


CLASSIFIED

 Underwriters Laboratories, Inc.
 9414-1079

System No. UL-2084
 F Ratings - 1 & 2 Hr (See Item 1)
 T Ratings - 0 & 1-1/2 Hr (See Item 1)

UL 2084

1. WALL ASSEMBLY — THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE CONSTRUCTION FEATURES NOTED BELOW.

THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. THE HOURLY T RATING IS 1-1/2 HR WHEN INSTALLED IN 2 HR FIRE-RATED WALL, 0 HR WHEN INSTALLED IN 1 HR FIRE-RATED WALL.

- A. STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS, WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC.
- B. GYPSUM BOARD* — NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIM OF OPENING IS 8 IN.
2. THROUGH-PENETRANTS — ONE NONMETALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE AND PERIPHERY OF OPENING SHALL BE MIN 1/4 IN. TO MAX 1-1/4 IN. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES MAY BE USED:
 - A. POLYVINYL CHLORIDE (PVC) PIPE — NOM 6 IN. DIAM (OR SMALLER) SCHEDULE 40 SOLID-CORE OR CELLULAR CORE PVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
 - B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE — NOM 6 IN. DIAM (OR SMALLER) SDRI7 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
 - C. ACRYLONITRILE BUTADIENE STYRENE (ABS) PIPE — NOM 6 IN. DIAM (OR SMALLER) SCHEDULE 40 SOLID-CORE OR CELLULAR CORE ABS PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
 - D. FLAME RETARDANT POLYPROPYLENE (FRPP) PIPE — NOM 6 IN. DIAM (OR SMALLER) SCHEDULE 40 FRPP PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEM.
3. METALLIC SLEEVE — NOM 8 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR THINNER) STEEL PIPE CAST INTO WALL ASSEMBLY WITH JOINT COMPANION AND INSTALLED FLUSH WITH WALL SURFACES
4. METAL COVER PLATE — MIN. 18 GA. STEEL WITH MAX. I.D. 1/4 IN. LARGER THAN O.D. OF PIPE, MIN. O.D. OF COVER PLATE TO BE 2-1/2 IN. LARGER THAN O.D. OF PIPE. INSTALLED BETWEEN COLLAR AND WALL SURFACES.
5. FIRESTOP DEVICE* — FIRESTOP COLLAR — FIRESTOP COLLAR SHALL BE INSTALLED IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS. COLLAR TO BE INSTALLED AND LATCHED AROUND THE PIPE AND SECURED TO BOTH SIDES OF THE WALL USING THE ANCHOR HOOKS PROVIDED WITH THE COLLAR. (MINIMUM 2 ANCHOR HOOKS FOR 1-1/2 AND 2 IN. DIAM PIPES, 3 ANCHOR HOOKS FOR 3 AND 4 IN. DIAM PIPES, AND 4 ANCHOR HOOKS FOR 6 IN. DIAM PIPES). THE ANCHOR HOOKS ARE TO BE SECURED TO THE SURFACE OF WALL WITH 3/16 BY 2-1/2 IN. LONG TOGGLE BOLTS ALONG WITH WASHERS, AS AN ALTERNATE FOR PIPE SIZES OF NOM 4 IN. DIAM OR LESS, MIN NO. 10 BY 1-1/2 IN. LONG DRYWALL OR LAMINATE SCREWS WITH MIN 3/4 IN. STEEL WASHERS MAY BE USED.
- HILTI CONSTRUCTION CHEMICALS, DIV OF
 HILTI INC — CP 643 50/1.5"N, CP 643 63/2"N, CP 643 90/3"N, CP 643 110/4"N OR CP 643 160/6"N FIRESTOP COLLAR

*BEARING THE UL CLASSIFICATION MARK

HILTI
 Hilti Firestop Systems

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 November 29, 2005

UL
CLASSIFIED
 LISTED
 UL
 Underwriters Laboratories, Inc.
 101 W. Lake Street
 Chicago, IL 60601

System No. W-L-1054

F RATINGS —1) AND 2 HR. (SEE ITEM 1 & 3)
 F RATING AT 400 °F —2 HR.
 L RATING AT AMBIENT —LESS THAN 1 CM/SG. FT.
 L RATING AT 400 °F —4 CM/SG. FT.

W-L-1054

1. WALL ASSEMBLY —THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
 - A. STUDS —WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4, LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC. WHEN STEEL STUDS ARE USED AND THE DIAM OF OPENING EXCEEDS THE WIDTH OF STUD CHAVE, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 TO 6 IN. WIDER AND 4 TO 6 IN. HIGHER THAN THE DIAM OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2 TO 3 IN. CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES.
 - B. GYPSUM BOARD —5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 32-1/4 IN. FOR STEEL STUD WALLS. MAX DIAM OF OPENING IS 14-1/2 IN. FOR WOOD STUD WALLS.
 THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.
2. THROUGH-PENETRANTS —ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 2-1/4 IN. PIPE MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PIPE, CONDUIT OR TUBING MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
 - A. STEEL PIPE —NOM 30 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
 - B. IRON PIPE —NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - C. CONDUIT —NOM 4 IN DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 IN. DIAM STEEL CONDUIT.
 - D. COPPER TUBING —NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
 - E. COPPER PIPE —NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. FILL, VOID OR CAVITY MATERIAL —SEALANT —MIN 5/8 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULAR FLUSH WITH THE SURFACES OF WALL. THE POINT OF CONTACT LOCATIONS BETWEEN PIPE AND WALL, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE WALL INTERFACE ON BOTH SURFACES OF WALL.
 - HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC —FS-ONE SEALANT

*BEARING THE UL CLASSIFICATION MARK

HILLI FIRESTOP SYSTEMS

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 November 26, 2012

System No. W-J-1089
F RATINGS —1 AND 2 HR (SEE ITEM 3)
T RATING —0 HR

UL 1089

1. WALL ASSEMBLY —MIN 3-3/4 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAMETER OF OPENING 10-1/2 IN.
SEE CONCRETE BLOCKS (CA2T) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. THROUGH-PENETRANTS —ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM, AN ANNULAR SPACE OF MIN 0 IN. (POINT CONTACT) TO MAX 1-7/8 IN. IS REQUIRED WITHIN FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

- A. STEEL PIPE —NOM 8 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
- B. IRON PIPE —NOM 8 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
- C. CONDUIT —NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT) OR 6 IN. DIAM STEEL CONDUIT.
- D. COPPER TUBING —NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
- E. COPPER PIPE —NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- F. FLEXIBLE STEEL CONDUIT —NOM 2 IN. DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT.

SEE FLEXIBLE METAL CONDUIT (DWX2) CATEGORY IN THE ELECTRICAL CONSTRUCTION EQUIPMENT DIRECTORY FOR NAMES OF MANUFACTURERS.

3. FIRESTOP SYSTEM —THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

- A. PACKING MATERIAL —MIN 1-5/8 IN. OR 2-1/4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING ON ONE SIDE OF THE WALL AS PERMANENT FORM FOR 1 AND 2 HR WALLS. RESPECTIVELY. PACKING MATERIAL TO BE RECESSED FROM ONE SIDE OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- B. FILL, VOID OR CAVITY MATERIAL —SEALANT* —MIN 1-1/2 IN. THICKNESS APPLIED WITHIN OPENING, FLUSH WITH ONE SURFACE OF WALL. AT THE POINT CONTACT LOCATION BETWEEN WALL AND WALL, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE/WALL INTERFACE.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC —FS—ONE SEALANT

*BEARING THE UL CLASSIFICATION MARK
+BEARING THE UL LISTING MARK

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December 04, 2002

Blow-Out Patch

TYPE "S" SCREWS 6" O.C.

TYPE "S" SCREWS MIN. 2 PER SECTION, 3" FROM OPNS. AND EDGE OF PATCH.

TYPE "S" SCREWS (MIN. 2 PER SECTION, LEAVE EXPOSED) JOINT @ 2ND LAYER WHERE REQUIRED.

JT. COMPOUND

SCREEN

BUTTER BACK SIDE OF PATCH W/ JT. COMPOUND

HOLES OVER 3"Ø

HOLES UP TO 3"Ø

Box Detail

ELECTRIC PANEL OR RACEWAY

G.W.B. BACKING (5 SIDES)

G.W.B. RATED PARTN.

SEE PLAN

LAMINATE BACK PIECE TO HALLBOARD

2'-0" Ø RATED WALLS

1'-4" Ø SOUND WALLS

ACOUSTICAL SEALANT BACK & SIDES OF BOXES AT SOUND WALL

TEL. OR ELEC. BOX

NOTE: AT ALL ELECTRICAL/ TELEPHONE/ DATA BOXES IN FIRE RATED BARRIERS PROVIDE HILTI "FIRESTOP BOX INSERT". TESTED IN ACCORDANCE WITH UL263. INSTALL PER MANUFACTURER'S APPROVED INSTRUCTIONS.

NOTE: THIS DETAIL USED AT LOCATIONS SPECIFICALLY ACCEPTED BY ARCHITECT.

NOTE: MAX. 0.01 SQ. FT. OF OPENING PER BOX W/ MAX. OF 100 SQ. INCHES PER 100 SQ. FEET OF WALL AREA.

System No. C-AJ-2585

F Rating — 2 Hr
T Rating — 0 and 1/2 Hr (See Item 4)

UL 558B5

- FLOOR OR WALL ASSEMBLY --- MIN 4-1/2 IN. (114 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M³) CONCRETE FLOOR; MIN 5 IN. (127 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M³) CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 12 IN. (305 MM).
- STEEL SLEEVE --- (OPTIONAL) --- NOM 12 IN. (305 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE. CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES.
- THROUGH-PENETRANT --- ONE METALLIC PIPE, TUBE OR CONDUIT TO BE INSTALLED WITHIN THE OPENING. THE FOLLOWING TYPES AND SIZES OF METALLIC PENETRANTS MAY BE USED:
 - STEEL PIPE --- NOM 6 IN. (152 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
 - IRON PIPE --- NOM 6 IN. (152 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.
 - COPPER PIPE --- NOM 6 IN. (152 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
 - COPPER TUBING --- NOM 6 IN. (152 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
- PIPE COVERING* --- NOM 2 IN. (51 MM) THICK (OR THINNER) HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND PERIPHERY OF OPENING SHALL BE MIN 1/4 IN. (6 MM) TO MAX 1-5/8 IN. (41 MM).

SEE PIPE AND EQUIPMENT COVERING --- MATERIALS (BRG) 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 MAY BE USED.

THE T RATING IS 0 HR WHEN PIPE COVERING IS LESS THAN NOM 2 IN. (51 MM) THICK.
- FIRESTOP SYSTEM --- THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
 - PACKING MATERIAL --- MIN 4 IN. (102 MM) THICKNESS OF 4 PCF (64 KG/M³) MINERAL WOOL BATT INSULATION TIGHTLY PACKED INTO THE OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
 - FILL, VOID OR CAVITY MATERIAL --- SEALANT* --- MIN 1/2 IN. (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS FLUSH WITH THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF THE WALL.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC --- CP606 SEALANT

*BEARING THE UL CLASSIFICATION MARK

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Hilti Firestop Systems

Joint Fire Stopping Systems			
SCHEDULES OF UL-2079 (DYNAMIC) JOINT FIRESTOP SYSTEMS			
JOINT TYPE	ASSEMBLY RATING	UL-CLASSIFIED SYSTEM	
		JOINT WIDTH LESS THAN OR EQUAL TO 2"	JOINT WIDTH GREATER THAN 2", LESS THAN OR EQUAL TO 6"
CONCRETE FLOOR-TO-FLOOR	1	FF-D-1012, FF-D-1013 ¹	FF-D-1012, FF-D-1013
	2	FF-D-1012, FF-D-1013 ¹	FF-D-1012, FF-D-1013
	3	FF-D-1011, FF-D-1026 ²	FF-D-1011, FF-D-1026
	4	FF-D-1047	N/A**
EDGE OF CONCRETE FLOOR SLAB-TO-WALL	1	FW-D-1011, FW-D-1012, FW-D-1013, FW-D-1021 ¹	FW-D-1011, FW-D-1012, FW-D-1013, FW-D-1021
	2	FW-D-1011, FW-D-1012, FW-D-1013, FW-D-1021 ¹	FW-D-1011, FW-D-1012, FW-D-1013, FW-D-1021
	3	FW-D-1011, FW-D-1021 ¹	FW-D-1011, FW-D-1021
	4	FW-D-1047	N/A**
CONCRETE OR BLOCK WALL TO FLAT CONCRETE SLAB FLOOR (TOP-OF-WALL)	1	HW-D-0097 ¹ , HWD 0268	HW-D-1008, HW-D-1009
	2	HW-D-0097 ¹ , HWD 0268	HW-D-1008, HW-D-1009
	3	HW-D-1008 ¹ , HWD 0268	HW-D-1008
	4	HW 0261	N/A**
CONCRETE OR BLOCK WALL TO CONCRETE OVER FLUTED METAL DECK (TOP-OF-WALL)	1	HW-D-0080, HW-D-0081, HW-D-0098	HW-D-1037
	2	HW-D-0080, HW-D-0081, HW-D-0098	HW-D-1037
	3	HW-D-0234	N/A**
	4	HW-D-0234	N/A**
GYPSUM WALL TO FLAT CONCRETE SLAB FLOOR (TOP-OF-WALL)	1	HW-D-0082, HW-D-0083, HW-D-0097, HW-D-0106	N/A**
	2	HW-D-0082, HW-D-0083, HW-D-0097, HW-D-0106	N/A**
	3	HW-D-1008 ¹	N/A**
GYPSUM SHAFT WALL TO FLAT CONCRETE SLAB (TOP-OF-WALL)	2	HW-D-0342	N/A**
	1	HW-D-0042 ¹ , HW-D-0049 ¹ , HW-D-0087 ¹ , HW-D-0089 ¹ , HW-D-0045, HW-D-0046 ¹ , HW-D-0076 ¹ , HW-D-0077 ¹	N/A**
GYPSUM WALL TO CONCRETE OVER FLUTED METAL DECK (TOP-OF-WALL)	2	HW-D-0042 ¹ , HW-D-0049 ¹ , HW-D-0087 ¹ , HW-D-0089 ¹ , HW-D-0045, HW-D-0046 ¹ , HW-D-0076 ¹ , HW-D-0077 ¹	N/A**
	3	HW-D-0292	N/A**
	4	HW-D-0292	N/A**
	1	WW-D-0017, WW-D-0032	WW-D-1011, WW-D-1012
CONCRETE WALL-TO-WALL	2	WW-D-0017, WW-D-0032	WW-D-1011, WW-D-1012
	3	WW-D-1011 ¹	WW-D-1011
	4	WW-D-1047	N/A**
GYPSUM WALL-TO-CONCRETE WALL	1	WW-D-0040	N/A**
	2	WW-D-0040	N/A**

SEE NOTE 3
 * CONTACT 3M FOR CURRENT UL-CLASSIFIED SYSTEM OR ENGINEER JUDGMENT DRAWING; 800-879-8000

NOTES:

1. CLASSIFIED SYSTEMS FOR 2" - 6" WIDE JOINTS MAY BE USED FOR JOINTS 2" WIDE AND LESS.
2. CONFIRM THAT MOVEMENT CAPABILITIES OF THE SELECTED UL SYSTEM MEETS OR EXCEEDS THE SPECIFIED MOVEMENT RANGE OF THE PARTICULAR JOINT.
3. SYSTEMS MARKED WITH ASTERISK (*) ARE SUITABLE FOR TOP-OF-WALL JOINTS WHERE THE FLUTED METAL DECK HAS SPRAY-ON MONOKOTE MK-II FIRE PROOFING.
4. VERIFY ALLOWABLE JOINT WIDTH ON SPECIFIC UL SYSTEM DRAWING.

UL
Underwriters Laboratories, Inc.
 341-1075

System No. W-3J91
 F Rating — 4 Hr
 T Rating — 2 and 4 Hr (See Item 2)

WJ 2081

1. WALL ASSEMBLY --- MIN 8-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS* MAX DIAM OF OPENING IS 7-3/8 IN. SEE CONCRETE BLOCKS (CA27) IN VOLUME 1 OF THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. THROUGH PENETRANTS --- ONE NONMETALLIC PIPE TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE PIPE AND THE PERIPHERY OF THE OPENING SHALL BE A 0 IN. (POINT CONTACT) TO MAX 3/4 IN. FOR NOM 6 IN. DIAMETER PIPES AND MIN 0 IN. (POINT CONTACT) TO MAX 1 IN. FOR NOM 4 IN. DIAM (OR SMALLER) PIPES. PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES MAY BE USED.

- A. POLYVINYL CHLORIDE (PVC) PIPE --- NOM 6 IN. DIAM (OR SMALLER) SCHEDULE 40 SOLID OR CELLULAR PVC CORE PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
- B. CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE --- NOM 6 IN. DIAM (OR SMALLER) SDR13.5 CPVC PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS.

THE T RATING IS DEPENDENT UPON THE DIAM OF PIPE USED IN THE FIRESTOP SYSTEM. FOR NOM 4 IN. DIAM (OR SMALLER) PIPES, THE T RATING IS 4 HR. FOR PIPES GREATER THAN 4 IN. DIAM, THE T RATING IS 2 HR.

3. FIRESTOP SYSTEM --- THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

- A. FILL, VOID OR CAVITY MATERIAL --- SEALANT* --- MIN 1-1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH SURFACE OF WALL.
- HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC --- FS-ONE SEALANT
- B. FIRESTOP DEVICE --- FIRESTOP COLLAR --- THE FIRESTOP COLLAR SHALL BE INSTALLED IN ACCORDANCE WITH ACCOMPANYING INSTALLATION INSTRUCTIONS. THE COLLAR SHALL BE INSTALLED AND LATCHED AROUND THE PIPE AND SECURED TO THE CONCRETE WALL WITH THE ANCHOR HOOKS PROVIDED WITH THE COLLAR. (MIN 2 ANCHOR HOOKS FOR 1-1/2 AND 2 IN. DIAM PIPES, 3 ANCHOR HOOKS FOR 3 AND 4 IN. DIAM PIPES AND 4 ANCHOR HOOKS FOR 6 IN. DIAM PIPES). THE ANCHOR HOOKS ARE TO BE SECURED TO THE WALL WITH 1/4 IN. BY 1-1/2 IN. LONG STEEL EXPANSION BOLTS. IN CONJUNCTION WITH STEEL NUTS AND MIN 3/4 IN. DIAM STEEL WASHERS WITH ONE ANCHOR BOLT IN EACH ANCHOR HOOK.
- HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC --- CP 643 50/11.5N, CP 643 63/2N, CP 643 90/3N, CP 643 110/4N OR CP 643 160/6N FIRESTOP COLLAR
- *BEARING THE UL CLASSIFICATION MARK

HILTI
Hilti Firestop Systems

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 March 22, 2004

<h1 style="text-align: center;">Fire Stopping Schedule</h1> <h2 style="text-align: center;">PENETRATION FIRESTOPPING SCHEDULE</h2> <h3 style="text-align: center;">STOPPING SYSTEMS ARE LISTED USING THE ALPHA-ALPHA-NUMERIC IDENTIFICATION SYSTEM PUBLISHED IN UL'S <i>FIRE RESISTANCE DIRECTORY</i>, VOLUMES 2A-2B</h3>						
CONSTRUCTION						
FLOOR PENETRATION SYSTEMS (FIRST ALPHA COMPONENT = C OR F)				WALL PENETRATION SYSTEMS (FIRST ALPHA COMPONENT = C OR W)		
CONCRETE FLOORS WITH A MINIMUM THICKNESS LESS THAN OR EQUAL TO 5 INCHES (127 MM)	CONCRETE FLOORS WITH A MINIMUM THICKNESS MORE THAN 5 INCHES (127 MM)	FRAMED FLOORS	CONCRETE OR MASONRY WALLS WITH A MINIMUM THICKNESS LESS THAN OR EQUAL TO 8 INCHES (203 MM)	CONCRETE OR MASONRY WALLS WITH A MINIMUM THICKNESS MORE THAN 8 INCHES (203 MM)	FRAMED WALLS	
C-AJ-0001-0999 or F-A-0001-0999	C-BJ-0001-0999 or F-B-0001-0999	F-C-1001-1999	C-AJ-0001-0999, C-BJ-0001-0999, or W-J-0001-0999		W-L-0001-0999	
C-AJ-1001-1999 or F-A-1001-1999	C-BJ-1001-1999, C-BK-1001-1999 or F-B-1001-1999	F-C-1001-1999	C-AJ-1001-1999, C-BJ-1001-1999, or W-J-1001-1999	C-BK-1001-1999 or W-K-1001-1999	W-L-1001-1999	
C-AJ-2001-2999 or F-A-2001-2999	C-BJ-2001-2999, C-BK-2001-2999, or F-B-2001-2999	F-C-2001-2999	C-AJ-2001-2999, C-BJ-2001-2999, or W-J-2001-2999	C-BK-2001-2999 or W-K-2001-2999	W-L-2001-2999	
C-AJ-3001-3999 or F-A-3001-3999	C-BJ-3001-3999, C-BK-3001-3999, or F-B-3001-3999	F-C-3001-3999	C-AJ-3001-3999, C-BJ-3001-3999, or W-J-3001-3999	C-BK-3001-3999 or W-K-3001-3999	W-L-3001-3999	
C-AJ-4001-4999 or F-A-4001-4999	C-BJ-4001-4999 or F-B-4001-4999		C-AJ-4001-4999, C-BJ-4001-4999, or W-J-4001-4999	W-K-4001-4999	W-L-4001-4999	
C-AJ-5001-5999 or F-A-5001-5999	C-BJ-5001-5999, C-BK-5001-5999, or F-B-5001-5999	F-C-5001-5999	C-AJ-5001-5999, C-BJ-5001-5999 or W-J-5001-5999	C-BK-5001-5999	W-L-5001-5999	
C-AJ-6001-6999 or F-A-6001-6999	C-BJ-6001-6999		C-AJ-6001-6999, C-BJ-6001-6999, or W-J-6001-6999		W-L-6001-6999	
C-AJ-7001-7999 or F-A-7001-7999	C-BJ-7001-7999 or F-B-7001-7999	F-C-7001-7999	C-AJ-7001-7999, C-BJ-7001-7999, or W-J-7001-7999		W-L-7001-7999	
C-AJ-8001-8999 or F-A-8001-8999	C-BJ-8001-8999 or F-B-8001-8999	F-C-8001-8999	C-AJ-8001-8999, C-BJ-8001-8999, or W-J-8001-8999		W-L-8001-8999	

penetration where a fire-resistance-rated floor or wall assembly is penetrated, provide a U-listed penetration firestopping system selected from the U-list number range listed above that complies with this Section and that is suitable for the penetration conditions indicated for the application.

General Note:

ON FIRE STOPPING SHALL BE
CERTIFIED INSTALLER.

Note:

GENERAL CONTRACTOR SHALL PATCH ALL NEW
AND EXISTING FIRE PENETRATIONS THROUGH
NEW AND EXISTING FIRE RATED PARTITIONS PER
DETAILS THIS SHEET.

Fire Stopping Requirement:

PENETRATIONS THROUGH RATED WALLS AND
FLOORS SHALL BE SEALED WITH A MATERIAL
CAPABLE OF PREVENTING THE PASSAGE OF
FLAMES AND HOT GASES WHEN SUBJECTED TO THE
REQUIREMENTS OF THE TEST STANDARD SPECIFIC
FOR FOUR STOPS ASTM-E84.

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New Kitchen Facility for



701 Boutwell Road
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CLEAR SPAN
STRUCTURES

Project No. 22.046
24 February 2023
Bidding, Permit and
Construction

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