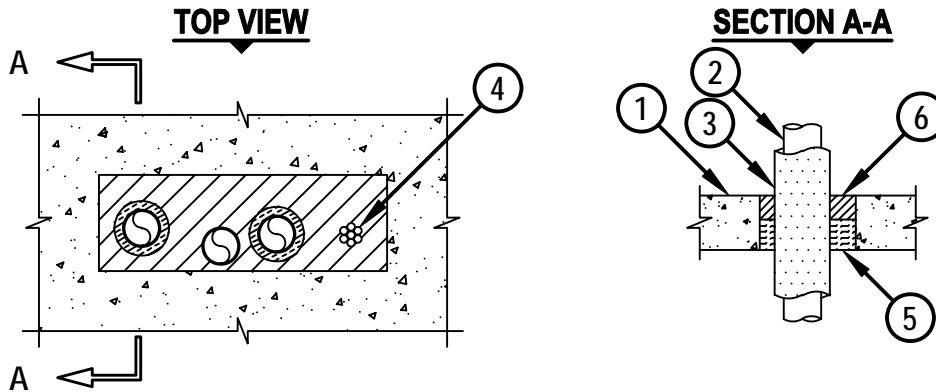


MULTIPLE PIPES THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL ASSEMBLY

F-RATING = 2-HR.
T-RATING = 0-HR.

CAJ8180a.010207



1. CONCRETE FLOOR OR WALL ASSEMBLY (2-HR. FIRE-RATING) :
 - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 4-1/2" THICK).
 - B. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 6-1/2" THICK).
 - C. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. ONE OR MORE OF THE FOLLOWING PIPES, AND IN ANY COMBINATION, MAY BE INSTALLED WITHIN THE OPENING :
 - A. MAXIMUM 3" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - B. MAXIMUM 3" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
 - C. MAXIMUM 3" NOMINAL DIAMETER COPPER PIPE OR TUBING.
 - D. MAXIMUM 3" NOMINAL DIAMETER STEEL CONDUIT OR EMT.
 - E. MAXIMUM 1" NOMINAL DIAMETER FLEXIBLE STEEL CONDUIT.
3. [OPTIONAL] NOMINAL 3/4" THICK AB/PVC PIPE INSULATION MAY BE USED.
4. MAXIMUM 2" DIAMETER CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING :
 - A. MAXIMUM 500 KCMIL POWER CABLE WITH PVC JACKET.
 - B. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - C. MAXIMUM 7/C NO. 12 AWG POWER CABLE WITH PVC JACKET.
 - D. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (24 FIBER) WITH PVC JACKET.
 - E. MAXIMUM 3/C NO. 12 AWG STEEL METAL CLAD CABLE.
5. MINIMUM 2-1/2" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED.
6. MINIMUM 2" DEPTH HILTI CP 620 FIRE FOAM FLUSH WITH TOP SURFACE OF FLOOR.

ANNULAR SPACE	MINIMUM	MAXIMUM
BETWEEN BARE OR INSULATED PIPES AND PERIPHERY OF OPENING	1/4"	5"
BETWEEN CABLES AND PERIPHERY OF OPENING	2"	4"
BETWEEN PENETRANTS	1/2"	3-1/8"

NOTES : 1. MAXIMUM AREA OF SQUARE, RECTANGULAR OR CIRCULAR OPENING IS 192 SQ. IN. WITH A MAXIMUM DIMENSION OF 24".
2. HILTI CP 620 FIRE FOAM IS REQUIRED ON BOTH SIDES OF A WALL ASSEMBLY.



HILTI, Inc.
Tulsa, Oklahoma USA (800) 879-8000

Sheet	1 of 1
Scale	1/16" = 1"
Date	Jan. 02, 2007

Drawing No.
**CAJ
8180a**