

RENOVATION AND
ADDITION FOR
ABERDEEN
POLICE
DEPARTMENT



10/25/2019

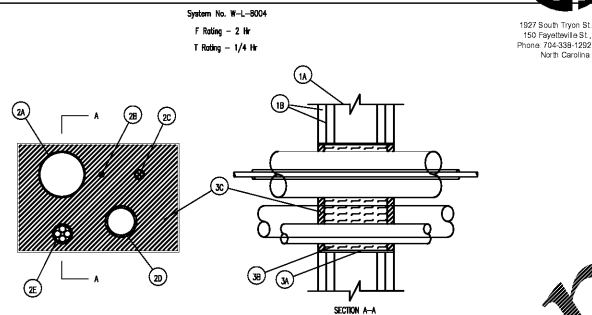
ELECTRICAL
DETAILS

DATE: 10/25/2019
PROJECT NO: 18062

REVISIONS
NO. DATE DESCRIPTION:

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SHEET NUMBER
E601



1. WALL ASSEMBLY - THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/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 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 - 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIA OF OPENING IS 13-1/4 IN.
C. DIA OF CIRCULAR OPENING CUT THROUGH GYPSUM WALLBOARD OF EACH SIDE OF WALL ASSEMBLY TO BE MIN 1/4 IN. TO MAX 1/2 IN. LARGER THAN OUTSIDE DIA OF THROUGH PENETRANT (ITEM #2). THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
2. THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE ANNUAL SPACE BETWEEN THE THROUGH-PENETRANT AND THE PERIPHERY OF THE OPENING SHALL BE MIN 0 IN. TO MAX 1/4 IN. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. STEEL PIPE - NOM 1/2 IN. DIA (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE - NOM 1/2 IN. DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 8 IN. DIA (OR SMALLER) STEEL, ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
D. COPPER TUBING - NOM 8 IN. DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER TUBING - NOM 8 IN. DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
3. FILL VOID, OR CAVITY MATERIAL* - SEALANT - FILL MATERIAL TO BE FORCED INTO THE ANNULUS TO MAXIMUM EXTENT POSSIBLE. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/2 IN. CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1/4 IN. BEYOND THE PERIPHERY OF THE OPENING.
*BEARING THE UL CLASSIFICATION MARK

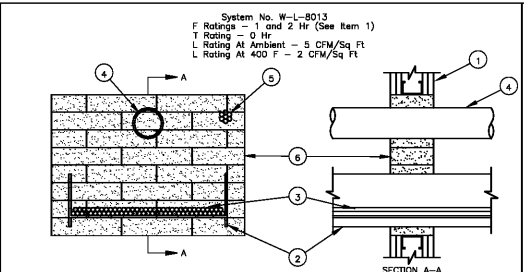


HILTI FIRESTOP SYSTEMS

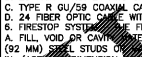
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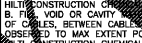


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A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. (51 MM) BY 4 IN. (102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC. ADDITIONAL STUDS INSTALLED TO COMPLETE FRAME OF THE OPENING.
B. GYPSUM BOARD - 5/8 IN. (16 MM) THICK, 4 FT (1219 MM) 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 WALL AND PARTITION DESIGN. MAX AREA OF OPENING IS 352 SQ IN. (2271 SQ CM) WITH MAX DIMENSION OF 22 IN. (559 MM) WIDE.
C. DIA OF CIRCULAR OPENING CUT THROUGH GYPSUM WALLBOARD OF EACH SIDE OF WALL ASSEMBLY TO BE MIN 1/4 IN. TO MAX 1/2 IN. LARGER THAN OUTSIDE DIA OF THROUGH PENETRANT (ITEM #2). THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
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3. CABLES - AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN CABLE TRAY TO BE MAX 30 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CABLE TRAY BASED ON A MAX 3 IN. CABLE LOADING DEPTH WITHIN THE CABLE TRAY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF COPPER CONDUCTOR OR FIBER OPTIC CABLES MAY BE USED:
A. 7/8 IN. (22 MM) DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
B. IRON PIPE - NOM 1/2 IN. (12.7 MM) DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 8 IN. (203 MM) DIA (OR SMALLER) STEEL, ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
D. COPPER TUBING - NOM 8 IN. (203 MM) DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER TUBING - NOM 8 IN. (203 MM) DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
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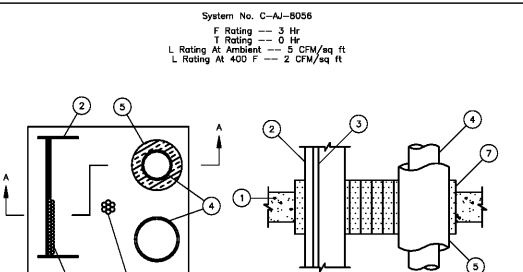


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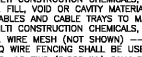
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B. IRON PIPE - NOM 1/2 IN. DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 8 IN. DIA (OR SMALLER) STEEL, ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
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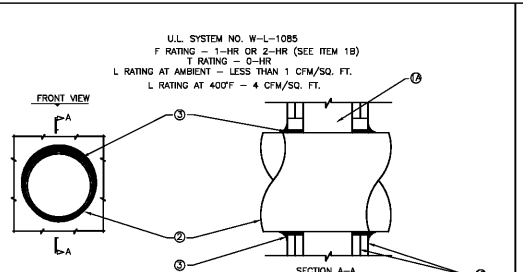


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1. WALL ASSEMBLY - THE 1 OR 2 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
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B. GYPSUM BOARD - 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIA OF OPENING IS 13-1/4 IN.
C. DIA OF CIRCULAR OPENING CUT THROUGH GYPSUM WALLBOARD OF EACH SIDE OF WALL ASSEMBLY TO BE MIN 1/4 IN. TO MAX 1/2 IN. LARGER THAN OUTSIDE DIA OF THROUGH PENETRANT (ITEM #2). THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
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A. STEEL PIPE - NOM 1/2 IN. DIA (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE - NOM 1/2 IN. DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 8 IN. DIA (OR SMALLER) STEEL, ELECTRICAL METALLIC TUBING OR STEEL CONDUIT.
D. COPPER TUBING - NOM 8 IN. DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER TUBING - NOM 8 IN. DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
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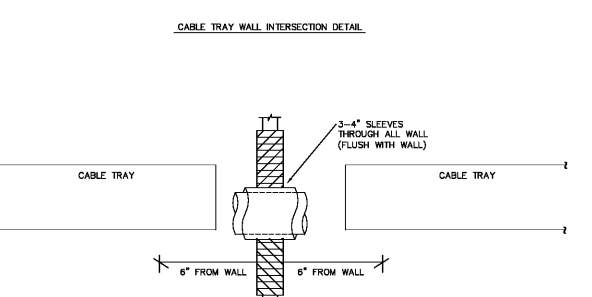


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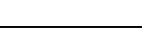


1. WALL ASSEMBLY - MIN 3-3/4 IN. (93 MM) THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400 KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS* MAX DIAMETER OF OPENING 10-1/2 IN. (267 MM). SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE 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 ANNUAL SPACE OF MIN 1/4 IN. TO MAX 1-5/8 IN. (41 MM) IS REQUIRED WITHIN FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE ANNUAL SPACE BETWEEN THE THROUGH-PENETRANT AND THE PERIPHERY OF THE OPENING SHALL BE MIN 0 IN. TO MAX 1/4 IN. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
A. STEEL PIPE - NOM 8 IN. (203 MM) DIA (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPE.
B. IRON PIPE - NOM 8 IN. (203 MM) DIA (OR SMALLER) CAST OR DUCTILE IRON PIPE.
C. CONDUIT - NOM 4 IN. (102 MM) DIA (OR SMALLER) STEEL, ELECTRICAL METALLIC TUBING (EMT) OR 6 IN. DIA STEEL CONDUIT.
D. COPPER TUBING - NOM 4 IN. (102 MM) DIA (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.
E. COPPER PIPE - NOM 4 IN. (102 MM) DIA (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.
F. FLEXIBLE STEEL CONDUIT - NOM 2 IN. (51 MM) DIA (OR SMALLER) FLEXIBLE STEEL CONDUIT.
SEE FLEXIBLE METAL CONDUIT (DUXZ) CATEGORY IN THE ELECTRICAL CONSTRUCTION EQUIPMENT DIRECTORY FOR NAMES OF MANUFACTURERS.
3. FILL VOID OR CAVITY MATERIAL* - SEALANT - FILL MATERIAL TO BE FORCED INTO THE ANNULUS TO MAXIMUM EXTENT POSSIBLE. ADDITIONAL FILL MATERIAL TO BE INSTALLED SUCH THAT A MIN 1/2 IN. CROWN IS FORMED AROUND THE PENETRATING ITEM AND LAPPING 1/4 IN. BEYOND THE PERIPHERY OF THE OPENING.
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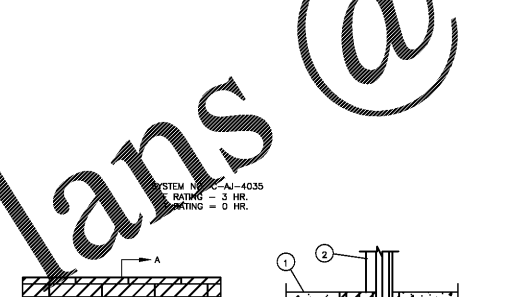


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A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. (51 BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 2-1/2 IN. (64 MM) WIDE AND SPACED MAX 24 IN. (610 MM) OC.
B. GYPSUM BOARD* - NOM 5/8 IN. (16 MM) THICK GYPSUM BOARD, 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, U400 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIA OF OPENING IS 13-1/4 IN. (343 MM) WITH MAX DIMENSION OF 22 IN. (559 MM) WIDE. WHEN SLEEVE (ITEM #2) IS EMPLOYED, MAX DIA OF OPENING IS 4 IN. (102 MM) WHEN SLEEVE (ITEM #2) IS EMPLOYED, THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.
C. DIA OF CIRCULAR OPENING CUT THROUGH GYPSUM WALLBOARD OF EACH SIDE OF WALL ASSEMBLY TO BE MIN 1/4 IN. TO MAX 1/2 IN. LARGER THAN OUTSIDE DIA OF THROUGH PENETRANT (ITEM #2). THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
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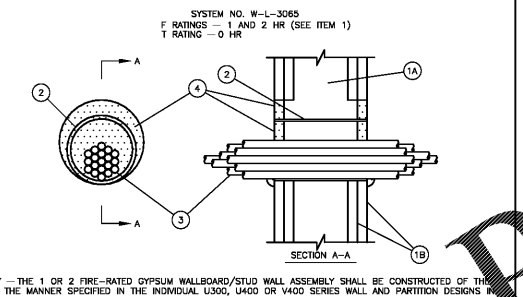


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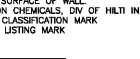
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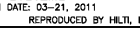


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