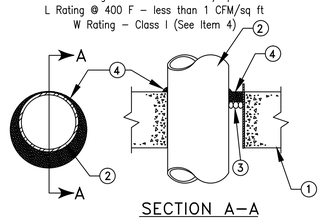
F Ratings – 2, 3, and 4 Hr (See item 2A and 4)
T Rating – 0 Hr
L Rating @ Ambient – 2 CFM/sq ft
L Rating @ 400 F – less than 1 CFM/sq ft
W Rating – Class I (See Item 4)



SECTION A–A

1. Floor or Wall Assembly – Lightweight or normal weight (100–150 pcf or 1600–2400 kg/m3) 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 6 in. (152 mm) thick UL Classified hollow core Precast Concrete Units*. When floor is constructed of hollow core precast concrete units, packing material (Item 3) and caulk fill material (Item 4) to be installed symmetrically on both sides of floor, flush with floor surface. Wall assembly may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is in solid lightweight or normal weight concrete. Floor is 32 in. Max diam of opening in floor constructed of hollow–core precast concrete units is 7 in.

   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. 16 in. diam. (or smaller) Schedule 10 (or heavier) steel sleeve cast or grouted into floor or wall assembly. Sleeve may extend a max of 2 in. above top of floor or beyond either surface of wall. As an alternate, nom. 16 in. diam. (or smaller) min 0.028 thick galvanized sheet steel sleeve cast or grouted into floor or wall assembly flush with floor or wall surfaces.

2. Through Penetrants – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. Max annular space between pipe, conduit or tubing and edge of through opening or sleeve is dependent on the parameters shown in Item 4. Min annular space between pipe or conduit and edge of through opening is 0 in. (point contact). Max. annular space to be as shown in the table in Item 4. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used.

   A. Steel Pipe – Nom 30 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe – Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit – Nom 6 in. diam (or smaller) rigid steel conduit.
   D. Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing.
   E. Copper Tubing – Nom 6 in. diam (or smaller) Type L (or heavier) copper tube.
   F. Copper Pipe – Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

3. 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).

   3A. Forming Material – As an alternate to the packing material in Item. 3, nom. 4 in. wide strips of min. 1/2 in thick compressible mat to be stacked to a thickness greater than the width of the annular space and compression–fitted, edge–first, to fill the annular space to a min. 4 in. depth. As an option, the strips of min. 1/2 in. thick compressible mat may be folded in half, lengthwise, and stacked to a thickness greater than the width of the annular space and compression–fitted, edge–first, to fill the annular space to a min. 2 in. depth. Top of forming material to be recessed from top surface of floor or from both surfaces of wall as necessary to accommodate the required thickness of caulk fill material.

   3M COMPANY – Fire Barrier Packing Material.

4. Fill,Void or Cavity Material* – Caulk, Sealant – 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. At point contact location between penetrant and sleeve or between penetrant and concrete, a min 1/4 in. diam bead of caulk shall be applied at top surface of floor and at both surfaces of wall. The hourly F Ratings and the min required caulk thicknesses are dependent upon a number of parameters, as shown in the following table:

Min Floor or Wall Thkns In. (mm)	Nom Pipe Tube or Conduit Diam in. (mm)	Max Annular Space in. (mm)	Min Caulk Thkns in. (mm)	F Rating Hr
2-1/2 (64)	1/2-12 (13-305)	1-3/8 (35)	1/2 (13)	2
2-1/2 (64)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	2
4-1/2 (114)	1/2-6 (13-152)	1-3/8 (35)	1/4 (6) (a)	2
4-1/2 (114)	1/2-12 (13-305)	1-1/4 (32)	1/2 (13)	3
4-1/2 (114)	1/2-20 (13-508)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-20 (13-508)	2 (51)	1 (25)	3
4-1/2 (114)	1/2-12 (13-305)	3-1/4 (83)	1 (25)	3
4-1/2 (114)	22-30 (558-762)	2 (51)	2 (51)	3
5-1/2 (140)	1/2-6 (13-152)	1-3/8 (35)	1 (25) (b)	4

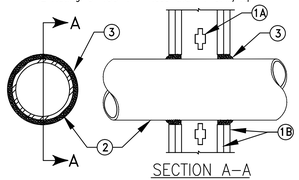
   a. Min 2 in. thickness of mineral wool batt insulation or forming material (Item 3A) required in annular space.
   b. Min 1 in. thickness of mineral wool batt insulation required in annular space on both sides of floor or wall assembly. Min 1 in. thickness of caulk to be installed flush with each surface of floor or wall assembly.

(Note: W Rating applies only when FB–3000 WT sealant is used.)

FIRE RATED CONCRETE WALL PENETRATION

NO SCALE

F Ratings – 1, 2, 3 and 4 Hr (See Items 2 and 3)
T Ratings – 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating @ Ambient – less than 1 CFM/sq ft
L Rating @ 400° F – less than 1 CFM/sq ft



SECTION A–A

1. Wall Assembly – The 1, 2, 3 or 4 hr fire–rated gypsum wallboard/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. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3–5/8 in. wide by 1–3/8 in. deep channels spaced max 24 in. OC.

   B. Gypsum Board* – 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 26 in.

2. Through Penetrant – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

   A. Steel Pipe – Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe – Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
   C. Conduit – Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical metallic tubing
   D. Copper Tubing – Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing
   E. Copper Pipe – Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.
   F. Through Penetrating Product* – Flexible Metal Piping – The following types of steel flexible metal gas piping may be used:
      1. Nom 2 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         OMEGA FLEX INC

      2. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         GASTITE, DIV. OF TITEFLEX

      3. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         WARD MFG INC

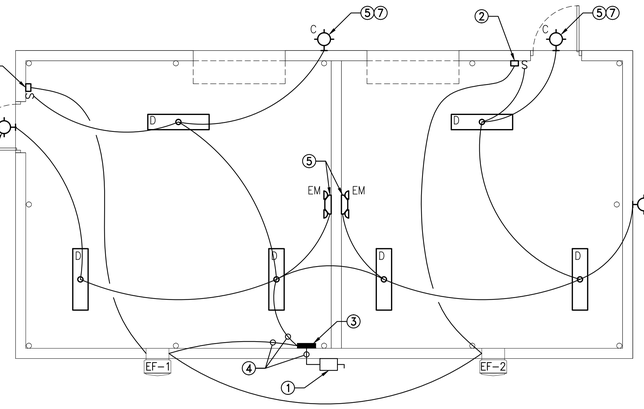
3. Fill,Void or Cavity Material* – Caulk or Sealant – Min 5/8. 1–1/4,1–7/8 and 2–1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall.
   The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, 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 fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 hr.

FIRE RATED GYPSUM WALLBOARD PENETRATION

NO SCALE



STORAGE SHED ELECTRICAL PLAN

SCALE: 1/4" = 1'–0"

GENERAL NEW WORK NOTES

1. ALL ELECTRICAL WIRING, CONDUIT, DEVICES, EQUIPMENT AND MATERIALS SHALL BE NEW UNLESS NOTED OTHERWISE. PROVIDE ALL CONDUCTORS, CONDUITS, BOXES, MISCELLANEOUS FITTINGS, ETC FOR A COMPLETE AND OPERABLE SYSTEM.

2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC SAFETY CODE (IEEE C–2) APPROVED OR ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION AND THE NATIONAL ELECTRIC CODE (NFPA 70).

3. ALL CONDUCTORS SHALL BE COPPER UNLESS NOTED OTHERWISE.

4. ALL INTERIOR ELECTRICAL WIRING SHALL BE IN METALLIC CONDUIT UNLESS NOTED OTHERWISE.

5. PROVIDE FLEXIBLE METALLIC CONDUIT TO ALL MOTOR OPERATED EQUIPMENT.

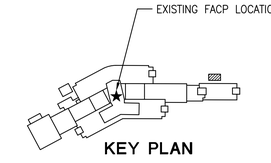
6. PLANS SHOW REQUIRED NEW BRANCH CIRCUITS. ALL WIRES INCLUDING PANEL OF ORIGIN SHALL BE DELINEATED ON RECORD DRAWINGS.

7. COORDINATE WITH ALL TRADES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.

8. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNLESS NOTED OTHERWISE.

NEW WORK NOTES

1. PROVIDE NEW FUSED DISCONNECT SWITCH, 30AMP, NEMA 3 ENCLOSURE. INTERCEPT EXISTING FEEDER CIRCUIT AND PROVIDE NEW CIRCUITING AS SHOWN.
2. PROVIDE NEW HAND–OFF–AUTO SELECTOR SWITCH FOR EXHAUST FAN CONTROL.
3. PROVIDE NEW 240V, 30A, 2–CIRCUIT LOAD CENTER.
4. CIRCUIT SHALL BE (2) #12 AWG W/#12 AWG GROUND; 3/4" CONDUIT.
5. EXTERIOR AND EMERGENCY LIGHTING SHALL BE PROVIDED WITH UNSWITCHED POWER.
6. EXISTING CONDITIONS WITHIN THE FACILITY ARE CONSTRUCTED USING HILTI FIRE STOPPING SYSTEMS. ALL NEW CONSTRUCTION REQUIRING FIRE STOPPING SHALL USE HILTI FIRE STOPPING SYSTEMS TO MATCH EXISTING.
7. EXTERIOR LIGHTING FIXTURE SHALL BE PROVIDED WITH FACTORY INTEGRATED PHOTOSENSOR CONTROL.



GRAPHIC SCALE
1/4"=1'– 0"
4 2 0 4 8 12
SCALE IN FEET

FINAL SUBMISSION

Scale: 1/4" = 1'-0"

Revisions:	Date

CONSULTANTS:

ARCHITECT/ENGINEERS:

BES INCORPORATED
ARCHITECTS
ENGINEERS
CONSTRUCTORS
P.O. BOX 2060, BEAUFORT, S.C. 29901–2060 843–522–2094

Drawing Title: STORAGE SHED ELECTRICAL PLANS - NEW WORK

Approved Project Director

Project Title: CORRECT SAFETY DEFICIENCIES AT LOADING DOCK JAMES PETERS MEDICAL CENTER, BRONX, NY

Location

Date: 11/07/2014 | Checked: R.DELOACH | Drawn: J.POPE

Project Number: 526-13-108

Building Number: N/A

Drawing Number: EL102

Dwg. 34 of 38

Office of Construction and Facilities Management

Department of Veterans Affairs

VA FORM 08–6231

K:\2013\2013030_00_Loading Dock\Correct Safety Deficiencies at Loading Dock\DWG\2013030_00_EL102.dwg, 12/1/2014 9:17:25 AM