City of Aurora
Building Codes Division
15151 E Alameda Pkwy
Aurora, CO 80012
(303) 739-7420

Notice

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Permit Application: BUILDING~FENCE~ SIGN

Building Division ~15151 E Alameda Pkwy ~ Aurora, CO 80012~ (303) 739-7420

Project Address: 1400 S. Potomac St. Unit # 240 Zip code: 80012
Project Name/Subdivision: 1400 S. Potomac Building
Contractor: ~~[illegible]~~ Fire Alarm Services Phone: (303)466-8800 Fax:
Contact Person: Jeremy Bieber Email:
Phone: (303)466-8800 Fax:
Owner: (Required for CO) CODA Construction Group, L.L.C. Mark Stratton
Owner address: 17775. Bellaire St. Suite 480 Valuation / FDA: $ 2,000
Email:

REQUIRED FOR PROJECTS USING AN ARCHITECT and/or ENGINEER:

Architect or Engineer Name: Email:
Phone #: Fax #:

DESCRIBE THE WORK YOU WILL BE DOING: * Fire alarm install for Colorado ENT Specialists

SIGN PERMIT: Sign review will establish allowables. Use description above for additional information.
Monument sign? ☐Y ☐N Is height from grade more than 6': ☐Y ☐N
Electrician: (Required for any illuminated sign) Any existing waivers ☐Y ☐N If yes provide copy

FENCE PERMIT: Style/Type: * Describe work above ☐ Corner lot ☐ Interior lot Use Zone:
Height in. Greater than 50% open: ☐ Less than 50% open: ☐ Post size: ☐ x ☐ Post spacing:

NEW HOME CONSTRUCTION ONLY:

Model #: Elevation: Foundation Type: Basement Type: Unfinished:
Number of Deck(s): Covered: Uncovered: Size of Deck (s): Concrete Patio(s):
Covered: Uncovered: Size of Patio Cover: GFA – Qty: BTU's: /
Gas range/BBQ/oven/cook top: BTU's Qty AC/Cooler/CFM/Ton: Fireplace(qty):
BTU's: / Misc: Shower #: Lavatory #: Bathtub #: Water Closet #:
Water heater type: BTU'S: # Electrical Svc AMP: Other:

BOARD OF APPEALS - Contractor's Appeals and Standards Board. Applicants have the right to have the board hear appeals of orders, decisions or determinations made by the building official relative to the application and interpretation of the building code. Any application for appeal to the board shall be based on a claim that the true intent of the code or the rules legally adopted there under have been incorrectly interpreted, the provisions of the building code do not fully apply or an equally good or better form of construction is proposed.

◆◆◆◆ THIS SPACE FOR OFFICE USE ONLY ◆◆◆◆

Fee Determination Assessment: $_____

Change of occupancy/use: Y ☐ N ☐

REVIEWS		INSPECTIONS	
☐	Sign		
☐	Structural	☐	Structural
☐	Mechanical	☐	Mechanical
☐	Plumbing	☐	Plumbing
☐	Electrical	☒	Electrical
☒	Fire Life Safety	☒	Life Safety
☐	Bldg Life Safety	☐	Gate/Haz.

Intake Date: 6/8/10

Water pre-approval:
Zoning pre-approval:
Parent Permit RSN: 535147
Parent Plan Location
Permit Type: Limited
Sub Type: 4X Fire Alarm
Plans Examiner: JMP
Verify Homeowner:
Zoning class/Parking fac:
RSN: 542821
Permit #: 2010476798
Balance Due: $

Sprinkler & Alarm permits must be brought in as separate submittals. "FDA" is NOT included in main permit.

Print Name: Signature: Date:

1400 S. POTOMAC BUILDING

FIRE ALARM SYSTEM SHOP DRAWINGS FOR:

BUILDING CLASSIFICATIONS AND CODES

OCCUPANCY GROUP: B

USE: MEDICAL OFFICE

CONSTRUCTION TYPE: TYPE ~~II~~ II-N, SPK

STORIES: 2 FLOORS

SPRINKLERED: FULLY

REQUIREMENTS: MODIFIED PER 2006 IFC 907.2.2

CODES:

2006 IFC	2002 NFPA 72
2006 IBC	1996 ANSI 17.1
2006 IMC	2005 NFPA 70
	2008 NEC

SYSTEM TYPE AND MONITORING

SYSTEM CLASSIFICATION: (NFPA 72, CHAPTER 8), CENTRAL STATION

SYSTEM TYPE: INTELLIGENT/ADDRESSABLE

WIRING CLASSIFICATION: NAC – CLASS B, STYLE Y
SLC – CLASS B, STYLE 4
COMMUNICATION RISER – CLASS A

NOTIFICATION TYPE: TEMPORAL PATTERN

MONITORING: THIS SYSTEM IS AND WILL CONTINUE TO BE MONITORED BY A CENTRAL SUPERVISING STATION, PER NFPA 72 CHAPTER 8, SECTION 2.

MONITORING COMPANY: A.P.I. MONITORING
(303)427-0880

ACCOUNT: 71-00-1575

DRAWING INFORMATION

FAS WORK ORDER #: 10011146

FAS CAD FILE: COLORADO ENT SPECIALISTS REMODEL/EXPANSION

SCOPE OF WORK

1. PROVIDE AND INSTALL SIX [6] NEW HORN/STROBES.
2. PROVIDE AND INSTALL FOUR [4] NEW STROBES.

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- KEY MAP
- BATTERY & VOLTAGE DROP CALCULATIONS
- SEQUENCE OF OPERATIONS MATRIX

PROJECT:

COLORADO ENT SPECIALISTS REMODEL/EXPANSION
1400 S. POTOMAC STREET, SUITE 240
AURORA, CO 80012

GENERAL CONTRACTOR:

CODA CONSTRUCTION GROUP, L.L.C.
1777 S. BELLAIRE STREET, SUITE 480
DENVER, CO 80222
PH:(720)250-8272
FAX:(303)757-3083
MARK STRATTON

ELECTRICAL CONTRACTOR:

FIRE ALARM SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
PH:(303)466-8800
FAX:(303)466-8820
SHANNON SMITH

ARCHITECT:

TENANT PLANNING SERVICES, INC.
450 DECATUR STREET
DENVER, CO 80204
PH:(303)861-4800
FAX:(303)861-1621
MICHAEL HAIDER

FIRE ALARM DESIGNER:

FIRE ALARM SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
PH:(303)466-8800
FAX:(303)466-8820

Fire Alarm SERVICES, INC.

Fire Alarm Services, Inc.
4800 W. 60th Avenue
Arvada, CO 80003

(303)466-8800 (Phone)
(303)466-8820 (Fax)
contactus@fasonline.cc (E-Mail)
www.fasonline.cc

City of Aurora Plan Review
Occ./Const. Type B/IIN SPK
Code 2006 IFC S.F. 4,185
02 NFPA 72

City of Aurora Plan Review
Project COLORADO ENT. FIRE ALM
Address 1400 S. POTOMAC #240
Contractor FIRE ALARM
RSN SERVICES INC. 5422(2)
Permit Number ID-476798
Plan Location STRUCTURE

AURORA BUILDING DEPARTMENT
LIFE SAFETY SYSTEMS
APPROVED
SUBJECT TO CORRECTIONS AS INDICATED AND FIELD INSPECTIONS WITH FUNCTIONAL TESTS
APPROVED JUN 17 2010
SIGNED DATE

2010476798

GENERAL NOTES

1. FIRE ALARM SYSTEMS CANNOT BE COMBINED WITH BURGLAR ALARM SYSTEMS.
2. THE INSTALLER IS REQUIRED TO COORDINATE WITH THE MECHANICAL CONTRACTOR TO DETERMINE INSTALLATION OF SMOKE DETECTORS OR SENSORS (I.E., NOT CLOSER THAN 3 FEET FROM ANY SUPPLY/RETURN DIFFUSER AND THAT ADDITIONAL DETECTION MAY BE REQUIRED DUE TO THE RELOCATION OR SPACING ADJUSTMENT OF DETECTORS, AS A RESULT).
3. FIRE ALARM DEVICES MUST BE PLACED IN PROTECTED AREAS WITH AMBIENT TEMPERATURE RANGING FROM 32 DEGREES TO 120 DEGREES F.
4. DO NOT PLACE SMOKE DETECTORS WITHIN 3 FEET OF AIR SUPPLY REGISTERS AND DIFFUSERS.
5. FIRE ALARM SYSTEM SHALL BE MONITORED BY A CLASS 1 CENTRAL STATION.
6. FIRE ALARM CONTROL PANEL WILL BE PLACED IN THE LOCATION SPECIFIED WITHIN THE PLAN SUBMITTAL UNLESS APPROVED BY THE LIFE SAFETY FIELD INSPECTOR.
7. CITY OF AURORA BUILDING CODES DIVISION DOES NOT GRANT APPROVAL FOR ANY VIOLATIONS OF ADOPTED FIRE CODE. CODE VIOLATIONS UNCOVERED DURING FIELD INPECTIONS MUST BE CORRECTED.
8. PER THE 2006 IFC AND THE 2008 NEC THE INSTALLER MUST REQUEST A ROUGH WIRING INSPECTION ON THE FIRE ALARM SYSTEM PRIOR TO REQUESTING A FIRE ALARM FINAL INSPECTION.
9. THE CONTRACTOR SHALL CONDUCT A "PRE-TEST" OF THE PROJECT AREA PRIOR TO SCHEDULING AN ACCEPTANCE TEST WITH THE BUILDING CODES DIVISION.
10. REMOTE ALARM INDICATORS SHALL BE PROVIDED FOR ANY FIRE ALARM DETECTOR LOCATED IN A CONCEALED LOCATION WITH A NORMALLY LOCKED DOOR.
11. AT THE TIME OF FINAL FIRE ALARM INSPECTION, THE SYSTEM MUST BE SUPERVISED/MONITORED BY A CLASS 1 CENTRAL MONITORING AGENCY.
12. THE INSTALLING CONTRACTOR (OR DESIGNEE) MUST PROVIDE ALL NECESSARY TESTING EQUIPMENT AND PERORM ALL TESTING REQUIRED BY THE LIFE SAFETY FIELD INSPECTOR.
13. IN-DUCT SMOKE DETECTORS INSTALLED IN CONCEALED LOCATIONS OR, WHERE THE DETECTORS ALARM INDICATOR IS NOT READILY VISIBLE TO RESPONDING PERSONNEL SHALL BE PROVIDED WITH A REMOTE INDICATOR, REMOTE TEST STATION AND PLACARDING.
14. ALL NEW OR EXISTING FIRE ALARM SYSTEMS MUST BE CONNECTED TO ANY EXTERIOR HORN AND STROBE DEVICE. IF THE BUILDING IS FIRE SPRINKLED, A GENERAL ALARM ACTIVATION AT THE FIRE ALARM CONTROL PANEL WILL ACTIVATE THE EXTERIOR HORN AND STROBE. SILENCING THE PANEL MUST ALLOW THE VISUAL DEVICE TO CONTINUE UNTIL THE PANEL IS RESET.
15. FIRE ALARM SYSTEMS SHALL INCLUDE BOTH AUDIBLE AND VISUAL ALARMS. VISUAL ALARMS WILL BE REQUIRED IN ALL ACCESSIBLE PUBLIC AND COMMON-USE AREAS PER THE 2006 IFC AND THE 2003 ANSI A117.1 STANDARD.
16. PROVIDE A PRIMARY AND SECONDARY POWER SUPPLY FOR THE FIRE ALARM SYSTEM PER THE 2006 IFC, SECTION 907.5 AND THE 2002 NFPA 72.

ADDITIONAL GENERAL NOTES — ADD TO FUTURE SUBMITTALS

- THE FIRE ALARM INSTALLATION CONTRACTOR MUST COMPLETE THE NFPA 72 "RECORD OF COMPLETION" PRIOR TO SCHEDULING THE AHJ ACCEPTANCE TEST.
- FIELD INSPECTION CONSULTATION IS AVAILABLE UPON REQUEST. CALL 303-739-7420 TO REQUEST CONSULTATION.
- AUDIBLE ALARM SIGNALING DEVICES SHALL EXCEED THE PREVAILING SOUND LEVEL IN A ROOM OR SPACE BY 15 DBA. SOUND LEVELS FOR ALARM SIGNALS SHALL BE 120 DBA MAXIMUM. IFC SECTION 907.10.2.

Scott Stene
Nicet Fire Alarm systems
Level III
Certification #112776
Date: 6-8-10

Fire Alarm SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
phone: 303-466-8800
fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc

REVISIONS		
NO.	DATE	

DRAWN BY: L. MASON — DATE: 01/07/10
APPR. BY: — DATE: 6/7/10

FIRE ALARM SYSTEM TENANT FINISH FOR: COLORADO ENT SPECIALISTS REMODEL/EXPANSION

PROJECT TITLE

BUILDING NAME & ADDRESS: 1400 S. POTOMAC BUILDING
1400 S. POTOMAC ST.
AURORA, CO 80012

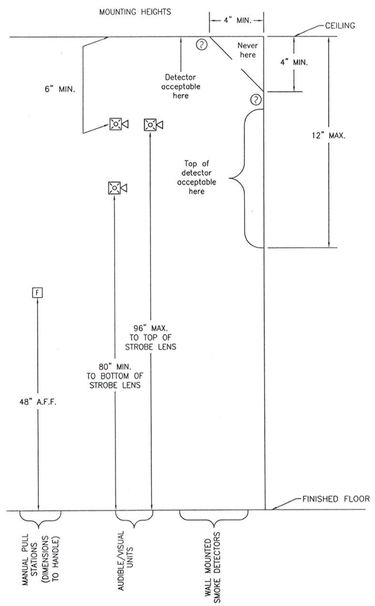
PROJECT NUMBER: 10011146

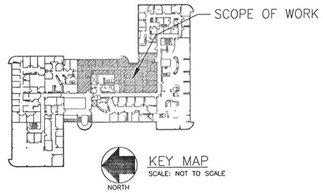
FIRE ALARM & DETECTION SYSTEM

DRAWING TITLE: SUITE 240 COVER PAGE

SCALE: N/A

PROJECT SHEET TITLE
FA-00





GENERAL NOTES:

1. THE CEILING IS A TYPICAL 9' A.F.F. DROPPED CEILING WITH NO SLOPES.

INCREMENTAL VOLTAGE DROP CALCULATIONS FOR AUDIBLE/ VISUAL CIRCUITS
MINIMUM UL RATED VOLTAGE: 16 VOLTS
Current shown in calculations is RMS current at 16 volts.

Resistance	12 Gauge	2.01
	14 Gauge	3.19
	16 Gauge	5.08

Circuit Number: NAC2-3
Location: Booster Panel — INPUT VOLTAGE = 20.4 VOLTS

Notification Circuit	Current (in amps)	Wire Distance (in feet)	Total Distance (in feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Horn/Strobe 15CD	0.129	25	25	14	0.1595	0.1007	20.2993
Strobe 15CD	0.103	54	79	14	0.5040	0.2533	20.0460
Strobe 15CD	0.103	25	104	14	0.6635	0.2651	19.7809
Horn/Strobe 15CD	0.129	26	130	14	0.8294	0.2459	19.5350
Horn/Strobe 30CD	0.167	49	179	14	1.1420	0.1913	19.3437
End of line resistor	0.001	0	179	14	1.1420	0.0006	19.3432
Totals:	0.632	179			4.4405	1.0568	19.3432
Total Devices:	5						

Circuit Number: NAC2-4
Location: Booster Panel — INPUT VOLTAGE = 20.4 VOLTS

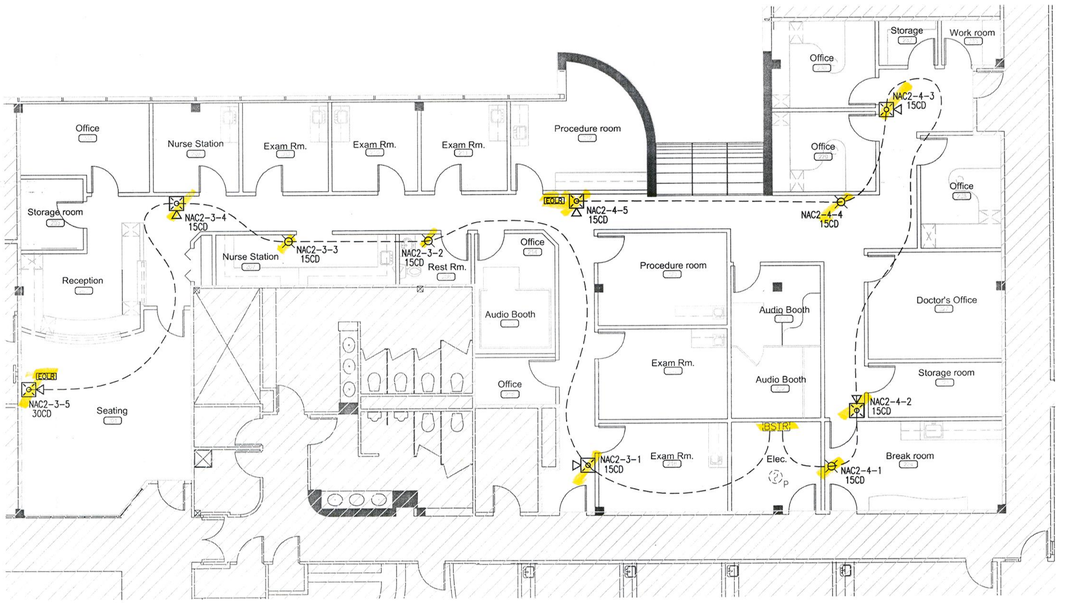
Notification Circuit	Current (in amps)	Wire Distance (in feet)	Total Distance (in feet)	Wire Size (AWG)	Resistance (Ohms)	Voltage Drop	From Baseline Voltage
Strobe 15CD	0.103	15	15	14	0.0957	0.0568	20.3432
Horn/Strobe 15CD	0.129	19	34	14	0.2169	0.1064	20.2368
Horn/Strobe 15CD	0.129	47	81	14	0.5168	0.1868	20.0500
Strobe 15CD	0.103	23	104	14	0.6635	0.1543	19.8957
Horn/Strobe 15CD	0.129	39	143	14	0.9123	0.1181	19.7776
End of line resistor	0.001	0	143	14	0.9123	0.0005	19.7771
Totals:	0.594	143			3.3176	0.6229	19.7771
Total Devices:	5						

FIRE ALARM SYMBOLS LEGEND

EXISTING	DESCRIPTION	PROPOSED
BSTR	BOOSTER PANEL	BSTR
	STROBE – Wall Mount or CM = Ceiling Mount	
	SMOKE DETECTOR – x = photo, ion	$_X$
	HORN STROBE – Wall Mount or CM = Ceiling Mount	
EOLR	END OF LINE RESISTOR	EOLR

NOTIFICATION APPLIANCE CIRCUIT NUMBER
NOTIFICATION APPLIANCE PANEL NUMBER
DEVICE NUMBER
NAC1-2-3
POWER EXPANDER NUMBERING

RL = RELOCATED DEVICES
RR = REMOVE AND RE-INSTALL
RRP = REMOVE AND REPLACE
J = J-BOX



SUITE 240 FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

NORTH 0 5 10 15 30 FEET

1400 S. POTOMAC BUILDING SEQUENCE OF OPERATIONS

SYSTEM OUTPUTS

		FACP Annunciation							Notification				Fire Safety Cntl.					Monitoring				
	SYSTEM INPUTS	Actuate Common Alarm Signal Indicator	Actuate Audible Alarm Signal	Actuate Common Supervisory Signal Indicator	Actuate Audible Supervisory Signal	Actuate Common Trouble Signal Indicator	Actuate Audible Common Trouble Signal	Display Change of Status	Actuate 1st Floor Evacuation Signals (Horn/Strobes)	Actuate 2nd Floor Evacuation Signals (Horn/Strobes)	Actuate Exterior Horn/Strobe	Silence Audible Signal (Horns)	Release Magnetically Held Smoke Doors	Recall Elevator(s) to 1st Floor – Primary Recall	Recall Elevator(s) to 2nd Floor – Alternate Recall	Shut Down Air Handling Units	Transmit Fire Alarm Signal to Supervising Station	Transmit Trouble Signal to Supervising Station	Transmit Supervisory Signal to Supervising Station	Transmit Waterflow Signal to Supervising Station	
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	Manual Pull Station – 1st Floor	X	X					X	X	X	X		X				X				1
2	Manual Pull Station – 2nd Floor	X	X					X	X	X	X		X				X				2
3	Smoke Sensor – Elev. Machine Room	X	X					X	X	X	X		X	X			X				3
4	Smoke Sensor – 1st Floor Elev Lobby	X	X					X	X	X	X		X		X		X				4
5	Smoke Sensor – 2nd Floor Elev Lobby	X	X					X	X	X	X		X	X			X				5
6	Smoke Sensor – All Other Locations	X	X					X	X	X	X		X				X				6
7	Duct Smoke Sensor – 1st Floor			X	X			X								X			X		7
8	Duct Smoke Sensor – 2nd Floor			X	X			X								X			X		8
9	Heat Sensors – 1st Floor	X	X					X	X	X	X		X				X				9
10	Heat Sensors – 2nd Floor	X	X					X	X	X	X		X				X				10
11	Sprinkler Waterflow – 1st Floor	X	X					X	X	X	X		X				X			X	11
12	Sprinkler Waterflow – 2nd Floor	X	X					X	X	X	X		X				X			X	12
13	Sprinkler Control Valve			X	X			X											X		13
14	FACP AC Power Failure					X	X	X					X					X			14
15	FACP Low Battery					X	X	X										X			15
16	Open Circuit					X	X	X										X			16
17	Ground Fault					X	X	X										X			17
18	Notification Appliance Circuit Short					X	X	X										X			18
19	Alarm Signal Silence											X									19
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	

BATTERY CALCULATIONS

FOR: 1400 S. POTOMAC
1400 S. Pototmac St. – Aurora, CO

HOURS OF SUPERVISION: 24 HOURS
MINUTES OF ALARM: 5 MINUTES

PANEL: Notifier FCPS-24F

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	1	EXISTING	Notification Booster Panel	0.048000	0.048000	0.048000	0.048000
			TOTAL:			0.048000	0.048000

PERIPHERAL:

ITEM	QTY	PART NUMBER	DESCRIPTION	Device Supervisory Current	Device Alarm Current	Total Supervisory Current	Total Alarm Current
1	6	EXISTING	15cd Strobe	0.000000	0.103000	0.000000	0.618000
2	2	EXISTING	30cd Strobe	0.000000	0.141000	0.000000	0.282000
3	4	EXISTING	75cd Strobe	0.000000	0.255000	0.000000	1.020000
4	1	EXISTING	110cd Strobe	0.000000	0.311000	0.000000	0.311000
5	6	EXISTING	15cd Horn/Strobe	0.000000	0.129000	0.000000	0.774000
6	1	EXISTING	30cd Horn/Strobe	0.000000	0.167000	0.000000	0.167000
7	1	EXISTING	75cd Horn/Strobe	0.000000	0.281000	0.000000	0.281000
8	2	EXISTING	15cd Ceiling Mt. Strobe	0.000000	0.109000	0.000000	0.218000
9	4	G1RF-VM	**15cd Strobe**	0.000000	0.103000	0.000000	0.412000
10	5	G1RF-HDVM	**15cd Horn/Strobe**	0.000000	0.129000	0.000000	0.645000
11	1	G1RF-HDVM	30cd Horn/Strobe	0.000000	0.167000	0.000000	0.167000
			TOTAL:			0.000000	4.895000

SUPERVISORY:		
PANEL:	0.048000	AMPS
PERIPHERAL	0.000000	AMPS
SUB-TOTAL:	0.048000	AMPS
X HOURS OF SUPERVISORY:	24.0000	HOURS
SUB-TOTAL:	1.152000	AMP HOURS
ALARM:		
PANEL:	0.048000	AMPS
PERIPHERAL:	4.895000	AMPS
SUB-TOTAL:	4.943000	AMPS
X MINUTES OF ALARM:	0.08333	HOURS
SUB-TOTAL:	0.411917	AMP HOURS
TOTALS:		
TOTAL SUPERVISORY:	1.152000	AMP HOURS
TOTAL ALARM:	0.411917	AMP HOURS
TOTAL:	1.563917	AMP HOURS
TOTAL PLUS SAFETY FACTOR(20%)	1.87670	AMP HOURS
Batteries Supplied – 1 Set of:	7.00000	AMP HOURS

AURORA BUILDING DEPARTMENT
LIFE SAFETY SYSTEMS
APPROVED
SUBJECT TO CORRECTIONS AS INDICATED AND FIELD INSPECTIONS WITH FUNCTIONAL TESTS
APPROVED JUN 17 2010
SIGNED DATE
2010476798

Scott Stene
Nicet Fire Alarm systems
Level III
Certification #112776
Date: 6-8-10
Scott Stene (FAS)

Fire Alarm SERVICES, INC.
4800 W. 60TH AVENUE
ARVADA, CO 80003
phone: 303-466-8800
fax: 303-466-8820
www.fasonline.cc email: contactus@fasonline.cc

REVISIONS

NO.	DATE

DRAWN BY: L. MASDIN — DATE: 06/03/10
APPR. BY: — DATE: 6/7/10

FIRE ALARM & DETECTION SYSTEM

DRAWING TITLE: SUITE 240 FIRE ALARM PLAN

SCALE: AS SHOWN

PROJECT TITLE: FIRE ALARM SYSTEM TENANT FINISH FOR: COLORADO ENT SPECIALISTS' REMODEL/EXPANSION

BUILDING NAME & ADDRESS: 1400 S. POTOMAC BUILDING, 1400 S. POTOMAC ST., AURORA, CO 80012

PROJECT NUMBER: 10011146

PROJECT SHEET TITLE: FA-01

Fire Alarm System Acceptance Inspection

2006 IFC and 2002 NFPA 72

Date of Inspection: _____ Permit Number: 2010476798

Business/Building Name: COLD BENT SPRING'S Address of Project: 1400 S. POTOMAC #240

Contractor: FIREALARM SERVICES Contractor's Phone: 303-466-8800

Reference numbers following worksheet statements represent an NFPA code section unless otherwise specified.

Pass	Fail	NA		General
1. ____	____	____		Obtained a copy of the fire alarm installation certification and a Record of Completion from installer, 4.5.2.
2. ____	____	____		Approved plans are on site.
3. ____	____	____		Fire alarm control unit (FACU) and remote annunciator (RA) are installed consistent with approved plans, 4.4.6.1.1. and 7.10.
4. ____	____	____		A zone and legend map is provided at the (RA) or an approved location.
5. ____	____	____		Fire alarm zones are properly identified on the FACU and RA panels.
6. ____	____	____		The Fire alarm system power supply is a dedicated 120 AC branch circuit, which is labeled.
7. ____	____	____		Type and gauge of wire or cable(s) for each circuit are consistent with the plans.
8. ____	____	____		Device location and installation is consistent with the plans.
9. ____	____	____		Pull stations are installed at the proper height and location, 42 in. to 48 in. and within the 200 ft. maximum travel distance.
10. ____	____	____		A Contractor Sound Pressure Level (dBA) Pretest Room Log is provided and verified with the use of a sound meter during a sound test.
Operational				
11. ____	____	____		Fire alarm signaling devices sound throughout the occupancy providing a sound pressure level at least a minimum of 15 dBA above the average ambient noise level or 5 dBA above the maximum noise level. For bedrooms with closed door provide at least 75 dBA at the pillow, IFC 907.10.2.
12. ____	____	____		Fire alarm signaling devices are a three-pulse temporal pattern unless they were permitted to match existing audible devices, 6.8.6.4.1.
13. ____	____	____		Fire alarm visual notification device intensity (cd) ratings and settings, mounting height (80 in. to 96 in.), and location, are consistent with the plans.
14. ____	____	____		Fire alarm notification devices will activate by operation of an alarm initiating device.
15. ___	____	____		HVAC duct detectors are supervised by the fire alarm system, detectors are tested to verify if it can sample the air stream, and that fans shutdown and visual and audible status alarm functions, Table 10.4.2.2.13(g).
16. ____	____	____		24 hour monitoring service agency received various signals during system tests.
17. ____	____	____		Verify that the correct and distinctive signals are received (alarm, trouble, and supervisory alarms), 4.4.3.3, 10.4.1.1.
18. ____	____	____		Two monitoring circuits are provided, both circuits send correct signals to the supervising station within 90 seconds, Table 10.4.2.2.16.
19. ____	____	____		Verify proper operation of magnetic door-releasing hardware and/or ventilation shutdown.
20. ____	____	____		Sprinkler tamper switch indicates a trouble signal at the annunciator panel.
21. ____	____	____		Fire alarm emergency phone jacks, if provided, are operational.
22. ____	____	____		For air sampling and flame detectors, test the device in accordance with the manufacturer instructions.
23. ____	____	____		Restorable detectors and pull stations are tested.
24. ____	____	____		Trouble signal is created for each circuit.
25. ____	____	____		Remote annunciator receives the correct information.
26. ____	____	____		Battery load test: the system is switched to battery operation 24 hours before the test and in the presence of the inspector the notification devices are activated and operate for 5 minutes and 15 minutes for emergency voice alarms.
27. ____	____	____		Check battery charger, measure load voltage and open circuit voltage.
28. ____	____	____		Test ground-fault monitoring circuit, if provided.
29. ____	____	____		Under primary and secondary power, perform these tests:

2010476798

___	____	____	A. power light on and in normal condition, trouble signal when on secondary power.
___	____	____	B. supervisory signals: fire pump power loss or phase reversal, water level/temp, pressure switches, control valves, etc.
___	____	____	C. silence switch functions.
___	____	____	D. a second alarm initiating zone overrides silence switch.
___	____	____	E. trouble signals and FACU panel lights operate for each circuit tested, disconnect wires from devices and primary power supply to simulate trouble conditions.
____	____	____	F. on secondary power, measure standby and alarm current demand.
___	____	____	G. trouble and alarm reset switches operate.
___	____	____	H. emergency voice alarms: the message is clear and distinct.
___	____	____	I. initiating devices tested, audible sound pressure levels, and visuals operate.
___	____	____	J. panel lamp test switch operates: if provided.
___	____	____	K. field zones and device address signals corresponded with panel zones and addresses.
___	____	____	L. elevator(s) recall to designated floor and alternate floor in accordance with the Elevator Code.
30.___	____	____	Other systems activate fire alarm: kitchen hood suppression system, clean agent, HVAC duct detectors, etc.
31.___	____	____	Corrected shop drawings shall be required when system installation is not consistent with the plans.
32.___	____	____	Circuit loop resistance is within specifications and a test may be required if the system wiring has changed from the plans.
33. ___	____	____	Time from activating an initiating device to activation of a safety function or notification shall not exceed 10 seconds.
34. ___	____	____	Heat and spot smoke detectors are not within 4 in. of the sidewall, or if on the sidewall, the detector is 4 in. to 12 in. from the ceiling, 5.6.3.1, 5.7.3.2.1.
35. ___	____	____	Visual devices in a room or adjacent space with more than 2 devices within the field of view the flash are synchronized, 7.5.4.1.2(3). Devices In a corridor with more than 2 devices within the field of view and a maximum spacing of 100 ft., are synchronized, 7.5.4.2.5 and 7.5.4.2.7.
36. ___	____	____	Supplemental (extra) visual devices are permitted to be mounted less than 80 in. above the floor, 7.7.2.
37. ___	____	____	Ceiling mounted devices are listed for use and spaced in accordance with Table 7.5.4.1.1(b) and the approved plans.

*Note: additional testing criteria is found in NFPA 72: Chapter 10.

Additional Comments:

Inspection Date: _____ Approved or Disapproved FD Inspector: _____

Inspection Date: _____ Approved or Disapproved FD Inspector: _____

Inspection Date: _____ Approved or Disapproved FD Inspector: _____

Fire Alarm Services, Inc.
4800 W. 60th Avenue
Arvada, CO 80003

Phone (303) 466-8800
Fax (303) 466-8820

Fire Alarm System Addition at:

Tenant: Colorado ENT Specialists Remodel/Expansion
1400 S. Potomac Building
1400 S. Potomac Street, Suite 240
Aurora, CO 80012

Scope of Work:

1. Provide and install six (6) new horn/strobes.
2. Provide and install four (4) new strobes.

Scott Stene
Nicet Fire Alarm systems
Level III
Certification #112776

Date: 6-8-10

Scott Stene (FAS)

TYP. 8 PAGES

AURORA BUILDING DEPARTMENT
LIFE SAFETY SYSTEMS
APPROVED
SUBJECT TO CORRECTIONS AS
INDICATED AND FIELD INSPECTIONS
WITH FUNCTIONAL TESTS
APPROVED JUN 17 2010
SIGNED DATE

2010476798

GE
Security

EST Fire & Life Safety
Notification Appliances

Overview

The Genesis line of signals are among the smallest, most compact audible-visible emergency signaling devices in the world. About the size of a deck of playing cards, these devices are designed to blend with any decor.

Thanks to patented breakthrough technology, GE Security Genesis strobes do not require bulky specular reflectors and lenses. Instead, an exclusive cavity design conditions light to produce a highly controlled distribution pattern. Significant development efforts employing this new technology have given rise to a new benchmark in strobe performance – FullLight technology.

FullLight strobe technology produces a smooth light distribution pattern without the spikes and voids characteristic of specular reflectors. This ensures the entire coverage area receives consistent illumination from the strobe flash. As a result, Genesis strobes with FullLight technology go well beyond the minimum UL-required "T" pattern, significantly exceeding UL-1971 and ULC-S526 light distribution requirements.

Genesis strobes and horn-strobes offer 15 to 110 candela output, which is selectable with a conveniently-located switch on the side of the device. Models are also available that offer fixed 15/75 cd output. The candela output setting remains clearly visible even after final installation, yet it stays locked in place to prevent unauthorized tampering.

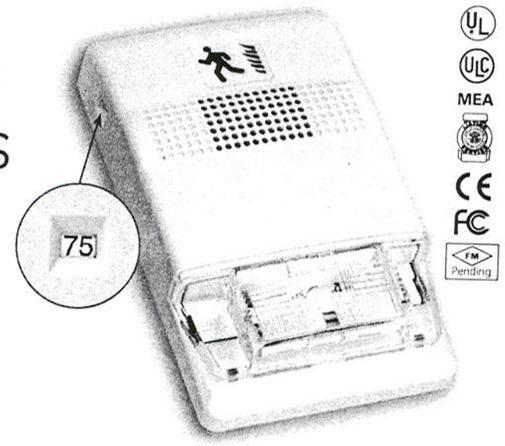
Genesis signals feature textured housings in architecturally neutral white or traditional fire red. An ingenious iconographic symbol indicates the purpose of the device. This universal symbol is code-compliant and is easily recognized by all building occupants regardless of what language they speak. Models with "FIRE" markings are also available.

Standard Features

- **Unique low-profile design**
  - The most compact UL-1971/ULC-S526 listed strobe available
  - Ultra-slim – protrudes less than one inch
  - Attractive appearance
  - No visible mounting screws
- **Four field-configurable options in one device**
  - Select 15, 30, 75, or 110 cd strobe output
  - Select high (default) or low dB horn output
  - Select temporal (default) or steady horn output
  - Select public mode flash rate (default) or private mode temporal flash
- **Fixed 15/75 cd model available**
- **Easy to install**
  - Fits standard 1-gang electrical boxes – no trim plate needed
  - Optional trim plate accommodates oversized openings
  - Pre-assembled with captive hardware
  - #12 AWG terminals – ideal for long runs or existing wiring
- **Unparalleled performance**
  - Industry's most even light distribution
  - Meets tough synchronizing standards for strobes
  - Single microprocessor controls both horn and strobe
  - Low current draw minimizes system overhead
  - Independent horn control over a single pair of wires
  - Highly regulated in-rush current
  - Multiple frequency tone improves sound penetration
  - Industry's first temporal strobe output

Field Configurable Horns and Strobes

Genesis Series



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Application

Genesis strobes are UL 1971-listed for use indoors as wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed 105 dBA (87dBA in Canada), where occupants use hearing protection, and in areas of public accommodation as defined in the *Americans with Disabilities Act (see application notes – USA).*

Combination horn-strobe signals must be installed in accordance with guidelines established for strobe devices.

Strobes

Genesis strobes are UL 1971-listed for use indoors as wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. Consult with your Authority Having Jurisdiction for details.

All Genesis strobes exceed UL synchronization requirements (within 10 milliseconds other over a two-hour period) when used with a synchronization source. Synchronization is important in order to avoid epileptic sensitivity.

NOTE: The flash intensity of some visible signals may not be adequate to alert or waken occupants in the protected area. Research indicates that the intensity of strobe needed to awaken 90% of sleeping persons is approximately 100 cd. GE Security recommends that strobes in sleeping rooms be rated at at least 110 cd.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, further safeguards such as backup power supplies may be required.

Horns

Genesis horn output reaches as high as 99 dB and features a unique multiple frequency tone that results in excellent sound penetration and an unmistakable warning of danger. Horns may be configured for either coded or non-coded signal circuits. They can also be set for low dB output with a jumper cut that reduces horn output by about 5 dB. Horn-only models may be ceiling-mounted or wall-mounted.

The suggested sound pressure level for each signaling zone used with alert or alarm signals is at least 15 dB above the average ambient sound level, or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater, measured 5 feet (1.5 m) above the floor. The average ambient sound level is, A-weighted sound pressure measured over a 24-hour period.

Doubling the distance from the signal to the ear will theoretically result in a 6 dB reduction of the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. A 3 dBA difference represents a barely noticeable change in volume.

Installation

Genesis horns and strobes mount to any standard one-gang surface or flush electrical box. Matching optional trim plates are used to cover oversized openings and can accommodate one-gang, two-gang, four-inch square, or octagonal boxes, and European 100 mm square.



Genesis Horn/Strobe with optional trim plate

All Genesis signals come pre-assembled with captive mounting screws for easy installation. Two tabs at the top of the signal unlock the cover to reveal the mounting hardware. The shallow depth of Genesis devices leaves ample room behind the signal for extra wiring. Once installed with the cover in place, no mounting screws are visible.

Field Configuration

Temporal horn and horn-strobe models are factory set to sound in a **three-pulse temporal pattern**. Units may be configured for use with coded systems by cutting a jumper on the circuit board. This results in a **steady output** that can be turned on and off (coded) as the system applies and removes power to the signal circuit. A Genesis Signal Master is required when horn-strobe models are configured for coded systems. Non-temporal, horn-only models sound a steady tone.

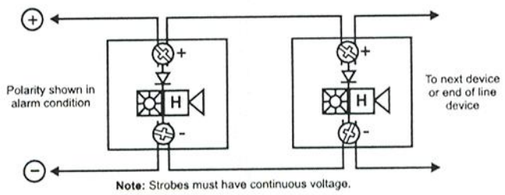
Genesis strobes and horn-strobes are shipped from the factory ready for use as **UL 1971 compliant** signals for public mode operation. These signals may be configured for **temporal flash** by cutting a jumper on the circuit board. This battery-saving feature is intended for private mode signaling only.

Genesis strobes and horn-strobes may be set for **15, 30, 75, or 110 candela output**. The output setting is changed by simply opening the device and sliding the switch to the desired setting. The device does not have to be removed to change the output setting. The setting remains visible through a small window on the side of the device after the cover is closed.

Horns and horn-strobes are factory set for **high dB output**. **Low dB output** may be selected by cutting a jumper on the circuit board. This reduces the output by about 5 dB.

Wiring

Field wiring terminals accommodate #18 to #12 AWG (0.75 mm² to 2.5 mm²) wiring. Horns, strobes, and combination horn-strobes are interconnected with a single pair of wires as shown below.



Note: Strobes must have continuous voltage.

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Current Draw

Strobes, Horn-Strobes

Multi-cd Wall Strobes (G1-VM)

UL Rating	15 cd*	30 cd*	15/75 cd**	75 cd*	110 cd*
	RMS	RMS	RMS	RMS	RMS
16 Vdc	103	141	152	255	311
16 Vfwr	125	179	224	346	392

*G1-VM multi-cd; **G1F-V1575 fixed 15/75 cd

Typical Current	15 cd		30 cd		15/75		75 cd		110 cd	
	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean
16 Vdc	85	79	127	124	150	140	245	243	285	283
20 Vdc	71	66	98	96	123	114	188	186	240	238
24 Vdc	59	55	82	80	104	97	152	150	191	190
33 Vdc	46	44	64	63	84	77	112	111	137	136
16 Vfwr	119	64	169	97	223	126	332	203	376	240
20 Vfwr	103	53	143	76	189	100	253	150	331	198
24 Vfwr	94	44	129	65	169	85	218	121	262	152
33 Vfwr	81	37	112	52	148	68	179	89	205	106

Wall Temporal Horn-strobes – High dB Setting

UL Rating	15 cd*	30 cd*	15/75 cd**	75 cd*	110 cd*
	RMS	RMS	RMS	RMS	RMS
16 Vdc	129	167	172	281	337
16 Vfwr	176	230	269	397	443

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd		30 cd		15/75		75 cd		110 cd	
	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean
16 Vdc	102	89	135	129	160	152	246	242	309	305
20 Vdc	88	77	109	104	137	129	193	190	248	243
24 Vdc	81	71	94	90	122	114	161	158	203	200
33 Vdc	74	64	72	74	106	98	124	121	154	151
16 Vfwr	144	77	182	106	247	143	352	212	393	249
20 Vfwr	141	68	162	87	220	120	274	158	362	210
24 Vfwr	136	65	152	76	203	106	235	133	282	165
33 Vfwr	125	54	144	65	196	94	201	101	232	123

Wall Temporal Horn-strobes – Low dB Setting

UL Rating	15 cd*	30 cd*	15/75 cd**	75 cd*	110 cd*
	RMS	RMS	RMS	RMS	RMS
16 Vdc	122	160	146	274	330
16 Vfwr	162	216	231	383	429

*G1-HDVM multi-cd
**G1F-HDV1575 fixed 15/75 cd

Typical Current	15 cd		30 cd		15/75		75 cd		110 cd	
	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean	RMS	Mean
16 Vdc	96	84	130	124	158	149	243	240	302	297
20 Vdc	79	70	104	99	133	124	189	186	241	237
24 Vdc	68	61	88	84	119	110	156	154	197	193
33 Vdc	56	52	71	68	100	93	118	116	146	143
16 Vfwr	128	69	180	104	241	139	344	204	389	244
20 Vfwr	118	60	157	84	213	115	266	156	343	200
24 Vfwr	113	54	144	74	195	101	230	128	279	161
33 Vfwr	112	48	137	64	182	87	197	99	226	117

Horns

Wall or Ceiling Mounted Temporal Horns (G1-HD)

UL Rating	High dB (RMS)	Low dB (RMS)
16 Vdc	26	19
24 Vdc	36	27
33 Vdc	41	33
16 Vfwr	51	37
24 Vfwr	69	52
33 Vfwr	76	70

Typical Current	High dB		Low dB	
	RMS	Mean	RMS	Mean
16 Vdc	22	17	17	14
20 Vdc	24	19	19	16
24 Vdc	27	21	22	18
33 Vdc	32	25	26	22
16 Vfwr	34	15	30	14
20 Vfwr	40	19	34	16
24 Vfwr	45	21	38	18
33 Vfwr	52	24	47	22

Wall or Ceiling Mounted Horns (G1-P)

UL Designation	Voltage Range	Max. Current, RMS
Regulated 24 Vdc	16 - 33 Vdc	13 mA
24 fwr	16 - 33 Vfwr	11 mA

Typical Current	RMS	Mean
24 Vdc	10	10
24 Vdc	11	11
31 Vdc	12	12
20 Vfwr	9	8
24 Vfwr	10	9

Notes and Comments

1. Current values are shown in mA.
2. UL Nameplate Rating can vary from Typical Current due to measurement methods and instruments used.
3. GE Security recommends using the Typical Current for system design including NAC and Power Supply loading and voltage drop calculations.
4. Use the Vdc RMS current ratings for filtered power supply and battery AH calculations. Use the Vfwr RMS current ratings for unfiltered power supply calculations.
5. Fuses, circuit breakers and other overcurrent protection devices are typically rated for current in RMS values. Most of these devices operate based upon the heating affect of the current flowing through the device. The RMS current (not the mean current) determines the heating affect and therefore, the trip and hold threshold for those devices.
6. Our industry has used 'mean' currents over the years. However, UL will direct the industry to use the 2004 RMS values in the future.

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