

SYMBOLS LEGEND

- FACP** FIRE ALARM CONTROL PANEL
- FAAP** FIRE ALARM ANNUNCIATOR PANEL
- SPE** STROBE POWER EXTENDER
- F** MANUAL PULL STATION
- IM** INTERFACE MODULE
- ?** SMOKE DETECTOR
 (SMOKE DETECTOR CONTROL FUNCTION)
 S – AREA SMOKE, IONIZATION
 PE – SMOKE REFRACTION
- ?**_p DUCT SMOKE DETECTOR (PHOTOELECTRIC)
- ◻** SPEAKER – WALL MOUNTED
- ◯** SPEAKER – CEILING MOUNTED
- ◻** **XX** SPEAKER/STROBE – WALL MOUNTED
 (STROBE SHALL BE 15cd U.O.N.)
- 1 HOUR FIRE RATED ASSEMBLY
- 2 HOUR FIRE RATED ASSEMBLY
- 3 HOUR FIRE RATED ASSEMBLY

ABBREVIATIONS

- AMP(S) AMPERE(S)
- A.F.F. ABOVE FINISHED FLOOR
- CBL. CABLE
- cd CANDELA
- CKT CIRCUIT
- DC DIRECT CURRENT
- ELEV. ELEVATOR
- EQUIP. EQUIPMENT
- F/A FIRE ALARM
- FACP FIRE ALARM CONTROL PANEL
- FAAP FIRE ALARM ANNUNCIATOR PANEL
- F.B.O. FURNISHED BY OWNER
- FDV FIRE DEPARTMENT VALVE
- FS FLOW SWITCH
- GPM GALLONS PER MINUTE
- HP HORSEPOWER
- HT. HEIGHT
- JB JUNCTION BOX
- MAX. MAXIMUM
- MIN. MINIMUM
- No. NUMBER
- PWR. POWER
- RAP REMOTE ANNUNCIATOR PANEL
- S.T. SHUNT TRIP
- TS TAMPER SWITCH
- TEL TELEPHONE
- TYP. TYPICAL
- U.O.N. UNLESS OTHERWISE NOTED
- V VOLT
- W WIRE
- WP WEATHERPROOF
- XMTR TRANSMITTER
- * DISTANCE DOWN FROM CEILING
- + DISTANCE ABOVE FINISHED FLOOR

DRAWING LEGEND

- FA1 LEGENDS AND ABBREVIATIONS
- FA2 PART DEVICE PLAN
- FA3 RISER DIAGRAM
- FA4 VOLTAGE DROP CALCULATIONS
- FA5 MATRIX
- FA6 BATTERY CALCULATIONS
- FA7 FIRE STOP DETAIL

PROJECT INFORMATION:

USE GROUP: B
 CONSTRUCTION TYPE: IIA
 CHANGE OF USE: NO
 FLOOD PLAIN: NO
 OCCUPANCY: 45
 FULLY SPRINKLERED BUILDING
 BUILDING SQUARE FOOT: 4,500



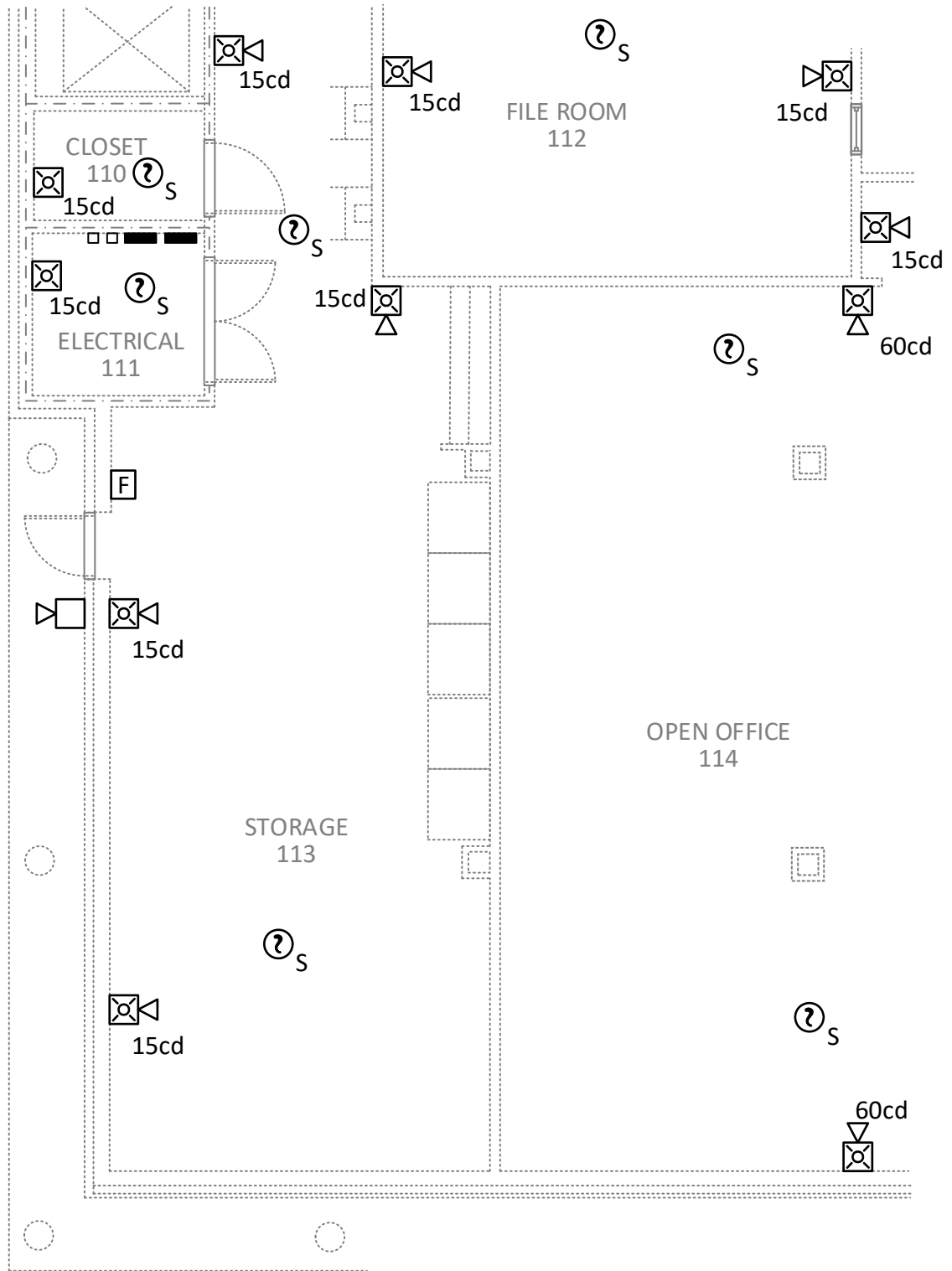
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Project Name	Diamond Plating	
Project Address	2312 Westwood Avenue	
Master's Name	Robert Duce	
Master's Card No.	2733-012345	
Company Address	Duce Electric Co.	FA1
Phone (804) 555-1234	900 East Broad Street	
Fax (804) 555-4321	Richmond, VA 23222	

CODE INFORMATION:

2018 VIRGINIA STATEWIDE BUILDING CODE
 2017 NATIONAL ELECTRICAL CODE
 2016 NFPA 72





PART DEVICE PLAN

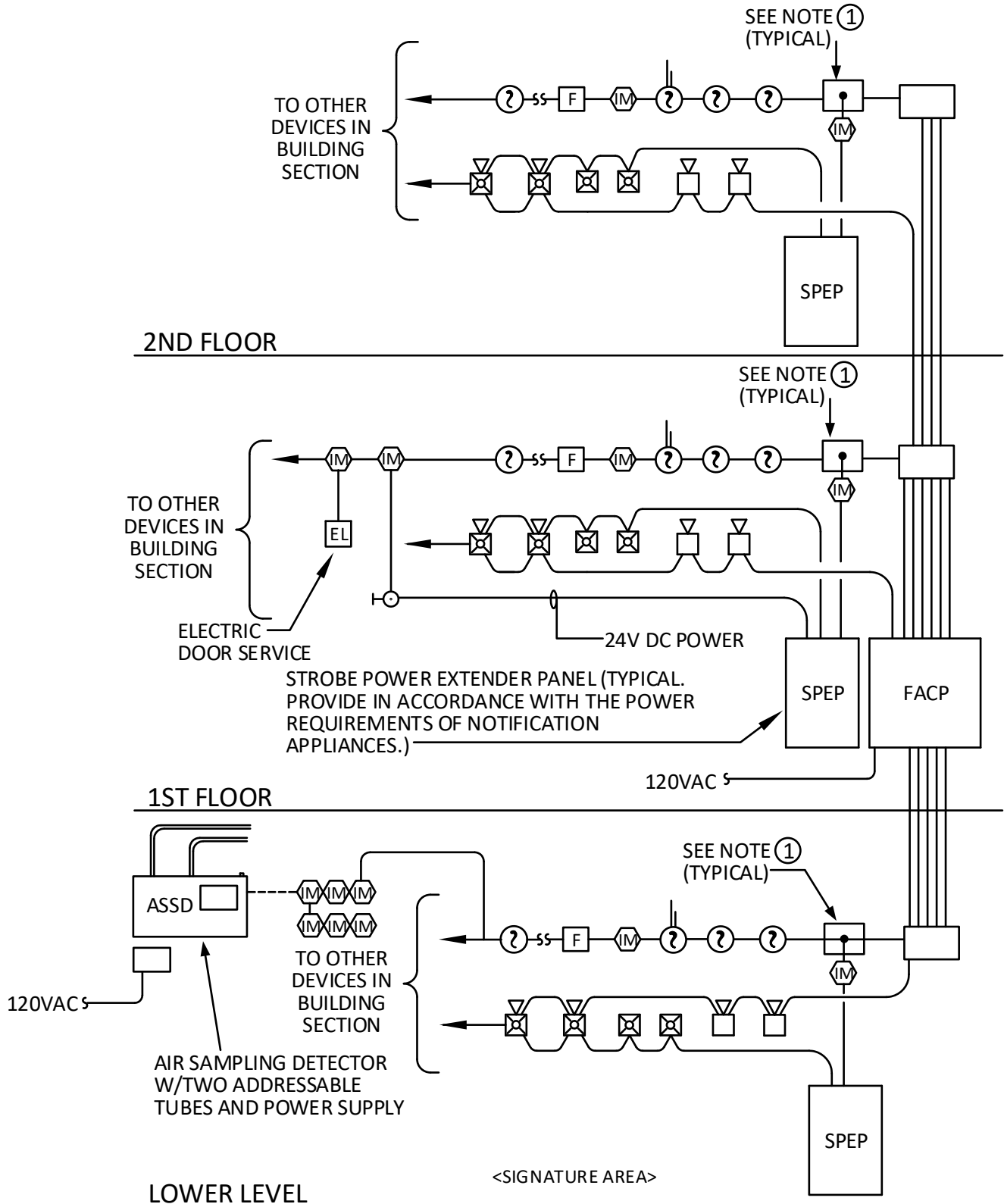
1/8" = 1'-0"



1/8 = 1'-0"

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	900 East Broad Street	
	Richmond, VA 23222	



RISER DIAGRAM

NO SCALE

KEY NOTES:

1. A TERMINAL BOX FOR DISTRIBUTION OF THE FLOOR SIGNALING LINE AND NOTIFICATION APPLIANCE CIRCUITS SHALL BE PROVIDED AT EACH LOCATION AT A MINIMUM. ALL CONNECTIONS SHALL BE MADE WITH TERMINAL BLOCKS. PIGTAILING SHALL NOT BE USED TO MAKE FIELD CONNECTIONS.

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Project Name	Diamond Plating				
Date	10/15/2014	Nominal System Voltage	24 V		
Circuit Number	1	Minimum Device Voltage	18 V		
Area Covered	10,000 sq. ft.	Total Circuit Current	2.037 A		
	Distance	Wire Gauge	Ohm's per 1000 feet		
Distance from source to first device	20	14	3.07		
Device	Device Current (in Amperes)	Distance from previous device (in FT.)	Voltage		
			At Device	Drop from Source	Percent drop
horn/strobe 30cd	0.102	20	23.75	0.25	1.04%
strobe 75cd	0.135	15	23.57	0.43	1.78%
smoke detector	0.010	15	23.41	0.59	2.48%
horn/strobe 75cd	0.148	30	23.08	0.92	3.85%
horn/strobe 75cd	0.148	40	22.67	1.33	5.53%
horn/strobe 75cd	0.148	25	22.44	1.56	6.49%
horn/strobe 75cd	0.148	30	22.20	1.80	7.52%
horn/strobe 30cd	0.102	15	22.09	1.91	7.98%
horn/strobe 30cd	0.102	15	21.98	2.02	8.40%
horn/strobe 75cd	0.148	20	21.86	2.14	8.91%
smoke detector	0.010	23	21.74	2.26	9.41%
smoke detector	0.010	27	21.60	2.40	9.98%
smoke detector	0.010	20	21.50	2.50	10.41%
smoke detector	0.010	36	21.32	2.68	11.16%
smoke detector	0.010	60	21.03	2.97	12.39%
horn/strobe 75cd	0.148	20	20.93	3.07	12.80%
horn/strobe 75cd	0.148	15	20.87	3.13	13.05%
horn/strobe 75cd	0.148	15	20.82	3.18	13.24%
horn/strobe 75cd	0.148	34	20.75	3.25	13.55%
horn/strobe 30cd	0.102	20	20.72	3.28	13.65%
horn/strobe 30cd	0.102	15	20.71	3.29	13.69%

PARTIAL VOLTAGE DROP CALCULATIONS

NO SCALE

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ABBREVIATIONS

ALT. ALTERNATE
 DET. DETECTOR
 ELEV. ELEVATOR
 FLR. FLOOR
 RM. ROOM

SYSTEM INPUTS

SYSTEM OUTPUTS

GENERAL EVACUATION
 AUTOMATIC RETRANSMISSION OF ALARM/SUPERVISORY TROUBLE TO RECEIVING STATION
 AUDIBLE & VISUAL ALARM SIGNAL AT FACP
 AUDIBLE & VISUAL ALARM SIGNAL AT FACP
 RECORD EVENTS IN MEMORY AND PRINTER
 OUTPUT SIGNAL TO CLOSE FIRE DOORS
 OUTPUT SIGNAL TO ELEVATOR CONTROLLER FOR ELEVATOR
 OUTPUT SIGNAL TO ELEVATOR CONTROLLER FOR ELEVATOR
 DISPLAY EXACT LOCATION OF DEVICE AT REMOTE ANNUNCIATION PANEL
 OUTPUT TO RELEASE ALL LOCKED DOORS IN MEANS OF EGRESS
 AUDIBLE & VISUAL TROUBLE SIGNAL AT REMOTE UNIT
 INITIATE SMOKE CONTROL SYSTEM
 OUTPUT TO LIGHTING SYSTEM
 OUTPUT TO RELEASE PRE-ACTION SYSTEM
 OUTPUT TO SHUTDOWN FAN POWERED VAV BOXES

		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	AREA/ROOM SMOKE DETECTOR	●	●	●		●	●					●	●			●		●
2	DUCT SMOKE DETECTOR		●		●	●					●	●						
3	WATER PRESSURE SWITCH	●	●	●		●	●					●	●			●		
4	MANUAL PULL STATION	●	●	●		●	●					●	●			●		
5	SMOKE DET. ELEV. LOBBY	●	●	●		●			●			●	●			●		
6	SMOKE DET. ALT. FLR. ELEV. LOBBY	●	●	●		●		●				●	●			●		
7	ELEV. MACHINE RM. SMOKE DET.	●	●	●		●		●				●	●			●		
8	ELEV. MACHINE RM. HEAT DET. 135 ⁰ F	●	●	●		●				●		●	●			●		
9	MONITOR SWITCH (VALVE ETC.)				●	●						●						
10	ANY DEVICE OR CIRCUIT TROUBLE		●			●						●		●				
11	MAN. SMOKE CONTROL INITIATION														●			

INPUT/OUTPUT MATRIX

NO SCALE

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	900 East Broad Street	Richmond, VA 23222

FIRE ALARM SYSTEM SECONDARY BATTERY-SET CALCULATION WORKSHEET

ITEM	DESCRIPTION	STANDBY CURRENT PER UNIT (AMPS)		QUANTITY		TOTAL STANDBY CURRENT PER ITEM	ALARM CURRENT PER UNIT (AMPS)		QUANTITY		TOTAL ALARM CURRENT PER ITEM		
FACP	FIRE ALARM CONTROL PANEL	0.2500	X	1	=	0.2500	0.5000	X	1	=	0.5000		
ANN	ANNUNCIATOR	0.1250	X	1	=	0.1250	0.2500	X	1	=	0.2500		
SMOKE	SMOKE DETECTOR	0.0001	X	24	=	0.0024	0.0010	X	100	=	0.0010		
HEAT	HEAT DETECTOR	0.0000	X	10	=	0.0000	0.0000	X	10	=	0.0000		
PULL	PULL STATION	0.0000	X	14	=	0.0000	0.0000	X	10	=	0.0000		
BELL	FDC BELL	0.0000	X	3	=	0.0000	0.0500	X	1	=	0.0500		
HORN	HORN	0.0000	X	0	=	0.0000	0.0500	X	20	=	1.0000		
STROBE	STROBE	0.0000	X	14	=	0.0000	0.1000	X	40	=	4.0000		
H/S	HORN/STROBE	0.0000	X	26	=	0.0000	0.1500	X	20	=	3.0000		
0	0	0.0000	X	0	=	0.0000	0.0000	X	0	=	0.0000		
0	0	0.0000	X	0	=	0.0000	0.0000	X	0	=	0.0000		
0	0	0.0000	X	0	=	0.0000	0.0000	X	0	=	0.0000		
0	0	0.0000	X	0	=	0.0000	0.0000	X	0	=	0.0000		
TOTAL SYSTEM STANDBY CURRENT (AMPS)						0.3774	TOTAL SYSTEM ALARM CURRENT (AMPS)						8.9000
		REQUIRED STANDBY TIME (HRS) NFPA 72-2010 10.5.6.7.1		TOTAL SYSTEM STANDBY CURRENT (AMPS)		REQUIRED STANDBY CAPACITY (AMP-HOURS)	REQUIRED ALARM TIME (HOURS) NFPA 72-2010 10.5.6.3.1		TOTAL SYSTEM ALARM CURRENT (AMPS)		REQUIRED ALARM CAPACITY (AMP-HOURS)		
		24	X	0.3774	=	9.0576	0.083	X	8.9000	=	0.7387		
		REQUIRED STANDBY CAPACITY (AMP-HOURS)		REQUIRED ALARM CAPACITY (AMP-HOURS)		TOTAL CAPACITY (AMP-HOURS)	TOTAL CAPACITY (AMP-HOURS)		SAFETY FACTOR		ADJUSTED BATTERY CAPACITY (AMP-HOURS)		
		9.06	X	0.7387	=	9.7963	9.7963	+	20%	=	12		

BATTERY CALCULATION

NO SCALE

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Company Address Phone (804) 555-1234 Fax (804) 555-4321	Duce Electric Co. 900 East Broad Street Richmond, VA 23222	FA6

System No. C-AJ-1013

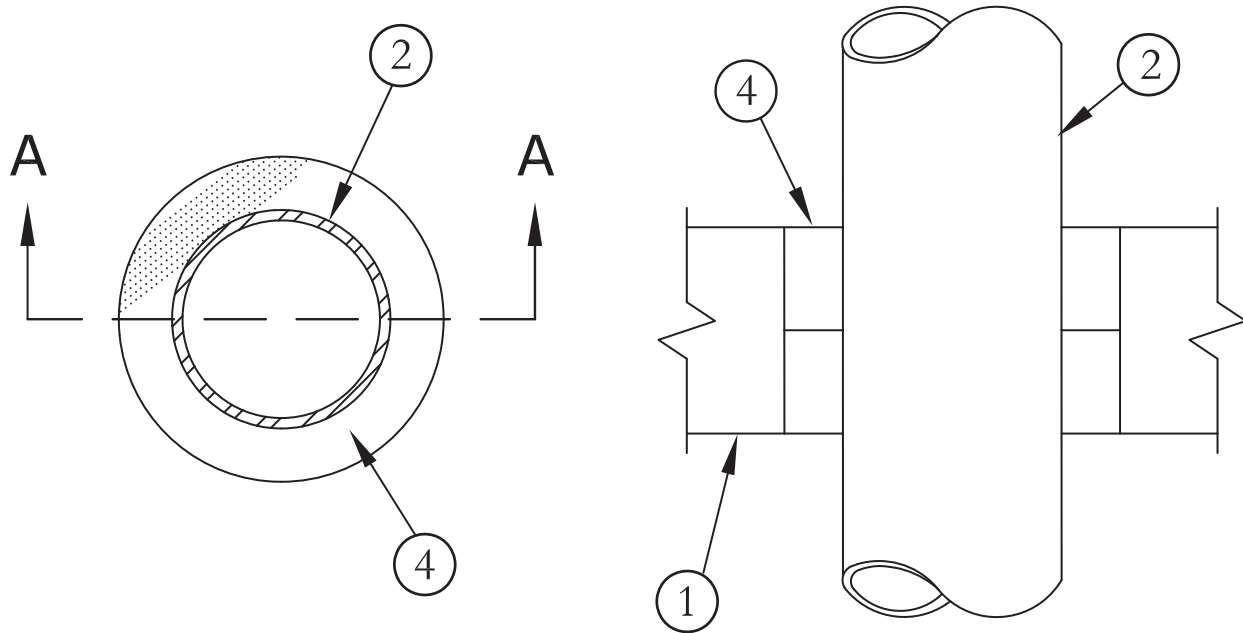
May 09, 2013

F Rating – 1 Hr

T Rating – 0 Hr

L Rating At Ambient – Less Than 1 CFM/sq ft

L Rating At 400 F – Less Than 1 CFM/sq ft



SECTION A-A

1. **Floor or Wall Assembly** – Min 5 in. (127 mm) thick reinforced normal weight (140-155) pcf concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 6 in. (152 mm).
See **Concrete Block (CAZT)** category in the Fire Resistance Directory.
2. **Through Penetrants** – One metallic pipe, or conduit to be centered within the firestop system. Pipe or conduit to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or conduits may be used:
 - A. **Steel Pipe** – Nom 4 in. (102 mm) diam (or smaller) Schedule 5 (or heavier) steel pipe. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.
 - B. **Conduit** – Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit. A nom annular space of 3/4 in. (19 mm) is required within the firestop system.
3. **Packing Material** – (Not Shown) – Nom 1 in. (25 mm) diam open cell polyurethane foam backer rod friction-fitted into the opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
4. **Fill, Void or Cavity Material* – Sealant** – Min 3/4 in. (19 mm) thickness of fill material applied within annulus, flush with top surface of floor or with both surfaces of wall.

3M COMPANY – Types FB-1000 NS, FB-1003SL (floors only), FB-2000 or FB-2000+.

Bearing the UL Classification Mark



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