

Section A-A

TYPICAL COMMUNICATION CONDUIT PENETRATION FIRESTOPPING @ GYPSUM WALLBOARD PARTITION

I. WALL ASSEMBLY — THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL WALL AND PARTITION DESIGN IN THE ULC LIST OF EQUIPMENT AND MATERIALS, 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 NOMINAL 50 BY 102 MM LUMBER SPACED 405 MM OC. STEEL STUDS TO BE MINIMUM 92 MM WIDE AND SPACED MAXIMUM 600 MM

(B) WALLBOARD, GYPSUM — TWO LAYERS OF NOMINAL 16 MM THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF CIRCULAR CUT-OUT IN GYPSUM WALLBOARD LAYERS ON EACH SIDE OF WALL ASSEMBLY TO BE 102 MM. CIRCULAR CUT-OUTS TO BE LOCATED MINIMUM 76 MM FROM NEAREST STUD IN WALL CAVITY. 2. STEEL SLEEVE — CYLINDRICAL SLEEVE FABRICATED FROM MINIMUM 0.5 MM THICK GALVANIZED SHEET STEEL AND HAVING A MINIMUM 50 MM LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL PLUS
APPROXIMATELY 22 TO 25 MM SUCH THAT, WHEN INSTALLED, THE ENDS OF THE SLEEVE WILL PROJECT APPROXIMATELY 10 MM TO 13
MM BEYOND THE SURFACE OF THE WALL ON EACH SIDE OF THE WALL ASSEMBLY, SLEEVE INSTALLED BY COILING THE SHEET STEEL OPENINGS AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUT-OUTS IN THE GYPSUM WALLBOARD LAYERS.

3. CABLE — AGGREGATE CROSS-SECTIONAL AREA OF CABLES IN OPENING TO BE MINIMUM 10% TO MAXIMUM 40% OF THE CROSS-SECTIONAL AREA OF THE SLEEVED OPENING IN WALL. CABLES TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF CABLE MAY BE USED:

(A) MAXIMUM 150 PAIR NO. 24 AWG COPPER CONDUCTOR TELECOMMUNICATION CABLES; PVC INSULATION AND JACKET MATERIALS. WHEN MULTICONDUCTOR TELECOMMUNICATION CABLE IS USED, FT AND FTH RATING IS 1/2 H.

(B) MAXIMUM 12 AWG MULTICONDUCTOR TYPE TO COPPER POWER AND CONTROL CABLES, TYPE XHHW CONDUCTORS (XLP INSULATION) WITH XLP OR PVC JACKET. WHEN MAXIMUM 12 AWG MULTICONDUCTOR CABLES ARE USED, FT AND FTH RATING IS 1

(C) MULTIPLE FIBRE OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAXIMUM OUTSIDE DIAMETER OF 16 MM. WHEN FIBRE OPTIC CABLE IS USED, FT AND FTH RATING IS 1-1/2 H.

ULC SYSTEM NO. SP613

F AND FH RATINGS - 1 AND 2 H (SEE ITEM 4) FT AND FTH RATINGS - 1 AND 1-1/2 H (SEE ITEM 4)

AND 1-1/2 H WHEN STEEL PIPE IS USED

3M COMPANY

APRIL 07, 2003

4. FIRESTOP SYSTEM COMPONENT — XHJZC (GUIDE NO. 40 U19:13). TYPE MPS-2+ PUTTY, MINIMUM 25 MM THICKNESS OF MOLDABLE PUTTY PACKED TIGHTLY INTO ANNULAR SPACE BETWEEN CABLES AND SHEET STEEL SLEEVE (AND INTERSTICES BETWEEN CABLES, IF POSSIBLE), FLUSH WITH EACH END OF STEEL SLEEVE. A NOMINAL 6.4 MM DIAMETER CONTINUOUS "ROPE" OR PUTTY SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS FROM THE GYPSUM WALLBOARD LAYERS ON BOTH SIDES OF THE WALL ASSEMBLY 3M COMPANY

ULC SYSTEM NO. SP665 SEPTEMBER 12, 2003 F AND FH RATINGS 2 H & 3H FT AND FTH RATINGS 0 H Section A-A

1. FLOOR OR WALL ASSEMBLY — MINIMUM 114.3 MM CONCRETE SLAB OR MINIMUM 127 MM CONCRETE WALL (3 H), OR MINIMUM 95.3 MM CONCRETE SLAB OR 12.07 MM CONCRETE WALL (2 H). REINFORCED LOW-DENSITY OR NORMAL-DENSITY CONCRETE FLOOR (1602 TO 2403 KG/M3). WALL MAY ALSO BE CONSTRUCTED OF ANY ULC LISTED CONCRETE BLOCK. FOR OPENING IN CONCRETE BLOCK WALL, CONCRETE OR MORTAR SHALL BE USED TO CREATE A SOLID SURROUND TO THE OPENING.
2. STEEL SLEEVE (OPTIONAL) — MAXIMUM 152.4 MM DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL SLEEVE CAST INTO FLOOR OR WALL.
3. BATTS AND BLANKETS — MINERAL WOOL INSULATION PROCESSED FROM ROCK OR SLAG WITH A MINIMUM DENSITY OF 64 KG/M3 TO BE FIRMLY PACKED BY HAND (50% COMPRESSION) TO A MINIMUM THICKNESS OF 70 MM (2 H RATING) OR 76 MM (3 H RATING) (50% COMPRESSION) INTO OPENING AS A PERMANENT FORM, RECESS FROM TOP SURFACE TO ACCOMMODATE THE REQUIRED THICKNESS OF FIRESTOP SYSTEM COMPONENT. (SEE GUIDE NO. 40 U18.2 FOR NAMES OF MANUFACTURERS.)
4. CABLES — AGGREGATE CROSS-SECTIONAL AREA OF 100 PAIR, NO. 24 AWG TELEPHONE CABLES WITH POLYVINYL CHLORIDE INSULATION AND JACKETING IN OPENING TO BE MINIMUM 10% TO MAXIMUM 40% OF THE 1. FLOOR OR WALL ASSEMBLY -- MINIMUM 114.3 MM CONCRETE SLAB OR MINIMUM 127 MM CONCRETE WALL (3 H).

4. OABLES — AGGREGATE CROSS-SECTIONAL AREA OF 100 PAIR, NO. 24 AWG TELEPHONE CABLES WITH POLYVINVI CHLORIDE INSULATION AND JACKETING IN OPENING TO BE MINIMUM 10% TO MAXIMUM 40% OF THE AGGREGATE CROSS-SECTIONAL AREA OF OPENING. THE ANNULAR SPACE BETWEEN THE CABLES AND THE PERIPHERY OF THE OPENING MAY RANGE FROM A MINIMUM OF 6.35 MM TO A MAXIMUM OF 101.8 MM.

5. FIRESTOP SYSTEM COMPONENT - SEALANT — XHJZC (GUIDE NO. 40 U19.13). MINIMUM 25.4 MM THICKNESS OF FIRESTOP MATERIAL APPLIED WITHIN THE ANNULUS FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. DRY MIX MATERIAL MIXED WITH WATER AT A RATE OF 2.1 PARTS DRY MIX TO 1 PART WATER BY WEIGHT IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS.

CGC INC

ULC SYSTEM NO. SP608 APRIL 04, 2003

F AND FH RATINGS - 1 AND 2 H (SEE ITEM 4) FT AND FH RATINGS - 1 AND 2 H (SEE II FT AND FTH RATINGS - 1 AND 1-1/2 H (SEE ITEM 4) L. RATING AT AMBIENT - 10.2 L/S/M2

L RATING AT 205°C - LESS THAN 5.1 L/S/M2 (SEE ITEM 48)

SHALL BE MINIMUM 13 MM TO MAXIMUM 19 MM

FIRESTOP SYSTEM SHALL BE AS FOLLOWS:

(FOR HORIZONTAL OR VERTICAL SEPARATIONS) F AND FH RATINGS - 1-1/2, 2 AND 3 H (SEE ITEM 4) FT AND FTH RATINGS - 0, 3:4 AND 1 H (SEE ITEMS 1A AND 4) L RATING AT AMBIENT - 10.2 L/S/M2 (SEE ITEM

L RATING AT 205°C - LESS THAN 5 1 L/S/M2 (SEE ITEM 48)

ULC SYSTEM NO. SP513

MAY 02, 2003

STRIP LAYER APPROXIMATELY 19 MM FROM THE WALL SURFACE.

(NOTE: L RATINGS APPLY ONLY WHEN TYPE CP-25 WB+ CAULK IS USED)

(A) FIRESTOP SYSTEM COMPONENT — (NOT SHOWN) — XHJZC (GUIDE NO. 40 U19.13). TWO-COMPONENT FIRESTOP MATERIAL USED AS AN ALTERNATE TO ITEM 5. MINIMUM 25.4 MM THICKNESS OF FIRESTOP MATERIAL APPLIED WITHIN THE ANNULUS FLUSH WITH TOP SIDE OF FLOOR OR BOTH SURFACES OF WALL. READY-MIXED COMPONENT MIXED WITH ACCELERATOR COMPONENT AT A RATE OF 66 PARTS OF READY-MIXED COMPONENT TO 1 PART OF ACCELERATOR COMPONENT BY WEIGHT IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS.

TYPICAL COMMUNICATION CONDUIT PENETRATION FIRESTOPPING @ MASONRY PARTITION

1 OR 2 HOUR FIRE RATED GYPSUM WALLBOARD

1 WALL ASSEMBLY -- THE 1 OR 2 H FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL WALL OR PARTITION DESIGN IN THE ULC LIST OF EQUIPMENT AND MATERIALS, 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 O NOMINAL 50 MM BY 102 MM LUMBER SPACED 405 MM OC WITH NOMINAL 50 MM BY 102 MM LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MINIMUM 92 MM WIDE BY 35 MM DEEP CHANNELS SPACED MAXIMUM 600 MM OC.

(8) WALLBOARD, GYPSUM — NOMINAL 16 MM THICK, 1220 MM WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL DESIGN. MAXIMUM DIAMETER OF OPENING IS 368 MM FOR WOOD STUD WALLS AND 457 MM FOR STEEL STUD

PIPE — NOMINAL 305 MM DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE NOMINAL 102 MM DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. STEEL PIPES LARGER THAN NOMINAL 102 MM DIAMETER MAY ONLY BE USED IN WALLS CONSTRUCTED USING STEEL CHANNEL STUDS. A MAXIMUM OF ONE PIPE IS PERMITTED IN THE FIRESTOP SYSTEM. PIPE

TO BE INSTALLED NEAR CENTRE OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY

ASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SEALED WITH METAL FASTENERS OR WITI

BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT, WHEN NOMINAL 25 MM THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL SHALL BE MINIMUM 6.4 MM TO MAXIMUM 9.5 MM. WHEN NOMINAL 50 MM THICK PIPE COVERING IS USED, THE ANNULAR SPACE BETWEEN THE PIPE COVERING AND THE CIRCULAR CUTOUT IN THE GYPSUM WALLBOARD LAYERS ON EACH SIDE OF THE WALL

4 FIRESTOP SYSTEM — INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F, FT AND FTH RATINGS OF THE FIRESTOP SYSTEM ARE 1 H WHEN INSTALLED IN A 1 H FIRE-RATED WALL. THE HOURLY F, FT AND FTH RATINGS OF THE FIRESTOP SYSTEM ARE 2 H AND 1-1/2 H, RESPECTIVELY, WHEN USED IN A 2 H FIRE-RATED WALL ASSEMBLY. THE DETAILS OF THE EXPECT OF SYSTEM ARE 2 H AND 1-1/2 H, RESPECTIVELY, WHEN USED IN A 2 H FIRE-RATED WALL ASSEMBLY. THE DETAILS OF THE

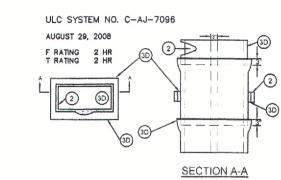
(A) FIRESTOP SYSTEM COMPONENTS — XHJZC (GUIDE NO. 40 U19.13). TYPE FS-195+ WRAP STRIP, NOMINAL 6.4 MM THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 50MM WIDE STRIPS. NOMINAL 50 MM WIDE STRIP TIGHTLY WRAPPED AROUND PIPE COVERING (FOIL SIDE OUT) WITH SEAM BUTTED. WRAP STRIP

(B) FIRESTOP SYSTEM COMPONENTS — XHJZC (GUIDE NO. 40 U19.13). TYPE CP-25 WB, CP-25 WB+ CAULK, MINIMUM 6.4 MM
DIAMETER CONTINUOUS BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND TO THE EXPOSED EDGE OF THE WRAP

LAYER SECURELY BOUND WITH STEEL WIRE OR ALUMINUM FOIL TAPE AND SLID INTO ANNULAR SPACE APPROXIMATELY 32 MM SUCH THAT APPROXIMATELY 19 MM OF THE WRAP STRIP WIDTH PROTRUDES FROM THE WALL SURFACE. ONE LAYER OF WRAP STRIP IS REQUIRED WHEN NOMINAL 25 MM THICK PIPE COVERING IS USED. TWO LAYERS OF WRAP STRIP ARE REQUIRED WHEN NOMINAL 50 MM THICK PIPE COVERING IS USED. 3M COMPANY

3. PIPE COVERING — NOMINAL 25 TO 50 MM THICK ULC LABELLED HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 56 KG/M3)
GLASS FIBRE UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL

FS-195+ WRAP/STRIP



FLOOR OR WALL ASSEMBLY — MIN 4-1/2 IN. (114 MM) THICK REINFORCED NORMAL WEIGHT (140-150 PCF OR 1600-2400 KGM/3) CONCRETE FLOOR OR MIN 5-1/4 IN. (133 MM) THICK REINFORCED NORMAL WEIGHT CONCRETE WALL. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX AREA OF OPENING IS 15 FT2 (1.4 M2) WITH MAX DIMENSION OF 70 IN. (1.8 M).

SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE ULIFIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. STEEL AIR DUCT — MIN 0.035 IN. (0.9 MM) (20 GAUGE) THICK (OR HEAVIER) STEEL DUCT HAVING A MAX PERIMETER OF 188 IN (4.27 M) WITH MAX INDIVIDUAL DIMENSION OF 60 IN (1.52 M) AND CONSTRUCTED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS. THE SECTIONS SHALL BE ASSEMBLED USING BOLTED FLANGES OR SMACNA APPROVED TRANSVERSE JOINT REINFORCEMENTS. DUCT TO BE RIGIDLY SUPPORTED IN ACCORDANCE WITH SMACNA REQUIREMENT AND AS SPECIFIED IN 17EM 4 ONE STEEL DUCT TO BE INSTALLED CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. DUCT TO RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. 3. FIRESTOP SYSTEM — THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:

A. DUCT WRAP MATERIALS* — MIN 1-1/2 IN. (38 MM) THICK BLANKET TOTALLY ENCAPSULATED WITHIN FOIL-SCRIM FACERS. THE STEEL DUCT SHALL BE WRAPPED WITH TWO LAYERS OF DUCT WRAP INSTALLED IN ACCORDANCE WITH THE VENTILATION ASSEMBLY NO. V-20. SEE VENTILATION DUCT ASSEMBLIES IN VOL. 2 OF THE UL FIRE RESISTANCE DIRECTORY. THE ANNULAR SPACE BETWEEN THE INSULATED STEEL AIR DUCT AND THE PERIPHERY OF THE OPENING SHALL BE A MIN OF 1 IN. (25 MM) TO A MAX OF 3 IN. (76 MM).

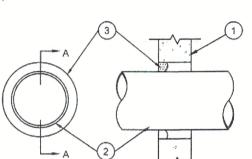
3M FIRE PROTECTION PRODUCTS — 3M FIREBARRIER DUCT WRAP 15A AND 3M FIREBARRIER DUCT WRAP 20A A1. BATTS AND BLANKETS* - COLLARS — MIN 1-1/2 IN. (38 MM) THICK, 6 IN. (152 MM) WIDE COLLARS, TÖTÄLLY ENCAPSULATED WITHIN FÖLL-SCRIM FACERS THE TRANSVERSE BUTT JOINTS SHALL BE WRAPPED USING A COLLAR THE COLLARS SHALL BE INSTALLED IN ACCORDANCE WITH THE VENTILATION ASSEMBLY NO. V-20. VENTILATION DUCT ASSEMBLIES IN VOL. 2 OF THE FIRE RESISTANCE DIRECTORY.

3M FIRE PROTECTION PRODUCTS — 3M FIREBARRIER DUCT WRAP 15A COLLARS AND 3M FIREBARRIER DUCT WRAP 20A COLLARS B. PACKING MATERIAL — MIN 4 IN. (102 MM) THICKNESS OF UNFACED SCRAP DUCT WRAP MATERIAL OR MIN 3 PCF (48 KGM3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM THE TOP SURFACE OF THE FLOOR OR BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

C. FILL, VOID OR CAVITY MATERIAL* - SEALANT --- MIN 5/8 IN. (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. 3M FIRE PROTECTION PRODUCTS --- FB 1000 N/S SEALANT

TYPICAL COMMUNICATION CONDUIT PENETRATION FIRESTOPPING @ MASONRY PARTITION

(FORMERLY SYSTEM NO. 202) F T RATING - 0 HR



1. FLOOR OR WALL ASSEMBLY - MIN 115MM THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE, WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*, MAX DIAM OF THROUGH OPENING IS 312MM SEE CONCRETE BLOCKS (CAZT) CATEGORY IN FIRE RESISTANCE

RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. PIPE OR CONDUIT - NOM 254MM DIAM (OR SMALLER) SCHEDULE 254 (OR HEAVIER) STEEL PIPE, NOM 153MM DIAM (OR SMALLER) RIGID STEEL CONDUIT, NOM 153MM DIAM (OR SMALLER) STEEL EMT OR NOM 75MM DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE, MAX ONE PIPE OR CONDUIT PER THROUGH OPENING. MAX ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 20MM MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 0MM (POINT CONTACT). PIPE OR CONDUIT TO BE

RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. 3. FILL, VOID OR CAVITY MATERIALS*- PUTTY- MOLDABLE PUTTY MATERIAL KNEADED BY HAND AND APPLIED TO FILL ANNULAR SPACE TO A MIN DEPTH OF 25MM, FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED PUTTY THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL. MINNESOTA MINING & MFG. CO. - MPS-2+. *BEARING THE ULC CLASSIFICATION MARKING

ULC SYSTEM NO. SP986

(FOR VERTICAL SEPARATIONS)

FT AND FTH RATING 0 H

F AND FH RATING 1 AND 2 H (SEE ITEM 1)

CONSTRUCTION FEATURES:

A/D FIRE PROTECTION SYSTEMS INC

3. STEEL ANGLE --

MAY 20, 2004

DUCT PENETRATION FIRE STOPPING AT FIRE RATED STUD PARTITION

1. WALL ASSEMBLY — THE 1 OR 2 H FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL WALL OR PARTITION DESIGNS IN THE UNDERWRITERS' LABORATORIES OF CANADA LIST OF EQUIPMENT AND MATERIALS AND SHALL INCLUDE THE FOLLOWING

(A) STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOMINAL 50 MM BY 102 MM LUMBER SPACED 405 MM OC. STEEL STUDS TO BE MINIMUM 92 MM WIDE AND SPACED MAXIMUM 600 MM OC.

WALLBOARD, GYPSUM — NOMINAL 16 MM THICK, 1220 MM WIDE, WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL OR

(B). NOMINAL 50 MM BY 25 MM BY 1.5 MM STEEL ANGLE INSTALLED ON THE TWO FACES OF THE DUCT IN CONTACT WITH THE DRYWALL, USING SHEET METAL SCREWS BETWEEN THE 50 MM LEG OF THE ANGLE AND THE DUCT, INSTALLED A MAXIMUM OF 110 MM OC.

4. FIRESTOP SYSTEM COMPONENTS — XHJZC (GUIDE NO. 40 U19.13). TYPE "A/D FIREBARRIER SILICONE SEALANT" INSTALLED WITH 6.4 MM BEAD ON EACH LEG OF STEEL ANGLE AND COMPRESSED BETWEEN ANGLE AND DUCT AND ANGLE AND DRYWALL. ADDITIONAL 6.4 MM

BEAD OF SEALANT INSTALLED AS CROWN BEAD BETWEEN DUCT AND WALL AT POINT OF

(B) WALLBOARD, GYPSUM -- NOMINAL 16 MM THICK, 1220 MM WIDE, WITH SQUARE OR

PARTITION DESIGN. MAXIMUM SIZE OF OPENING IS 1016 MM BY 508 MM.

____ (2) 100 x 200 PRECAST CONC. LINTEL W/ 152" MIN. BEARING EACH END - PROVIDE 25MM DEEP FIRE STOP SEALANT BETWEEN ENTIRE DUCT & MASONRY OPENING TYPICAL BOTH SIDES OF WALL MASONRY OPN'G AS REQUIRED PLUS A
13MM CLEARANCE AROUND ENTIRE DUCT GROUT FILL BLOCK BELOW OPENING SOLID 100MM MINIMUM NOTE: VERIFY EXACT OPENING SIZES REQUIRED FOR DUCTS WITH MECHANICAL DRAWINGS

TYPICAL DUCT PENETRATION THROUGH RATED MASONRY WALL

THE HOURLY F AND FH RATINGS OF THE FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED. DUCT — MAXIMUM 457 MM BY 965 MM GALVANIZED STEEL DUCT, 0,71 MM IN THICKNESS. MAXIMUM SEPARATION OF 51 MM BETWEEN DUCT AND PERIPHERY OF OPENING. DUCT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF THE WALL. (A) NOMINAL 75 MM BY 50 MM BY 1.5 MM STEEL ANGLE INSTALLED ON THE TWO FACES OF THE DUCT SEPARATED FROM DRYWALL USING SHEET METAL SCREWS BETWEEN THE 50 MM LEG OF THE ANGLE AND THE DUCT, INSTALLED A MAXIMUM OF 110 MM OC.

PROFESSIONAL CERTIFICATION

I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA:

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Description

Manny Mathai HEALTHCARE FACILITIES NURSING HOME (PHASE 2)

ELECTRICAL DETAILS

SK-2015-006 Project number 10/14/2015 Drawn by Author Checker Checked by

Scale

TYPICAL CONDUIT PENETRATION FIRE STOPPING DETAIL @ FIRE RATED MASONRY CORRIDOR PARTITION

PIPE PENETRATION DETAIL

3M COMPANY

ULC SYSTEM NO. SP648 STEEL SLEEVE (OPTIONAL)

TYPICAL INSULATED PIPE PENETRATION DETAIL AT GYP. BD. PARTITION (HORIZONTAL APPLICATION)

WALL ASSEMBLY — THE 1 OR 2 H FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL WALL OR PARTITION DESIGNS IN THE ULC LIST OF EQUIPMENT AND MATERIALS, 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 NOMINAL 50 BY 102 MM LUMBER SPACED 405 MM OC. STEEL STUDS TO BE MINIMUM 92 MM WIDE AND SPACED MAXIMUM 600 MM OC.

(B) WALLBOARD, GYPSUM — NOMINAL 16 MM THICK, 1220 MM WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. DIAMETER OF OPENING IN WALLBOARD LAYERS TO BE 25 MM LARGER THAN OUTSIDE DIAMETER OF PIPE COVERING (TEM 3). MAXIMUM DIAMETER OF OPENING IN WALLBOARD LAYERS IS 216 MM.

2. METAL PIPE — NOMINAL 102 MM DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE OR TYPE L (OR HEAVIER)
COPPER TUBE, ONE PIPE TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE
ANNULAR SPACE BETWEEN THE INSULATED PIPE AND THE EDGE OF THE THROUGH-OPENING SHALL BE MINIMUM 0 MM
(CONTINUOUS POINT CONTACT) TO MAXIMUM 32 MM. PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.

3. PIPE COVERING — NOMINAL 38 MM THICK ULC LABELLED HOLLOW CYLINDRICAL HEAVY DENSITY (MINIMUM 56 KG/M3) GLASS FIBRE UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET, LONGITUDINAL JOINTS SEALED WITH METAL

FASTENERS OR FACTORY APPLIED SSL TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT.

4. FIRESTOP SYSTEM COMPONENT — XHJZC (GUIDE NO. 40 U19.13), CP-25 WB+ CAULK. INSTALLED TO FILL ANNULAR SPACE THROUGHOUT THICKNESS OF GYPSUM WALLBOARD LAYERS, FLUSH WITH EACH SURFACE OF WALL. A MINIMUM 13 MM DIAMETER BEAD OF CAULK SHALL BE APPLIED TO THE PIPE INSULATION/WALLBOARD INTERFACE AT THE POINT CONTACT LOCATION ON BOTH SIDES OF WALL. THE HOURLY F, FT AND FTH RATINGS OF THE FIRESTOP SYSTEM ARE 1 H WHEN INSTALLED IN A 1 H FIRE-RATED WALL. THE HOURLY F AND FTH RATING OF THE FIRESTOP SYSTEM IS 2 H WHEN INSTALLED IN A 2 H FIRE-RATED WALL. WHEN INSTALLED IN A 2 H FIRE-RATED WALL. FT AND FTH RATING IS 1 H WHEN COPPER TUBE IS USED AND 1.12 H WHEN STEEL JUPE IS USED

NOW ON WALL ASSESSED THE MINISTER OF THE MAN ARTHMAND CONNETTE BLOCKS MANIMUM OPENING DIAMETER WALL ASSESSED TO THE CONNETTE OF THE CONNETTE O

MIN FLOOR OR MAX PIPE DIA THICKNESS, MM ANNULAR

TYPICAL INSULATED METALLIC PIPE PENETRATION FIRE STOPPING (VERT. APPL.) NOT TO SCALE

ULC SYSTEM NO. SP324

SECTION A-A

 MINTERCOR OR VIALL THICKNESS, MM
 MAX PIPE DIA THICKNESS, MM
 SPACE MM
 FFT

 102
 102
 25
 13 TO 56
 21

 102
 102
 50
 6 4 TO 92
 21-1/2

 305
 305
 25
 20
 20

 305
 305
 25
 31
 31

(FOR VERTICAL SEPARATION)
F RATING - 2 H
FH RATING - 0 AND 2 H (SEE ITEM 2)
FT AND FTH RATINGS - 0, 1-1/2 AND 2 H (SEE ITEM 2)

SECTION A-A SECTION A-A

WALL ASSEMBLY — THE FIRE-RATED GYPSUM WALGARDA AND STALL OF PARTITION DESIGN IN THE
OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL WALL OR PARTITION DESIGN IN THE
ULC LIST OF EQUIPMENT AND MATERIALS, FIRE RESISTANCE, AND SHALL INCLUDE THE FOLLOWING
CONSTRUCTION FEATURES:

(A) STUDS — WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS TO BE
MINIMUM 63 MM WIDE AND SPACED MAXIMUM 810 MM OC.

(B) OYPSUM WALLBOARD — MINIMUM 127 MM THICK GYPSUM WALLBOARD INSTALLED VERTICALLY IN TWO
LAYERS ON BOTH SIDES OF STUD FRAMING WITH JOINTS OF EACH LAYER CENTRED OVER STUDS INTO
LAYERS ON BOTH SIDES OF STUD FRAMING WITH JOINTS OF EACH LAYER CENTRED OVER STUDG INTO
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LAYERS ON BOTH SIDES OF STUD FRAMING WITH JOINTS OF EACH LAYER CENTRED OVER STUDG INTO
LAYERS ON BOTH SIDES OF STUDGE SIDES OF WALL STAGGERED ONE STUD OTHER LAYER JOINTS STAGGERED
ONE STUD FROM INNER LAYER JOINTS

PIPES AND CABLE — ALL IPPES AND CABLE SHEED ONE STUD OUTER LAYER JOINTS STAGGERED
ONE STUDGE ONE STUDGE ONE STUDGE ONE STUDGE ONE STUDGE ONE STUDGE ONE STUDGE
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 PIPE INSULATION — COPPER OR STEEL PIPE (ITEM 2F) TO BE WRAPPED WITH MINIMUM 25 MM THICK ULC LABELLED PIPE INSULATION, NOMINAL DENSITY 55 KG/MS (GUIDE NO. 40 U18.15.13), NO PIPE INSULATION JOINTS TO BE CLOSER THAN 300 MM TO WALL SURFACE. 4. FIRESTOP SYSTEM COMPONENT — (NOT SHOWN) - XHJZC (GUIDE NO. 40 U1813) "ALD FIREBARRIER SILICONE SEALANT" CAULKED INTO THE ANNULAR SPACE TO A MINIMUM DEPTH OF 25 MM ON BOTH SIDES OF ASSEMBLY, ADDITIONAL SEALANT APPLIED SUCH THAT A MINIMUM 6.4 MM CROWN IS FORMED AROUND THE CIRCUMFERENCE OF THE PENETRATING ITEM. A/D FIRE PROTECTION SYSTEMS INC

TYPICAL PIPE PENETRATION FIRE STOPPING AT GYP. WALLBOARD ASSEMBLY

SSUE DATE: : 09/01/15

TYPICAL PIPE PENETRATION THROUGH RATED CONCRETE FLOOR

1/8" = 1'-0"