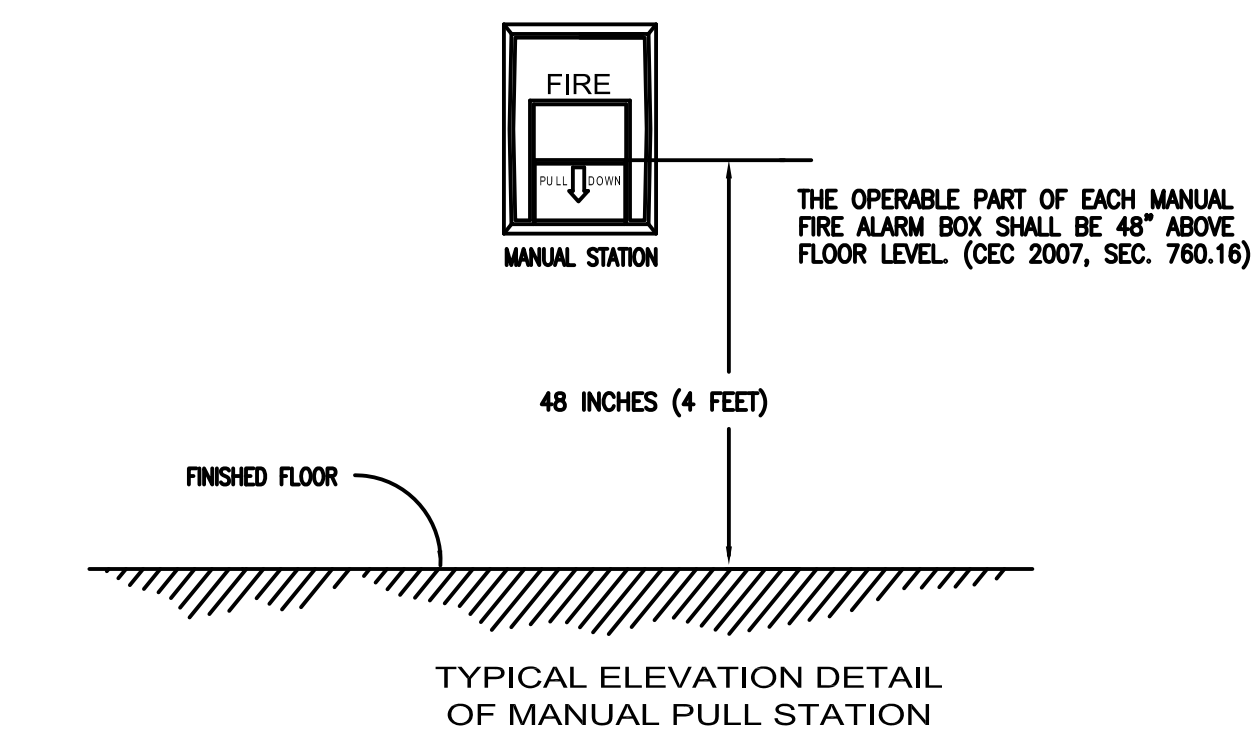
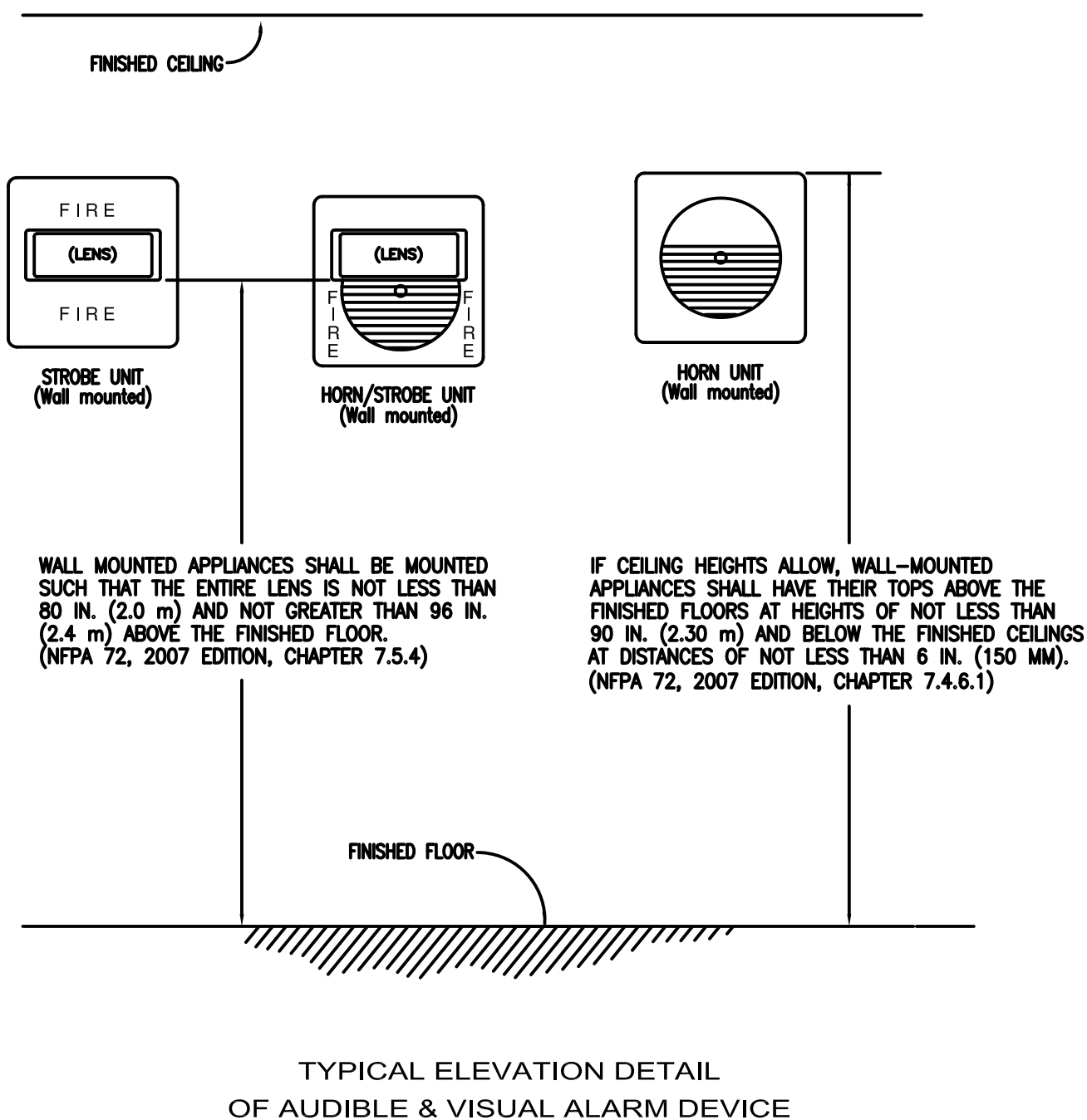


MOUNTING DETAILS



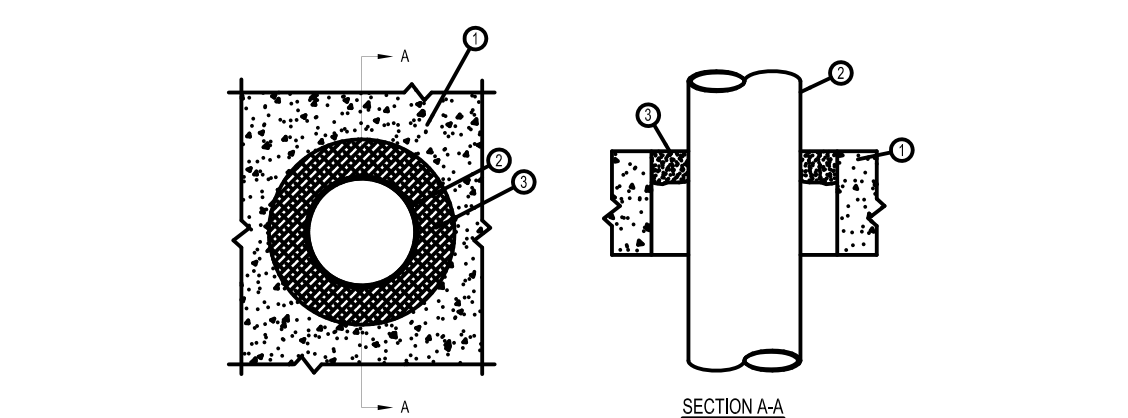
PANEL ANCHORAGE NOTE

ATTACHMENT OF EQUIPMENT WEIGHING LESS THAN 400 LBS. AND SUPPORTED DIRECTLY ON FLOOR OR ROOF STRUCTURE, FURNITURE OR TEMPORARY OR MOVABLE EQUIPMENT AND EQUIPMENT WEIGHING LESS THAN 20 LBS. THAT IS SUPPORTED BY VIBRATION ISOLATION DEVICES SUSPENDED FROM ROOF, WALL OR FLOOR NEED NOT BE DETAILED ON PLANS (CBC TITLE 24, PART 2, SECTION 1630A.1). HOWEVER, SUCH EQUIPMENT MUST BE SUPPORTED AND ANCHORED TO RESIST FORCES PRESCRIBED BY SECTION 1630A.2 AND THE ANCHORAGE SHALL BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD AND OSHDP AS PART OF FIELD REVIEWS/INSPECTIONS. THE INSPECTOR OF RECORDS SHALL ASSURE THAT THE ABOVE REQUIREMENTS ARE ENFORCED.

THE PAD-3 POWER BOOSTER PANELS EACH WEIGHS LESS THAN 20 LBS. INCLUDING BATTERIES.

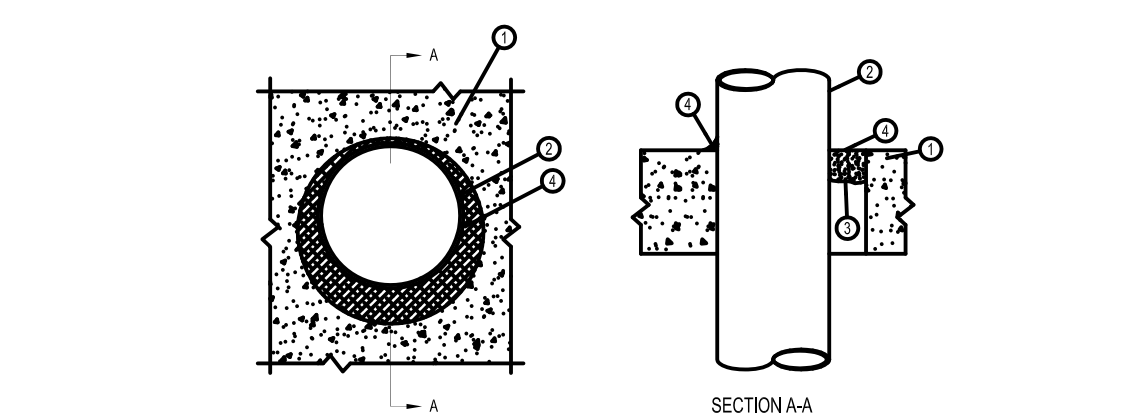
THROUGH-PENETRATION FIRESTOP SYSTEM DETAILS

SYSTEM NO. CAJ1027 (FORMERLY SYSTEM NO. 202)
 F RATING - 3 HOUR
 T RATING - 0 HOUR



- FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX THROUGH OPENING SIZE IS 24 X 52 IN.
 - SEE CONCRETE BLOCKS (CAZT) CATEGORY IN FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
 - PIPE OR CONDUIT - NOM 1/2 IN DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 1/2 IN DIA. (OR SMALLER) RIGID STEEL CONDUIT, NOM 1/2 IN DIA. (OR SMALLER) STEEL EMT OR NOM 1/2 IN DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE, MAX ONE PIPE OR CONDUIT PER THROUGH OPENING. MAX ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS 2 IN. MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 0 IN. (POINT CONTACT). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
 - FILL VOID OR CAVITY MATERIALS - PUTTY-MOLDABLE PUTTY MATERIAL, KNEADED BY HAND AND APPLIED TO FILL ANNULAR SPACE TO A MIN DEPTH OF 1 IN FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED PUTTY THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL.
- MINNESOTA MINING & MFG. CO. - MFS-2+
 BEARING THE CLASSIFICATION MARKING.

SYSTEM NO. CAJ1044 (FORMERLY SYSTEM NO 319)
 T RATING - 0 HR
 L RATING AT AMBIENT - 2 CFM/SQ FT (SEE ITEM 4)
 L RATING AT 400 F - LESS THAN 1 CFM/SQ FT (SEE ITEM 4)



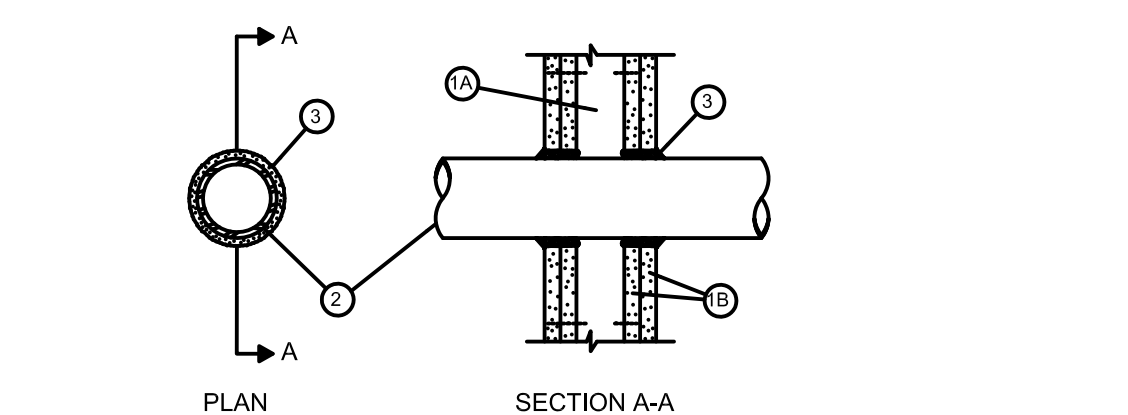
- FLOOR WALL ASSEMBLY - LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE, EXCEPT AS NOTED IN TABLE UNDER ITEM 4. MIN THICKNESS OF SOLID CONCRETE FLOOR OR WALL ASSEMBLY IS 4-1/2 IN. FLOOR MAY ALSO BE CONSTRUCTED OF ANY MIN 8 IN. THICK UL CLASSIFIED HOLLOW-CORE PRECAST CONCRETE UNITS. WHEN FLOOR IS CONSTRUCTED OF HOLLOW-CORE PRECAST CONCRETE UNITS, PACKING MATERIALS (ITEM 3) AND CAULK/FILL MATERIAL (ITEM 4) TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF THE FLOOR. FLUSH WITH FLOOR SURFACE. WALL ASSEMBLY MAY ALSO BE CONSTRUCTED OF CLASSIFIED CONCRETE BLOCKS; MAX DIA. OF THROUGH OPENING IS 24 IN. SEE CONCRETE BLOCKS (CAZT) AND PRECAST CONCRETE UNITS (CFTV) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURER.
- STEEL SLEEVE - (OPTIONAL NOT SHOWN) NOM 1/2 IN. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL SLEEVE CAST OR GROUDED INTO FLOOR OR WALL ASSEMBLY. SLEEVE MAY EXTEND A MAX OF 2 IN. ABOVE TOP FLOOR OR BEYOND EITHER SURFACE OF WALL.
- PIPE OR CONDUIT - NOM 1/2 IN DIA. (OR SMALLER) CAST IRON OR SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 1/2 IN DIA. (OR SMALLER) STEEL CONDUIT, NOM 1/2 IN DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE OR NOM 1/2 IN DIA. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING. MAX ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING NOT TO EXCEED 2 IN. MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS 0 IN. (POINT CONTACT). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
- PACKING MATERIAL - POLYETHYLENE BACKER ROD OR NOM 1 IN THICKNESS OF TIGHTLY PACKED MINERAL WOOL BATT OR GLASS FIBER INSULATION FIRMLY PACKED INTO 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 CAULK/FILL MATERIAL (ITEM 4).
- FILL VOID OR CAVITY MATERIAL - CAULK - APPLIED TO FILL THE ANNULAR SPACE FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED CAULK THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL. FLUSH WITH WALL SURFACE. THE HOURLY F RATING AND THE MIN REQUIRED CAULK THICKNESS ARE DEPENDENT UPON A NUMBER OF PARAMETERS, AS SHOWN ON THE FOLLOWING TABLE.

MIN FLOOR OR WALL THICKNESS, IN	NOM PIPE OR CONDUIT DIA, IN	MAX ANNULAR SPACE, IN	MAX CAULK THICKNESS, IN	F RATING, HR
2-1/2	1/2-1 1/2	1-3/8	1/2	2
2-1/2	1-1/2	2-7/8	1	2
4-1/2	1-1/2	1-3/8	1/2	2
4-1/2	1-1/2	1-1/4	1/2	3
4-1/2	2	1	1	3
4-1/2	2-3/8	2	2	3
5-1/2	1-3/8	1-3/8	1/2	4

(4) MIN 2 IN THICKNESS OF MINERAL WOOL BATT INSULATION REQUIRED IN ANNULAR SPACE.
 (5) MIN 1 IN THICKNESS OF MINERAL WOOL BATT INSULATION REQUIRED IN ANNULAR SPACE ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. MIN 1 IN THICKNESS OF CAULK TO BE INSTALLED FLUSH WITH EACH SURFACE OF FLOOR OR WALL ASSEMBLY.

MINNESOTA MINING & MANUFACTURING CO. - TYPES CP-25 WB+ (CP-25 WB+ CAULK IS USED).
 (NOTE: L RATING AND OR USE OF OPTIONAL SLEEVE APPLY ONLY WHEN TYPE CP-25WB+ CAULK IS USED).

SYSTEM NO. WL1001 (FORMERLY SYSTEM NO 147)
 F RATING - 1 & 2 HOURS
 T RATING - 0, 1, 1-1/2 & 2 HOURS

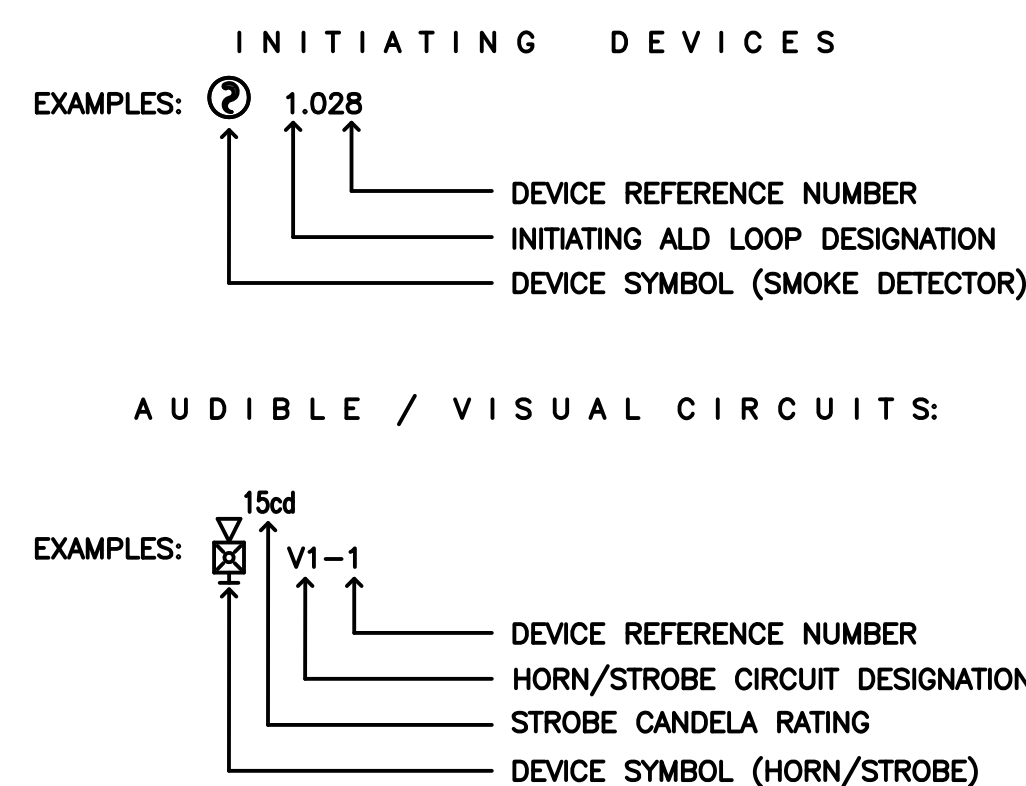


- WALL ASSEMBLY - THE 1, 2, 3, OR 4 HR FIRE-RATED GYPSUM WALLBOARDS/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
 A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2 HR FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN LUMBER SPACED 16 IN O.C. WITH NOM 2 BY 4 IN LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 O.C.
 B. WALLBOARD GYPSUM - NOM 1/2 OR 5/8 IN THICK 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 13-1/2 IN.
 - PIPE OR CONDUIT - NOM 1/2 IN DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 1/2 IN DIA. (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOL PIPE, NOM 1/2 IN DIA. (OR SMALLER) SCHEDULE 40 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE, NOM 1/2 IN DIA. (OR SMALLER) STEEL CONDUIT, NOM 1/2 IN DIA. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR TYPE L (OR HEAVIER) COPPER TUBING OR NOM 1 IN DIA. (OR SMALLER) FLEXIBLE STEEL CONDUIT, WHEN COPPER PIPE OR FLEXIBLE STEEL CONDUIT IS USED, MAX F RATING OF FIRESTOP SYSTEM (ITEM 3) IS 2 HR. STEEL PIPES OR CONDUITS LARGER THAN NOM 4 IN. DIA. MAY ONLY BE USED IN WALLS CONSTRUCTED USING STEEL CHANNEL STUDS. A MAX OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.
 - FILL VOID OR CAVITY MATERIAL - CAULK - CAULK/FILL MATERIAL, INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALL AND WITH A MIN 1/4 IN DIA BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. CAULK/INSTALLER FRAMING PIPE OR CONDUIT AND WITH A MIN 1/4 IN DIA BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. CAULK/INSTALLER FRAMING PIPE OR CONDUIT AND WITH A MIN 1/4 IN DIA BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. CAULK/INSTALLER FRAMING PIPE OR CONDUIT AND WITH A MIN 1/4 IN DIA BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY F RATING OF THE WALL ASSEMBLY, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY F RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED AS TABULATED BELOW.
- | MAX PIPE OR CONDUIT DIA, IN | ANNULAR SPACE IN | F RATING HR | T RATING HR |
|-----------------------------|------------------|-------------|-------------|
| 0 | 0 TO 3/16 | 1 OR 2 | 0 |
| 1 | 1/4 TO 1/2 | 3 OR 4 | 0 |
| 2 | 0 TO 1/4 | 1 OR 2 | 0 |
| 4 | 0 TO 1-1/2 | 1 OR 2 | 0 |
| 8 | 1/4 TO 1/2 | 3 OR 4 | 0 |
| 12 | 3/16 TO 3/8 | 1 OR 2 | 0 |
- * WHEN COPPER PIPE IS USED, T RATING IS 0 H
 #0 TO 1-1/2 IN. ANNULAR SPACE APPLIES ONLY WHEN TYPE CP-25 WB+ CAULK IS USED.
 MINNESOTA MINING & MFG. CO. - TYPES CP-25 UL, CP-25 NS, CP-25 WB, CP-25 WB+ (NOTE: L RATINGS APPLY ONLY WHEN TYPE CP-25 WB+ CAULK IS USED).

MXL-IQ WIRING SCHEDULE

SYMBOL	RECOMMENDED WIRE TYPE	USED ON
	2-CONDUCTOR, #16 AWG SOLID TWISTED SHIELDED CABLE	FIRE ALARM ADDRESSABLE INITIATING DEVICES: - FP-SERIES SMOKE DETECTORS - FPT-SERIES HEAT DETECTORS - TR-SERIES INTERFACE MODULES - AD-SERIES & LP DUCT DETECTORS - MSI-SERIES PULL STATION
	2-CONDUCTOR, #12 AWG SOLID CABLE	NOTIFICATION APPLIANCE CIRCUIT: - STROBE - HORN/STROBE (COMBINATION)
	2-CONDUCTOR, #16 AWG SOLID TWISTED SHIELDED CABLE	NOT USED *M-NET - MXL NETWORK WIRING: - MODULES that "SPEAK" M-NET: - REMOTE ANNUNCIATOR PANEL
	120VAC	120 VAC POWER TO: - FIRE ALARM CONTROL PANEL - NAC EXTENDER PANEL
	WIRING NOTE:	1. WIRING FOR NOTIFICATION APPLIANCE CIRCUITS (NAC) IS CLASS B, STYLE Y. 2. WIRING FOR INITIATING DEVICE CIRCUITS (IDC) IS CLASS B, STYLE C. 3. WIRING FOR SIGNALING LINE CIRCUITS (SLC) IS CLASS B, STYLE 4. 4. SEE WIRING GUIDELINES FOR CABLE TYPE USE. 5. CONDUIT FILL < 40%, 3/4" CONDUIT. 6. WHERE CIRCUIT ARE RUN UNDERGROUND, USE UNDERGROUND RATED CABLE.

DEVICE DESIGNATION LEGEND



(E) FIRE ALARM SYSTEM OPERATIONAL MATRIX

CAUSE	ALARM										TROUBLE/SUPERVISORY		MISC.	
	EFBET	ALARM AT RAMP	ACTIVATE CENTRAL STATION	ACTIVATE MODULES	ACTIVATE BELL	ACTIVATE BELL	ACTIVATE BELL	ACTIVATE BELL	ACTIVATE BELL	ACTIVATE BELL	TRIBLE AT TOP	SUPERVISORY TO CENTRAL STATION		TRIBLE AT TOP
SPOT TYPE SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DESIGNATED LEVEL ELEV LOBBY SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•	•	•	•	•
OTHER THAN DESIGNATED LEVEL ELEV LOBBY SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•	•	•	•	•
ELEV MECH ROOM SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DUCT SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PHOTOELECTRIC BEAM DETECTOR	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MANUAL PULL STATION	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FIRE SPRINKLER WATER FLOW	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FIRE SPRINKLER VALVE TAMPER	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SYSTEM SILENCE														
SYSTEM RESET														
POWER FAILURE														
FIRE ALARM TROUBLE (OPEN OR GROUNDS) ON INITIATION OR SIGNAL CIRCUITS														

WIRING REQUIREMENTS

- THE DRAIN SHIELD IS A VERY IMPORTANT PART OF THE SYSTEM INSTALLATION. WE WOULD NOT SPECIFY SHIELDED CABLE IF IT WAS NOT NECESSARY. SHIELDS SHOULD BE KEPT CONTINUOUS THROUGHOUT THE CIRCUIT AND KEPT FREE FROM ANY REFERENCE TO EARTH GROUND.
- SHIELDED CABLE CAN BE FPL, FPLR, OR FPLP. SIEMENS INTELLIGENT ADDRESSABLE DEVICES REQUIRE SHIELDED CABLE.
- NOTIFICATION APPLIANCES (I.E. - SPEAKER/STROBES, HORNS, ETC.) REQUIRE NON-SHIELDED CABLE.
- UNDERGROUND CABLE, WHETHER OR NOT INSTALLED IN CONDUIT, SHALL BE LISTED AS UNDERGROUND BURIAL TYPE.
- WIRING IS TO BE INSTALLED POINT TO POINT WITH NO SPLICING.

WIRING GUIDELINES

PLENUM CABLE VS. NON-PLENUM

THE NEC RECOGNIZES 3 TYPES OF POWER LIMITED FIRE ALARM CABLING:

FPL - THIS IS A GENERAL USE POWER LIMITED FIRE ALARM CABLE. IT CANNOT BE USED IN A PLENUM SPACE OR FOR RISERS (CABLING BETWEEN FLOORS), CABLE MUST BE IN CONDUIT.

FPLR - THIS IS A POWER LIMITED RISER RATED CABLE THAT CAN BE USED FOR GENERAL PURPOSES OR BETWEEN FLOORS. IT CANNOT BE USED IN A PLENUM SPACE, CABLE MUST BE IN CONDUIT.

FPLP - THIS IS A POWER LIMITED CABLE THAT CAN BE USED IN A PLENUM, RISER, OR FOR GENERAL PURPOSE.

A PLENUM IS ANY AREA USED TO CONDUCT ENVIRONMENTAL AIR. PLENUM SPACES CAN BE DUCTWORK, THE SPACE ABOVE A DROP CEILING, OR BELOW A RAISED FLOOR. BECAUSE THESE SPACES ARE BEING USED FOR THE AIR HANDLING SYSTEM, THERE ARE STRICT RULES THAT MUST BE FOLLOWED TO REDUCE THE RISK OF INTRODUCING TOXIC FUMES IN THE EVENT OF A FIRE. SINCE FIRE ALARM CABLING IS OFTEN INSTALLED EXPOSED, WITHOUT CONDUIT, ABOVE DROP CEILINGS THE CABLING MUST BE RATED FOR USE IN A PLENUM SPACE.