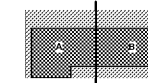




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**NOT FOR  
 CONSTRUCTION**

No.	Description	Date
1	ED - GMP	2019-07-03

<p>3/4" PIPE INCREASER, INSTALL TOP OF HUB 1" ABOVE FINISH FLOOR (FOR RECEIVING CONDENSATE ONLY).</p> <p>FINISHED FLOOR</p> <p>PROVIDE DEEP SEAL, P-TRAP ONLY IF CONNECTED TO SANITARY SEWER.</p>	<p>SPOT TYPE CONCRETE INSERT EQUAL TO ELCEN NO. 81 (TYP.)</p> <p>FIRST FLOOR SLAB</p> <p>SLEEVE PIPING THRU GRADE BEAM WHERE REQUIRED</p> <p>HANGER ROD</p> <p>GRADE BEAM</p> <p>SLOPE: MIN. 1/8" PER FOOT</p> <p>HEAVY DUTY TYPE 304 STAINLESS STEEL, NO-HUB CAST IRON PIPE CLAMP</p> <p>HANGER REQUIRED AT ALL FITTINGS AND COUPLINGS</p> <p>HEAVY DUTY CLEVIS HANGER EQUAL TO ELCEN NO. 12 (TYP.)</p> <p>NOTE:        PIPE SUPPORT BELOW SLAB REQUIRED FOR ALL GRAVITY PIPING BELOW SLAB.        HANGER IS SPACING TO BE PER PLUMBING CODE.</p>	<p>System No. CAJ-5001        (Formerly System No. 91)        F Rating - 1-1/2 2 and 3 Hr. (See Item 4)        T Rating - 0, 1/2, 3/4 and 1 Hr. (See Item 1 and 4)        L Rating At Ambient - 4 CFM/Sq Ft.        L Rating At 400 F - Less Than 1 CFM/Sq Ft.</p> <p>SECTION A-A</p> <p>1. Floor or Wall assembly - Min. 2-1/2" thick reinforced lightweight or normal weight (150-150) psi concrete. Wall may also be constructed of any UL Classified Concrete Block*. Max. diameter of opening is 18". See Concrete Blocks (CAZ) category in the Fire Resistance Directory for names of manufacturers.</p> <p>1A. Steel Sleeve - Optional, not shown - Nom. 10" (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 other surface of wall. T Rating is 0 Hr. when sleeve is used.</p> <p>2. Through Penetrators - Nom. 4" dia. (or smaller) type L (or heavier) copper pipe, nom. 1/2" dia. (or smaller) service weight (or heavier) cast iron pipe, nom. 1/2" dia. (or smaller) class 50 (or heavier) ductile iron pressure pipe or nom. 1/2" dia. (or smaller) Schedule 10 (or heavier) steel pipe centered in the opening and rigidly supported on both sides of the floor or wall assembly.</p> <p>3. Pipe-Covering* - Nom. 1/2 to 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 top tape. Transverse joints secured with metal fasteners or with built strip tape supplied with the product. See pipe and equipment covering - Material (BRGU) category in the 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 must be used.</p> <p>4. Freestop System - The details of the freestop system shall be as follows:</p> <p>A. Packing Material - Nom. 1" thickness of finely packed mineral wool batt insulation used as a permanent form and insulating material to be removed from top surface of floor or above the pipe covering material, as required to accommodate the required thickness of material (Item B).</p> <p>B. Fill Void or Cavity Material - Cavity - Annular space between pipe and wall surface flush with top surface of floor or sleeve. Fill annular space with top surface of floor or sleeve. Fill annular space with top surface of wall. When non pipe covering thickened caulk fill material is used, thickness of caulk fill material is 1". When non pipe covering thickened caulk fill material is 1", thickness of caulk fill material is 1". The hourly F Rating of the freestop system is dependent upon the thickness of pipe covering material and the annular space (between the pipe covering material and the wall) and the circular through opening, as shown in the table below.</p> <table border="1"> <thead> <tr> <th>Wall Assembly Rating</th> <th>Through Penetrator Max. Dia. 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Fill Void or Cavity Material - Sealant - Min 3/8 in. thickness of fill material applied within the annulus. Flush with both surfaces of wall for 1 or 2 hr walls, respectively. At the point contact location between pipe covering and gypsum wallboard, a min 1/2 in. diam bead of fill material shall be applied at the pipe covering/gypsum wallboard interface on both surfaces of wall.</p> <p>HLTI CONSTRUCTION CHEMICALS, DIV OF HLTI, Inc. - FS-ONE Sealant.        *Bearing the UL Classification Marking.</p>	Wall Assembly Rating	Through Penetrator Max. Dia. (in.)	Pipe Covering Thickness (in.)	Annular Space (in.)	Hourly F Rating	T Rating (Hr.)	1	A or B	1	0	1-1/2	1/2	1	C or D	2	1 or 1-1/2	0	1-1/2	1	A	12	2	1-7/8	1	1	C or D	4	2	0	1-7/8	2	A	4	0	1-1/2	1	2	C or D	4	1 or 1-1/2	0	1-1/2	2	C or D	6	2	0	1-7/8	2	A	12	2	0	1-1/2	2	C or D	6	2	0	1-7/8	<p>System No. W-4-5029        F Rating - 1 and 2 Hr. (See Item 1)        T Rating - 1/2, 3/4, 1 and 1-1/2 Hr. (See Item 3)        L Rating At Ambient - 4 CFM/Sq Ft.        L Rating At 400 F - Less Than 1 CFM/Sq Ft.</p> <p>SECTION A-A</p> <p>1. Wall Assembly - The 1 or 2 hr freestop gypsum wallboard wall assembly shall be constructed of the materials and in the manner specified in the individual U200 or U400 Series Wall and Partition Systems in the UL Fire Resistance Directory and shall be installed in accordance with the construction requirements.</p> <p>A. Studs - Wall framing may consist of wood studs, metal studs, or channel studs. Wood studs to be minimum 2x4s (over spans of 16 in. OC). Steel studs to be minimum 2x4s (over spans of 16 in. OC).</p> <p>B. Wallboard, Gypsum - 1/2" thick, 4 lb/sq yd square tapered edges. The gypsum wallboard shall be installed in accordance with the individual Wall and Partition Systems in the UL Fire Resistance Directory. The hourly F Rating of the wall assembly in which it is installed.</p> <p>2. Through Penetrators - The metallic pipe, conduit or tubing to be centered in the opening and rigidly supported on both sides of the floor or wall assembly.</p> <p>3. Pipe-Covering* - Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The fitting types and sizes of fittings, elbows, conduits or tubing may be used.</p> <p>A. Steel Pipe - Nom. 12 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.</p> <p>B. Conduit - Nom. 4 in. diam (or smaller) electrical metallic tubing or steel conduit.</p> <p>C. Copper Tubing - Nom. 6 in. diam (or smaller) Type L (or heavier) copper tubing.</p> <p>D. Copper Pipe - Nom. 6 in. diam (or smaller) Regular (or heavier) copper pipe.</p> <p>3. Pipe-Covering* - Nom. 1, 1-1/2 or 2 in. 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 top tape. Transverse joints secured with metal fasteners or with built strip tape supplied with the product. See pipe and equipment covering - Material (BRGU) category in the Building Materials Directory for the 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. The hourly F Rating of the freestop system in which it is installed, the size and type of through penetrator and the pipe covering thickness, as shown in the table below.</p> <table border="1"> <thead> <tr> <th>Wall Assembly Rating</th> <th>Through Penetrator Max. Dia. 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<p><b>HUB DRAIN</b>        No Scale</p> <p>8</p> <p><b>UNDERGROUND PIPE SUPPORT</b>        No Scale</p> <p>5</p> <p>ROOF DRAIN</p> <p>ROOF DECK</p> <p>INSULATION</p> <p>PIPE SUPPORT (TYP.)</p> <p>SLOPE</p> <p>INSULATE UNDER OF ROOF SUMP &amp; HORIZONTAL RAIN LEADERS</p>	<p>TEST TEE</p> <p>FINISHED WALL SURFACE</p> <p>THREADED CLEANOUT PLUG</p> <p>ACCESS COVER AND FRAME</p>	<p><b>ROOF DRAIN - INSULATED</b>        No Scale</p> <p>9</p> <p><b>WALL CLEANOUT</b>        No Scale</p> <p>6</p> <p><b>WALL/FLR - CONC - PIPE/INSULATED - 2,3 HOUR</b>        No Scale</p> <p>3</p> <p><b>WALL - DRYWALL - PIPE/INSULATED - 1 AND 2 HOUR</b>        No Scale</p> <p>1</p>																																																																																																																									
<p>TRAP PRIMER VALVE (MAXIMUM OF 2 DRAINS) PRECISION PLUMBING PRODUCTS</p> <p>DISTRIBUTION UNIT REQUIRED WHEN USED FOR MORE THAN ONE FLOOR DRAIN</p> <p>1/2" TYPE "K" SOFT SEAMLESS COPPER WITH NO JOINTS BELOW FLOOR SLAB. SLOPE AT 1/8" PER FOOT MINIMUM TO FLOOR DRAIN CONNECTION.</p> <p>FINISHED FLOOR</p> <p>FLOOR DRAIN</p> <p>P-TRAP</p>	<p>SCORIATED CLEANOUT COVER (ZIRN - 2-1436)</p> <p>CLEANOUT PLUG</p> <p>18" THICK CONCRETE COLLAR IN AREAS W/NO SLAB</p> <p>COMBINATION WYE WITH BEND</p>	<p>TYPICAL PIPING INSULATION DO NOT CRUSH</p> <p>TYPICAL GALVANIZED SHEET METAL SADDLE REFER TO SPECIFICATIONS</p> <p>TYPICAL 12 GAUGE CHANNEL, STRUT WITH SLOTS</p> <p>TYPICAL DOUBLE NUT WITH SINGLE WASHER, TYPICAL TRAPEZE HANGER</p> <p>TYPICAL STRUT MOUNTED PIPE STRAP</p> <p>NOTE: LENGTH AS REQUIRED BY NUMBER OF PIPES AND SIZES REQUIRED</p> <p>NOTE:        1. REFER TO SPECIFICATIONS AND FLOOR PLANS FOR        2. SPECIFIED HANGER ROD, STRUT, NUTS, WASHER, AND PIPE STRAPS SHALL BE OF GALVANIZED PLATED MATERIALS</p>	<p>PIPE HANGER (SEE SPECS)</p> <p>GALVANIZED SHEETMETAL PIPE SADDLE WITH FLARED ENDS</p> <p>INSULATED PIPE</p>																																																																																																																								
<p><b>TRAP PRIMER</b>        No Scale</p> <p>10</p> <p><b>EXTERIOR CLEANOUT</b>        No Scale</p> <p>7</p> <p><b>TRAPEZE HANGER</b>        No Scale</p> <p>4</p> <p><b>INSULATED PIPE HANGER</b>        No Scale</p> <p>2</p>																																																																																																																											

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