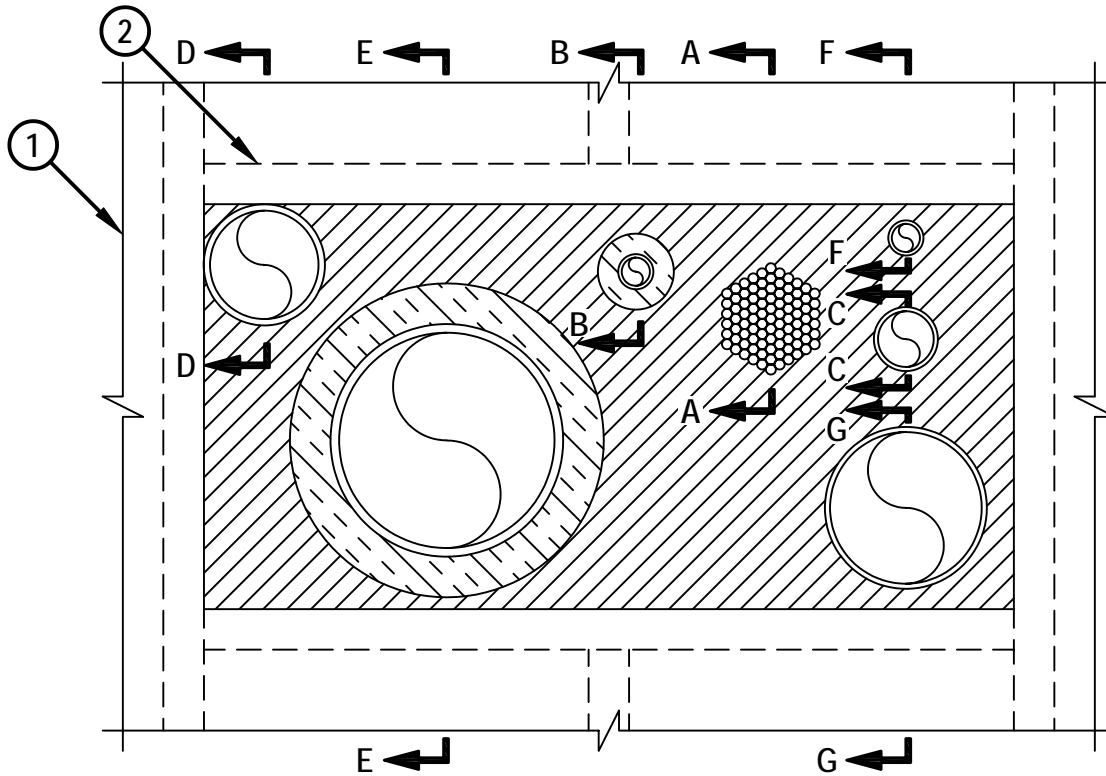


**MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY**

F-RATING = 1 AND 2-HR.

T-RATING = 0, 1/2, 1, 1-1/2 AND 2-HR.

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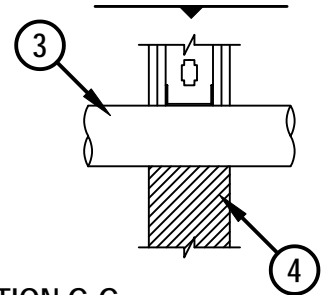
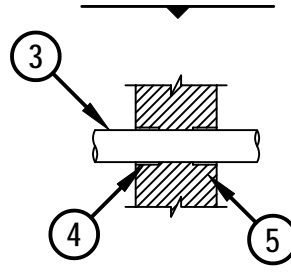
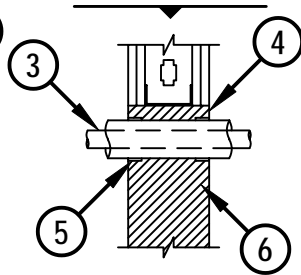
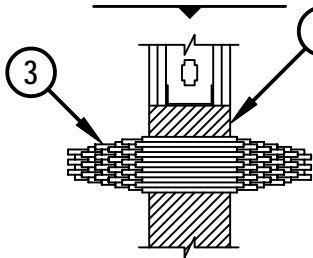


SECTION A-A

SECTION B-B

SECTION C-C

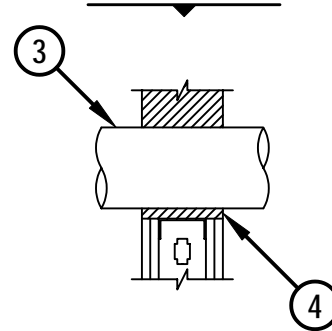
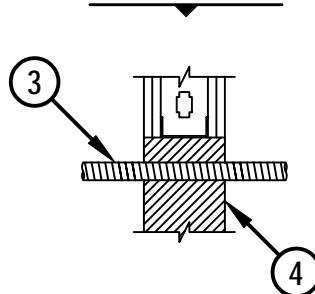
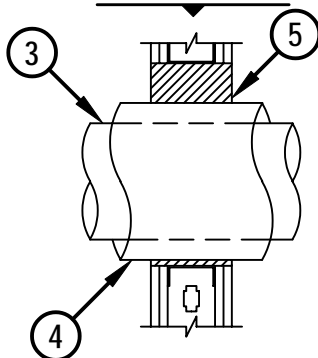
SECTION D-D



SECTION E-E

SECTION F-F

SECTION G-G



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Sheet	1 of 3
Scale	9/64" = 1"
Date	June 21, 2005

Drawing No.

**WL**  
**8019c**

**MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY**

F-RATING = 1 AND 2-HR.

T-RATING = 0, 1/2, 1, 1-1/2 AND 2-HR.

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1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400 SERIES WALL) (1-HR. OR 2-HR. FIRE- RATING) (2-HR. SHOWN).
2. OPENING TO BE "FRAMED OUT" WITH LIGHTGAGE STEEL STUDS (MINIMUM 3-1/2" WIDE).

**FIRESTOP CONFIGURATION A**

3. MAXIMUM 4" DIAMETER CABLE BUNDLE CONSISTING OF ANY OF THE FOLLOWING CABLES :
  - A. MAXIMUM 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
  - B. MAXIMUM RG 59 COAXIAL CABLE WITH PVC JACKET.
  - C. MAXIMUM 7/C NO. 12 AWG POWER CABLE WITH PVC JACKET.
  - D. MAXIMUM 3/8" DIAMETER FIBER-OPTIC CABLE WITH PVC JACKET.
  - E. MAXIMUM 3/C NO. 12 AWG METAL-CLAD CABLE.
  - F. MAXIMUM 3/C NO. 8 (+ GROUND) ROMEX POWER CABLE WITH PVC JACKET.
4. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

NOTE : MINIMUM ANNULAR SPACE BETWEEN THE CABLE BUNDLE AND THE PERIPHERY OF THE OPENING AND BETWEEN ADJACENT PENETRANTS = 3/8" AND 4", RESPECTIVELY.

**FIRESTOP CONFIGURATION B**

3. MAXIMUM 1" NOMINAL DIAMETER COPPER PIPE OR TUBING.
4. NOMINAL 3/4" THICK AB/PVC PIPE INSULATION.
5. HILTI CP 648E WRAP STRIP (NOMINAL 3/16" THICK x 1" WIDE) CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE INSULATED PIPE, ONCE, AND HELD IN PLACE WITH TAPE, FLUSH WITH BOTH SURFACES OF WALL.
6. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

NOTE : MINIMUM SPACING BETWEEN INSULATED PIPE AND PERIPHERY OF OPENING AND ADJACENT PENETRANTS = 3/8" AND 1-1/2", RESPECTIVELY.

**FIRESTOP CONFIGURATION C**

3. MAXIMUM 2" NOMINAL DIAMETER PVC PLASTIC PIPE (SCHEDULE 40, SOLID OR CELLULAR CORE) (CLOSED OR VENTED PIPING SYSTEM).
4. HILTI CP 648E WRAP STRIP (NOMINAL 3/16" THICK x 1-3/4" WIDE) CONTINUOUSLY WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE PLASTIC PIPE, ONCE, AND HELD IN PLACE WITH TAPE, FLUSH WITH BOTH SURFACES OF WALL.
5. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

	HILTI, Inc. Tulsa, Oklahoma USA (918) 252-6000	<i>Sheet</i> 2 of 3	<i>Drawing No.</i>
		Scale -	<b>WL</b>
			<i>Date</i> June 21, 2005

**MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY**

F-RATING = 1 AND 2-HR.

T-RATING = 0, 1/2, 1, 1-1/2 AND 2-HR.

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**FIRESTOP CONFIGURATION C (continued...)**

NOTES : 1. MINIMUM SPACING BETWEEN PVC PIPE AND PERIPHERY OF OPENING = 3/8".  
 2. MINIMUM SPACING BETWEEN NONMETALLIC AND METALLIC PENETRANTS = 1" AND 3-1/2", RESPECTIVELY.

**FIRESTOP CONFIGURATION D**

- 3. MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE, CAST IRON PIPE, COPPER PIPE, STEEL CONDUIT, OR EMT.
- 4. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

NOTE : MINIMUM SPACING BETWEEN COPPER PIPE AND PERIPHERY OF OPENING AND ADJACENT PENETRANTS = 0" AND 3-1/2", RESPECTIVELY.

**FIRESTOP CONFIGURATION E**

- 3. MAXIMUM 8" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 40 OR HEAVIER).
- 4. NOMINAL 1-1/2" THICK GLASS-FIBER PIPE INSULATION.
- 5. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

NOTE : MINIMUM SPACING BETWEEN INSULATED PIPE AND PERIPHERY OF OPENING AND ADJACENT PENETRANTS = 3/8" AND 2", RESPECTIVELY.

**FIRESTOP CONFIGURATION F**

- 3. NOMINAL 1" DIAMETER FLEXIBLE STEEL CONDUIT.
- 4. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

NOTE : MINIMUM SPACING BETWEEN STEEL CONDUIT AND PERIPHERY OF OPENING AND ADJACENT PENETRANTS = 3/8" AND 3-1/2" RESPECTIVELY.

**FIRESTOP CONFIGURATION G**

- 3. MAXIMUM 6" NOMINAL DIAMETER SHEET METAL DUCT (MIN. 28 GA.).
- 4. HILTI CP 620 FIRE FOAM INSTALLED FLUSH WITH BOTH SURFACES OF THE WALL :
  - A. MINIMUM 4-3/4" THICKNESS, FOR A 1-HR. FIRE-RATING.
  - B. MINIMUM 6" THICKNESS, FOR A 2-HR. FIRE-RATING.

NOTE : MINIMUM SPACING BETWEEN SHEET METAL DUCT AND PERIPHERY OF OPENING AND ADJACENT PENETRANTS = 3/8" AND 1-1/2", RESPECTIVELY.

NOTES : 1. MAXIMUM SIZE OF OPENING = 30" x 15".  
 2. A MAXIMUM OF SEVEN FIRESTOP CONFIGURATIONS MAY BE INSTALLED WITHIN THE OPENING.



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