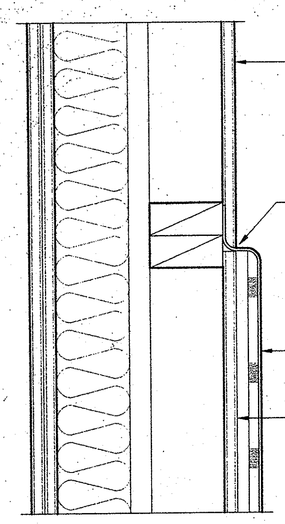
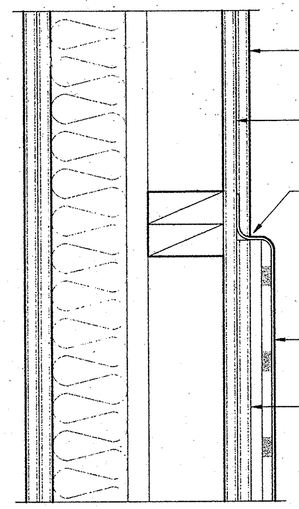
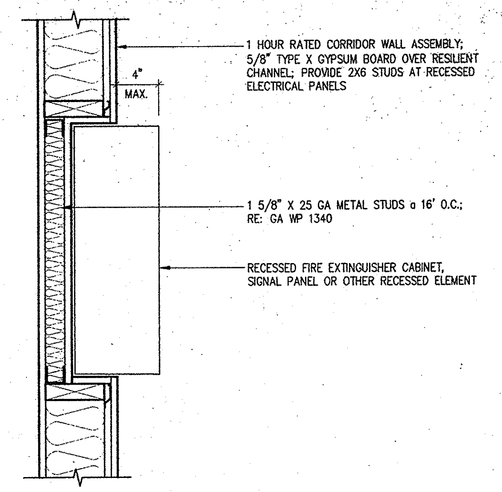


TUB FLANGE AT 1 HR. RATED WALL (29)
SCALE: NONE

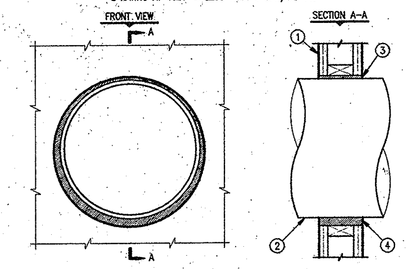


TUB FLANGE AT 2 HR. RATED WALL (28)
SCALE: NONE



RECESSED CABINET AT RATED WALL (27)
SCALE: 1 1/2" =1'-0"

U.L. SYSTEM NO. WL1054
METAL PIPE THROUGH GYPSUM WALL ASSEMBLY
F RATING = 1-HR. OR 2-HR. L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
T RATING = 0-HR. L RATING AT 400°F = LESS THAN 4 CFM/SQ. FT.

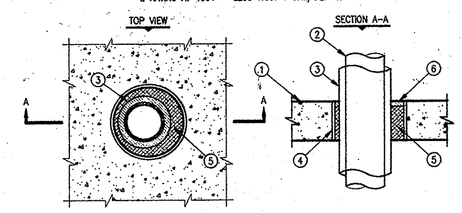


1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 30" DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
   B. MAXIMUM 6" DIAMETER COPPER PIPE.
   C. MAXIMUM 6" DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" DIAMETER STEEL EMT.
3. HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.
4. MINIMUM 1/2" BEAD HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT POINT OF CONTACT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 32 1/4".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2 1/4".

METAL PIPE THRU RATED WALL (26)
SCALE: NONE

U.L. SYSTEM NO. CAJ5090
INSULATED METALLIC PIPE THROUGH CONCRETE FLOOR OR WALL IN OPTIONAL STEEL PIPE SLEEVE
F RATING = 3-HR. T RATING = 0-HR.
L RATING AT AMBIENT = 4 CFM/SQ. FT.
L RATING AT 400°F = LESS THAN 1 CFM/SQ. FT.

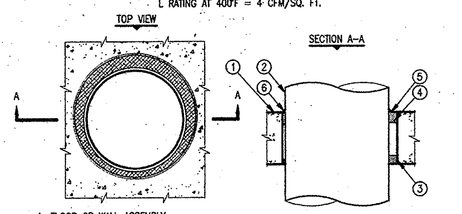


1. CONCRETE FLOOR/WALL ASSEMBLY (MINIMUM 4-1/2" THICK).
2. PENETRATING METALLIC PIPE TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE.
   B. MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE.
   C. MAXIMUM 4" NOMINAL DIAMETER STEEL CONDUIT.
   D. MAXIMUM 4" NOMINAL DIAMETER EMT.
3. MAXIMUM 3/4" THICK AB/PVC PIPE INSULATION.
4. OPTIONAL : MAX. 8" NOMINAL DIA. STEEL PIPE SLEEVE (SCHEDULE 20 OR HEAVIER).
5. MINIMUM 4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
6. MIN. 1/4" DEPTH HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 8-5/8".
2. ANNULAR SPACE = MINIMUM 1/2", MAXIMUM 1-1/2".
3. FIRESTOP SEALANT IS REQUIRED ON EACH SIDE OF A WALL ASSEMBLY.

PENETRATION THRU 3 HR CONCRETE (25)
SCALE: NONE

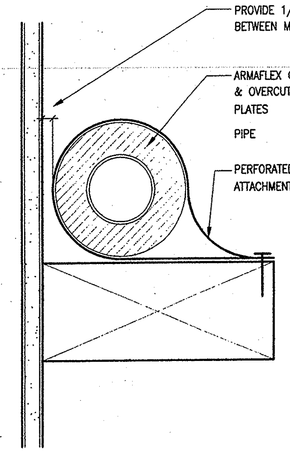
U.L. SYSTEM NO. CAJ1155
METAL PIPE THROUGH A SLEEVE IN CONCRETE FLOOR,WALL,OR BLOCK WALL
F RATING = 3-HR. T RATING = 0-HR.
L RATING AT AMBIENT = LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F = 4 CFM/SQ. FT.



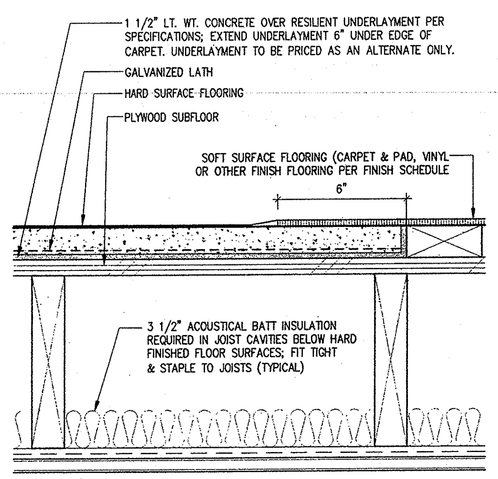
1. FLOOR OR WALL ASSEMBLY :
   A. MINIMUM 4 1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL.
   B. U.L. CLASSIFIED CONCRETE BLOCK WALL (MINIMUM 8" BLOCK).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 20" DIAMETER STEEL PIPE.
   B. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE.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

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 22".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 2".
3. SEALANT IS REQUIRED ON EACH SIDE OF A WALL ASSEMBLY.

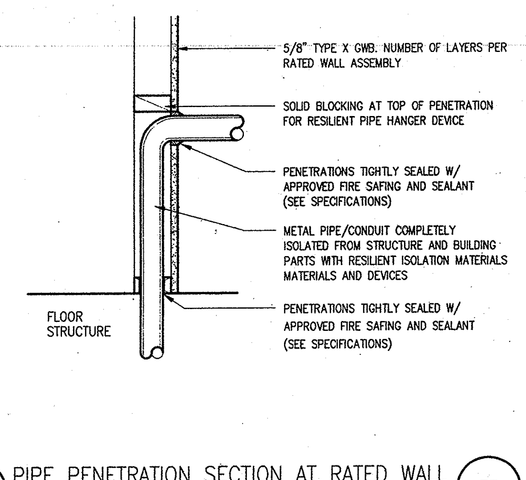
METAL PIPE & SLEEVE THRU CONCRETE (24)
SCALE: NONE



VERTICAL PIPE VIBRATION ISOLATION (35)
SCALE: NONE

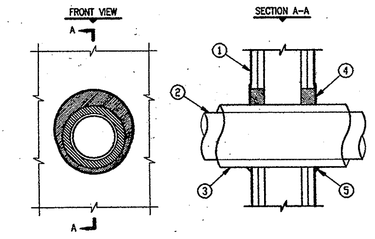


SOUND ATTENUATION DETAIL AT FLOOR (34)
SCALE: NONE



PIPE PENETRATION SECTION AT RATED WALL (33)
SCALE: NONE

U.L. SYSTEM NO. WL5028
INSULATED METAL PIPE THROUGH 1-HR. OR 2-HR. GYPSUM WALL ASSEMBLY
F RATING = 1-HR. AND 2-HR. L RATING AT AMBIENT = 4 CFM/SQ. FT.
T RATING = 1/2-HR. L RATING AT 400°F = LESS THAN 1 CFM/SQ. FT.

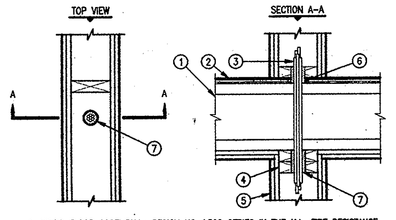


1. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 4" DIAMETER STEEL PIPE.
   B. MAXIMUM 2" DIAMETER COPPER PIPE.
   C. MAXIMUM 4" DIAMETER EMT.
   D. MAXIMUM 4" DIAMETER STEEL CONDUIT.
3. MAXIMUM 3/4" THICK (AB/PVC) FLEXIBLE FOAM TYPE PIPE INSULATION.
4. HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT :
   A. MINIMUM 5/8" DEPTH OF SEALANT FOR A 1-HR. FIRE-RATING.
   B. MINIMUM 1-1/4" DEPTH OF SEALANT FOR A 2-HR. FIRE-RATING.
5. MINIMUM 1/2" CROWN HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT PIPE INSULATION/WALL INTERFACE.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 7 1/2".
2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".

CABLE BUNDLE THRU RATED WALL (32)
SCALE: NONE

U.L. SYSTEM NO. FC3012
CABLE/CABLE BUNDLE THROUGH 1-HR. OR 2-HR. WOOD FLOOR ASSEMBLY
F RATING = 1-HR. OR 2-HR. L RATING AT AMBIENT = 5 CFM/SQ. FT.
T RATING = 1-HR. OR 2-HR. L RATING AT 400°F = 2 CFM/SQ. FT.

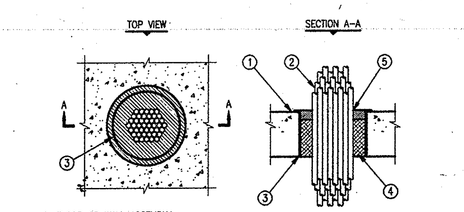


1. WOOD FLOOR ASSEMBLY : DESIGN NO. L500 SERIES IN THE U.L. FIRE RESISTANCE DIRECTORY.
2. LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OR LUMBER, PLYWOOD, OR FLOOR TOPPING MIXTURE.
3. MAXIMUM 2" DIAMETER CABLE BUNDLE MAY CONSIST OF ANY OF THE FOLLOWING :
   A. RG 59 COAXIAL CABLE.
   B. MAXIMUM 8/C NO. 22 AWG TELEPHONE CABLE.
   C. MAXIMUM 3/C NO. 10 AWG CABLE (ROMEX).
   D. MAXIMUM 3/C (+GRND) 2/0 AWG SER CABLE (ALUMINUM OR COPPER).
   E. MAXIMUM 2/C NO. 12 AWG CABLE.
4. TOP PLATE.
5. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
6. MINIMUM 3/4" DEPTH HILTI FS-ONE (OR EQUAL) FIRESTOP SEALANT.
7. PROVIDE A GENEROUS BEAD OF HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRE-STOP SEALANT AT THE TOP PLATE.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 2-1/2".
2. ANNULAR SPACE BETWEEN CABLE BUNDLE AND OPENING = MIN. 0", MAX. 1/2".
3. CABLES TO FILL A MAXIMUM OF 40% OF CROSS-SECTIONAL AREA OF OPENING.

METAL PIPE THRU RATED WOOD FLOOR (31)
SCALE: NONE

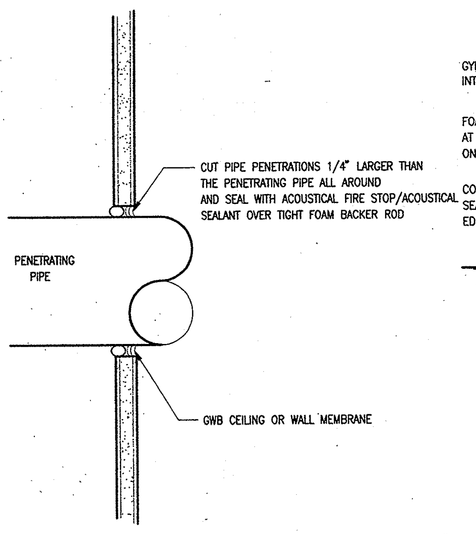
U.L. SYSTEM NO. CAJ0095
ONE OR MORE CABLES THROUGH CONCRETE FLOOR,WALL, OR BLOCK WALL
F RATING = 3-HR. T RATING = 0-HR.
L RATING AT AMBIENT = 5 CFM/SQ. FT.
L RATING AT 400°F = 2 CFM/SQ. FT.



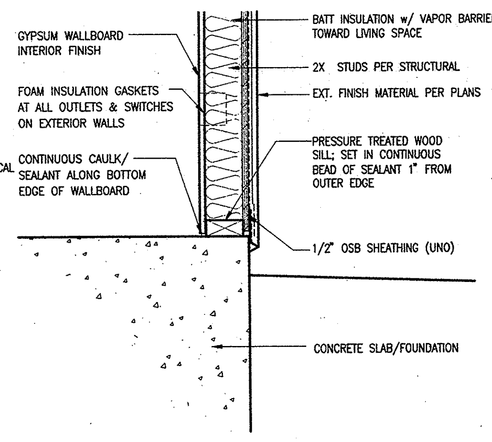
1. FLOOR OR WALL ASSEMBLY :
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MIN. 2-1/2" THICK).
   B. ANY U.L. CLASSIFIED CONCRETE BLOCK WALL.
2. MAXIMUM 4" DIAMETER CABLE BUNDLE TO BE A COMBINATION OF THE FOLLOWING :
   A. MAXIMUM 300 PAIR TELEPHONE CABLES WITH PVC JACKET.
   B. MAXIMUM 500 KCMIL 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.
3. OPTIONAL : MAX. 6" NOM. DIA. STEEL PIPE SLEEVE (SCHEDULE 40 OR HEAVIER).
4. MINIMUM 2" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
5. MIN. 1/2" DEPTH HILTI FS-ONE HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT.

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 6-5/8".
2. CABLES TO FILL MIN. 20% TO MAX. 33% OF AREA OF OPENING.
3. WALLS REQUIRE 1/2" DEPTH HILTI FS-ONE OR EQUAL HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT FLUSH WITH SIDES.

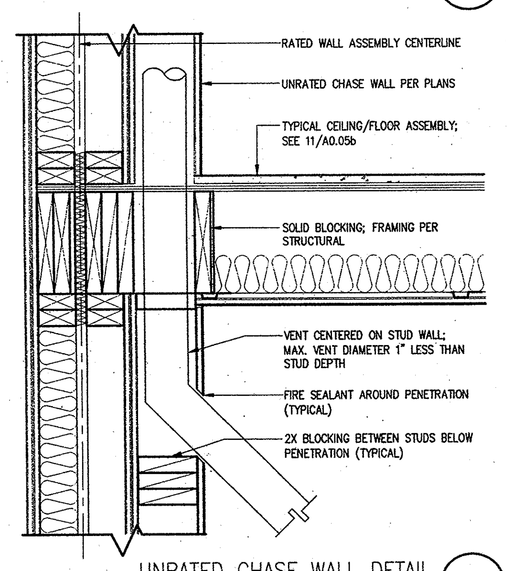
CABLE BUNDLE THRU CONCRETE (30)
SCALE: NONE



SOUND ATTENUATION AT PIPE PENETRATION (41)
SCALE: NONE

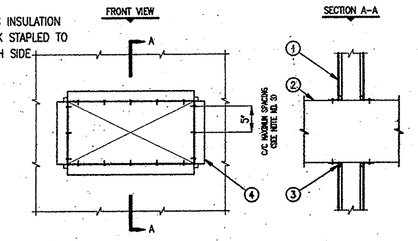


1ST LEVEL EXTERIOR WALL REQUIREMENTS (40)
SCALE: NONE



UNRATED CHASE WALL DETAIL (39)
SCALE: NONE

U.L. SYSTEM NO. WL7003
METAL DUCT (WITHOUT DAMPER) THROUGH 1-HR. GYPSUM WALL
F RATING = 1-HR.
T RATING = 0-HR.

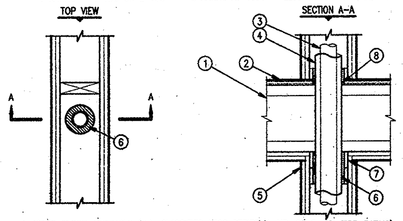


1. GYPSUM WALL ASSEMBLY (1-HR. FIRE-RATING).
2. MINIMUM 24 GA. RECTANGULAR STEEL DUCT (MAXIMUM SIZE : 24" x 12").
   (NOTE : NOT FOR USE IN DUCT SYSTEMS CONTAINING A DAMPER).
3. MINIMUM 5/8" DEPTH HILTI FS 601 (OR EQUAL) ELASTOMERIC FIRESTOP SEALANT IN ANNULAR SPACE
4. SEE NOTE NO. 3 BELOW.

NOTES : 1. MAXIMUM AREA OF OPENING = 325 SQUARE INCHES WITH A MAXIMUM DIMENSION OF 25 INCHES.
2. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/4".
3. AFTER SEALING SPACE BETWEEN DUCT AND GYPSUM WALL WITH HILTI FS 601 (OR EQUAL) ELASTOMERIC FIRESTOP SEALANT, FASTEN STEEL ANGLE (1/2 x 2 x 1/8") TO DUCT WITH NO. 8 (OR LARGER) STEEL SHEET METAL SCREWS. ANGLE DOES NOT HAVE TO BE FASTENED TO THE WALL.

INSULATED METAL PIPE THRU RATED WAL (38)
SCALE: NONE

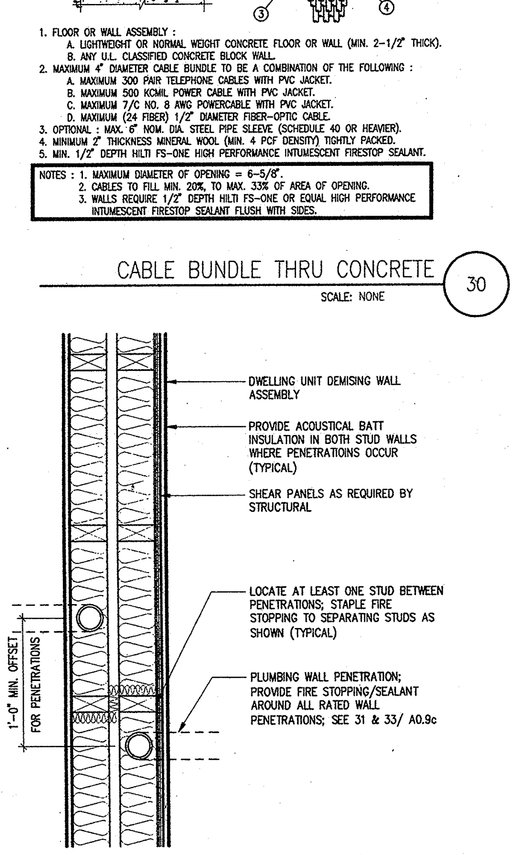
U.L. SYSTEM NO. FC5004
INSULATED METAL PIPE/CONDUIT THROUGH 1-HR. OR 2-HR. WOOD FLOOR
F RATING = 1-HR. OR 2-HR. L RATING AT AMBIENT = 4 CFM/SQ. FT.
T RATING = 1-HR. OR 2-HR. L RATING AT 400°F = LESS THAN 1 CFM/SQ. FT.



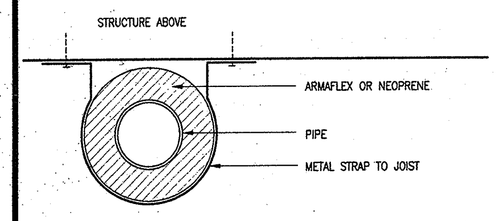
1. WOOD FLOOR ASSEMBLY (U.L. CLASSIFIED L500 SERIES)(1-HR. OR 2-HR. FIRE-RATING)
2. LUMBER OR PLYWOOD SUBFLOOR WITH FINISH FLOOR OF LUMBER, PLYWOOD, OR FLOOR TOPPING MIXTURE.
3. PENETRATING ITEM TO BE ANY ONE OF THE FOLLOWING :
   A. MAXIMUM 2" DIAMETER STEEL PIPE (SCHEDULE 40 OR HEAVIER).
   B. MAXIMUM 2" DIAMETER COPPER PIPE.
   C. MAXIMUM 2" DIAMETER EMT.
   D. MAXIMUM 2" DIAMETER STEEL CONDUIT.
4. PIPE INSULATION TO BE ONE OF THE FOLLOWING :
   A. MAXIMUM 1/2" THICK GLASS FIBER PIPE INSULATION.
   B. MAXIMUM 3/4" THICK AB/PVC FLEXIBLE FOAM.
5. GYPSUM WALL ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING)(2-HR. SHOWN).
6. PROVIDE A GENEROUS BEAD OF HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT AT THE TOP PLATE.
7. TOP PLATE.
8. MIN. 3/4" DEPTH HILTI FS-ONE (OR EQUAL) HIGH PERFORMANCE INTUMESCENT FIRESTOP SEALANT.

NOTES : 1. MAXIMUM DIAMETER OF FLOOR OPENING = 4".
2. ANNULAR SPACE = 1/8" WHEN GLASS FIBER PIPE INSULATION IS USED, AND 1/16" TO 1/4" WHEN AB/PVC PIPE INSULATION IS USED.

CABLE BUNDLE THRU RATED WOOD FLOOR (37)
SCALE: NONE

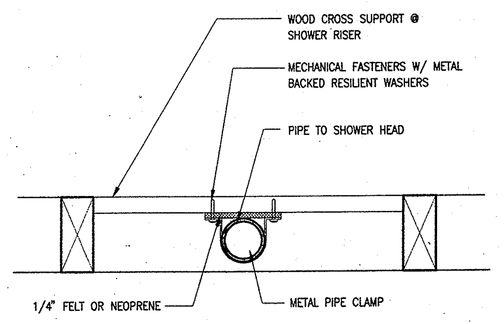


BACK-TO-BACK PLUMBING IN DEMISING WALLS (36)
SCALE: 1 1/2" =1'-0"

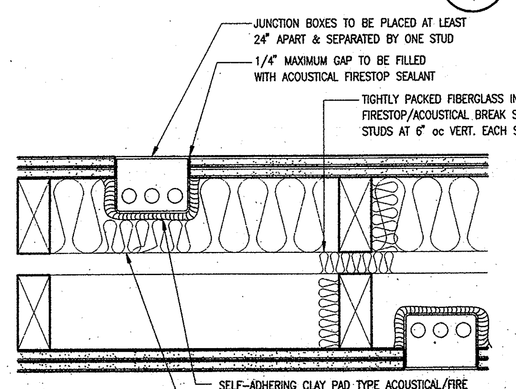


ALL PIPES SHALL BE ISOLATED FROM ALL STRUCTURAL MEMBERS AND BUILDING PARTS WITH THE USE OF RESILIENT MATERIALS. VERIFY METHOD OF PIPE ISOLATION WITH ARCHITECT AND ACOUSTICAL ENGINEER PRIOR TO INSTALLATION OF ANY AND ALL PLUMBING.

HORIZONTAL PIPE VIBRATION ISOLATION (47)
SCALE: NONE



SHOWER PIPE ISOLATION (46)
SCALE: NONE

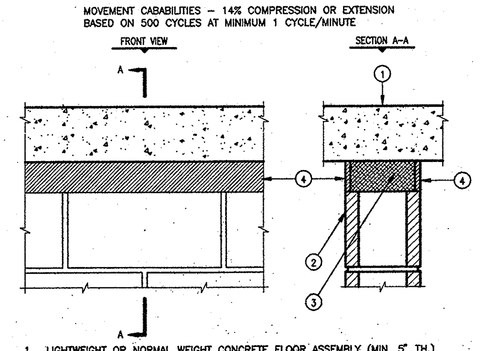


NOTE:
APPROVED SERVICE BOXES, ACOUSTICALLY TREATED AS SHOWN, SHALL BE INSTALLED AT ALL SERVICE OPENINGS INCLUDING LOW VOLTAGE. WHERE SERVICE BOXES MUST BE PLACED CLOSER THAN 24" DUE TO UNIT LAYOUT, BOXES MUST BE SEPARATED BY AT LEAST ONE PAIR OF STUDS AND TIGHTLY PACKED INSULATION.

J BOX AT DEMISING WALL (45)
SCALE: NONE

RECTANGULAR DUCT THRU RATED WALL (44)
SCALE: 1 1/2" =1'-0"

U.L. SYSTEM NO. HW-D-0008
FIRE RATED JOINT THROUGH CONCRETE WALL ASSEMBLY
ASSEMBLY RATING = 3-HR.
MOVEMENT CABABILITIES – 14% COMPRESSION OR EXTENSION BASED ON 500 CYCLES AT MINIMUM 1 CYCLE/MINUTE



1. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR ASSEMBLY (MIN. 5" TH.)
2. CONCRETE OR CMU WALL ASSEMBLY (3-HR FIRE-RATING)
   A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MIN. 5" TH.)
   B. ANY U.L. CLASSIFIED CONCRETE BLOCK WALL
3. MINIMUM 4-1/4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
4. MINIMUM 1/4" DEPTH HILTI CP 601S ELASTOMERIC FIRESTOP SEALANT BOTH SIDES OF WALL.

NOTE: MAXIMUM WIDTH OF JOINT = 3-1/2"

INSULATED PIPE THRU WOOD FLOOR (43)
SCALE: 1 1/2" =1'-0"

3 HR FIRE SEAL AT TOP OF BLOCK (42)
SCALE: 1 1/2" =1'-0"

VAN TILBURG, BANVARD & SODERBERGH, AIA
ARCHITECTURE · PLANNING · INTERIORS
PENTHOUSE, 225 ARIZONA AVENUE
SANTA MONICA, CA 90401
TEL 310.394.0273 FAX 310.394.2424
SUITE 170, 1600 GLENARM PLACE STREET
DENVER, CO 80202
TEL 303.573.0041 FAX 303.573.0502

PLAYA DEL REY
8700 PERSHING DRIVE
PLAYA DEL REY, CALIFORNIA 90293

ARCHSTONE COMMUNITIES
217 Technology Drive, Second Floor
Irvine, California 92618

ISSUE	DATE	DESCRIPTION
	09.06.00	DESIGN DEVELOPMENT
	10.17.00	PROGRESS SET
	11.10.00	BUILDING DEPT. SUBMITTAL
	03.02.01	PROGRESS SET
	04.18.01	REVIEW SET
	05.28.01	REVIEW SET
	07.20.01	BID SET
1	10.05.01	GMAX SET

PROJECT: 9985
DRAWN:
CHECKED:

LIFE SAFETY DETAILS: MISCELLANEOUS FIRE, SMOKE & ACOUSTIC ASSEMBLIES

A0.05c