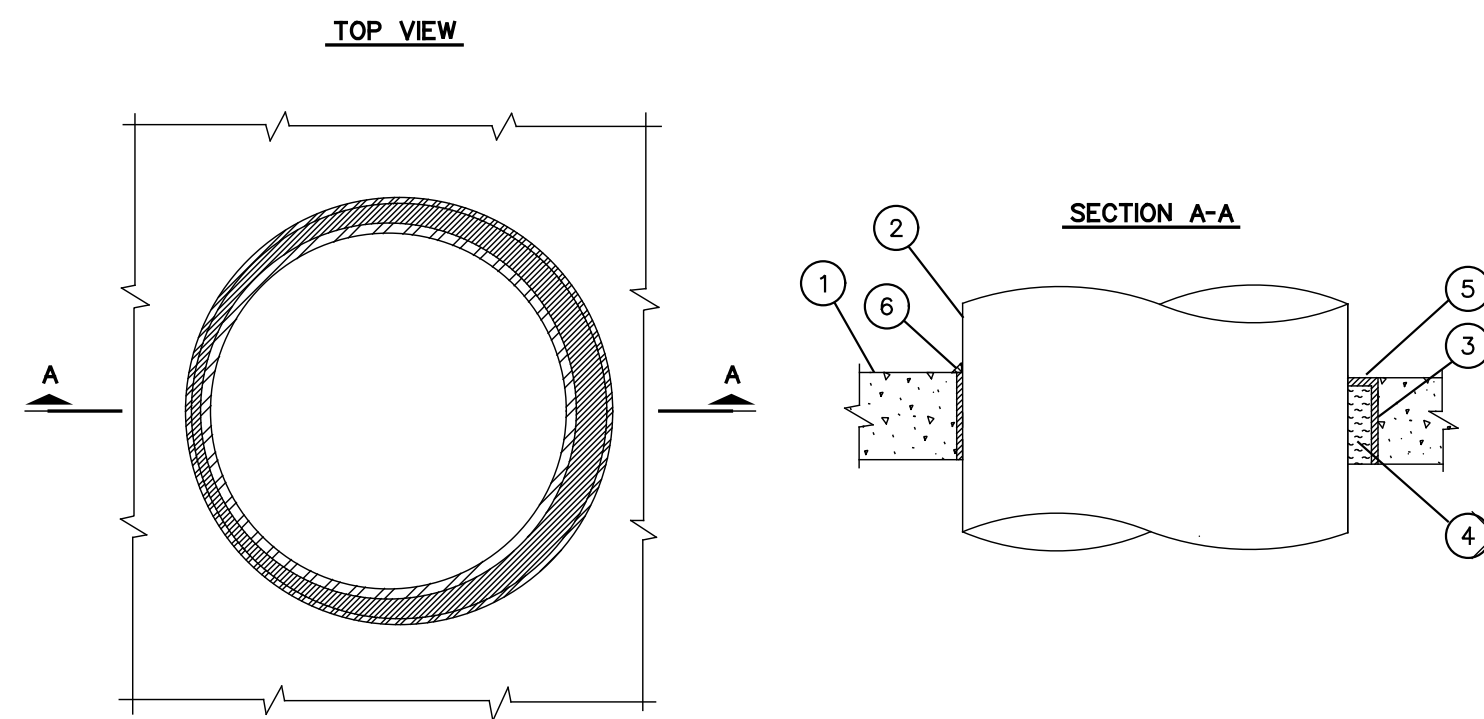


U.L. SYSTEM NO. CAJ1155
METAL PIPE THROUGH A SLEEVE IN CONCRETE FLOOR OR WALL

F RATING = 3-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.

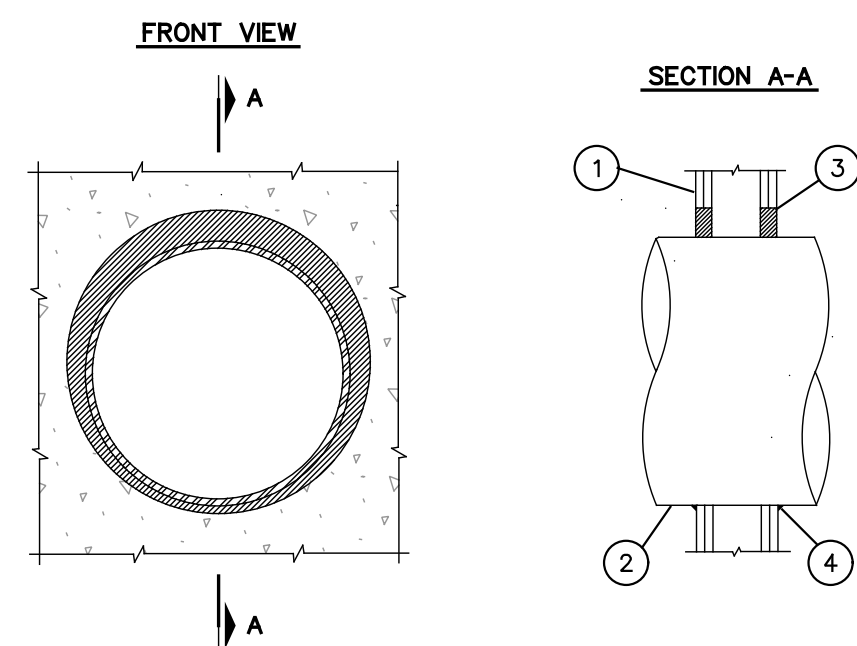


- FLOOR OR WALL ASSEMBLY:
A. MINIMUM 4 1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR.
B. U.L. CLASSIFIED CONCRETE BLOCK WALL (MINIMUM 8" BLOCK).
- PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
A. MAXIMUM 20" DIAMETER STEEL PIPE.
B. MAXIMUM 6" DIAMETER COPPER PIPE.
C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
D. MAXIMUM 4" DIAMETER EMT.
- OPTIONAL: MAXIMUM 22" DIAMETER STEEL PIPE SLEEVE (SCHEDULE 10 OR HEAVIER).
- MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) RECESSED 1/2" FROM TOP OF SLEEVE.
- MINIMUM 1/2" DEPTH HILTI FS-ONE FIRESTOP SEALANT.
- A GENEROUS BEAD OF HILTI FS-ONE FIRESTOP SEALANT AROUND OUTER PERIMETER OF STEEL SLEEVE.

NOTES: 1. MAXIMUM DIAMETER OF OPENING = 22".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1 1/2".

U.L. SYSTEM NO. WL1054
METAL PIPE THROUGH GYPSUM WALL ASSEMBLY

F RATING = 1-HR. OR 2-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.

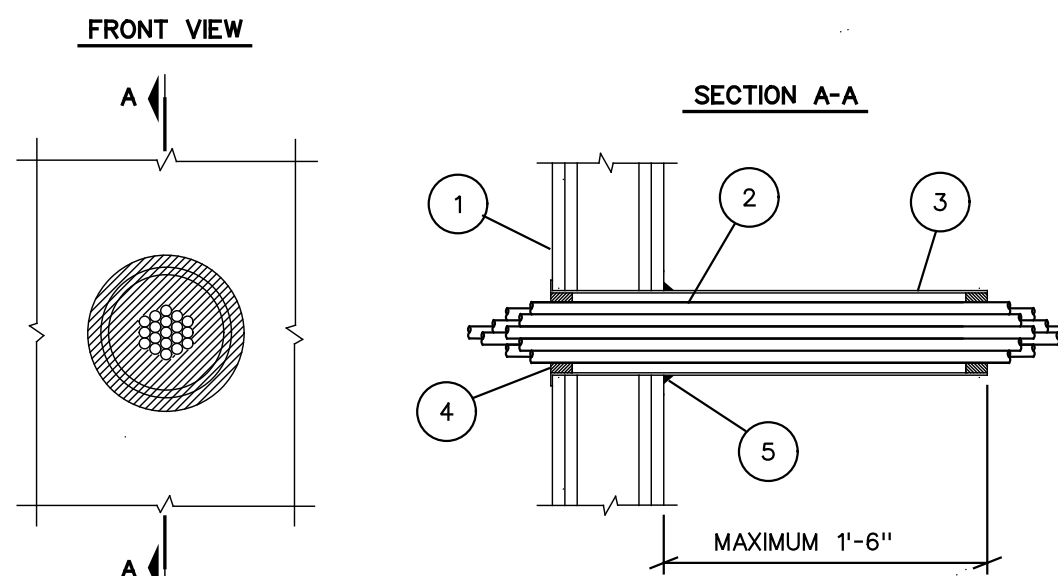


- GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE RATING)(2-HR. SHOWN):
- PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
A. MAXIMUM 20" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
B. MAXIMUM 6" DIAMETER COPPER PIPE.
C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
D. MAXIMUM 4" DIAMETER EMT.
- a. MINIMUM 3/4" DEPTH HILTI FS-ONE FIRESTOP SEALANT = 1-HR. FIRE-RATING.
b. MINIMUM 1 1/4" DEPTH HILTI FS-ONE FIRESTOP SEALANT = 2-HR. FIRE-RATING.
- MINIMUM 1/2" BEAD HILTI FS-ONE FIRESTOP SEALANT FOR POINT OF CONTACT.

NOTES: 1. MAXIMUM DIAMETER OF OPENING = 22 1/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2 1/4".

U.L. SYSTEM NO. WL3065
CABLE BUNDLE THROUGH 1-HR. OR 2-HR. FIRE-RATED GYPSUM WALL

F RATING = 1-HR. OR 2-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = 5 CFM/SQ. FT.
L RATING AT 400°F = 2 CFM/SQ. FT.

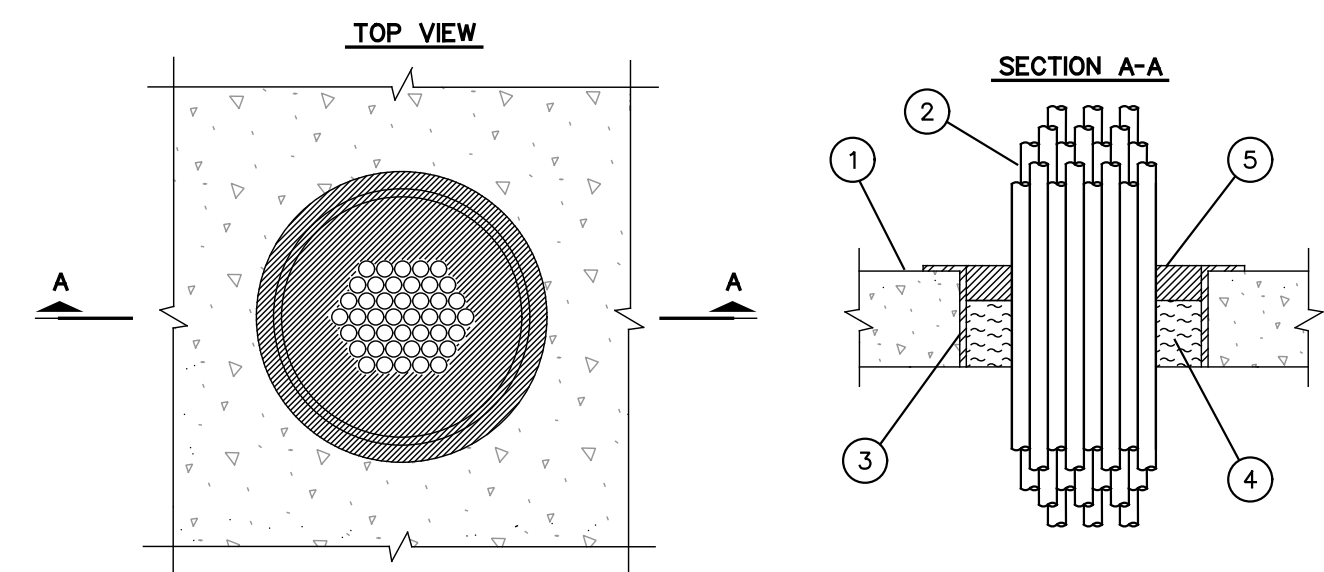


- GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE RATING)(2-HR. SHOWN).
- CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING:
A. 7/C NO. 12 AWG CABLES.
B. 12 PAIR 24 AWG PHONE CABLES.
C. 25 PAIR 24 AWG PHONE CABLES.
D. 50 COAXIAL CABLES.
E. 2/C (+GND) NO. 14 AWG METAL-CLAD CABLES.
F. 2/C NO. 8 AWG METAL-CLAD CABLES.
G. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLES.
- MAXIMUM 4" DIAMETER STEEL PIPE SLEEVE (SCHEDULE 5 OR THINNER) (SEE NOTE NO. 4).
- MINIMUM 3/4" OR 1 1/4" DEPTH HILTI FS-ONE FIRESTOP SEALANT (FOR A 1-HR. OR 2-HR. FIRE-RATED WALL ASSEMBLY).
- SEE NOTE NO. 4 BELOW.

NOTES: 1. MAXIMUM DIAMETER OF OPENING = 5 1/2".
2. CABLES TO FILL MAXIMUM 33% OF AREA OF OPENING.
3. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/4".
4. STEEL SLEEVE MAY BE FLUSH WITH WALL SURFACE OR EXTEND UP TO 18" BEYOND WALL SURFACE IN ANY COMBINATION WHEN SLEEVE IS FLUSH WITH WALL APPLY HILTI FS-ONE FIRESTOP SEALANT ONTO WALL SURFACE. WHEN SLEEVE IS EXTENDED BEYOND ONE OR BOTH SIDES OF WALL APPLY 1/2" CROWN HILTI FS-ONE FIRESTOP SEALANT TO WALL/SLEEVE INTERFACE.

U.L. SYSTEM NO. CAJ3095
SINGLE OR MULTIPLE CABLES THROUGH CONCRETE FLOOR OR WALL

F RATING = 3-HR.
T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 5 CFM/SQ. FT.
L RATING AT 400°F = 2 CFM/SQ. FT.

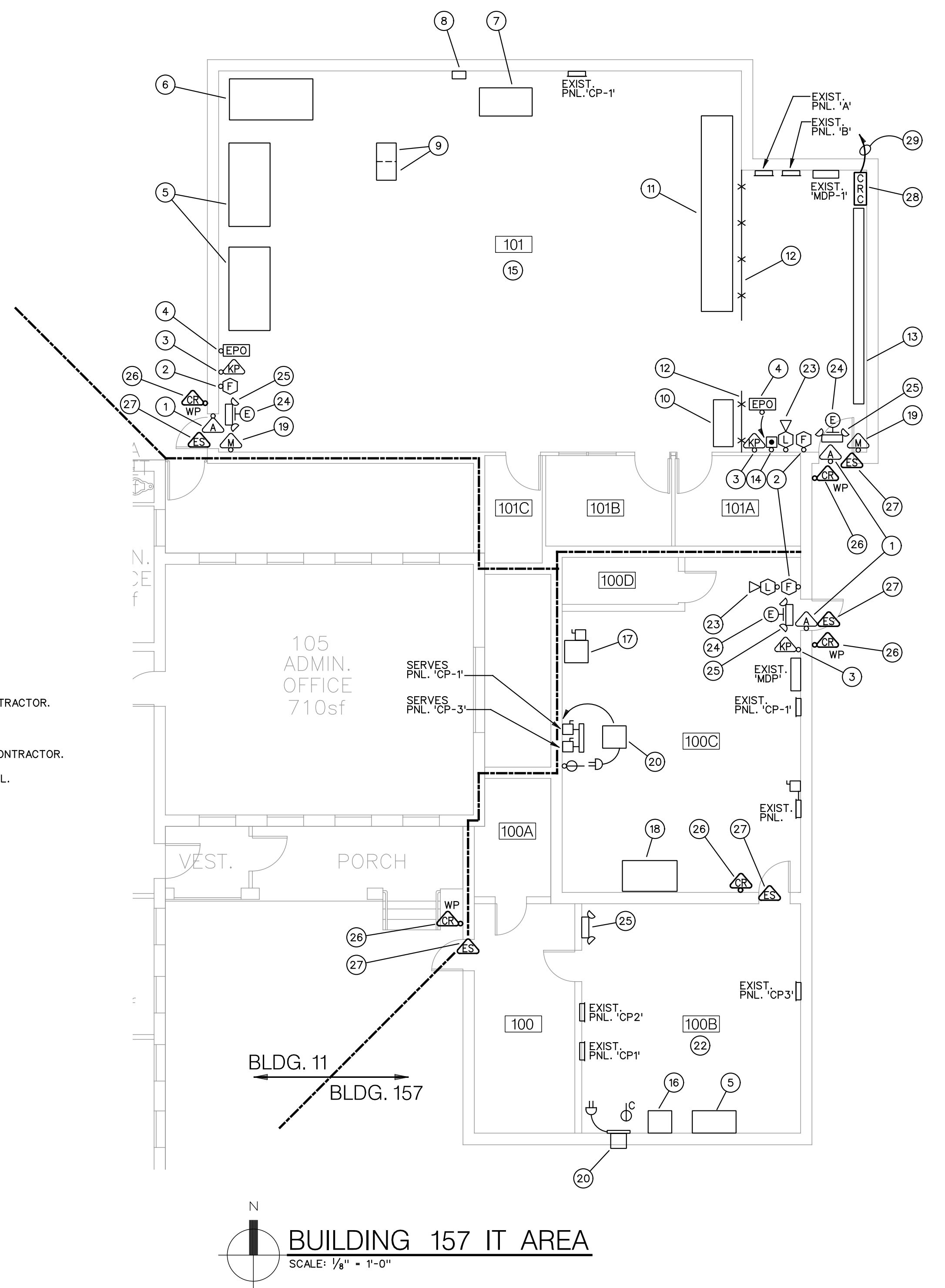


- FLOOR OR WALL ASSEMBLY:
A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR/WALL (MINIMUM 2 1/2" THICK).
B. ANY U.L. CLASSIFIED CONCRETE BLOCK WALL.
- MAXIMUM 4" DIAMETER CABLE BUNDLE TO BE A COMBINATION OF THE FOLLOWING:
A. MAXIMUM 300 PAIR TELEPHONE CABLES WITH PVC JACKET.
B. MAXIMUM 500 KOMIL POWER CABLE WITH PVC JACKET.
C. MAXIMUM 7/C NO. 8 AWG POWERCABLE WITH PVC JACKET.
D. MAXIMUM (24 FIBER) 1/2" DIAMETER FIBER-OPTIC CABLE.
- OPTIONAL: MAXIMUM 6" DIAMETER STEEL PIPE SLEEVE (SCHEDULE 10 OR HEAVIER).
- MINIMUM 2" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
- MINIMUM 1/2" DEPTH HILTI FS-ONE FIRESTOP SEALANT.

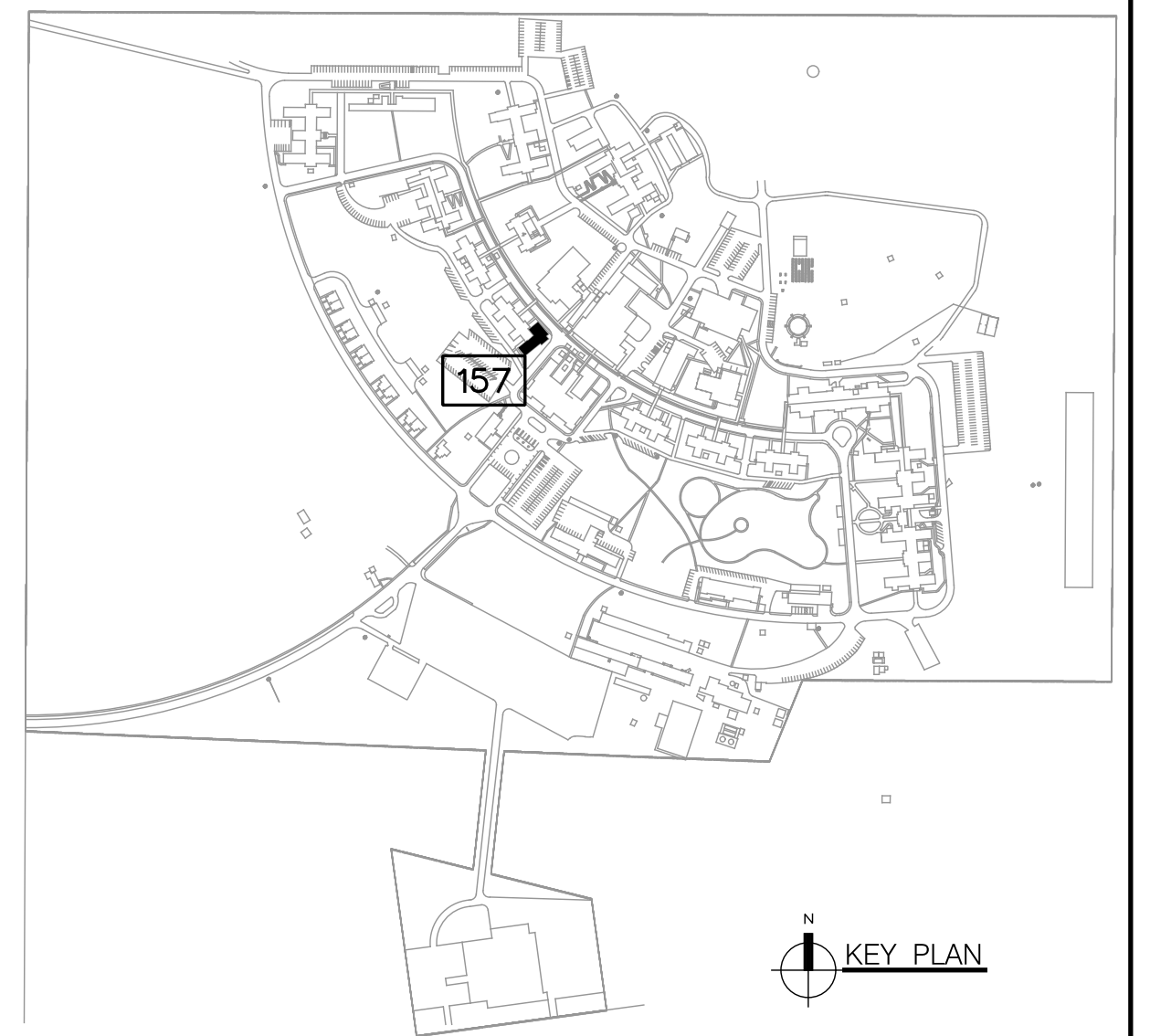
NOTES: 1. MAXIMUM DIAMETER OF OPENING = 6 1/2".
2. CABLES TO FILL MINIMUM 20 PERCENT, TO MAXIMUM 33 PERCENT OF OPENING.
3. WALLS REQUIRE 1/4" DEPTH HILTI FS-ONE FIRESTOP SEALANT FLUSH WITH BOTH SIDES.

NOTES:

- EXISTING SURFACE MOUNTED DOOR ALARM TO REMAIN.
- EXISTING SURFACE MOUNTED HAND PULL TO REMAIN.
- EXISTING SURFACE MOUNTED KEY PAD FOR SECURITY TO REMAIN.
- EXISTING SURFACE EMERGENCY POWER OFF PUSHBUTTON TO REMAIN.
- EXISTING LIEBERT AIR CONDITIONING UNITS TO REMAIN.
- UNUSED EXISTING LIEBERT UPS (SITE I.D. *36570, TAG *1177268 AND *1177304).
- EXISTING LIEBERT 30 KVA UPS (SITE I.D. *36570, TAG *141353)
- EXISTING LIEBERT CONTROL PANEL WITH BACNET TO REMAIN.
- EXISTING APC UPS (RACK MOUNTED) TO REMAIN.
- EXISTING BATTERY RACK TO REMAIN.
- EXISTING TELEPHONE PUNCH DOWN RACKS TO REMAIN.
- EXISTING FENCE TO REMAIN.
- EXISTING TELEPHONE EQUIPMENT TO REMAIN.
- EXISTING PUSH TO EXIT BUTTON TO REMAIN.
- EXISTING 16" RAISED FLOOR IN THIS ROOM.
- EXISTING SMALL LIEBERT AIR CONDITIONER TO REMAIN.
- EXISTING TRANE AIR CONDITIONER REMAIN.
- EXISTING LIEBERT UPS TO REMAIN.
- EXISTING SECURITY MOTION SENSOR TO REMAIN.
- EXISTING THROUGH THE WALL AIR CONDITIONER.
- NOT USED.
- EXISTING 8" RAISED FLOOR IN THIS ROOM.
- EXISTING SURFACE MOUNTED FIRE ALARM A/V UNIT TO REMAIN.
- EXISTING WALL MOUNTED EXIT SIGN TO REMAIN.
- EXISTING WALL MOUNTED EMERGENCY LIGHT TO REMAIN.
- NEW CARD READER FURNISHED BY OWNER, INSTALLED, WIRED AND PROGRAMMED BY THIS CONTRACTOR.
- NEW ELECTRIC STRIKE FURNISHED BY OWNER, INSTALLED AND WIRED BY THIS CONTRACTOR.
- NEW CARD READER CONTROLLER FURNISHED BY OWNER, WIRED AND PROGRAMMED BY THIS CONTRACTOR.
- PROVIDE NEW #20 BREAKER IN PANEL 'B' WHICH IS A G.E. 'A' SERIES, 120/208V-3PH-4W PANEL. USE 10,000 AC RATED BKR. TO SERVE THIS LOAD.



NOTE:
ADDITIONAL ELECTRICAL WORK IS REQUIRED AS
SUBCONTRACTOR TO THE FIRE PROTECTION SYSTEM
FOR THIS AREA. SEE DRAWINGS F-1, F-2 & F-3.



100% SUBMISSION

**COMPREHENSIVE
ENGINEERING**

4653 Plainfield Avenue, NE
Grand Rapids, MI 49505
Phone (616) 365-9533
Fax (616) 365-9537
CE #10087

APPROVED: DIRECTOR	APPROVED: CHIEF, SPD	APPROVED: CHIEF, PROJECT SECTION	VA PROJECT NAME: Information Management Safety & Security Upgrades	DRAWING TITLE: ELECTRICAL PLAN
APPROVED: ASSOCIATE DIRECTOR	APPROVED: PROTECTIVE SERVICE	APPROVED:	VA PROJECT NUMBER: 515-10-120	VA PROJECT NUMBER: 515-10-120
APPROVED: CHIEF OF STAFF	APPROVED: INDUSTRIAL HYGIENIST	APPROVED:	DATE: 15 FEB 2011	A/E PROJECT NUMBER: 10087
APPROVED: CHIEF, FACILITIES MANAGEMENT SERVICE	APPROVED: SAFETY MANAGER	APPROVED:	LOCATION: BATTLE CREEK VAMC	DWG NUMBER: E7 OF 11