

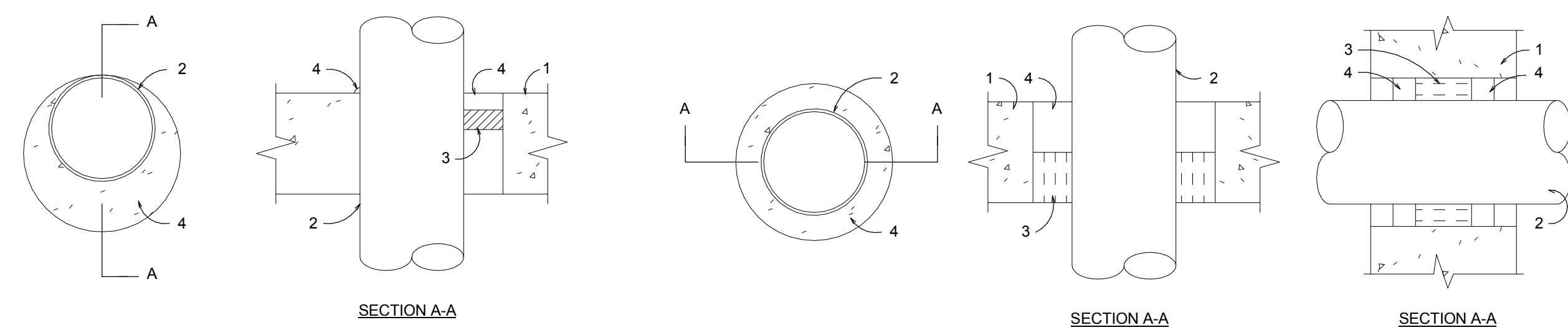


**GENERAL NOTES**

- A) REFER TO ARCHITECTS REFLECTED CEILING PLANS FOR EXACT PLACEMENT OF LIGHT FIXTURES, SPEAKER AND F.A. DEVICES IN THE CEILING SYSTEM.
- B) CONTRACTOR SHALL REFER TO ARCHITECTS DETAILS AND ELEVATIONS FOR COORDINATION OF LOCATION OF ALL WIRING DEVICES BEFORE ROUGH-IN OF J-BOXES.
- C) UPDATED, TYPEWRITTEN PANELBOARD DIRECTORY SHALL BE PROVIDED FOR EACH PANELBOARD THAT CIRCUITS HAVE BEEN ADDED TO OR MODIFIED.
- D) EXIT AND EMERGENCY LIGHTS SHALL BE CONNECTED TO HOT LEG, NOT SWITCH LEG.
- E) DISCONNECTS FOR MECHANICAL EQUIPMENT ARE PROVIDED BY OTHERS, UNLESS NOTED OTHERWISE.
- F) THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL UTILITY TO PROVIDE THE BUILDING WITH A NEW THREE PHASE SERVICE. PROVIDE ALL WORK REQUIRED BY THE UTILITY.
- G) THE CONTRACTOR SHALL PROVIDE AND INSTALL NEW DEVICES AS REQUIRED BY CODE AND CONNECT TO THE EXISTING FIRE ALARM SYSTEM. THE EXISTING SYSTEM SHALL BE MODIFIED OR SUPPLEMENTED AS NEEDED TO BE ABLE TO ACCEPT THE NEW DEVICES. THE CONTRACTOR SHALL PROVIDE ALL WORK, EQUIPMENT AND PROGRAMMING, WHETHER SHOWN ON THE PLANS OR NOT, TO PROVIDE A COMPLETE AND FULLY FUNCTIONAL EXTENSION OF THE EXISTING FIRE ALARM SYSTEM THAT COMPLIES WITH LOCAL CODE REQUIREMENTS.
- H) THE CONTRACTOR SHALL PROVIDE AND INSTALL PA NEW DEVICES AS REQUIRED AND CONNECT TO THE EXISTING PA SYSTEM. THE EXISTING SYSTEM SHALL BE MODIFIED OR SUPPLEMENTED AS NEEDED TO BE ABLE TO ACCEPT THE NEW DEVICES. THE CONTRACTOR SHALL PROVIDE ALL WORK, EQUIPMENT AND PROGRAMMING, WHETHER SHOWN ON THE PLANS OR NOT, TO PROVIDE A COMPLETE AND FULLY FUNCTIONAL EXTENSION OF THE PA SYSTEM.

**ELECTRICAL SYMBOLS**

- BRANCH CIRCUIT CONCEALED IN CEILING OR WALL. ARROWS INDICATE HOMERUNS TO PANEL. ALL CONDUCTORS ARE #12 EXCEPT AS NOTED.
- CONDUIT RUN UNDERGROUND OR CONCEALED IN FLOOR SLAB. ALL CONDUIT 3/4" EXCEPT AS NOTED.
- GROUNDING CONDUCTOR #12 EXCEPT AS NOTED.
- EXIT LIGHT - SINGLE FACED - ARROWS AS SHOWN.
- EXIT LIGHT - DOUBLE FACED - ARROWS AS SHOWN.
- WALL MOUNT EXIT LIGHT - DOUBLE FACED - ARROWS AS SHOWN.
- FLUORESCENT LIGHT FIXTURE.
- FLUORESCENT LIGHT FIXTURE ON EMERGENCY POWER.
- FLUORESCENT STRIP FIXTURE.
- RECESSED CEILING LIGHT FIXTURE.
- RECESSED CEILING LIGHT FIXTURE ON EMERGENCY POWER.
- PANELBOARD (SURFACE MOUNTED). INSTALL W/ITOP 6'-0" AFF.
- SINGLE POLE SWITCH. +3'-10" AFF TO CENTERLINE OF DEVICE BOX.
- MOTION SENSOR SWITCH +3'-10" AFF TO CENTERLINE OF DEVICE BOX.
- DIMMER SWITCH +3'-10" AFF TO CENTERLINE OF DEVICE BOX.
- THREE-WAY SWITCH +3'-10" AFF TO CENTERLINE OF DEVICE BOX.
- TIMER SWITCH +3'-10" AFF TO CENTERLINE OF DEVICE BOX.
- CEILING MOUNTED MOTION SENSOR.
- WALL MOUNTED DIRECTIONAL MOTION SENSOR.
- DUPLEX RECEPTACLE. +1'-6" AFF OR AS NOTED.
- DUPLEX RECEPTACLE WITH GROUND FAULT PROTECTION AND WEATHERPROOF PLATE. HEIGHT AS NOTED.
- DUPLEX RECEPTACLE W/GROUND FAULT PROTECTION. +1'-6" AFF OR AS NOTED.
- DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP.
- DOUBLE DUPLEX RECEPTACLE. +1'-6" AFF OR AS NOTED.
- DOUBLE DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP.
- FLUSH FLOOR BOX WITH TYPE INDICATED. SEE SPECS.
- VOICE OUTLET WITH 1" CONDUIT STUBBED UP OUT OF BOX TO ABOVE ACCESSIBLE CEILING. INSTALLED ABOVE COUNTERTOP. (W DENOTES WALL MOUNTED +48" AFF)
- DATA/VOICE OUTLET WITH 1" CONDUIT STUBBED UP OUT OF BOX TO ABOVE ACCESSIBLE CEILING. +1'-6" AFF OR AS NOTED.
- AV OUTLET SINGLE GANG BOX WITH A 1 1/4" CONDUIT ROUTED TO ABOVE ACCESSIBLE CEILING.
- WALL MOUNTED COMBINATION FIRE ALARM HORN/STROBE w/75cd RATING. FLUSH MOUNTED UNLESS NOTED OTHERWISE. (cd-DENOTES CANDELA RATING). +6'-8" A.F.F.
- WALL MOUNTED FIRE ALARM STROBE w/75cd RATING, UNLESS NOTED OTHERWISE. (cd-DENOTES CANDELA RATING). +6'-8" A.F.F.
- FIRE ALARM MANUAL PULL STATION. +3'-10" AFF.
- CEILING MOUNTED PHOTO-ELECTRIC SMOKE DETECTOR (D-DENOTES IN DUCT).
- SPRINKLER ALARM SYSTEM FLOW SWITCH.
- SPRINKLER ALARM SYSTEM TAMPER SWITCH.
- WALL MOUNTED SPEAKER.
- CEILING SPEAKER.
- WALL MOUNTED JUNCTION BOX.
- JUNCTION BOX.
- CARD READER W/ SINGLE GANG BOX @ 48" AFF. ROUTE CONCEALED 3/4" CONDUIT FROM BOX TO AN ACCESSIBLE SPACE ABOVE THE CEILING IN THE BUILDING.
- DOOR OPERATOR PUSH BUTTON W/ SINGLE GANG BOX @ 48" AFF. ROUTE CONCEALED 3/4" CONDUIT FROM BOX TO AN ACCESSIBLE SPACE ABOVE THE CEILING IN THE BUILDING.
- MAGNETIC DOOR HOLDER - 120V, 1PH. CONNECT TO FIRE ALARM CONTROL PANEL.
- THERMOSTAT OUTLET BOX AT +3'-10" AFF WITH 1/2" CONDUIT STUBBED UP OUT OF BOX TO ABOVE ACCESSIBLE CEILING. PROVIDE BUSHING ON END OF CONDUIT. THERMOSTAT AND WIRING BY OTHERS.
- INDICATES WIRING DEVICE ABOVE OR BELOW RE. DRAWING HEIGHT TO CENTERLINE OF OUTLET BOX ABOVE FINISHED FLOOR.
- RTU-1 AIR HANDLING UNIT AND NUMBER.
- ERV-1 ENERGY RECOVERY VENTILATOR AND NUMBER.
- EF-1 EXHAUST FAN AND NUMBER.
- DWH-1 DOMESTIC WATER HEATER AND NUMBER.
- AFF ABOVE FINISHED FLOOR.
- AFG ABOVE FINISHED GRADE.

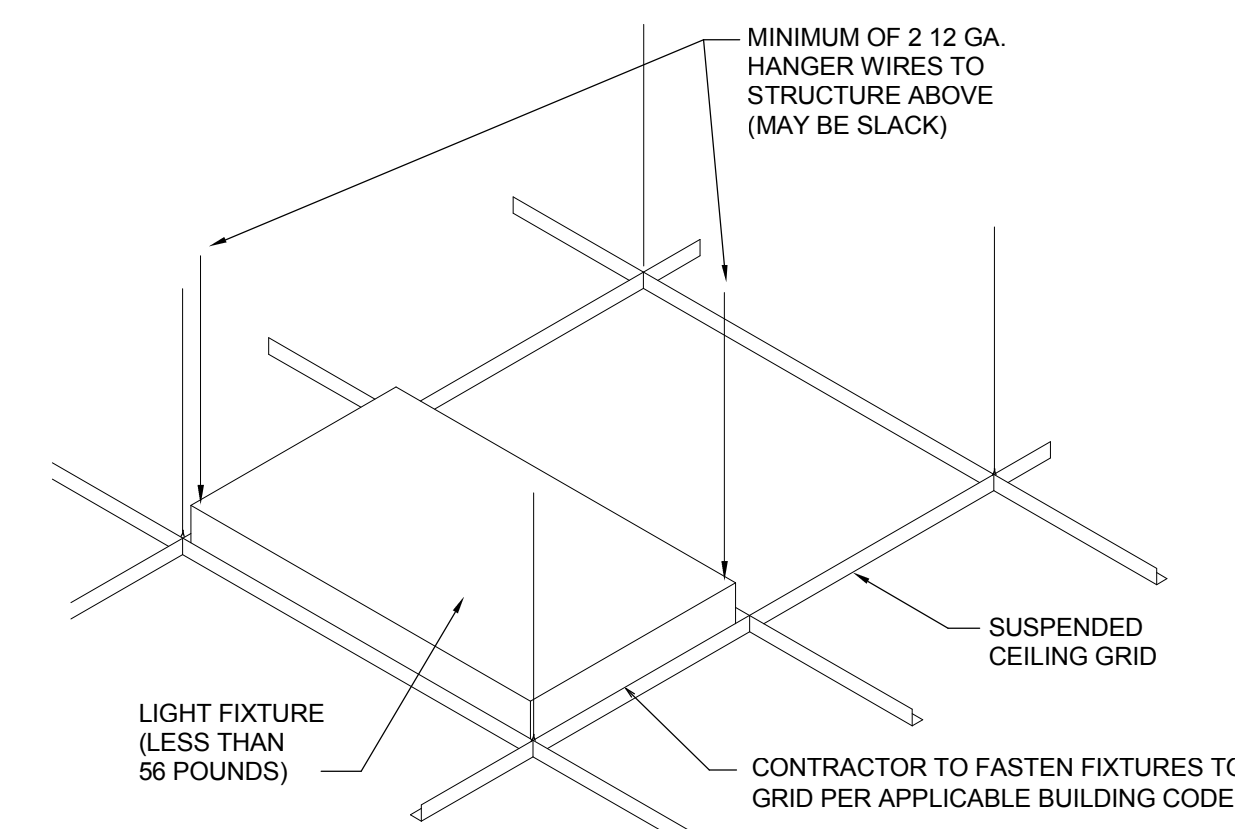


- SYSTEM NO. 49**  
F RATINGS - 2 AND 3 HR. (SEE ITEM 2A)  
T RATINGS - 0 HR.
- SYSTEM NO. CAJ1012**  
(FORMERLY SYSTEM NO. 129)  
F RATINGS - 1 HR.  
T RATING - 0 HR.
- SYSTEM NO. CAJ5001**  
(FORMERLY SYSTEM NO. 91)  
F RATINGS - 1-1/2, 2 AND 3 HR. (SEE ITEM 4)  
T RATINGS - 0, 1/2, 3/4 AND 1 HR. (SEE ITEMS 1A AND 4)  
L RATING AT AMBIENT - 2 CFMSQ. FT. (SEE ITEM 4B)  
L RATING AT 400°F - LESS THAN 1 CFMSQ. FT. (SEE ITEM 4B)
- 1.) FLOOR OR WALL ASSEMBLY - MINIMUM 4 1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL ASSEMBLY MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAXIMUM DIAMETER OF CIRCULAR THROUGH OPENING IS 22 1/2". SEE CONCRETE BLOCK (CAZT) CATEGORY IN FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
  - 1A.) STEEL SLEEVE - (OPTIONAL, NOT SHOWN) - NOMINAL 12" DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLEEVE TO BE FLUSH WITH OR PROJECT MAX 2" FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL.
  - 2.) PIPE OR CONDUIT - NOMINAL 20" DIAMETER (OR SMALLER) SCHEDULE 10S (OR HEAVIER) STEEL PIPE, NOMINAL 6" DIAMETER (OR SMALLER) RIGID STEEL CONDUIT, NOMINAL 6" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE, NOMINAL 4" DIAMETER (OR SMALLER) CAST IRON PIPE OR NOMINAL 4" DIAMETER (OR SMALLER) STEEL EMT. MAXIMUM ONE PIPE OR CONDUIT PER THROUGH OPENING. MAXIMUM ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS ZERO IN (POINT CONTACT), PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
  - 2A.) STEEL VENT DUCT - (NOT SHOWN) - AS AN ALTERNATE TO THE PIPE OR CONDUIT. NOMINAL 4" DIAMETER (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) GALVANIZED STEEL VENT DUCT MAY BE USED IN THROUGH OPENINGS OF FLOOR ASSEMBLIES PROVIDED MAXIMUM ANNULAR SPACE DOES NOT EXCEED 7/8". WHEN STEEL VENT DUCT IS USED, F RATING IS 2 HRS.
  - 3.) PACKING MATERIAL - POLYETHYLENE BACKER ROD OR NOMINAL 1" THICKNESS OF TIGHTLY-PACKED CERAMIC (ALUMINA SILICA) FIBER BLANKET, MINERAL-WOOL BATT OR GLASS FIBER INSULATION MATERIAL USED 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) AS AN ALTERNATE WHEN MAXIMUM PIPE SIZE IS 10" DIAMETER AND WHEN MAXIMUM ANNULAR SPACE IS 1" OR LESS, A MINIMUM 1" THICKNESS OF TIGHTLY-PACKED CERAMIC FIBER BLANKET OR MINERAL-WOOL BATT PACKING MATERIAL MAY BE RECESSED MINIMUM 1/2" FROM BOTTOM SURFACE OF FLOOR OR FROM EITHER SIDE OF WALL.
  - 4.) FILL, VOID OR CAVITY MATERIALS\* - CAULK APPLIED TO FILL THE ANNULAR SPACE TO THE MINIMUM THICKNESS SHOWN IN THE FOLLOWING TABLE.
- | MAXIMUM PIPE DIAMETER (IN.) | MAXIMUM ANNULAR SPACE (IN.) | PACKING MATERIAL TYPE (a) | MINIMUM CAULK THICKNESS (IN.) |
|-----------------------------|-----------------------------|---------------------------|-------------------------------|
| 10                          | 1                           | BR, CF, GF or MW          | 1/2 (b)                       |
| 10                          | 1                           | CF or MW                  | 1/2 (c)                       |
| 20                          | 2 1/2                       | BR, CF, GF or MW          | 1 (b)                         |
- (a) BR = POLYETHYLENE BACKER ROD.  
CF = CERAMIC FIBER BLANKET.  
GF = GLASS FIBER INSULATION.  
MW = MINERAL-WOOL BATT.
- (b) CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACE OF WALL.  
(c) CAULK INSTALLED FLUSH WITH BOTTOM SURFACE OF FLOOR OR ONE SURFACE OF WALL.
- \* BEARING THE UL CLASSIFICATION MARKING.
- DOW CORNING CORP. - TYPES FS SEALANT, FS SEALANT SL (FLOOR ONLY) OR FS FOAM  
BEARING THE UL CLASSIFICATION MARKING.

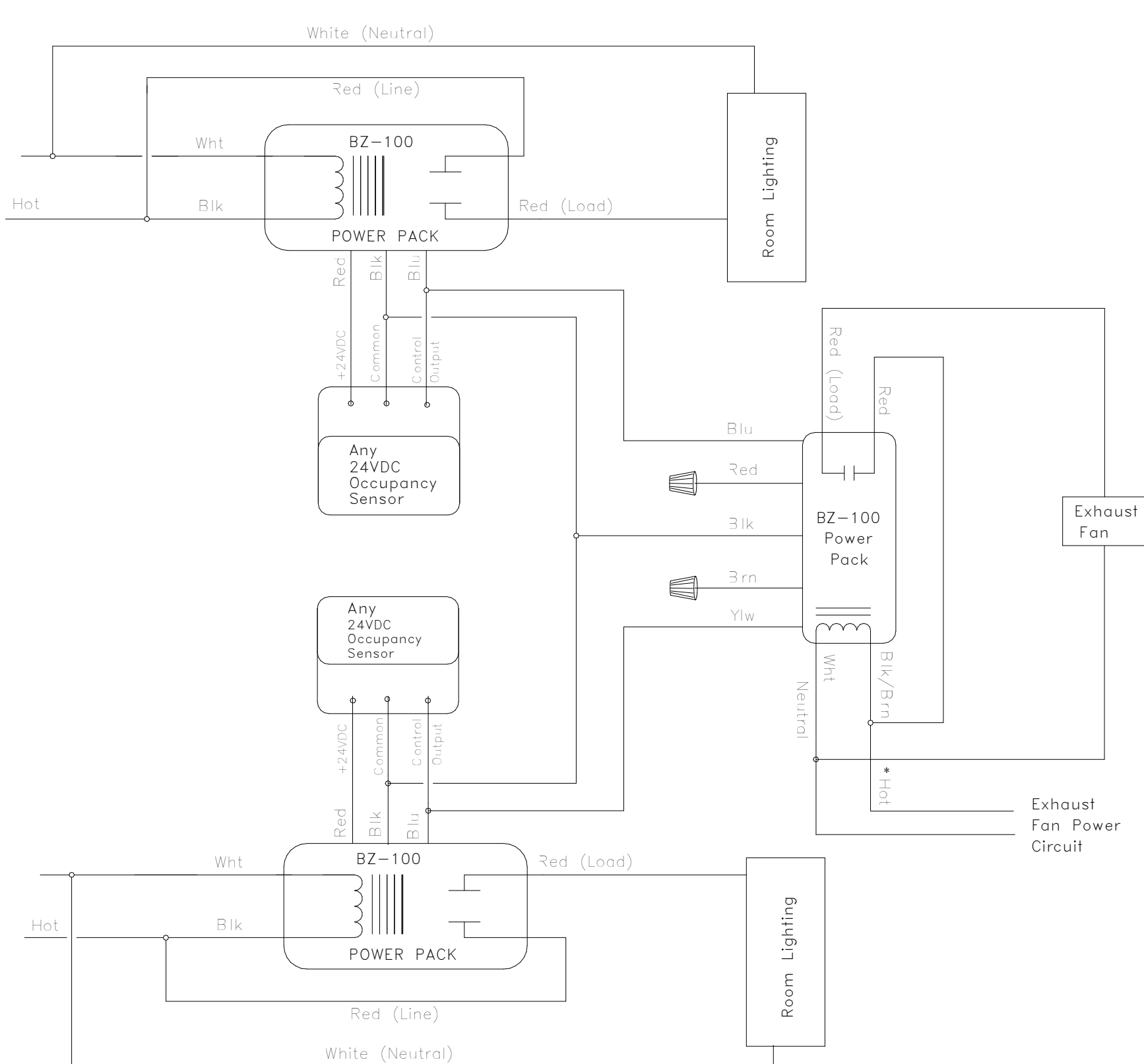
- 1.) FLOOR OR WALL ASSEMBLY - MIN. 2 1/2" THICK REINFORCED NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAX. DIAMETER OF OPENING IS 18". SEE CONCRETE BLOCKS (CAZT) AND PRECAST CONCRETE UNITS (CFTV) CATEGORIES IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- 1A.) STEEL SLEEVE - (OPTIONAL, NOT SHOWN) - NOM. 6" (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY. SLEEVE MAY EXTEND A MAX. OF 2" ABOVE TOP OF FLOOR OR BEYOND EITHER SURFACE OF WALL. SLEEVE MAY BE USED ONLY WHEN FLOOR OR WALL ASSEMBLY IN MIN. 4 1/2" THICK. T RATING IS 0 HR WHEN SLEEVE IS USED.
- 2.) PIPE - NOM. 4" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE, NOM. 12" DIAMETER (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM. 12" DIAMETER (OR SMALLER) CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE OR NOM. 12" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE CENTERED IN THE OPENING AND RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY.
- 3.) PIPE COVERING - NOM. 1" OR 2" THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN. 3.5 PCF) GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT.  
SEE PIPE AND EQUIPMENT COVERING MATERIALS\* (BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.
- 4.) FIRESTOP SYSTEM - THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS:  
A. PACKING MATERIAL - MIN. 1" THICKNESS OF FIRMLY PACKED MINERAL WOOL BATT INSULATION USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP OF SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM B).  
B. FILL, VOID OR CAVITY MATERIAL\* - CAULK APPLIED TO FILL THE ANNULAR SPACE FLUSH WITH THE TOP SURFACE OF THE FLOOR OR FLUSH WITH BOTH SURFACES OF WALL. WHEN NOM. PIPE COVERING THICKNESS IS 2", MIN. THICKNESS OF CAULK FILL MATERIAL IN 1". THE HOURLY F AND T RATINGS OF THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE THICKNESS OF THE FLOOR OR WALL, THE SIZE OF PIPE, THE THICKNESS OF PIPE COVERING MATERIAL, THE SIZE OF THE ANNULAR SPACE (BETWEEN THE PIPE COVERING MATERIAL AND THE EDGE OF THE CIRCULAR THROUGH OPENING) AND THE FILL MATERIAL TYPE, AS SHOWN IN THE FOLLOWING TABLE.

MIN. FLOOR OR WALL THICKNESS IN.	MAX. PIPE DIAM. IN.	NOM. PIPE COVERING THICKNESS IN.	ANNULAR SPACE IN.	CAULK FILL MATERIAL TYPE	F RATING, HR	T RATING, HR
2-1/2	4	1	5/8 TO 7/8	CP-25 N/S, CP-25 S/L OR CP-25 WB	2	1
4-1/2	4	1	3/4 TO 1	CP-25 N/S, CP-25 S/L OR CP-25 WB	3	1
4-1/2	4	2	1-1/2 TO 2	CP-25 N/S, CP-25 S/L OR CP-25 WB	2	1-1/2
2-1/2	12	1	5/8 TO 1	CP-25 N/S, CP-25 S/L	2	0
2-1/2	12	1	1/2 TO 1-1/2	CP-25 WB*	2	1/2
4-1/2	12	1	1 TO 1-1/2	CP-25 N/S, CP-25 S/L	2	1/2
4-1/2	12	1	1/2 TO 2-3/8	CP-25 S/L CP-25 WB*	3	1

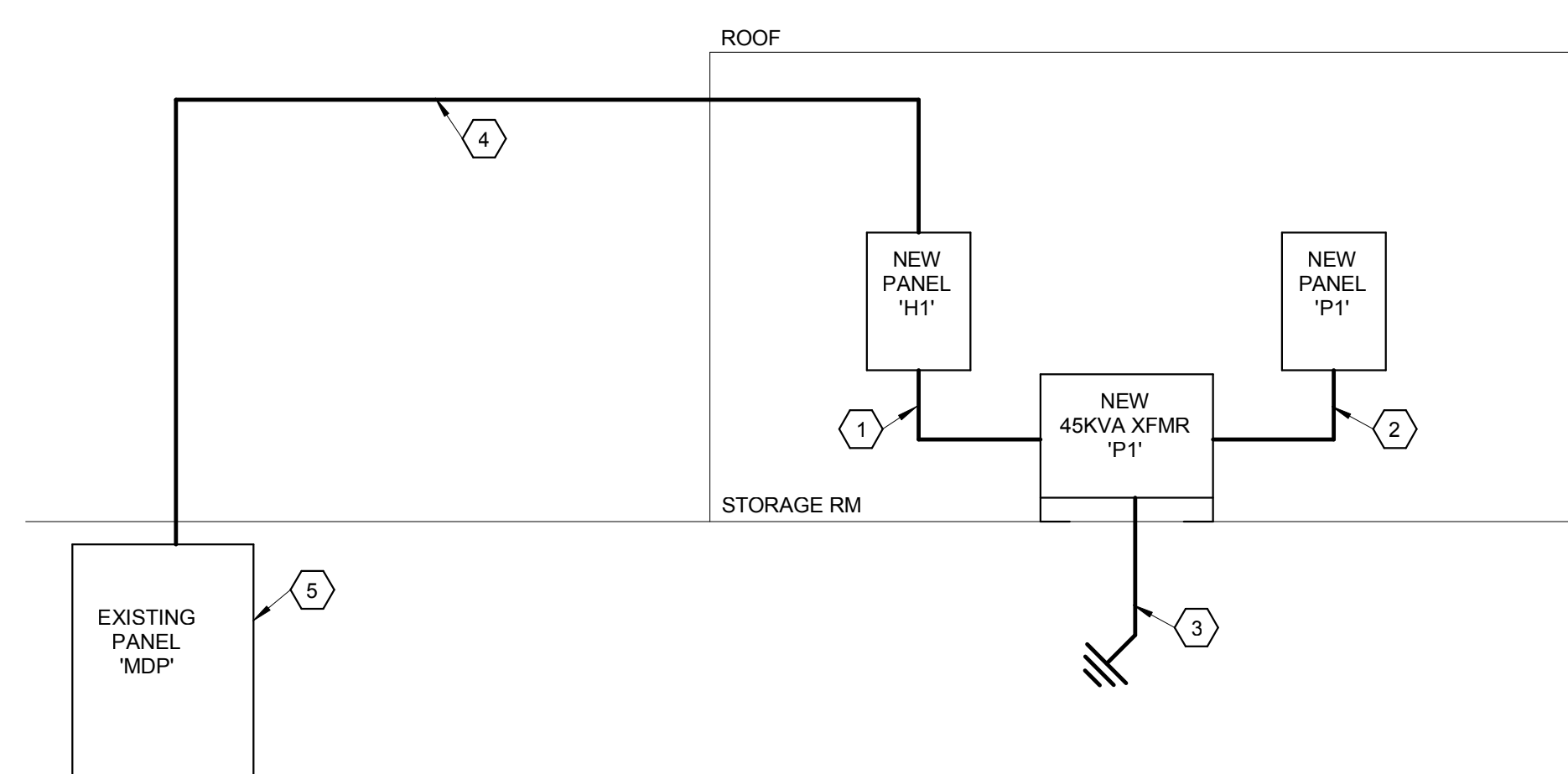
MINNESOTA MINING & MFG. CO. - TYPES CP-25 S/L, CP-25 N/S, CP-25 WB, CP-25 WB\*.  
(NOTE: L RATINGS APPLY ONLY WHEN TYPE CP-25 WB\* CAULK IS USED.)  
\* BEARING THE UL CLASSIFICATION MARKING



**2 LIGHT FIXTURE DETAIL**  
SCALE: NONE



**3 MULTI-RESTROOM EXHAUST FAN CONTROL DETAIL**  
SCALE: 12" = 1'-0"



**4 ELECTRICAL RISER DIAGRAM**  
SCALE: NONE

**RISER DIAGRAM NOTES**

- 1 4-#4 & 1-#6 GROUND WIRE IN A 1 1/4" CONDUIT.
- 2 4-#10 & 1-#6 GROUND WIRE IN A 2" CONDUIT.
- 3 PROVIDE AND INSTALL #6 CU GROUND WIRE IN A 3/4" CONDUIT TO BUILDING SERVICE GROUND.
- 4 4-#30 & 1-#6 GROUND WIRE IN A 2" CONDUIT.
- 5 PROVIDE AND INSTALL A 200A/3P CIRCUIT BREAKER IN AVAILABLE SPACE OF EXISTING PANEL TO TERMINATE NEW PANELBOARD #1 FEEDER.

DATE:  
● SEPTEMBER 2, 2014

REVISED DATE:

SHEET CONTENTS:  
● ELECTRICAL DETAILS

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