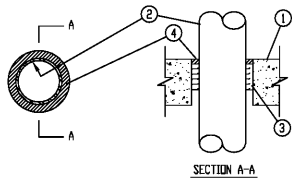


SYSTEM NO. C-AJ-1151  
F RATING - 2 HR  
T RATING - 0 HR  
L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT  
L RATING AT 400 F - 4 CFM/SQ FT

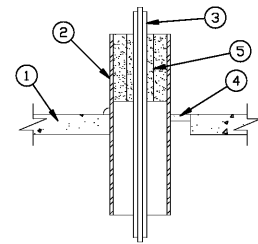


- WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 6 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- THROUGH PENETRANTS - ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNULAR SPACE SHALL BE MIN 3/4 IN. TO MAX 7/8 IN. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:
  - STEEL PIPE - NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
  - CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL CONDUIT.
- PACKING MATERIAL - MIN 2-1/2 IN. THICKNESS OF MIN 4.0 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- FILL, VOID OR CAVITY MATERIALS - SEALANT - MIN 1 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - CP-801S, CP-806 OR FS-ONE SEALANT (NOTE: L RATINGS APPLY ONLY WHEN FS-ONE SEALANT IS USED).

\*BEARING THE UL CLASSIFICATION MARK

1 SINGLE CONDUIT WALL PENETRATION  
E5-02 NO SCALE

SYSTEM NO. C-AJ-3152  
F RATING - 2 HR  
T RATING - 1/2 HR

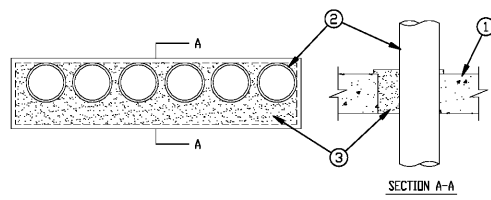


- FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 6 IN. SEE CONCRETE BLOCKS (CAZT) IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- STEEL SLEEVE - MIN 4 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL SLEEVE. SLEEVE INSTALLED TO PROJECT 6 IN. BEYOND EACH SURFACE OF FLOOR OR WALL. STEEL SLEEVE TO BE SUPPORTED ON THE TOP SIDE OF THE FLOOR AND BOTH SURFACES OF WALL. THE ANNULAR SPACE BETWEEN SLEEVE AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 2-1/2 IN.
- CAVITY AGGREGATE - CROSS-SECTIONAL AREA OF BUNDLED CABLES IN STEEL SLEEVE TO BE MAX 25 PERCENT OF CROSS-SECTIONAL AREA OF THE SLEEVE. THE ANNULAR SPACE BETWEEN THE CABLE BUNDLE AND THE PERIPHERY OF THE SLEEVE TO BE 1 IN. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE FLOOR OR WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF CABLES MAY BE USED:
  - MAX 100 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC INSULATION AND JACKET.
  - MULTIPLE FIBER OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAX OD OF 1/4 IN.
- FILL, VOID OR CAVITY MATERIALS - SEALANT - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS BETWEEN STEEL SLEEVE AND PERIPHERY OF THE OPENING, FLUSH WITH TOP SURFACE OF FLOOR AND BOTH SURFACES OF WALL. AT POINT CONTACT, A MIN 1/2 IN. BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/SLEEVE INTERFACE ON TOP SURFACE OF FLOOR ASSEMBLY. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - FS-ONE SEALANT
- FILL, VOID OR CAVITY MATERIALS - FIRE BLOCKS - FIRE BLOCKS INSTALL AROUND CABLE BUNDLE WITHIN STEEL SLEEVE WITH 5 IN. DIMENSION PARALLEL TO SLEEVE LENGTH AND FLUSH WITH TOP END OF SLEEVE ON FLOORS AND BOTH ENDS OF SLEEVE IN WALLS. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - FS 857 FIRE BLOCK
- FILL, VOID OR CAVITY MATERIALS - RIGIDLY PACKED INSULATION - FILL WITH RIGIDLY PACKED INSULATION INTO INTERSTICES OF CABLE BUNDLE, Voids WITHIN FIRE BLOCKS AND BETWEEN BLOCKS AND STEEL SLEEVE TO MAX EXTENT POSSIBLE, FLUSH WITH TOP END OF SLEEVE IN FLOORS AND BOTH ENDS OF SLEEVE IN WALLS. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - CP-818 FIRE STOP PUTTY

\*BEARING THE UL CLASSIFICATION MARK

4 PLENUM CABLE PENETRATION  
E5-02 NO SCALE

SYSTEM NO. C-AJ-1388  
F RATING - 2 HR  
T RATING - 0 HR

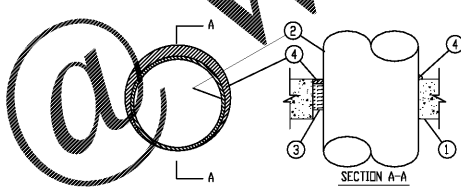


- WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING 224 SQ IN. WITH MAX DIMENSION OF 32 IN. SEE CONCRETE BLOCKS (CAZT) IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- CONDUIT ONE OR MORE NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE SPACE BETWEEN CONDUITS OR TUBES SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1/2 IN. THE ANNULAR SPACE BETWEEN THE CONDUIT OR TUBE AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 2-3/4 IN. CONDUIT OR TUBE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC CONDUIT OR STEEL CONDUIT.
- FILL, VOID OR CAVITY MATERIALS - SEALANT - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, EXTENDING 1/2 IN. OUT FROM BOTH SURFACES OF WALL AND OVERLAPPING THE CONCRETE, 1/2 IN. ON ALL SIDES OF THE OPENING. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - CP 820 FIRE FOAM

\*BEARING THE UL CLASSIFICATION MARK

2 MULTIPLE CONDUIT WALL PENETRATION  
E5-02 NO SCALE

SYSTEM NO. C-AJ-1149  
F RATING - 2 HR  
T RATING - 0 HR  
L RATING AT AMBIENT - LESS THAN 1 CFM/SQ FT  
L RATING AT 400 F - 4 CFM/SQ FT

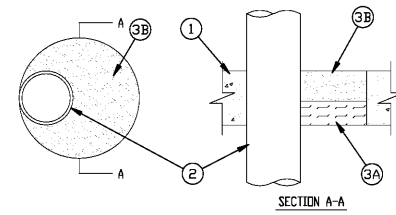


- FLOOR OR WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 12 IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE ANNULAR SPACE SHALL BE 0 IN. (POINT CONTACT) TO MAX 1-1/4 IN. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
  - STEEL PIPE - NOM 10 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
  - CONDUIT - NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
  - COPPER TUBING - NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
  - COPPER PIPE - NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- PACKING MATERIAL - MIN 3 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FOR NOM 4 IN. DIAM (AND SMALLER) PIPES, CONDUITS OR TUBINGS AND A MIN 4 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FOR PIPE GREATER THAN NOM 4 IN. DIAM. FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
- FILL, VOID OR CAVITY MATERIALS - SEALANT - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH THE TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL. AT THE POINT OF CONTACT LOCATION BETWEEN PIPE AND CONCRETE, A MIN 1/2 IN. DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/PIPE INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - CP-801S, CP-806 OR FS-ONE SEALANT (NOTE: L RATINGS APPLY ONLY WHEN FS-ONE SEALANT IS USED).

\*BEARING THE UL CLASSIFICATION MARK

5 CONDUIT FLOOR PENETRATION DETAIL  
E5-02 NO SCALE

System No. C-AJ-1382  
F Rating - 3 Hr  
T Rating - 0 Hr

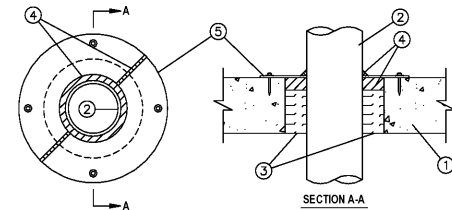


- WALL ASSEMBLY - MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DIAM OF OPENING IS 10 IN. SEE CONCRETE BLOCKS (CAZT) IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- THROUGH PENETRANT ONE METALLIC PIPE, CONDUIT OR TUBE TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE PIPE, CONDUIT OR TUBE AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 5-7/8 IN. PIPE, CONDUIT OR TUBE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
  - STEEL PIPE - NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
  - IRON PIPE - NOM 4 IN. DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) IRON PIPE.
  - CONDUIT - NOM 4 IN. DIAM (OR SMALLER) RIGID STEEL CONDUIT.
  - COPPER TUBING - NOM 4 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
  - COPPER PIPE - NOM 4 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
- STAIR SYSTEM FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
  - PACKING MATERIAL - MIN 2 IN. THICKNESS OF 4 PCF MINERAL WOOL BATT INSULATION TIGHTLY PACKED TO THE OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
  - FILL, VOID OR CAVITY MATERIALS - SEALANT - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - CP-820 FIRE FOAM

\*BEARING THE UL CLASSIFICATION MARK

3 SINGLE CONDUIT WALL PENETRATION  
E5-02 NO SCALE

System No. C-BJ-1034	
ANS/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 4 Hr	F Rating - 4 Hr
T Rating - 0 Hr	FT Rating - 0 Hr
	FH Rating - 4 Hr
	FTH Rating - 0 Hr



- Floor or Wall Assembly - Min 5-1/2 in. (140 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m<sup>3</sup>) concrete floor or min 6 in. (152 mm) thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks\*. Max diam of opening is 10-1/2 in. (267 mm). See Concrete Blocks (CAZT) Category in Fire Resistance Directory for names of manufacturers.
- Through-Penetrants - One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. An annular space between pipe, conduit or tubing and periphery of opening shall be min 3/4 in. (19 mm) to max 3 in. (76 mm). Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
  - Steel Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
  - Conduit - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or steel conduit.
- Packing Material - Min 4 in. (102 mm) thickness of min 4.0 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
- Fill, Void or Cavity Material\* - Caulk - Min 1 in. (25 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall. A min 1/2 in. (13 mm) diam bead fill material to be installed at interface of pipe, conduit or tubing and metal cover plate (item No. 5) and over butted seams of metal cover plate. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC. - FS-ONE Sealant or FS-ONE MAX Intumescent Sealant.
- Metal Cover Plate - Two piece cover plate of min 18 gauge steel with I.D. same as O.D. of pipe, conduit or tubing. O.D. of cover plate to be sized to overlap the periphery of opening a min 1-1/2 in. (38 mm). Installed at top surface of floor or both sides of wall. Two pieces to be butted together around perimeter of pipe or conduit and secured with 1/4 in. (6 mm) diam by min 1 in. (25 mm) long steel expansion bolts, or equivalent, in conjunction with steel nuts and washers a max of 1 in. (25 mm) from each side of each seam and a max of 4 in. (102 mm) OC throughout.

\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

6 CONDUIT WALL PENETRATION DETAIL  
E5-02 NO SCALE

NOTES:

- FIRE PENETRATION DETAILS ON THIS SHEET REFER TO THE METHOD OF WALL/FLOOR PENETRATION PROTECTION ONLY. THESE DETAILS ARE NOT INTENDED TO ILLUSTRATE REQUIRED BUILDING CONSTRUCTION - SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF BUILDING FIRE ASSEMBLIES.
- THE BASIS OF DESIGN FOR ALL DETAILS SHOWN IS HILTI, INC. EQUALS: NELSON, SM, RETORSEAL OR ENGINEER & OWNER APPROVED EQUAL.

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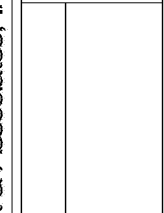
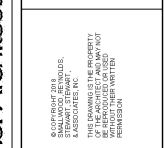
REVISIONS / PRINTED	
REV. NO.	DATE
06/16/19	ISSUED FOR SET
10/01/19	ISSUED FOR PERMIT/ADDC

REVISIONS / PRINTED	
REV. NO.	DATE
06/16/19	ISSUED FOR SET
10/01/19	ISSUED FOR PERMIT/ADDC

INSTRUCTIONAL UNITS	
46	REPAIR FLEX AREAS
2	MUSICAL EDUCATION
1	MEDIA CENTER
1	ART
51	TOTAL

BUILDING AREA	
71,452 SF	COVERED AREAS/LEADERSHIP
10,823 SF	UNCOVERED AREAS/LEADERSHIP
5,180 SF	COVERED AREAS/LEADERSHIP
7,258 SF	UNCOVERED AREAS/LEADERSHIP
94,713 SF	TOTAL

PROJECT SUMMARY	
NAME: J.H. HOUSE ELEMENTARY SCHOOL	GRADE: PREK THRU 5TH
G.D.C.E.#:	TO BE ASSIGNED



Smallwood, Reynolds, Stewart, Stewart & Associates, Inc. Architects  
FIRE STOP DETAILS  
J.H. HOUSE ELEMENTARY SCHOOL  
3100 Zingara Road NE, Conyers, GA 30012  
DATE: 10-01-2019  
JOB NO: 218036.00  
SHEET NO: E5-02  
ISSUED FOR CONSTRUCTION