

CABLE BUNDLE THROUGH GYPSUM WALL ASSEMBLY

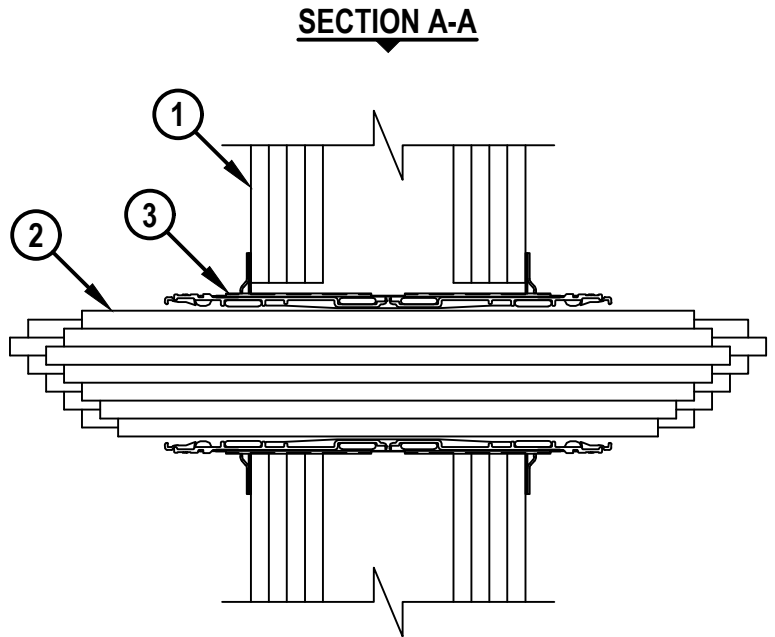
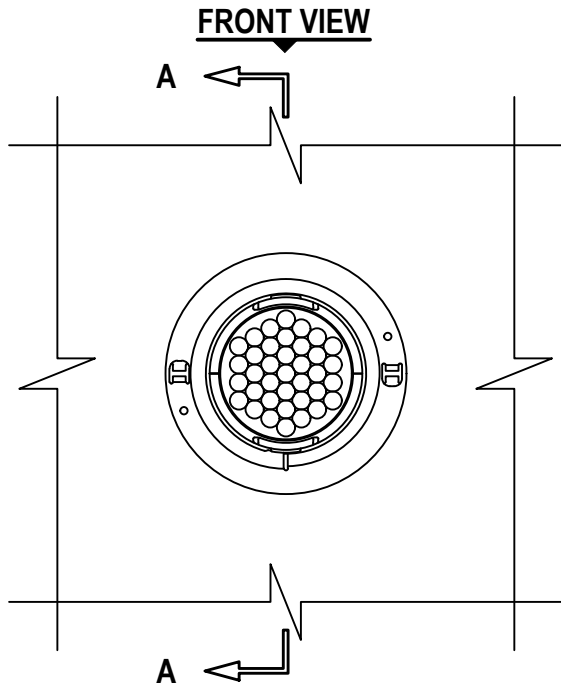
F-RATING = 1-HR., 2-HR., 3-HR., OR 4-HR.

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

L-RATING AT AMBIENT = LESS THAN 1 CFM (SEE TABLE)

L-RATING AT 400°F = 1 OR LESS THAN 1 CFM (SEE TABLE)

WL3334q.072518



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300, U400, OR V400 SERIES) (1-HR., 2-HR., 3-HR., OR 4-HR. FIRE-RATING) (4-HR. SHOWN) TO INCLUDE THE FOLLOWING CONSTRUCTION FEATURES :
 - A. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER (SPACED MAXIMUM 16" OC). STEEL STUDS TO BE MINIMUM 2-1/2" WIDE [FOR 1-HR. OR 2-HR. FIRE-RATING], MINIMUM 3-5/8" WIDE [FOR 3-HR. OR 4-HR. RATING], AND MINIMUM 3-1/2" WIDE [WHEN 3/4" THICK GYPSUM WALLBOARD IS USED] (SPACED MAXIMUM 24" OC).
 - B. NOMINAL 5/8" THICK GYPSUM WALLBOARD. TYPE, NUMBER OF LAYERS, AND SHEET ORIENTATION AS SPECIFIED IN THE INDIVIDUAL UL DESIGN (FOR 1-HR. OR 2-HR. FIRE-RATING, MINIMUM ONE LAYER 3/4" THICK GYPSUM WALLBOARD MAY BE USED).
2. CABLE BUNDLE TO BE A COMBINATION OF ANY OF THE FOLLOWING :
 - A. MAXIMUM 100 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.
 - C. MAXIMUM 4/0 AWG TYPE RHH GROUND CABLE.
 - D. MAXIMUM 4 PAIR NO. 22 AWG CAT 5 OR CAT 6 COMPUTER CABLE.
 - E. MAXIMUM RG 6/U COAXIAL CABLE.



HILTI, Inc.
Plano, Texas USA (800) 879-8000

Sheet	1 of 2
Scale	3/16" = 1"
Date	July 25, 2018

Drawing No.

**WL
3334q**

CABLE BUNDLE THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR., 2-HR., 3-HR., OR 4-HR.

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

L-RATING AT AMBIENT = LESS THAN 1 CFM (SEE TABLE)

L-RATING AT 400°F = 1 OR LESS THAN 1 CFM (SEE TABLE)

WL3334q.072518

- F. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (24 FIBER) WITH PVC OR PE JACKET AND INSULATION.
 - G. MAXIMUM 20/C NO. 22 AWG SHIELDED PRINTER CABLE WITH PVC JACKET.
 - H. MAXIMUM 2/C NO. 18 AWG POWER OR NON-POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT METAL JACKET (MANUFACTURED BY AFC CABLE SYSTEMS, INC.).
 - I. MAXIMUM 1/4" DIAMETER S-VIDEO CABLE CONSISTING OF TWO MAXIMUM 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET.
 - J. ANY CABLES, ARMORED CABLES, OR METAL CLAD CABLES CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATION PRODUCT CATEGORY.
 - K. MAXIMUM 3/C NO. 12 AWG METAL CLAD CABLE.
3. HILTI CP 653 (BA) SPEED SLEEVE [2" OR 4"] OR HILTI CFS-SL GA L SPEED SLEEVE [4"] SLID INTO AND CENTERED WITHIN WALL. DEVICE FLANGES SPUN CLOCKWISE ONTO DEVICE THREADS OVER SMOKE GASKET, BUTTING TIGHTLY TO BOTH SIDES OF WALL.

MAX CABLE FILL	CABLE TYPE	L-RATING, CFM/SQ FT				L-RATING, CFM			
		AMBIENT		400°F		AMBIENT		400°F	
		SEALANT	GASKET	SEALANT	GASKET	SEALANT	GASKET	SEALANT	GASKET
0% FILL	-	LESS THAN 1	1	LESS THAN 1	2.7	LESS THAN 1	LESS THAN 1	LESS THAN 1	LESS THAN 1
100%	ITEM 2D ONLY	4.9	4.9	1.3	3.5	LESS THAN 1	LESS THAN 1	LESS THAN 1	LESS THAN 1
100%	ANY CABLES (ITEM 2) IN ANY COMBINATION	9.2	9.2	9.6	11.8	1.2	1.2	1.3	1.6

- NOTES :**
1. MAXIMUM DIAMETER OF OPENING = 2-1/2" (FOR 2" DEVICE) OR 4-1/2" (FOR 4" DEVICE).
 2. HILTI CFS-SL GA L SPEED SLEEVE SHALL ONLY BE USED IN WALLS 8" THICK OR GREATER.
 3. CABLES MAY REPRESENT 0% TO 100% VISUAL FILL OF DEVICE.
 4. ANNULAR SPACE BETWEEN DEVICE AND PERIPHERY OF OPENING = MINIMUM 0".
 5. L-RATING APPLIES ONLY WHEN FLANGES ARE USED AND INNER FABRIC SEAL IS TWISTED CLOSED.
 6. [OPTIONAL] INNER FABRIC MAY REMAIN OPEN WHEN L-RATING IS NOT REQUIRED.
 7. [OPTIONAL] AS AN ALTERNATE TO SMOKE GASKET, MINIMUM 1/2" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT OR HILTI CP 606 FLEXIBLE FIRESTOP SEALANT FLUSH WITH BOTH SURFACES OF WALL WITH AN ADDITIONAL 1/4" BEAD APPLIED AROUND PERIPHERY OF DEVICE PRIOR TO SECURING DEVICE FLANGES.
 8. DEVICE FLANGES ARE OPTIONAL WHEN SEALANT IS USED EXCEPT WHEN 3/4" GYPSUM BOARD IS USED. DEVICES ARE REQUIRED WHEN L-RATING IS REQUIRED.
 9. AS AN ALTERNATE TO HILTI FS-ONE MAX OR CP 606 FIRESTOP SEALANT, WHEN DEVICE FLANGES ARE USED, GYPSUM DRYWALL COMPOUND MAY BE USED.



HILTI, Inc.
Plano, Texas USA (800) 879-8000

Sheet	2 of 2
Scale	-
Date	July 25, 2018

Drawing No.

**WL
3334q**