- 3.0 A maximum for any one circuit.
- Total continuous current for all outputs (stand-alone mode):
  – FCPS-24FS8: 6.0 A maximum.
- Total short-term current for all outputs (NAC expander mode):
  – FCPS-24FS8: 8.0 A maximum.

Secondary Power (Battery) Charging Circuit:

- Supports lead-acid batteries only.
- Float-charge voltage: 27.6 VDC
- Maximum current charge: 250 mA
- Maximum battery capacity: 7.0 AH

Applications

Example 1: Expand notification appliance power an additional 8.0 A. Use up to four Class B (Style Y) outputs or four Class A (Style Z) outputs (using ZNAC-4). For example, the FACP notification appliance circuits will activate the FCPS when reverse-polarity activation occurs. Trouble conditions on the FCPS are sensed by the FACP through the notification appliance circuit.

Example 2: Use the FCPS to expand auxiliary regulated 24-volt system power up to 6.0 A. Both resettable and non-resettable power options are available. Resettable outputs are created by connecting the resettable output from the FACP to one or both of the FCPS inputs.

Example 3: Use addressable control modules to activate the FCPS instead of activating it through the FACP notification appliance circuits. This typically allows for mounting the FCPS at greater distances* away from the FACP while expanding system architecture in various applications.

For example, an addressable control module is used to activate the FCPS, and an addressable monitor module is used to sense FCPS trouble conditions. Local auxiliary power output from the FCPS provides power to the addressable control module.

***NOTE:** Addressable FACPs are capable of locating control and monitor modules at distances of up to 10,000 feet (3,046 meters).*

Sync Follower/Generator Note

In some installations, it is necessary to synchronize the flash timing of all strobes in the system for ADA compliance. Strobes accomplish this by monitoring very short timing pulses on the NAC power which are created by the FACP. When installed at the end of a NAC wire run, the FCPS-24FS8 can track (i.e. "follow") the strobe synchronization timing pulses on the existing NAC wire run. This maintains the overall system flash timing of the additional strobes attaches to the FCPS.

When the FCPS-24FS8 is configured (via DIP switch settings) as a "sync follower," the FCPS's NAC outputs track the strobe synchronization pulses present at the FCPS's sync input terminal. The pulses originate from an upstream FACP or other power supply.

When the FCPS-24FS8 is configured (via DIP switch settings) as a "sync generator," the FCPS's sync input terminals are not used. Rather, the FCPS is the originator of the strobe synchronization pulses on the FCPS's NAC outputs. In "sync generator" mode, the sync type (System Sensor, Wheelock, or Gentex) is selectable via DIP switch settings.

Standards and Codes

The FCPS-24FS8 complies with the following standards:

- **NFPA 72** National Fire Alarm Code.
- **UL 864** Standard for Control Units for Fire Alarm Systems (NAC expander mode).
- **UL 1481** Power Supplies for Fire Alarm Systems.

Agency Listings and Approvals

These listings and approvals apply to the modules specified in this document. In some cases, certain modules or applications may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL Listed:** S2424
- **ULC Listed:** S2424
- **CSFM Approved: 7315-0075:206**
- **MEA:** 219-02E
- **FM Listed**

Ordering Information

FCPS-24FS8: 6.0 A, 120 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

FCPS-24FS8 is ULC-listed.

FCPS-24FS8E: 6.0 A, 240 VAC remote charger power supply. Includes main printed circuit board, transformers, enclosure (15"H x 14.5"W x 2.75"D [cm: 38.1H x 36.83W x 6.985D]), and installation instructions.

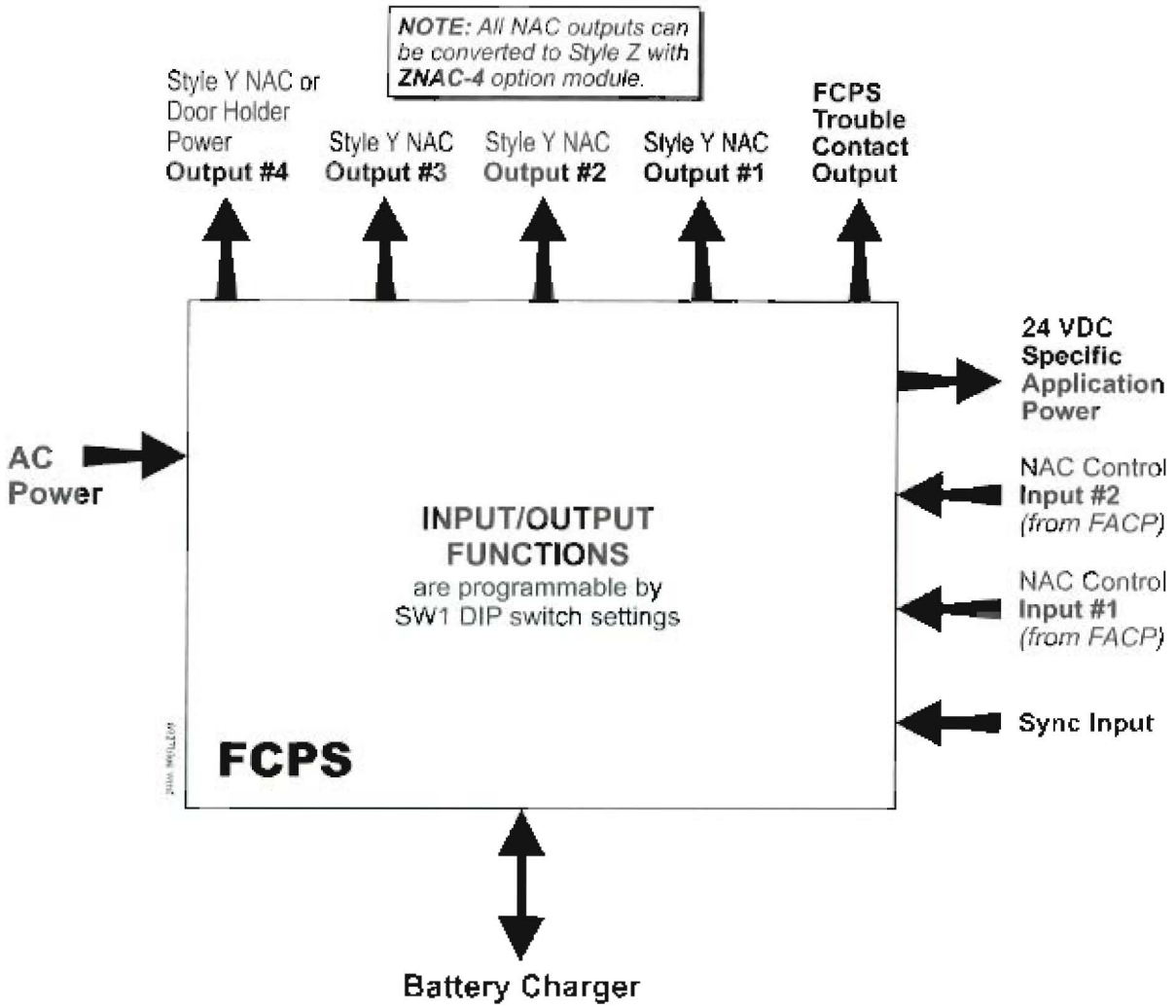
ZNAC-4: Class A (Style Y) NAC option module.

EOLR-1: 12/24 VDC end-of-line relay for monitoring four-wire smoke detector power.

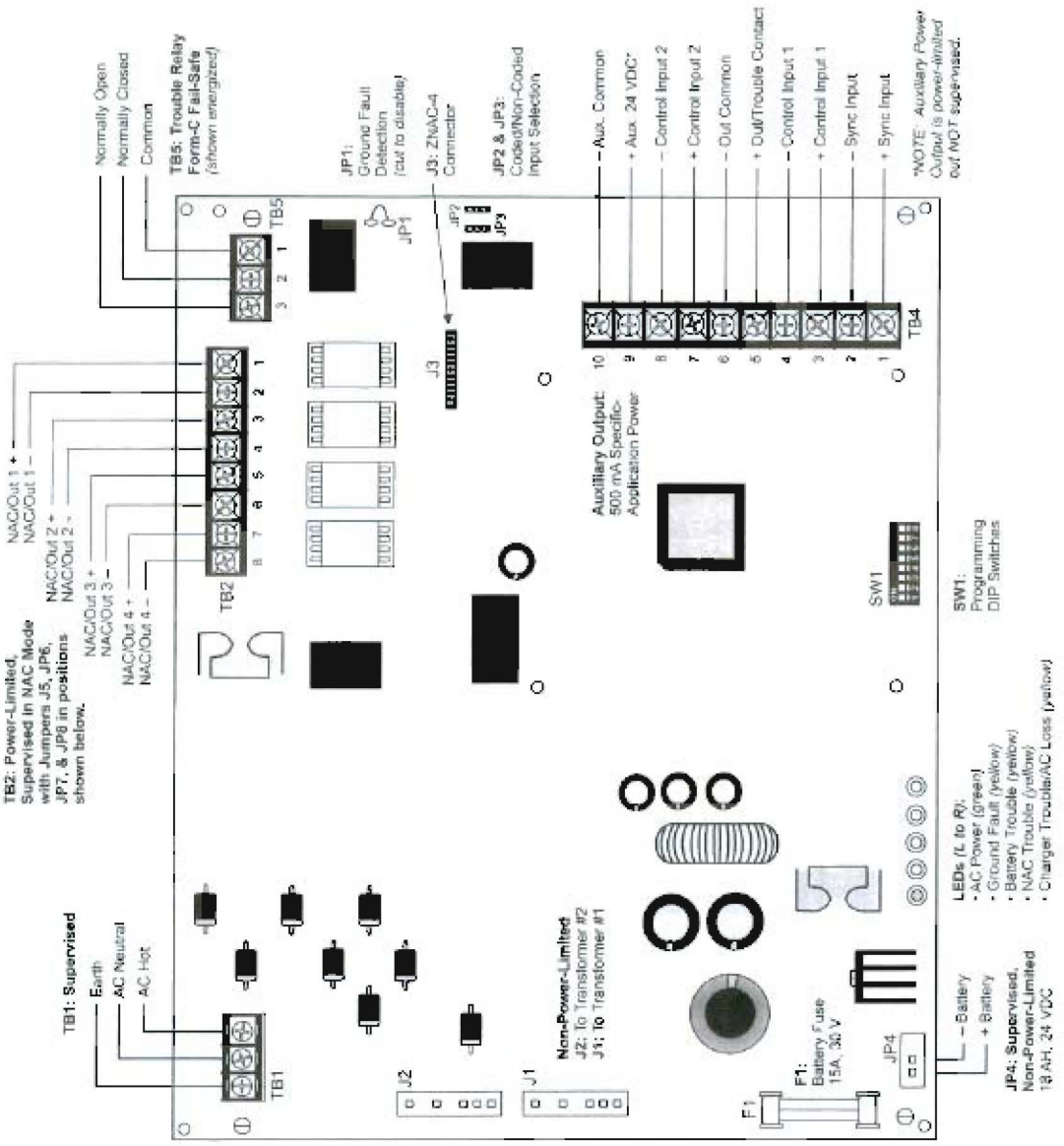
BAT-1270: Battery, 12-volt, 7.0 AH (two required).

PS-1270: Battery, 12-volt, 7.0 AH (two required)

90286: Optional module mounting kit, is required to install an addressable module on the power supply main circuit board.



Simplified Block Diagram



Board Layout

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ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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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.

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For more information, contact Fire•Lite Alarms. Phone (800) 627-3473, FAX. (877) 699-4105
www.firelite.com

FIRE-LITE® ALARMS
by Honeywell

PN 15384.AP ECN 09-002

Device Compatibility Document

Document 15384
12/3/08 Rev: AP

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Control Panel Circuit Specifications

MP-12
Initiating Device Circuit Voltage: 8.6 - 12.2VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MP-24 and **MP242FC**
Initiating Device Circuit Voltage: 18 - 26.2VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Waved Rectified

MS-124
Initiating Device Circuit Voltage: 18 - 26.4VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-2/MS-2E, MS-4/MS-4E
Initiating Device Circuit Voltage: 17.3 - 24.6
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified (Special Application)

MS-424A
Initiating Device Circuit Voltage: 18 - 25.2VDC
Max Detector Circuit Standby Current: 2.5mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-2410B
Initiating Device Circuit Voltage: 18.62 - 25.43 VDC
Max Detector Circuit Standby Current: 2.0 mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-4012
Initiating Device Circuit Voltage: 8.62 - 12.7VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-4024
Initiating Device Circuit Voltage: 18 - 26.3VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-4424, MRP-4424 and **MS-4424B**
Initiating Device Circuit Voltage: 17.5 - 26.5VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-4412B
Initiating Device Circuit voltage: 8.8V - 13.62VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-5012
Initiating Device Circuit Voltage: 8.6 - 13.5VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-5024 and **MS-5024UD**
Initiating Device Circuit Voltage: 17.1-25.0 VDC
Max Detector Circuit Standby Current: 2.0 mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-5210UD
Initiating Device Circuit Voltage: 17.9-26.4 VDC
Max Detector Circuit Standby Current: 2.0 mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-9200/AMS-9200 (M302, MMF-302)
Initiating loop voltage: 16-27.5 VDC
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

MS-9200UD/MS-9200UDE/MS-9200UDLS/ MS-9200UDLSE (M302, MMF-302)
Initiating loop voltage: 19.05-25.18 VDC
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified (Special Application)

MS-9600/MS-9600E (M302, MMF-302)
Initiating loop voltage: 16-27.5 VDC
Compatibility Identifier: "A"
NAC Power: Filtered

MS-9050UD, MS-9050UDE(M302, MMF-302)
Initiating loop voltage: 18.75-26.1 VDC
Compatibility Identifier: "A"
NAC Power: Filtered (Special Application)

S200 (IZ-4F / IZ-4AF / IZ-8F)
Canada Only
Initiating Device Circuit Voltage: 17 - 26.5VDC
Max Detector Circuit Standby Current: 2.5mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified

S1000
Initiating Device Circuit Voltage: 18 - 25.7VDC
Max Detector Circuit Standby Current: 2.5mA/circuit
NAC Power: Full Wave Rectified

S2000 (IZ-4F / IZ-4AF / IZ-8F)
Initiating Device Circuit Voltage: 17 - 26.5VDC
Max Detector Circuit Standby Current: 2.5mA/circuit
Compatibility Identifier: "A"
NAC Power: MPS-24A Filtered

MS-5UD-3(E), MS-10UD-3(E)
Initiating Device Circuit Voltage: 17.18 - 20.48
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified (Special Application)

MS-5UD-7(E), MS-10UD-7(E), MS-5UD-7C, MS-10UD-7C
Initiating Device Circuit Voltage: 17.18 - 20.48
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Filtered (Special Applicaion)

MRP-2001(E), MRP-2002(E)
Initiating Device Circuit Voltage: 17.18 - 20.48
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Filtered (Special Applicaion)

Accessories Circuit Specifications

411-UDAC
Universal Digital Alarm Communicator
Initiating Device Circuit Voltage: 8.6 - 13.5VDC
Max Detector Circuit Standby Current: 2.0mA/circuit
Compatibility Identifier: "A"
NAC Power: Full Wave Rectified (Special Application)

APS-6RF
Auxiliary Power Supply
Use with the S-2000 control panels
NAC Power: Filtered

AVPS-24F
Audio Visual Power Supply
Use with the S-2000 control panels
NAC Power: Full Wave Rectified

FCPS-24F
Field Charger Power Supply
Input voltage: 9 to 32VDC
Notification Circuit output: 19.1 to 26.4VDC
NAC Power: Filtered

FCPS-2404
Field Charger Power Supply
Input Voltage 9 to 32 VDC
NAC Power: Filtered

FCPS-24FS6(E)(C), FCPS-24FS8(E)(C)
Field Charger Power Supply
Input Voltage 9 to 32 VDC
NAC Power: Filtered (Special Application)

Fire Alarm Equipment – Controls & Systems Tested to ANSI Standards By Factory Mutual

MS-9050UD, MS-9050UDE(M302, MMF-302)
Initiating loop voltage: 18.75-26.1 VDC
Compatibility Identifier: "A"
NAC Power: Filtered (Special Application)

MS-9600LS(E), MS-9600UDLS(E) (M302, MMF-302)
Compatibility Identifier: "A"
NAC Power: Filtered (Special Application)

Compatible Two-Wire Smoke Detectors (UL Listed)

Various Manufacturers

Model	Detector ID	Detector Type	Base Model	Base ID	Standby Current (uA)
Detection Systems DS200	A	Photoelectric	MB200-2W	A	200
Detection Systems DS200HD	A	Photo / Thermal	MB200-2W	A	200
Edwards 6250B	001	Ionization	6251B-001	001	50
Edwards 6264B	001	Ionization	N/A	N/A	50
Edwards 6270B	001	Photoelectric	6251B-00	001	65
Fenwal CPD-7021	11FE1	Duct	70-211002-000	D22FE1	60
Fenwal CPD-7021	11FE1	Ionization	70-201000-001 70-201000-002 70-201000-003 70-201000-005	FEO1A FEO2A FEO3A FEO5A	60
Fenwal PSD-7125	P5FE1	Photoelectric	70-201000-001 70-201000-002 70-201000-003 70-201000-005	FEO1A FEO2A FEO3A FEO5A	100
Fenwal PSD-7126	P6FE1	Photo / Thermal	70-201000-001 70-201000-002 70-201000-003 70-201000-005	FEO1A FEO2A FEO3A FEO5A	100
Fenwal PSD-7129	P9FE1	Duct	70-211002-000	D22FE1	100
Fire-Lite LPSD-12	HD-4	Photo	BLP-12	HB-80	200
Fire-Lite LPSD-12	HD-4	Photo	BLP-12-R	HB-83	200
Simplex 2098-9201	HD-3	Photoelectric	2098-9211	HB-54	45
Simplex 2098-9202	HD-3	Photoelectric	2098-9211	HB-54	45
Simplex 2098-9576	HD-3	Ionization	2098-9211	HB-54	40
System Sensor 2W-B	A	Photoelectric 1[3]	N/A	N/A	120
System Sensor 2WT-B	A	Photoelectric 1[3]	N/A	N/A	120
System Sensor 1100/D	A	Ionization	N/A	N/A	100
System Sensor 1151	A	Ion	B401 / B110LP / B116LP	A	120
System Sensor 1400	A	Ion	N/A	N/A	100
System Sensor 1451	A	Ion	B401B / B406B	A	120
System Sensor 1451DH	A	Ion	DH-400	A	120
System Sensor 1800	A	Ion	N/A	N/A	120
System Sensor 1851B	A	Ion	B101B / B107B	A	120
System Sensor 1851DH	A	Ion	DH1851DC	A	120
System Sensor 2151	A	Photo	B401 / B110LP / B116LP	A	120

Compatible Two-Wire Smoke Detectors (UL Listed)

Model	Detector ID	Detector Type	Base Model	Base ID	Standby Current (uA)
System Sensor 2300T	A	Photo / Therm.	N/A	N/A	120
System Sensor 2400	A	Photo	N/A	N/A	120
System Sensor 2400ATT	A	Photo / Iso. Therm. / Horn	N/A	N/A	120
System Sensor 2400AT	A	Photo / Therm. / Horn	N/A	N/A	120
System Sensor 2400TH	A	Photo / Therm.	N/A	N/A	120
System Sensor 2451	A	Photo	B401B / B406B DH-400	A	120
System Sensor 2451TH	A	Photo / Therm.	B401B / B406B	A	120
System Sensor 2800	A	Photo	N/A	N/A	120
System Sensor 2800TH	A	Photo / Therm.	N/A	N/A	120
System Sensor 2851B	A	Photo	B101B / B107B	A	120
System Sensor 2851BTH	A	Photo / Therm.	B101B / B107B	A	120
System Sensor 2851DH	A	Photo	DH2851DC	A	120
System Sensor 2100/D/S	A	Photoelectric	N/A	N/A	120
System Sensor 2100T/D/S	A	Photoelectric	N/A	N/A	120
System Sensor DH100P	A	Photoelectric	N/A	N/A	100
System Sensor DH100LP	A	Photoelectric	N/A	N/A	120
System Sensor 2WTA-B	A	Photoelectric	N/A	N/A	100
System Sensor 2WTAR-B	A	Photoelectric	N/A	N/A	100

Maximum Number of Detectors per Zone

When using two-wire smoke detectors containing supplementary relays or indicators, the operation of more than one detector per zone cannot be ensured

System Sensor

System Sensor & Fenwal Detectors can be mixed or matched in any zone, provided maximum detector standby current per loop is not exceeded.

Detector Model Number	Base Model Number	MP-12	MP-24	MS-124	MS-424A	MS-2410B
1100/D	N/A	20	20	N/A	N/A	20
1151	B401/B110LP/ B116LP	16 / 16 / N/A	16 / 16 / 1	N/A	N/A	16 / 16 / 1
1400	N/A	16	16	16	20	20
1451	B401B / B406B	16 / N/A	16 / 1	16 / 1	20 / 1	16 / 1
1451DH	DH-400	16	16	16	20	16
1851DH	DH1851DC	16	16	16	20	16
2100/D/S	N/A	16	16	N/A	N/A	20
2100T/D/S	N/A	16	16	N/A	N/A	20
2151	B401/B110LP/ B116LP	16 / 16 / N/A	16 / 16 / 1	N/A	N/A	16 / 16 / 1
2300T	N/A	16	16	16	20	16
2400	N/A	16	16	16	20	16
2400ATT	N/A	N/A	1	1	1	1
2400AT	N/A	N/A	1	1	1	1
2400TH	N/A	16	16	16	20	16
2451	B401B / B406B	16 / N/A	16 / 1	16 / 1	20 / 1	16 / 1
2451	DH-400	16	16	16	20	16
2451TH	B401B / B406B	16 / N/A	16 / 1	16 / 1	20 / 1	16 / 1
2851DH	DH2851DC	16	16	16	20	16
1800	N/A	N/A				
1851B	B101B	N/A				
1851B	B107B	N/A				
2800	N/A	N/A				
2800TH	N/A	N/A				
2851B	B101B	N/A				
2851B	B107B	N/A				
2851BTH	B101B	N/A				
2851BTH	B107B	N/A				
DH100P	N/A	20	20	N/A	N/A	N/A
DH100LP	N/A	16	16	N/A	N/A	16

Maximum Number of Detectors per Zone

System Sensor Detectors - continued:

Model Number	Base Model	MS-4012	MS-4024	MS-4424 MS-4424B MRP-4424	MS-4412B	MS-5012 411-UDAC
1100/D	N/A	N/A	N/A	20	20	20
1151	B401/B110LP/ B116LP	16 / 16 / N/A	16 / 16 / 1	15 / 15 / 1	16 / 16 / N/A	16 / 16 / N/A
1400	N/A	16	16	20	20	16
1451	B401B / B406B	16 / N/A	16 / 1	15 / 1	16 / N/A	16 /N/A
1451DH	DH-400	16	16	15	16	16
1851DH	DH1851DC	16	16	15	16	16
2100/D/S	N/A	N/A	N/A	16	16	16
2100T/D/S	N/A	N/A	N/A	16	16	16
2151	B401/B110LP/ B116LP	16 / 16 / N/A	16 / 16 / 1	15 / 15 / 1	16 / 16 / N/A	16 / 16 / N/A
2300T	N/A	16	16	15	16	16
2400	N/A	16	16	15	16	16
2400AIT	N/A	N/A	1	1	N/A	N/A
2400AT	N/A	N/A	1	1	N/A	N/A
2400TH	N/A	N/A	16	15	16	16
2451	B401B / B406B	16 / N/A	16 / 1	15 / 1	16 / N/A	16 / N/A
2451	DH-400	16	16	15	16	16
2451TH	B401B / B406B	16 / N/A	16 / 1	15 / 1	16 / N/A	16 / N/A
2851DH	DH2851DC	16	16	15	16	16
1800	N/A	N/A				
1851B	B101B	N/A				
1851B	B107B	N/A				
2800	N/A	N/A				
2800TH	N/A	N/A				
2851B	B101B	N/A				
2851B	B107B	N/A				
2851BTH	B101B	N/A				
2851BTH	B107B	N/A				
DH100P	N/A	N/A	N/A	20	20	20
DH100LP	N/A	N/A	N/A	16	16	N/A

Maximum Number of Detectors per Zone

System Sensor Detectors - continued:

Model Number	Base Model	MS-5024 MS-5024UD MS-5210UD	MS-2 MS-4 MS-5UD MS-10UD MRP-2001 MRP-2002	M-302 MMF-302	S1000	S200 S2000
2W-B	N/A	N/A	16	N/A	N/A	N/A
2WT-B	N/A	N/A	16	N/A	N/A	N/A
1100/D	N/A	20	20	24	N/A	25
1151	B401/B110LP/ B116LP	16 / 16 / 1	16/16/1	20 / 20 / 1	N/A	20 / 20 / 1
1400	N/A	20	20	24	20	25
1451	B401B / B406B	16 / 1	16/ 1	20 / 1	20 / 1	20
1451DH	DH-400	16	16	20	20	20
1800	N/A	N/A	N/A	24	N/A	
1851B	B101B	N/A	N/A	20	N/A	
1851B	B107B	N/A	N/A	1	N/A	
1851DH	DH1851DC	16	16	20	20	20
2100/D/S	N/A	16	16	20	N/A	20
2100T/D/S	N/A	16	16	20	N/A	20
2151	B401/B110LP/ B116LP	16 / 16 / 1	16/16/1	20 / 20 / 1	N/A	20 / 20 / 1
2300T	N/A	16	16	20	20	20
2400	N/A	16	16	20	20	20
2400AIT	N/A	1	1	1	1	1
2400AT	N/A	1	1	1	1	1
2400TH	N/A	16	16	20	20	20
2451	B401B / B406B	16 / 1	16/1	20 / 1	20 / 1	20 / 1
2451	DH-400	16	16	20	20	20
2451TH	B401B / B406B	16 / 1	16/1	20 / 1	20 / 1	20 / 1
2800	N/A	N/A	N/A	20	N/A	
2800TH	N/A	N/A	N/A	20	N/A	
2851B	B101B	N/A	N/A	20	N/A	
2851B	B107B	N/A	N/A	1	N/A	
2851BTH	B101B	N/A	N/A	20	N/A	
2851BTH	B107B	N/A	N/A	1	N/A	
2851DH	DH2851DC	16	16	20	20	20
DH100P	N/A	20	16	24	N/A	25
DH100LP	N/A	16	16	20	N/A	20
2WTA-B	N/A	N/A	1	N/A	N/A	N/A
2WTA-RB	N/A	N/A	1	N/A	N/A	N/A

Fenwal

Fenwal & System Sensor Detectors can be mixed or matched in any zone, provided maximum detector standby current per loop is not exceeded.

Detector Model Number	Base Model Number	MP-24	MS-124	MS-424A	MS-4024	MS-4424 MS-4424B MRP-4424
CPD-7021	70-201000-001 70-201000-002 70-201000-003 70-201000-005	33	33	40	30	30
CPD-7021	70-211002-000	1	1	1	1	1
PSD-7125	70-201000-001 70-201000-002 70-201000-003 70-201000-005	20	20	25	20	20
PSD-7126	70-201000-001 70-201000-002 70-201000-003 70-201000-005	20	20	25	20	20
PSD-7129	70-211002-000	1	1	1	1	1

Detector Model Number	Base Model Number	MS-5024 MS-5024UD MS-5210UD	M-302 MMF-302	S1000	S200 S2000
CPD-7021	70-201000-001 70-201000-002 70-201000-003 70-201000-005	25	40	40	41
CPD-7021	70-211002-000	1	1	1	1
PSD-7125	70-201000-001 70-201000-002 70-201000-003 70-201000-005	20	24	25	25
PSD-7126	70-201000-001 70-201000-002 70-201000-003 70-201000-005	20	24	25	25
PSD-7129	70-211002-000	1	1	1	1

Maximum Number of Detectors per Zone

Fire•Lite Detectors

Only those control panels listed allow for the use of these detectors.

Detector Model Number	Base Model Number	MP-12	MS-4012	MS-5012 411-UDAC	MS-4412B
LPSD-12	BLP-12	N/A	N/A	11	11
LPSD-12	BLP-12-R	11	11	11	11

Edwards Detectors

Only those control panels using the monitor modules listed allow for the use of these detectors.

Detector Model Number	Base Model Number	M-302 MMF-302
6250B	6251B-001	20
6264B	N/A	1
6270B	6251B-001	20

Simplex Detectors

Only those control panels using the monitor modules listed allow for the use of these detectors.

Detector Model Number	Base Model Number	M-302 MMF-302
2098-9201	2098-9211	20
2098-9202	2098-9211	20
2098-9576	2098-9211	20

Detection Systems Detectors

Only those control panels listed allow for the use of these detectors.

Detector Model Number	Base Model Number	MP-24	MS-124	MS-424A	MS-4024	S1000
DS200	MB200-2W	10	10	15	10	15
DS200HD	MB200-2W	10	10	15	10	15

Four-Wire Smoke Detectors/Devices (UL Listed)

Smoke Detector/Base	Detector Type	Max Standby Current (mA)	Alarm Current (mA)
Fenwal CPD-7021 (w/70-201000-005 Base)	Ionization	0.10	*
Fenwal PSD-7125	Photoelectric	0.10	*
Fenwal PSD-7126 (w/70-201000-005 Base)	Photoelectric	0.10	*
Fire-Lite BLP-12-4W	Base	*	*
Gentex 824[1]	Photoelectric	0.50	*
Gentex 824T[1]	Photoelectric	0.50	*
Gentex 824CP[1]	Photoelectric	0 50	*
Gentex 824CPT[1]	Photoelectric	0.50	*
Hochiki HSC-4R[1]	Base	*	*
Hochiki SPB-24[1]	Projected Beam	0.25	*
System Sensor B112LP	Base	0.12	36
System Sensor B114LP	Base	*	*
System Sensor B404B	Base	*	*
System Sensor DH100ACDC	Photoelectric	0.15	0.70
System Sensor DH100ACDCLP	Photoelectric	0.15	0.70
System Sensor DH100ACDCLWP	Photoelectric	0.15	0.70
System Sensor DH400ACDCI[1]	Ionization Duct	25	95
System Sensor DH400ACDCP[1]	Photoelectric Duct	25	95
System Sensor 1112/24/D	Ionization	0.05	50
System Sensor 1424	Ionization	0.10	41
System Sensor 1451 (w/B402B Base)	Ionization	0.10	39
System Sensor 2112/24ATR	Photoelectric	0.50	60/70
System Sensor 2112/24ATTR	Photoelectric	0.50	60/70
System Sensor 2112/24/D	Photoelectric	0.05	50
System Sensor 2112/24R	Photoelectric	0.50	60/70
System Sensor 2112/24TR	Photoelectric	0.50	60/70
System Sensor 2112/24T/D	Photoelectric w/135° Thermal	0.05	50
System Sensor 2112/24TSRB	Photoelectric w/135° Thermal Supervisory Relay	15	45
System Sensor 2312/24TB	Photoelectric	0.12	50
System Sensor 2412 (12 volt)	Photoelectric	0.12	77
System Sensor 2412AT (12 volt)	Photoelectric	0.12	58
System Sensor 2412TH (12 volt)	Photoelectric	0.12	77
System Sensor 2424[1]	Photoelectric	0.10	41
System Sensor 2424TH[1]	Photoelectric	0.10	41
System Sensor 2451	Photoelectric	0.10	39
System Sensor 245ITH (with/B402B Base)	Photoelectric	0.10	39
System Sensor 2W-MOD	Loop Test/Maintence Mod.	30	50
System Sensor 4W-B (12/24 Volt)	Photoelectric I[3]	.05	23
System Sensor4WT-B (12/24 Volt)	Photoelectric I[3] w/Therm	.05	23
System Sensor 4WTA-B (12/24 Volt)	I[3] Photo w/ Therm/Sounder	.05	35
System Sensor 4WTR-B (12/24 Volt)	I[3] Photo w/ Therm/Relay	.05	35
System Sensor 4WTAR-B (12/24 Volt)	I[3] Photo w/ Therm/ Sounder/Relay	.05	50

Four-Wire Smoke Detectors/Devices (UL Listed)

Smoke Detector/Base	Detector Type	Max Standby Current (mA)	Alarm Current (mA)
System Sensor 4WTTAR-B (12/24 Volt)	I^3 Photo w/ IsolatedTherm/ Sounder/Relay	.05	50
System Sensor 2W-MOD2	I^3 Loop Test/Maintence Mod.	.05	*
System Sensor RRS-MOD	I^3 Reversing Relay/Sync Module	.05	*
System Sensor 6424[1]	Projected Beam	10	28.4
System Sensor Beam 1224(S)	Projected Beam	17	38.5

Notes: 1. Not Compatible with the MS-2410B
* Contact manufacturer for current draws

Notification Appliances (UL Listed)

Control panels with Notification circuits supplied by Special Application power must use appliances listed in this table.

- Refer to manufacturer's installation instructions for more information.
- Contact manufacturer for current draws or additional options

System Sensor - 12VDC

Use only 12VDC devices with 12 volt control panels.

MODEL NUMBER & NOMENCLATURE (System Sensor)
CH12/24 Electronic Chime/Sounder
H12 SpectrAlert Horn
MA-12/24D Electronic Sounder
MA12/24EH Multi Alert Horn with Mechanical Tone
MAEH1215ADA, MAEH121575ADA Multi Alert Horn with Mechanical Tone/Strobe
MASS12D, MASS12LO Electronic Sounder/Strobe
MASS1215ADA, MASS121575ADA Sounder/Signaling Strobe
MDL / MDLW Sync Modules for use with SpectraAlert series
PA400R, **PA400W, PA400B, H12/24**
PS12LO Add-on Strobe
P1215, P121575 SpectrAlert Horn/Strobe
RP1215ADA, RP121575ADA Retrofit Strobe Plate
SS12, SS12LO Strobe
S1215, S121575 SpectrAlert Strobe
SS1215ADA, SS121575ADA Signaling Strobe

System Sensor - 24VDC

Use only 24VDC devices with 24 volt control panels.

MODEL NUMBER & NOMENCLATURE (System Sensor)
CH12/24 Electronic Chime/Sounder
CH2415, CH241575, CH2475, CH24110 SpectrAlert Chime with Strobe
MA-12/24D Electronic Sounder
MA12/24EH Multi Alert Horn with Mechanical Tone
MAEH24LO, MAEH24LOC, MAEH24LOLA, MAEH24M, MAEH24MC, MAEH2415ADA, MAEH2475ADA, MAEH241575ADA, MAEH24110ADA, MAEH2415ADAS, MAEH241575ADAS Multi Alert Horn with Mechanical Tone/Strobe
MASS24D, MASS24LO, MASS24M Electronic Sounder/Strobe
MASS24LOC, MASS24MC Electronic Ceiling Sounder/Strobe
MASS24LOLA Electronic Sounder/Strobe with Fuego lens
MASS2415ADA, MASS2475ADA, MASS24110ADA, MASS241575ADA Sounder/Signaling Strobe
MASS2415ADAS, MASS241575ADAS Sounder/Signaling Strobe w/ Synch. Ckt.
MDL / MDLW Sync Modules for use with SpectraAlert series
P2415, P241575, P2430, P2475, P24110 SpectrAlert Horn/Strobe
PA400R, PA400W, PA400B Sounder
PC24115, PC24177 SpectrAlert Ceiling Mount Horn/Strobe
PS24LO Add-on Strobe

Notification Appliances (UL Listed)

MODEL NUMBER & NOMENCLATURE (System Sensor)
RP2415ADA, RP241575ADA, RP2475ADA, RP24110ADA Retrofit Strobe Plate
S2415, S241575, S2430, S2475, S24110 SpectrAlert Strobe
SC24115, SC24177 SpectrAlert Ceiling Mount Strobe
SP100W24LOC, SP100W24MC Ceiling Speaker/Strobe, 8"" round grille
SP101R24LO, SP101R24M Speaker/Strobe, 5"" square grille
SP2C24115, SP2C24177 SpectrAlert Ceiling Mount Speaker Strobe
SP2C2415, SP2C2430, SP2C2415/75, SP2C2475, SP2C24110 SpectrAlert Speaker Strobe
S1224MC, P1224MC, SP1224MC SpectrAlert Strobe
SS24, SS24LO, SS24M, Strobe
SSM24-6, SSM24-8, SSM24-10 Alarm Bell
SS24LOC, SS24LOBC(beige), SS24MC Ceiling Strobe
SS2415ADA, SS2475ADA, SS24110ADA, SS241575ADA Signaling Strobe
SS2415ADAS, SS241575ADAS Signaling Strobe with Synch. Circuit
V4R2415ADA, V4R2475ADA, V4R24110ADA, V4R241575ADA Speaker/Signaling Strobe
SPH-15R, SC2415, SC241575, SC2430, SC2475, SC2495, PC2415, PC242575, PC2430, PC2475,
PC2495, SP2C2415, SP2C242575, SP2C495

System Sensor SpectrAlert Advance

System Sensor Spectralert Advance chimes, chime strobes, horns, horn strobes and strobes base models: CHR, CHW, CHSR, CHSW, HR, HW, P2R, P2W, P2RH, P2WH, P4R, P4W, P4RH, P4WH, PC2R, PC2W, PC2RH, PC2WH, PC4R, PC4W, PC4RH, PC4WH, SCR, SCW, SCRH, SCWH, SR, SW, SRH, SWH, SW-ALERT, SWH-ALERT, MHR,MHW followed by suffixes denoting application (K=outdoor), market (A=Canada) and / or markings (P=Plain, SP=Spanish, FR=French, B=Bi-lingual and PG=Portugese):
(UL 864 8th Edition)

MS-9200	MS-5210UD - 2 amps per NAC Maximum
MS-5024UD	MS-4424
MS-24103	S-2000 (MPS-24AF) 2 amps max
MS-5012	

System Sensor Spectralert Advance chimes, chime strobes, horns, horn strobes and strobes base models: CHR, CHW, CHSR, CHSW, HR, HW, P2R, P2W, P2RH, P2WH, P4R, P4W, P4RH, P4WH, PC2R, PC2W, PC2RH, PC2WH, PC4R, PC4W, PC4RH, PC4WH, SCR, SCW, SCRH, SCWH, SR, SW, SRH, SWH, SW-ALERT, SWH-ALERT, MHR,MHW followed by suffixes denoting application (K=outdoor), market (A=Canada) and / or markings (P=Plain, SP=Spanish, FR=French, B=Bi-lingual and PG=Portugese).
(UL 864 9th Edition)

MS-9200UD/MS-9200UDE/MS-9200UDLS/ MS-9200UDLSE	MS-2/MS-2E, MS-4/MS-4E
FCPS-24FS6(E), FCPS-24FS8(E)	MS-9050UD
MS-5UD-3(E), MS-10UD-3(E), MS-5UD-7(E), MS-10UD-7(E), MS-5UD-7C, MS-10UD-7C	MRP-2001(E), MRP-2002(E)

System Sensor SpectrAlert Advance Speakers

System Sensor Spectralert Advance speakers and speaker strobes base models: SPR, SPW, SPRV, SPWV, SPSR, SPSW, SPSRH, SPSWH, SPSRV, SPSWV, SPCR, SPCW, SPCRV, SPCWV, SPSCR, SPSCW, SPSCRH, SPSCWH, SPSCRV, SPSCWV, SPSCRVH and SPSCWVH followed by suffixes denoting application (K=outdoor), market (A=Canada) and / or markings (P=Plain, SP=Spanish, FR=French, B=Bi-lingual and PG=Portugese).

Gentex - 12VDC

Use only 12VDC devices with 12 volt control panels.

MODEL NUMBER & NOMENCLATURE (Gentex)
GX-90-2 Horn
GXS-2-15, GXS-2-1575 Strobe
GX90S-2-15 Horn with Strobe
GX90S-2-1575 Horn with Strobe
HG124 Electronic Horn
SHG12-15, SHG12-1575 Electronic Horn with Strobe

Gentex - 24VDC

Use only 24VDC devices with 24 volt control panels.

MODEL NUMBER & NOMENCLATURE (Gentex)
GEC-24-15,GEC-24-30,GEC-24-60,GEC-24-75,GEC-24-110,GEC-24-15/75W Horn/Strobe
GES-24-15, GES-24-30, GES-24-60,GES-24-75,GES-24-110,GES-24-15/75W Strobe
GMH-24 Electro-Mechanical Horn
GMS-24-15, GMS-24-15-1, GMS-24-110, GMS-24-110-1, GMS-24-1575-1, GMS-24-3075, GMS24-30W, GMS24-60W Electro-Mechanical Horn with Strobe
GOT-24 Multi-Tone Horn
GOS-24-15-1, GOS-24-110-1, GOS-24-1575-1, GOS-24-3075-1 Multi-Tone Horn/Strobe
GXS-4RH, GXS-4BH, GXS-4RL, GXS-4BL Strobes
GXS-4-15, GXS-4-15-1, GXS-4-1575, GXS-4-30, GXS-4-60, GXS-4-110, GXS-4-110-1, GXS-4-3075 Strobe
GX-90-4 Horn
GX-90S-4BH, GX-90S-4BL, GX-90S-4RL, GX-90S-4RH, GX-90S-4-15, GX-90S-4-15-1, GX-90S-4-110, GX-90S-4-110-1, GX-90S-4-1575 Horn with Strobe
HG124 Electronic Horn
HS24-15, HS24-15/75, HS24-30, HS24-60, HS24-110, HS24-110W, HS24-75W, HS24-60W, HS24-30W, Multi-Tone Horn/Strobe
SHG-24L, SHG-24H, SHG24-15, SHG24-15-1, SHG 24-60, SHG24-110, SHG24-110-1, SHG24-1575, SHG24-30, SHG24-60, SHG24-3075 Electronic Horn with Strobe
SPK4-15, SPK4-15-1, SPK4-1575, SPK4-110, SPK4-110-1, SPK4-24-3075 Speaker with Strobe
SPK8-15, SPK8-15-1, SPK8-1575, SPK8-110, SPK8-110-1B, SPK8-24-3075 Speaker with Strobe
SPKE4, SPKE4-15-1, SPKE4-15/75, SPKE4-15/75-C SPKE4-30/75, SPKE4-60, SPKE4-110-1, SPKE4-60W, SPKE4-30W Speaker with Strobe
SPKE8, SPKE8-15-1, SPKE8-15/75, SPKE8-15/75-C, SPKE8-30/75, SPKE8-60, SPKE8-110-1, SPKE8-1575W, SPKE8-30W Speaker with Strobe

Notification Appliances (UL Listed)

MODEL NUMBER & NOMENCLATURE (Gentex)
ST24-15, ST24-15/75, ST24-30, ST24-60, ST24-110, ST24-75W,ST24-110W, ST24-30W Strobe
WGMS-24-75 Weatherproof Electro-Mechanical Horn with Strobe

Cooper-Wheelock - 12VDC

Use only 12VDC devices with 12 volt control panels.

MODEL NUMBER & NOMENCLATURE (Cooper-Wheelock)
AMT-12/24 Multi-Tone Horn
AMT-12-LS-VFR, AMT-12-LSM-VFR Multi-Tone Horn Strobe
AS-1215, AS-1230, AS-121575 Audible Strobe
DSM-12/24 Dual Synchronization Module
LS1-12-VFR, LS1M-12-VFR Strobe
LSP-12-VFR, LSPM-12-VFR Strobe
MS1-12-VFR Strobe
MSP-12-VFR Strobe
MT-12/24-R MultiTone
NS-121575W-FR, NS4-121575W-FR Horn Strobe
RS-1215, RS-121575 Strobe
SM-12/24 Synchronization Module
AH-12-R,AH-12-W, AH-12WP-R, AS-12157SW-FR/FW, NH-12/24R/W

Cooper-Wheelock - 24VDC

Use only 24VDC devices with 24 volt control panels.

MODEL NUMBER & NOMENCLATURE (Cooper-Wheelock)
7002T-24 Horn with Strobe
AES-DL1-WM-24-VF-R, AES-EL1-WM-24-VF-R Multi-Tone Signals
AES-DL1-LSM-24, AES-EL1-LSM-24 Horn Strobe
AH-24, AH-24WP Horn
AMT-12/24 Multi-Tone Horn
AMT-24-IS-VFR, AMT-24-LS-VFR, AMT-24-LSM-VFR,AMT-241575-FR Multi-Tone Horn Strobe
AS-2415, AS-2430, ***AS-2430C***, AS-2475, AS-24110, AS-241575 Audible Strobe
AS-2415W, AS-2430W, AS-2475W, AS-24110W, AS-241575W Horn/Strobe
AS-24MCW-FR/FW, AS-24MCC-FR/FW Multi-Candela Appliance
ASWP-2475W-FR/FW Weatherproof Audible Strobe
CH-CF1-IS-24-CFW, CH-CF1-LS-24-CFW, CH-CF1-MS-24-CFW Chime
CH-DF1-IS-24-VFR, CH-DF1-LS-24-VFR, CH-DF1-LSM-24-VFR, CH-DF1-MS-24-VFR Chime
CH70-24-R/W, CH90-24-R/W Chime
CH70-2415W, CH70-2430, CH70-2475, CH70-241575 Chime with Strobe
CH70-24MCW-FR/FW Multi-Candela Appliance
CH90-2475C, CH90-24100C Chime with Strobe
DSM-12/24 Dual Synchronization Module
EH-DL1-WM-24-VF-R, EH-EL1-WM-24-VF-R Electronic Horn Strobes
HSW-24-HFR, HSPW-24-HFR, HS2W-HFR Strobe
IS-24-VFR, IS1-24-VFR, IS3-24-VFR Strobe

MODEL NUMBER & NOMENCLATURE (Cooper-Wheelock)
ISP-24-VFR Strobe
LS-24-VFR, LS1-24-VFR, LS1M-24-VFR LS3-24-VFR, LS3M-24-VFR Strobe
LSM-24-VFR Strobe
LSP-24-HFR, LSPM-24-VFR Strobe
MB-G6-24-R Motor Bell, 6" gong
MB-G10-24-R Motor Bell, 10" gong
MBS-G6-24-R Motor Bell/Strobe, 6" gong
MBS-G10-24-R Motor Bell/Strobe, 10" gong
MIZ-24 Mini Piezo Horn
MIZ-24-HSW-HFR, MIZ-24-IS-VFR, MIZ-24-LS-VFR, MIZ-24-LSM-VFR, MIZ-24-MS-VFR, MIZ-24-WM-VFR, MIZ-TC24-R, MIZ-TC24-W Mini-Horns Strobe
MS-24-VFR, MS1-24-VFR, MS3-24-VFR Strobe
MSP-24-HFR Strobe
MT-12/24-R MultiTone
MT-24-WM, MT-24-WM-VFR MultiTone Strobe117cd
MT-24-IS-VFR, MT-24-LS-VFR, MT-24-LSM-VFR, MT-24-MS-VFR MultiTone Strobe
MT-24-SL-VFR, MT-24-SLM-VFR Multi-tone/Strobe
MT4-24-IS-VFR, MT4-24-LS-VFR, MT4-24-LSM-VFR, MT4-24-MS-VFR MultiTone Strobe
NS-2415W-FR, NS-2430W-FR, NS-2475W-FR, NS-24110W-FR NS-241575W-FR Horn Strobe
NS4-2415W-FR, NS4-2430W-FR, NS4-2475W-FR, NS4-24110W-FR, NS4-241575W-FR, NS4-24MCW-FR, NS-24MCW-FW, NS-24MCW-FR Horn Strobe
RS-1230, RS-2415, RS-2430, RS-2475, RS-24110, RS-241575 Strobe
RS-2415W, RS-241575W Strobe
RSS-2415W, RSS-2415/75W, RSS-2430W, RSS-2475W, RSS-24110W Strobe
RSS-24MCW-FR/FW Strobe
RSS-2415-CR-FW, RSS-2430-CR-FW, RSS-2475-CR-FW, RSS-24100-CR-FW Strobe
RSS-24150-CR-FW, RSS-24177-CR-FW Strobe
RSSP-24MCW-FR/FW strobe
RSSP-2415W, RSSP-2415/75W, RSSP-2430W, RSSP-24185W Strobe
SCM-24-R Synchronized Controller Module
SHW-24-HFR, SH2W-24-HFR, SHPW-24-HFR Strobe
SL-24-VFR, SL1-24-VFR, SL3-24-VFR, SLP-24-VFR Strobe
SLM-24-VFR, SL1M-24-VFR, SL3M-24-VFR, SLPM-24-VFR Strobe
SM-12/24 Synchronization Module
SR-2415, SR-241575 Synchronized Strobe
WMT-24-FR, WMIT-24-FR, WM3T-24-FR Strobes
AS-24MCC-FW, CH90-24-MCC-FW, E90-24MCC-FW, ET90-24MCC-FW, HS-24-R/W,
MIZ-24S-R/W, RSS-24MCC-FW, NH-12/24R/W
ZNH-R, ZNH-W, ZNS-MCC-FR, ZNS-MCC-FW, ZNS-MCCH-FR, ZNS-MCCH-FW, ZNS-MCW-FR
ZNS-MCW-FW, ZNS-MCWH-FR, ZNS-MCWH-FW, ZRS-MCC-FR, ZRS-MCC-FW, ZRS-MCCH-FR
ZRS-MCCH-FW, ZRS-MCW-FR, ZRS-MCW-FW, ZRS-MCWH-FR, ZRS-MCWH-FW
AMT-241575W-FR , AMT-241575W-FW, AS-241575W-FR , AS-241575W-FW, CH90-24MCC-FR
CH90-24MCC-FW, CSX10-24-R, CSXG10-24-R , DSM-12/24-R, HS-24-R , HS-24-W,
HS4-241575W-FR, HS4-241575W-FW, HS4-24MCW-FR, HS4-24MCW-FW, HS4-24MCWH-FR

Notification Appliances (UL Listed)

MODEL NUMBER & NOMENCLATURE (Cooper-Wheelock)
HS4-24MCWH-FW, MT-24MCW-FR, MT-24MCW-FW, MT4-115-R, MT4-115-W,
MT4-115-WH-VFR, MTWP-2475W-FR, MTWP-2475W-FW, NS-24MCW-FR, NS-24MCW-FW
RSS-121575W-FR, RSS-121575W-FW, RSS-241575W-FR, RSS-241575W-FW, RSS-2415C-FR
RSS-2415C-FW, RSS-2475W-FR, RSS-2475W-FW , RSS-24MCC-FR, RSS-24MCC-FW,
RSS-24MCCH-FR , RSS-24MCCH-FW, RSS-24MCCHR-FR, RSS-24MCCHR-FW, RSS-24MCCR-FR
RSS-24MCCR-FW, RSSP-241575W-FR, RSSP-241575W-FW, RSSWP-2475W-FR, RSSWP-2475W-FW

Cooper-Wheelock Speakers

MODEL NUMBER & NOMENCLATURE (Cooper-Wheelock)
E70, E70-R, E90, E90-W Speaker
ET70, ET90 Speaker with Strobe
E70-24MCW Speaker Strobe
S25W, S70W Speaker
STH-15S Loud Speaker
ET70-2415W, ET70-2430W, ET70-2475W, ET70-24110W, ET70-241575W, ET70-24MCW-FR Speaker with Strobe
E-70-IS-24, E-70-LS-24, E-70-LSM-24, E-70-MS-24 Low Profile Speaker/Strobe
E70-2415W, E70-2430W, E70-2475W, E70-24110W, E70-241575W, E70-24185W-FR Speaker with Strobe
ET90-2415C, ET90-2430C, ET90-2475C, ET90-24100C, ET70-24185W-FR Speaker with Strobe
E-90-IS-24, E-90-LS-24, E-90-MS-24 Low Profile Speaker/Strobe
E90-2415C, E90-2430C, E90-2475C, E90-24100C Speaker with Strobe
E-7025-SL-VFR, E-7025-SLM-VFR, E-7070-SL-VFR,E-7070-SLM-VFR Speaker with Strobe
E-9025-SL-CFW, E-9070-SL-CFW Speaker with Strobe
ET-1070-IS-24-VFR, ET-1070-LS-24-VFR, ET-1070-LSM-24-VFR, ET-1070-MS-24-VFR Speaker with Strobe
ET-1070-SL-VFR, ET-1070-SLM-VFR Speaker with Strobe
ET-1080-IS-24-VFR, ET-1080-LS-24-VFR, ET-1080-LSM-24-VFR, ET-1080-MS-24-VFR Speaker with Strobe
ET-1080-SL-VFR, ET-1080-SLM-VFR Speaker with Strobe
ET-1090-IS-24-CFW, ET-1090-LS-24-CFW, ET-1090-MS-24-CFW Speaker with Strobe
ET-1090-SL-CFW Speaker with Strobe
E50-241575W-FR, E50-241575W-FW, E50-24MCW-FR, E50-24MCW-FW, E50-24MCWH-FR
E50-24MCWH-FR , E50-24MCWH-FW, E50-R, E50-W , E60-24MCC-FR, E60-24MCC-FW
E60-24MCCH-FR, E60-24MCCH-FW, E60-R, E60-W, E70-241575W-FR , E70-241575W-FW
E70-24MCC-FR, E70-24MCC-FW, E70-24MCW-FR, E70-24MCW-FW, E70-24MCW-FW
E70-24MCWH-FR, E70-24MCWH-FW, E-7070-R-ULC, E70-R, E70-W, E90-24MCC-FR
E90-24MCC-FW, E90-24MCCH-FR, E90-24MCCH-FW, E90-R, E90-W, ET-1010-R, ET-1010-W
ET-1080IS24VFR, ET-1080IS24VFW, ET-1080LS24VFR, ET-1080LS24VFW, ET-1080-R, ET-1080-W
ET70-241575W-FR, ET70-241575W-FW, ET70-24MCW-FR, ET70-24MCW-FR, ET70-24MCW-FW
ET70-24MCW-FW, ET70-24MCWH-FR, ET70-24MCWH-FW, ET70-R , ET70-W, ET70WP-2475W-FR
ET70WP-2475W-FW, ET90-24MCC-FR, ET90-24MCC-FW, ET90-24MCCH-FR, ET90-24MCCH-FW
ET90-R, ET90-W

Amseco

Compatible with the following:

MS-5UD-3(E), MS-10UD-3(E), MS-5UD-7(E), MS-10UD-7(E), MS-5UD-7C, MS-10UD-7C, MRP-2001(E), MRP-2002(E)

SH24W-153075, SAD24-153075, SAD24-75110, SL24W-75110, SL24C-3075110, SLB24-75
RSD24-153075, RSD24-75110, SH24W-75110, SH24W-3075110, SHB24-75,
SCM24W-153075, SCM24W-75110, SCM24C-3075110, SCM24C-177, H24W, H24R

Faraday

Compatible with the following:

MS-5UD-3(E), MS-10UD-3(E), MS-5UD-7(E), MS-10UD-7(E), MS-5UD-7C, MS-10UD-7C, MRP-2001(E), MRP-2002(E)

2830, 2831, 2836, 2834, 2837

Notification Appliances For Canadian Applications

- Refer to manufacturer's installation instructions for more information.
- Contact manufacturer for current draws or additional options

System Sensor

MDLA / MDLWA Sync Modules, H24A, P1224MCA, P2415A, P241575A, P2475A, P24110A, PC2415A, PC241575A, PC2430A, PC2475A, PC24115A, PC24177AS1224MCA, S2415A, S241575A, S2475A, SC24110A, SC2415A, SC241575A, SC2430A, SC2475A, SC2495A, SC24115A, SC24177A,
SSM24-6A, SSM24-8A, SSM24-10A - Alarm Bells
CHWA, CHRA, HRA, HWA, SRA, SWA, SCRA, SCWA, SRHA, SWHA, SCRHA, SCWHA, P2RA, P2WA, PC2RA, PC2WA, P4RA, P4WA, PC4RA, PC4WA, CHSRA, CHSWA

Gentex

Strobe lights, synchronizable type, Models ST24-15, -15/75, -30, -60, -75, -110; Models GES24-15, -15/75, -30, -60, -75, -110, -177. Models may be followed by suffix -P (plain), followed by W (wall), followed by W or R (white or red color). Intended for indoor use on a wall.

Strobe light, synchronizable type, Model GES3-24, may be followed by suffix -P (plain), followed by W (wall), followed by W or R (white or red color). Selectable candela (15cd, 30cd, 60cd, 75cd and 110cd). Intended for indoor use on a wall only.

Strobe light, synchronizable type, Model GES3-12, may be followed by suffix -P (plain), followed by W (wall), followed by W or R (white or red color). Selectable candela (15cd, 30cd, 60cd, 75cd). Intended for indoor use on a wall only.

Strobe light, synchronizable type, Model GCS24, may be followed by suffix -P (plain), followed by C, followed by W or R (white or red color). Selectable candela (15cd, 30cd, 75cd, 95cd, 115cd and 150cd). Intended for indoor use on a wall or a ceiling.

Sync modules, Models AVS44 and AVSM, may be followed by Suffix W or R (white or red color). Intended for indoor use with Gentex synchronizable strobe lights.

Horns, Models GEH24, GEH12 followed by P , R or W, indoor use only; Models GX91 and GX93 for indoor use.

Horn/strobes*, Models GEC24-15, -15/75, -30, -60, -75, -110, -177 may be followed by P, R or W; HS24-15, -15/75, -30, -60, -75, -110, may be followed by -C or -W (ceiling or wall), -R or -W (red or white), -P (plain) and -Z (synchronized); Model GCC24-C ceiling horn/strobe followed by -R, -W or -P; Model GEC3-24 multi-candella horn strobe, may be followed by -R, -W or -P, intended for indoor use, wall mount

Cooper-Wheelock

AH-24, AH-24WP, AMT-24AMT-2475-FR, AMT-24-LS-VFR, AS-2415C, AS-2415W, AS-2475C, AS-2475W, AS-24100C, AS-24110W, AS-24MCW, HS-24-MCW, HS4-241575W, HS4-24MCW, HS4-24MCWH, MIZ-24, MIZ-24S-R/W, MIZ-TC24, MT-24-R, NS-24MCW-FR, NS4-24MCW-FR, RSS-241575W, RSS-24-2415-CR-FW, RSS-2430-CR-FW, RSS-2475-CR-FW, RSS-24100-CR-FW, RSS-24150-CR-FW, RSS-24177-CR-FW, RSS-24MCC-FR/W, RSS-24MCW-FR/W, RSSP-24MCW-FR/W, RSSP-241575W

Automatic Water Control Valves (FM-Approved)
For Preaction and Deluge Sprinkler Releasing Applications

(Section not recognized by UL)

S2000 (TC-2F/TC-4F)
S200 (TC-2F/TC-4F) Canada Only
MRP-2001(E)

Note: Refer to the FM approval guide for automatic water control valves which are compatible with solenoids listed.

Manufacturer	Model	Voltage	Watts	Amps	NPS	Orfice	PSI
Solenoid Group A							
Skinner	LV2LBX25	24 VDC	11	458 mA	1/2"	5/8"	
Solenoid Group B	These valves are interchangeable						
ASCO	18210A107	24 VDC	16.8	700 mA	1/2"	5/8"	
ASCO	R8210A107	24 VDC	16.8	700 mA	1/2"	5/8"	
ASCO	8210A107	24 VDC	16.8	700 mA	1/2"	5/8"	
Solenoid Group C							
Star Sprinkler Corp.	p/n 5550	24 VDC	part of Model D Deluge Valve				
Solenoid Group D							
ASCO	8210G207	24 VDC	10.6	440 mA	1/2"	1/2"	
Solenoid Group E							
Skinner	73218BN4UNLVNOC111C2	24 VDC	10.0	420 mA	1/2"	5/8"	
Solenoid Group F							
Skinner	73212BN4TNLVNOC322C2	24 VDC	22.0	0.92	1/2"	1/2"	250
Solenoid Group G							
Skinner	71395SN2ENJ1NOH111C2	24 VDC	10.0	420 mA	1/4"	1/16"	250

Releasing Applications

MRP-2001(E), MRP-2002(E)

Compatible Solenoids

Manufacturer	Model	Rated Current DC Milliamps	Rated Voltage DC Volts
Asco	HV2740607	375	24
Asco	HV2838521	375	24
Versa	CGS-4232-NB3-S2	438	24
Snap-Tite	2823A-2NB-A4F6	458	24
Snap-Tite	2823A-2NB-A4F5	917	12
Kidde-Fenwal	890181	2000	24
Viking	11591	417	24
Viking	11595	417	24
Barnbrook Systems	EA45	200	24
Honeywell/ Skinner	701X7028	917	24
TLX	PA0036-A	600	24
Victaulic	753E	364	24
Victaulic	767	364	24

Door Holders (UL Listed)

MANUFACTURER	MODEL	TYPE	Current (mA)
Edwards	DH150A	Floor Mount	96
Edwards	DH154A	Flush Mount	96
Edwards	DH158A	Surface Mount	96
Rixon Firemark	FM-980	Floor Mount, single	68
Rixon Firemark	FM-996	Surface Wiring	68
Rixon Firemark	FM-998	Concealed Wiring	68

Relays (UL Listed)

MANUFACTURER	MODEL	Current (mA)
Air Products & Controls, LTD	MR-101/C MR-201/C PAM-1 PAM-2 PAM-SD	15 35 15 15 15
System Sensor	A77-716B PR-1 PR-2 PR-3 EOLR-1 R-10T R-14T R-20T R-24T R-10E R-14E R-20E R-24E	20 15 30 30 30 23 23 40 40 23 23 40 40

SLC Loop Surge Surpressors (UL Compatible)

MANUFACTURER	Model Number
Ditek	2LVLP-F
Edco	SLCP-30
Northern Technologies	PLP-42N

PF24,PF24V Directional Sounder Compatibility

(Supplemental use Only)

UL 464 Directional Sounder, supplemental notification appliance. The directional sounder can be installed in systems using 24 Volt DC regulated power supplies only. It is not approved for use with FWR unregulated power supplies. Therefore, the following panels/power supplies are compatible:

MS-9600
S-2000 with MPS-24A/APS-6R
FCPS-24FS6(E), FCPS-24FS8(E)
FCPS-24
FCPS-2404
MS-9050UD
MS-5UD-7(C)(E), MS-10UD-7(C(E))
MRP-2001(E),MRP-2002(E)
MS-9600LS, MS-9600UDLS

SYSTEM SENSOR

Mini-Horns

The SpectrAlert® Advance series of mini-horn sounders are designed to simplify installations to provide primary and secondary signaling for fire and security applications.

SPECTRAlert ADVANCE from System Sensor

Features

- 12 and 24V operation
- High and low volume settings
- Temporal and non-temporal tones
- Mounts to single gang back box
- Compatible with MDL sync module
- Mechanically and electrically compatible with PA400 series Mini-Alert® sounders

The MHR and MHW mini-horns operate at 12 and 24 volts and are ideal for hotel, motel or residential fire system applications, where a smaller notification device is desired. The mini-horns offer high and low volume settings, and temporal or non-temporal tones. The horns can be mounted to single gang back boxes for aesthetically sensitive applications. Synchronization is also provided when using the MDL module.

The MHR and MHW mini-horns can operate between 32 and 120 degrees Fahrenheit from a regulated DC or full-wave rectified, unfiltered power supply. They are listed to Underwriter's Laboratories Standard UL 464 for fire protective signaling systems.

Agency Listings

UL LISTED

FM APPROVED

MEA approved

SpectrAlert® Advance Mini-Horn Specifications

Architectural/Engineering Specifications
Mini-horns shall be a System Sensor Model MHR or MHW capable of operating at nominal 12 or 24VDC and shall mount to a deep single gang back box. Mini horn shall be listed to Underwriter's Laboratories Standard UL464 for fire protective signaling systems. Mini-horns shall operate between 32 and 120 degrees Fahrenheit from a regulated DC, or full-wave rectified, unfiltered power supply. When used with the Sync-Circuit™ Module, 12-volt rated notification appliance circuit outputs shall operate between nine and 17.5 volts; 24-volt rated notification appliance circuit outputs shall operate between 17 and 33 volts.

Physical Specifications	
Dimensions	4.6"L × 2.9"W × 4.5"D
Weight	2.67 oz.
Operating Temperature Range	32°F to 120°F (0°C to 49°C)
Mounting	Surface: deep single-gang back box (2¾" deep) Flush: Standard 4" × 4" back box

Electrical Specifications	
Input Terminals	12 to 18 AWG
Nominal Voltage	Regulated 12DC/FWR or regulated 24DC/FWR
Operating Voltage	8–33
Operating Voltage with MDL	9–33

UL Sound Output and Current Draw Data

Sounder Output (dBA)

Switch Setting	Pattern	Output Level	8–17.5 VDC	8–17.5 VFWR	Nominal 12 VDC	Nominal 12 VFWR	16–33 VDC	16–33 VFWR
1	Temporal	High	68	67	71	70	78	76
2	Temporal	Low	66	65	69	68	76	75
3	Non-temporal	High	72	71	75	74	80	79
4	Non-temporal	Low	70	69	73	72	78	77

Sounder Current Draw (mA RMS)

			8–17.5 Volts		16–33 Volts	
Switch Position	Sound Pattern	Volume	DC	FWR	DC	FWR
1	Temporal	High	12	10	17	15
2	Temporal	Low	10	9	14	13
3	Non-temporal	High	22	17	29	25
4	Non-temporal	Low	17	13	21	19

Ordering Information

Part No.	Description
MHR	Mini-Horn, Red
MHW	Mini-Horn, White

SYSTEM SENSOR

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Phone: 800-SENSOR2 • Fax: 630-377-6495

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42-001-0201 Rev. A, 6/13

SYSTEM SENSOR

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
- Tamper-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

SIGNALING UL LISTED

FM APPROVED

MEA approved

SpectrAlert Advance Specifications

Architect/Engineer Specifications

General

SpectrAlert Advance horns, strobes, and horn strobes shall mount to a standard 4 × 4 × 1½-inch back box, 4-inch octagon back box, or double-gang back box. Two-wire products shall also mount to a single-gang 2 × 4 × 1¾-inch back box. A universal mounting plate shall be used for mounting ceiling and wall products. The notification appliance circuit wiring shall terminate at the universal mounting plate. Also, SpectrAlert Advance products, when used with the Sync-Circuit™ Module accessory, shall be powered from a non-coded notification appliance circuit output and shall operate on a nominal 12 or 24 volts. When used with the Sync-Circuit Module, 12-volt-rated notification appliance circuit outputs shall operate between 9 and 17.5 volts, 24-volt-rated notification appliance circuit outputs shall operate between 17 and 33 volts. Indoor SpectrAlert Advance products shall operate between 32 and 120 degrees Fahrenheit from a regulated DC, or full-wave rectified unfiltered power supply. Strobes and horn strobes shall have field-selectable candela settings including 15, 15/75, 30, 75, 95, 110, 115, 135, 150, 177 and 185.

Strobe

The strobe shall be a System Sensor SpectrAlert Advance Model _____ listed to UL 1971 and shall be approved for fire protective service. The 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 1 Hz over the strobe's entire operating voltage range. The strobe light shall consist of a xenon flash tube and associated lens/reflector system.

Horn Strobe Combination

The horn strobe shall be a System Sensor SpectrAlert Advance Model _____ 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 1 Hz over the strobe's entire operating voltage range. 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.

Synchronization Module

The module shall be a System Sensor Sync-Circuit model MDL listed to UL 464 and shall be approved for fire protective service. The module shall synchronize SpectrAlert strobes at 1 Hz and horns at temporal three. Also, while operating the strobes, the module shall silence the horns on horn strobe models over a single pair of wires. The module shall mount to a 4⅝ × 4⅝ × 2⅛-inch back box. The module shall also control two Style Y (class B) circuits or one Style Z (class A) circuit. The module shall synchronize multiple zones. Daisy chaining two or more synchronization modules together will synchronize all the zones they control. The module shall not operate on a coded power supply.

Physical/Electrical Specifications

Standard Operating Temperature	32°F to 120°F (0°C to 49°C)
Humidity Range	10 to 93% non-condensing
Strobe Flash Rate	1 flash per second
Nominal Voltage	Regulated 12 DC/FWR[1] or regulated 24 DC/FWR[1]
Operating Voltage Range[2]	8 to 17.5 V (12 V nominal) or 16 to 33 V (24 V nominal)
Input Terminal Wire Gauge	12 to 18 AWG
Ceiling Mount Dimensions (including lens)	6.8" diameter × 2.5" high (173 mm diameter × 64 mm high)
Wall Mount Dimensions (including lens)	5.6"L × 4.7"W × 2.5"D (142 mm L × 119 mm W × 64 mm D)
Horn Dimensions	5.6"L × 4.7"W × 1.3"D (142 mm L × 119 mm W × 33 mm D)
Wall-Mount Back Box Skirt Dimensions (BBS-2, BBSW-2)	5.9"L × 5.0"W × 2.2"D (151 mm L × 128 mm W × 56 mm D)
Ceiling-Mount Back Box Skirt Dimensions (BBSC-2, BBSCW-2)	7.1" diameter × 2.2" high (180 mm diameter × 57 mm high)
Wall-Mount Trim Ring Dimensions (sold as a 5 pack) (TR-HS, TRW-HS)	5.7"L × 4.8"W × 0.35"D (145 mm L × 122 mm W × 9 mm D)
Ceiling-Mount Trim Ring Dimensions (sold as a 5 pack) (TRC-HS, TRCW-HS)	6.9" diameter × 0.35" high (175 mm diameter × 9 mm high)

Notes:

1. Full Wave Rectified (FWR) voltage is a non-regulated, time-varying power source that is used on some power supply and panel outputs.
2. P, S, PC, and SC products will operate at 12 V nominal only for 15 and 15/75 cd.

UL Current Draw Data

UL Max. Strobe Current Draw (mA RMS)

		8–17.5 Volts		16–33 Volts	
	Candela	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)

		8–17.5 Volts		16–33 Volts	
Sound Pattern	dB	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)

	8–17.5 Volts		16–33 Volts						
DC Input	15	15/75	15	15/75	30	75	95	110	115
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	117	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)

	16–33 Volts					16–33 Volts			
DC Input	135	150	177	185	FWR Input	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

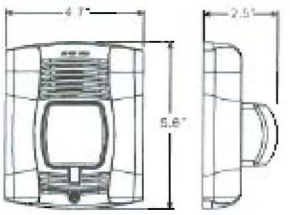
Horn Tones and Sound Output Data

Horn and Horn Strobe Output (dBA)

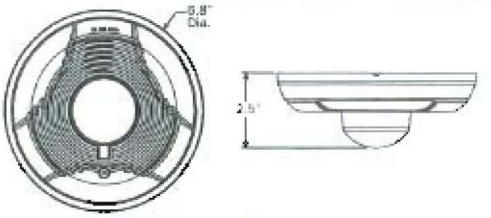
			8–17.5 Volts		16–33 Volts		24-Volt Nominal			
							Reverberant		Anechoic	
Switch Position	Sound Pattern	dB	DC	FWR	DC	FWR	DC	FWR	DC	FWR
1	Temporal	High	78	78	84	84	88	88	99	98
2	Temporal	Medium	74	74	80	80	86	86	96	96
3	Temporal	Low	71	73	76	76	83	80	94	89
4	Non-Temporal	High	82	82	88	88	93	92	100	100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

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

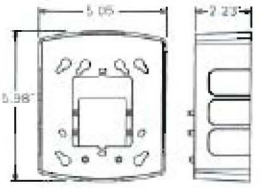
SpectrAlert Advance Dimensions



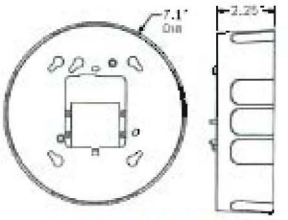
Wall-mount horn strobes



Ceiling-mount horn strobes



Wall back box skirt



Ceiling back box skirt

SpectrAlert Advance Ordering Information

Model	Description
Wall Horn Strobes	
P2R*†	2-Wire Horn Strobe, Standard cd‡, Red
P2RH*	2-Wire Horn Strobe, High cd, Red
P2W*	2-Wire Horn Strobe, Standard cd, White
P2WH*	2-Wire Horn Strobe, High cd, White
P4R*	4-Wire Horn Strobe, Standard cd, Red
P4RH	4-Wire Horn Strobe, High cd, Red
P4W	4-Wire Horn Strobe, Standard cd, White
Wall Strobes	
SR*†	Strobe, Standard cd, Red
SRH*†	Strobe, High cd, Red
SW*	Strobe, Standard cd, White
SWH*	Strobe, High cd, White
Ceiling Horn Strobes	
PC2R*	2-Wire Horn Strobe, Standard cd, Red
PC2RH	2-Wire Horn Strobe, High cd, Red
PC2W*†	2-Wire Horn Strobe, Standard cd, White
PC2WH*	2-Wire Horn Strobe, High cd, White
PC4R	4-Wire Horn Strobe, Standard cd, Red
PC4RH	4-Wire Horn Strobe, High cd, Red
PC4W	4-Wire Horn Strobe, Standard cd, White

Model	Description
Ceiling Strobes	
SCR	Strobe, Standard cd, Red
SCRH	Strobe, High cd, Red
SCW*	Strobe, Standard cd, White
SCWH	Strobe, High cd, White
Horns	
HR	Horn, Red
HW	Horn, White
Accessories	
BBS-2	Back Box Skirt, Wall, Red
BBSW-2	Back Box Skirt, Wall, White
BBSC-2	Back Box Skirt, Ceiling, Red
BBSCW-2	Back Box Skirt, Ceiling, White
TR-HS	Trim Ring, Wall, Red
TRW-HS	Trim Ring, Wall White
TRC-HS	Trim Ring, Ceiling, Red
TRCW-HS	Trim Ring, Ceiling, White

Notes:

* Add "-P" to model number for plain housing (no "FIRE" marking on cover), e.g. P2R-P

† Add "-SP" to model number for "FUEGO" marking on cover, e.g., P2R-SP

‡ Standard cd refers to strobes that include 15, 15/75, 30, 75, 95, 110 and 115 candela settings. High cd refers to strobes that include 135, 150, 177 and 185 candela settings.

SYSTEM SENSOR

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800 SENSOR2 • Fax: 630-377-6495

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

Addressable Photoelectric Smoke Detectors

FIRE-LITE ALARMS by Honeywell

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 Decade 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.*

Operation

Each SD355/T/R uses one of 99 possible addresses on the MS-9200 series and up to 318 (159 on each loop) on the MS-9600 series Signaling Line Circuit (SLC). It responds to regular polls from the system and reports its type and status.

The SD355/T/R addressable photoelectric sensor's unique unipolar chamber responds quickly and uniformly to a broad range of smoke conditions and can withstand wind gusts up to 4,000 feet-per-minute (20 m/sec.) without sending an alarm level signal. Because of its unipolar chamber, the SD355/T/R is approximately two times more responsive than most photoelectric sensors. This makes it a more stable detector

Detector Sensitivity Test

Each detector can have its sensitivity tested (required per NFPA 72, Chapter 14 on *Inspection, Testing and Maintenance*) when installed/connected to a MS-9200 series or MS-9600 series addressable fire alarm control panel. The results of the sensitivity test can be printed off the MS-9200 series or MS-9600 series for record keeping.

Specification

Voltage range: 15 – 32 VDC (peak)

Standby current: 300 µA @ 24 VDC.

LED current: 6.5 mA @ 24 VDC (latched "ON").

Air velocity: 4,000 ft./min. (20 m/sec.) maximum.

Diameter: 6.1" (15.5 cm) installed in B350LP base.

Height: 2.1" (5.33 cm) installed in B350LP base.

Weight: 3.6 oz. (102 g)

Operating temperature range: ***for SD355(A):*** 0°C to 49°C (32°F to 120°F); ***for SD355T(A):*** 0°C to 38°C (32°F to 100°F). ***SD355R(A):*** installed in a DNR(W) -20°C to 70°C (-4°F to 158°F).

Temperature: 0°C – 49°C (32°F - 120°F).

Relative humidity: 10% – 93%, non-condensing.

Listings

Listings and approvals below apply to the SD355(A) and SD355T(A) detectors. 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 Listed, file S1059.
- ULC Listed, file S1059.
- CSFM approved: file 7272-0075:194.
- MEA approved: file 243-02-E.
- FM approved.

Product Line Information

NOTE: *"A" suffix indicates ULC-Listed model.*

SD355: Adressable photoelectric detector; B350LP base included.

SD355A: Sames as SD355 with ULC Listing (B350LPA base included).

SD355T: Same as SD355 but with ***thermal*** element; B350LP base included.

SD355TA: Same as SD355T with ULC Listing (B350LPA base included).

SD355R: Remote test capable addressable photoelectric detector for use with a D355PL or DNR(W) duct detector housing.

B350LP(A): Plug-in detector base. Dimensions: 6.1" (15.5 cm). Mounting: 4.0" (10.16 cm) square box with or without plaster ring, 4.0" (10.16 cm) octagonal box, 3.5" (8.89 cm) octagonal box, or single-gang box. All mounting boxes have a minimum depth of 1.5" (3.81 cm).

B224RB(A): Plug-in System Sensor ***relay*** detector base. ***Diameter:*** 6.2" (15.75 cm). ***Mounting:*** 4.0" (10.16 cm) square box with or without plaster ring, 4.0" (10.16 cm) octagonal box, or 3.5" (8.89 cm) octagonal box. All mounting boxes have a minimum depth of 1.5" (3.81 cm).

B224BI(A): Plug-in System Sensor ***isolator*** detector base. Maximum 25 devices between isolator bases *(see DF-52389)*. ***Diameter:*** 6.2" (15.75 cm). ***Mounting:*** 4.0" (10.16 cm) square box with or without plaster ring, 4.0" (10.16 cm) octagonal box, or 3.5" (8.89 cm) octagonal box. All mounting boxes have a minimum depth of 1.5" (3.81 cm).

B200SR: Sounder base capable of producing temporal-3 or steady sound output.

ACCESSORIES:

RA100Z(A): Remote LED annunciator. 3 – 32 VDC. Mounts to a U.S. single-gang electrical box. *For use with B501(A) and B350LP(A) bases only.*

SMK400E: Surface mounting kit provides for entry of surface wiring conduit. *For use with B501(A) base only.*

RMK400: Recessed mounting kit. *For use with B501(A) base only.*

M02-04-00: Test magnet.

M02-09-00: Test magnet with telescoping handle.

XR2B: Detector removal tool. Allows installation and/or removal of detector heads from bases in high ceiling applications.

XP-4: Extension pole for XR2B. Comes in three 5-foot (1.524 m) sections.

T55-127-010: Detector removal tool without pole.

BCK-200B: Black detector covers, box of 10 .

WCK-200B: White detector covers, box of 10 .

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ISO 9001 CERTIFIED
ENGINEERING & MANUFACTURING QUALITY SYSTEMS

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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. Phone: (800) 627-3473, FAX: (877) 699-4105
www.firelite.com

MS-9200UDLS(E) Rev 2

Intelligent Addressable FACP with Built-In Communicator

Fire-Lite Alarms by Honeywell

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) FACPs (Fire Alarm Control Panels).*

52422rev

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.

- Real-time clock/calendar with automatic daylight savings control.
- Detector sensitivity test capability (NFPA 72 compliant).
- History file with 1,000-event capacity.
- Maintenance alert warns when smoke detector dust accumulation is excessive.
- Automatic device type-code verification.
- One person audible or silent walk test with walk-test log and printout.
- Point trouble identification.
- Waterflow (nonsilenceable) selection per monitor point.
- System alarm verification selection per detector point.
- PAS (Positive Alarm Sequence) and presignal delay per point (NFPA 72 compliant).

NOTE: *Only detectors may participate in PAS.*

SLC LOOP:

- SLC can be configured for NFPA Style 4, 6, or 7 operation.
- SLC supports up to 198 addressable devices per loop (99 detectors and 99 monitor, control, or relay modules).
- SLC loop maximum length 10,000 ft. (3,000 m.). *See installation manual for wire tables.*

NOTIFICATION APPLIANCE CIRCUITS (NACS):

- Four onboard NACs with additional NAC capability using output control modules (CMF-300 or CMF-300-6). The four Class B NACs can be converted to two Class A NACs with NACKEY (included).
- Silence Inhibit and Auto Silence timer options.
- Continuous, March Time, Temporal or California code for main circuit board NACs with two-stage capability.
- Selectable strobe synchronization per NAC.
- 2.5 amps maximum per each NAC circuit.

NOTE: *Maximum 24VDC system power output is shared among all NAC circuits and 24VDC special-application auxiliary power outputs. Total available output is 3.0 amps. Using the optional XRM-24B transformer increases 24VDC output to 6.0 amps.*

PROGRAMMING AND SOFTWARE:

- Autoprogram (learn mode) reduces installation time.
- Custom English labels (per point) may be manually entered or selected from an internal library file.
- Three Form-C relay outputs (two programmable).
- 99 software zones.
- Continuous fire protection during online programming at the front panel.
- Program Check automatically catches common errors not linked to any zone or input point.
- **OFFLINE PROGRAMMING:** Create the entire program in your office using a Windows®-based software package (order programming kit PS-Tools, separately). Upload/download system programming locally to the MS-9200UDLS(E) Rev 2 in less than one minute
- USB programming with standard Male-A to Male-B cable.

User interface

LED INDICATORS

- AC Power (green)
- Fire Alarm (red)
- Supervisory (yellow)
- Alarm Silenced (yellow)
- System Trouble (yellow)
- Maintenance/Presignal (yellow)
- Disabled (yellow)
- Battery Fault (yellow)
- Ground Fault (yellow)

KEYPAD CONTROLS

- Acknowledge/Step
- Alarm Silence
- Drill
- System Reset (lamp test)
- 16-key alpha-numeric pad (similar to telephone keypad)
- 4 cursor keys
- Enter

Product Line Information

MS-9200UDLS Rev 2: 198-point addressable Fire Alarm Control Panel, one SLC loop. Includes 80-character LCD display, single printed circuit board mounted on chassis, and cabinet. 120 VAC operation.

MS-9200UDLSE Rev 2: Same as **MS-9200UDLS Rev 2**, except with 240 VAC operation.

4XTMF Reverse Polarity Transmitter Module: Provides supervised output for local energy municipal box transmitter, alarm, and trouble.

PK-CD: Contains PS-Tools Programming software for Windows®-based PC computer (cable not included).

DP-9692: Optional dress panel for MS-9200UDLS Rev 2.

TR-CE: Trim Ring for semi-flush mounting.

BB-26: Battery backbox, holds up to two 25 AH batteries and CHG-75.

BB-55F: Battery box, houses two 55 AH batteries.

CHG-75: Battery charger for lead-acid batteries with a rating of 25 to 75 AH.

CHG-120F: Remote battery charging system for lead-acid batteries with a rating of 55 to 120 AH. Requires additional BB-55F for mounting.

BAT Series: Batteries, see data sheet DF-52397.

XRM-24B(E): Optional transformer. Increases system power output to 6.0 amps. Use XRM-24BE with MS-9200UDLS Rev 2(E).

PRT/PK-CABLE: Cable printer/personal computer interface cable; required for printer or for local upload/download programming.

PRN-6F: UL listed compatible event printer. Uses tractor-fed paper.

IPDACT-2/2UD, IPDACT Internet Monitoring Module: Mounts in bottom of enclosure with optional mounting kit (PN IPBRKT). Connects to primary and secondary DACT telephone output ports for internet communications over customer provided ethernet internet connection. Requires compatible Teldat VisorALARM Central Station Receiver. Can use DHCP or static IP. *(See data sheet df-60407 or df-52424 for more information.)*

IPBRKT: Mounting kit for IPDACT-2/2UD in common enclosure.

IPSPLT: Y-adaptor option allows connection of both panel dialer outputs to one IPDACT-2/2UD cable input.

COMPATIBLE ANNUNCIATORS

ANN-80(-W): LCD Annunciator is a remote LCD annunciator that mimics the information displayed on the FACP LCD dis-

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

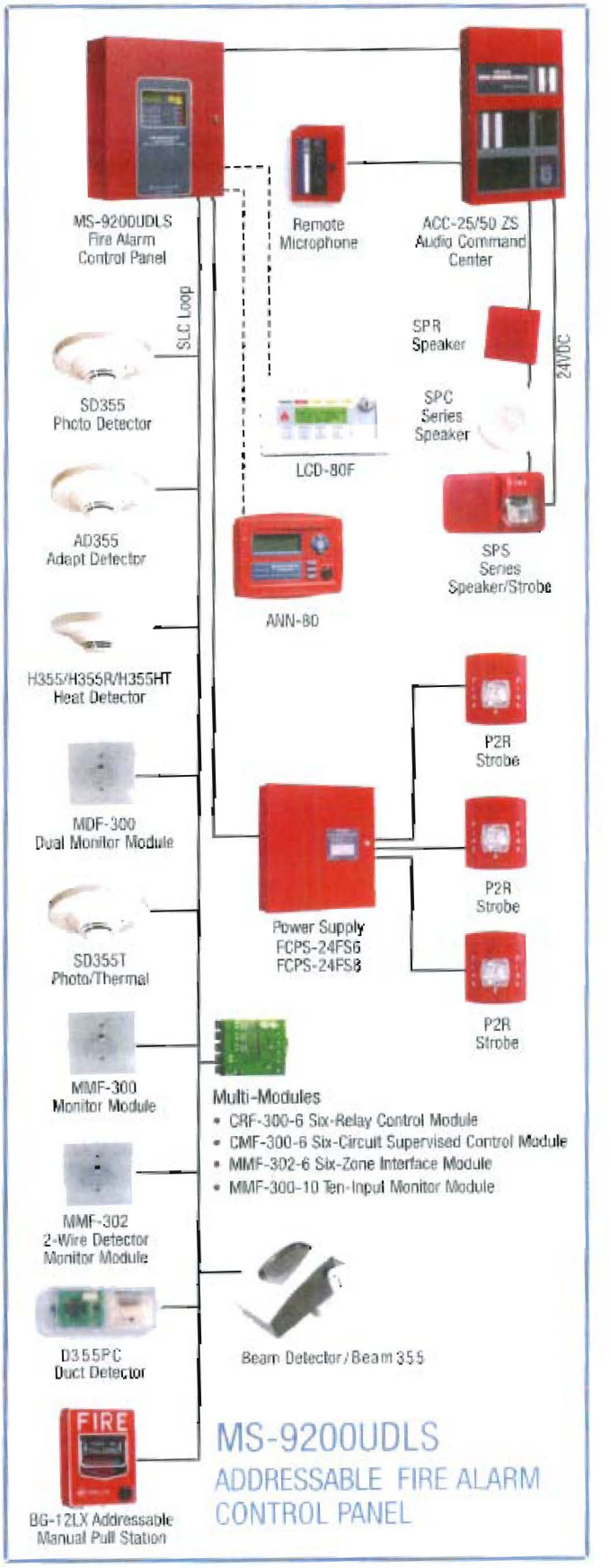
BEAM355S: Intelligent beam smoke detector with integral sensitivity test.

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)



MMF-300: Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (10.16 cm.) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Style B (Class B) or Style D (Class A) IDC.

MDF-300: Dual Monitor Module. Same as MMF-300 except it provides two Style B (Class B) only IDCs.

MMF-301: Miniature version of MMF-300. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.

MMF-302: Similar to MMF-300, but may monitor up to 20 conventional two-wire detectors. Requires resettable 24 VDC power. Consult factory for compatible smoke detectors.

CMF-300: Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm.) electrical box. Notification Appliance Circuit option requires external 24 VDC to power notification appliances.

CRF-300: Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm.) box, surface mount using the SMB500.

BG-12LX: Addressable manual pull station with interface module mounted inside.

I300: Fault Isolator Module. This module isolates the SLC loop from short circuit conditions (required for Style 6 or 7 operation).

SMB500: Used to mount all modules except the MMF-301 and M301.

MMF-300-10: Ten-input monitor module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

MMF-302-6: Six-zone interface module for compatible conventional two-wire detectors. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

CMF-300-6: Six-circuit supervised control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

CRF-300-6: Six Form-C relay control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F

NOTE: *1) For more information on Compatible Addressable Devices for use with the MS-9200UDLS Rev 2, see the following data sheets (document numbers): AD355 (DF-52386), BG-12LX (DF-52013), CMF-300-6 (DF-52365), CRF-300-6 (DF-52374), CMF/CRF Series (DF-52130), CP355 (DF-52383), D350PL/D350RPL (DF-52398), H355 Series (DF-52385), I300 (DF-52389), MMF-300 Series/MDF-300 (DF-52121), MMF-300-10 (DF-52347), MMF-302-6 (DF-52356), SD355/SD355T (DF-52384). 2) Legacy 300 Series detection devices such as the CP300/CP350, SD300(T)/SD350(T) and older modules such as the M300, M301, M302, C304, and BG-10LX are* ***not compatible*** *with LiteSpeed polling. If the SLC contains one of these devices, polling must be set for standard LiteSpeed protocol. Please consult factory for further information on previous 300 Series devices.*

Wiring Requirements

While shielded wire is not required, it is recommended that all SLC wiring be twisted-pair to minimize the effects of electrical interference. Wire size should be no smaller than 18 AWG (0.78 mm²) and no larger than 12 AWG (3.1 mm²). The wire size depends on the length of the SLC circuit. Refer to the panel manual for wiring details.

SYSTEM SPECIFICATIONS

System Capacity

- Intelligent Signalling Line Circuits 1
- Addressable device capacity 198
- Programmable software zones 99
- ACS Annunciators 32
- ANN-bus devices 8

Electrical Specifications

AC Power: MS-9200UDLS Rev 2: 120 VAC, 60 Hz, 3.0 amps. MS-9200UDLS Rev 2E: 240 VAC, 50 Hz, 1.5 amps. Wire size: minimum 14 AWG (2.00 mm²) with 600 V insulation.

Battery: Two 12 V 18AH lead-acid batteries
Battery charger capacity: 7 – 18 AH MS-9200UDLS Rev 2 cabinet holds maximum of two 18 AH batteries

Communication Loop: Supervised and power-limited.

Notification Appliance Circuits: Each terminal block provides connections for two Style Y (Class B) or one Style Z (Class A) for a total of four Style Y (Class B) or two Style Z (Class A) NACs. Maximum signaling current per circuit: 2.5 amps. End-of-Line Resistor: 4.7K ohm, 1/2 watt (P/N 71252 UL listed) for Style Y (Class B) NAC. Refer to panel documentation and *Fire•Lite Device Compatibility Document* for listed compatible devices.

Two Programmable Relays and One Fixed Trouble Relay: Contact rating: 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive). Form-C relays.

Special Application Power (24 VDC Nominal): Jumper selectable (JP4) for conversion to resettable power output. Up to 0.3 amps total DC current available from each output. Power-limited.

Four-Wire Resettable Special Application Smoke Detector Power (24 VDC nominal): Up to 0.3 amps for powering four-wire smoke detectors. Power-limited. Refer to the *Fire•Lite Device Compatibility Document* for listed compatible devices.

Remote Sync Output: Remote power supply synchronization output. Nominal special application power: 24 VDC. Maximum current: 40 mA. End-of-Line Resistor: 4.7K ohm. Output linked to NAC 1 control. Supervised and power-limited.

Telephone Interface: Unless used with Teldat VISORALARM, requires dedicated business telephone number with a minimum of 5 volts DC (off-hook voltage). Obtain dedicated phone line directly from your local phone company. Do not use shared phone lines or PBX (digital) type phone line extensions.

Cabinet Specifications

Door: 19.26" (48.92 cm.) high x 16.82" (42.73 cm.) wide x 0.12" (.30 cm.) deep. **Backbox:** 19.00" (48.26 cm.) high x 16.65" (42.29 cm.) wide x 5.20" (13.34 cm.) deep. **Trim Ring (TR-CE):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

Shipping Specifications

Weight: 26.9 lbs. (12.20 kg.) **Dimensions:** 20.00" (50.80 cm.) high x 22.5" (57.15 cm.) wide x 8.5" (21.59 cm.) deep.

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

NFPA Standards

The MS-9200UDLS Rev 2 complies with the following NFPA 72 Fire Alarm Systems requirements:

- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (requires 4XTMF).
- **REMOTE STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTMF is required.)
- **PROPRIETARY** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **CENTRAL STATION** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **OT, PSDN** (Other Technologies, Packet-switched Data Network)

Agency Listings and Approvals

The listings and approvals below apply to the basic MS-9200UDLS Rev 2 control panel. 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:** S624
- **FM approved**
- **CSFM:** 7165-0075:208
- **MEA:** 120-06-E

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ANN-80

80-Character LCD Serial Annunciator

Fire-Lite Alarms by Honeywell

Annunciators

General

The ANN-80 annunciator is a compact, backlit, 80-character LCD fire annunciator that mimics the Fire Alarm Control Panel (FACP) display. It provides system status indicators for AC Power, Alarm, Trouble, Supervisory, and Alarm Silenced conditions. The ANN-80 and the FACP communicate over a two-wire serial interface employing the ANN-BUS communication format. Connected devices are powered, via two additional wires, by either the host FACP or a remote UL-listed, filtered power supply. ANN-80 is red; for white, order ANN-80-W.

The ANN-80 displays English-language text of system point information including device type, zone, independent point alarm, trouble or supervisory status, as well as any custom alpha labels programmed into the control panel. It includes control switches for remote control of critical system functions. (A keyswitch prevents unauthorized operation of the control switches.)

Up to eight ANN-80s may be connected to the ANN-BUS of each FACP. No programming is required, which saves time during system commissioning.

Features

- Listed to UL Standard 864, 9th Edition.
- Backlit 80-character LCD display (20 characters x 4 lines).
- Mimics all display information from the host panel.
- Control switches for System Acknowledge, Signal Silence, Drill, and Reset.
- Control switches can be independently enabled or disabled at the FACP.
- Keyswitch enables/disables control switches and mechanically locks annunciator enclosure.
- Keyswitch can be enabled or disabled at the FACP.
- Enclosure supervised for tamper.
- System status LEDs for AC Power, Alarm, Trouble, Supervisory, and Alarm Silence.
- Local sounder can be enabled or disabled at the FACP.
- ANN-80 connects to the ANN-BUS terminal on the FACP and requires minimal panel programming.
- Displays device type identifiers, individual point alarm, trouble, supervisory, zone, and custom alpha labels.
- Time-and date display field.
- Surface mount directly to wall or to single, double, or 4" square electrical box.
- Semi-flush mount to single, double, or 4" square electrical box. Use ANN-SB80KIT for angled view mounting.
- Can be remotely located up to 6,000 feet (1,800 m) from the panel.
- Backlight turns off during AC loss to conserve battery power but will turn back on if an alarm condition occurs.
- May be powered by 24 VDC from the host FACP or by remote power supply (requires 24 VDC).
- Up to eight ANN-80s can be connected on the ANN-BUS.

Controls and Indicators

- AC Power
- Alarm
- Trouble
- Supervisory
- Alarm Silenced

Specifications

- **Operating voltage range:** 18 VDC to 28 VDC.
- **Current consumption @** 24 VDC nominal (filtered and non-resettable): 40 mA maximum.
- **Ambient temperature:** 32°F to 120°F (0°C to 49°C).
- **Relative humidity:** 93% ± 2% RH (noncondensing) at 32°C ± 2°C (90°F ± 3°F).
- 5.375" (13.65 cm.) high x 6.875" (17.46 cm.) wide x 1.375" (3.49 cm.) deep.
- For use indoors in a dry location.
- All connections are power-limited and supervised.

Agency Listings and Approvals

The listings and approvals below apply to the ANN-80. 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
- **FM approved**
- **CSFM:** 7120-0075:211
- **MEA:** 442-06-E

The ANN-BUS

POWERING THE DEVICES ON THE ANN-BUS FROM AUXILIARY POWER SUPPLY

The ANN-BUS can be powered by an auxiliary power supply when the maximum number of ANN-BUS devices exceeds the ANN-BUS power requirements. See the FACP manual for more information.

ANN-BUS DEVICE ADDRESSING

Each ANN-BUS device requires a unique address (ID Number) in order to communicate with the FACP. A maximum of 8 devices can be connected to the FACP ANN-BUS communication circuit. See the FACP manual for more information.

WIRE REQUIREMENTS: COMMUNICATIONS CIRCUIT

The ANN-80 connects to the FACP ANN-BUS communications circuit. To determine the type of wire and the maximum wiring distance that can be used with FACP ANN-BUS accessory modules, it is necessary to calculate the total worst case current draw for all modules on a single 4 conductor bus. The total worst case current draw is calculated by adding the individual worst case currents for each module.

NOTE: *For total worst case current draw on a single ANN-BUS refer to appropriate FACP manual.*

After calculating the total worst case current draw, the following table specifies the maximum distance the modules can be located from the FACP on a single wire run. The table ensures 6.0 volts of line drop maximum. In general, the wire length is limited by resistance, but for heavier wire gauges, capacitance is the limiting factor.

These cases are marked in the chart with an asterisk (*). Maximum length can never be more than 6,000 feet (1,800 m), regardless of gauge used. See table below.

WIRE REQUIREMENTS: POWER CIRCUIT

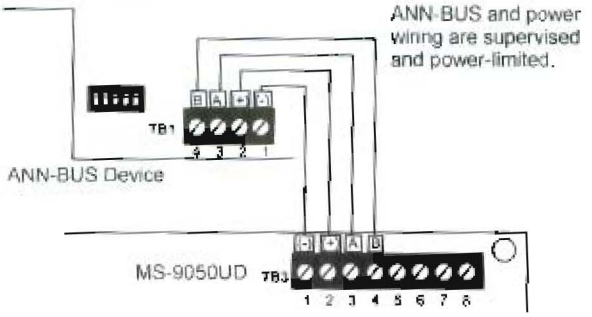
- 14 to 18 AWG (0.75 - 2.08 mm^2) wire for 24 VDC power circuit is acceptable. Power wire distance limitation is set by 1.2 volt maximum line drop form source to end of circuit.
- All connections are power-limited and supervised.
- A maximum of eight ANN-80 modules may be connected to this circuit.

Communication Pair Wiring Distance: FACP to Last ANN-BUS Module

Total Worst Case Current Draw (amps)	22 Gauge	18 Gauge	16 Gauge	14 Gauge
0.100	1,852 ft.	4,688 ft.	* 6,000 ft.	*6,000 ft.
0.200	926 ft.	2,344 ft.	3,731 ft.	5,906 ft.
0.300	617 ft.	1,563 ft.	2,488 ft.	3,937 ft.
0.400	463 ft.	1,172 ft.	1,866 ft.	2,953 ft.
0.500	370 ft.	938 ft.	1,493 ft.	2,362 ft.
0.600	309 ft.	781 ft.	1,244 ft.	1,969 ft.
0.700	265 ft.	670 ft.	1,066 ft.	1,687 ft.
0.800	231 ft.	586 ft.	933 ft.	1,476 ft.
0.900	206 ft.	521 ft.	829 ft.	1,312 ft.
1.000 (max.)	185 ft.	469 ft.	746 ft.	1,181 ft.

WIRING CONFIGURATION

The following figure illustrates the wiring between the FACP and ANN-BUS devices.



FACP Wiring to ANN-BUS Device

ORDERING OPTIONS:

ANN-80: Red 80 character LCD Annunciator

ANN-80-W: White, 80 character LCD Annunciator

ANN-SB80KIT-R: Red surface mount backbox with angled wedge.

ANN-SB80KIT-W: White surface mount backbox with angled wedge.

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