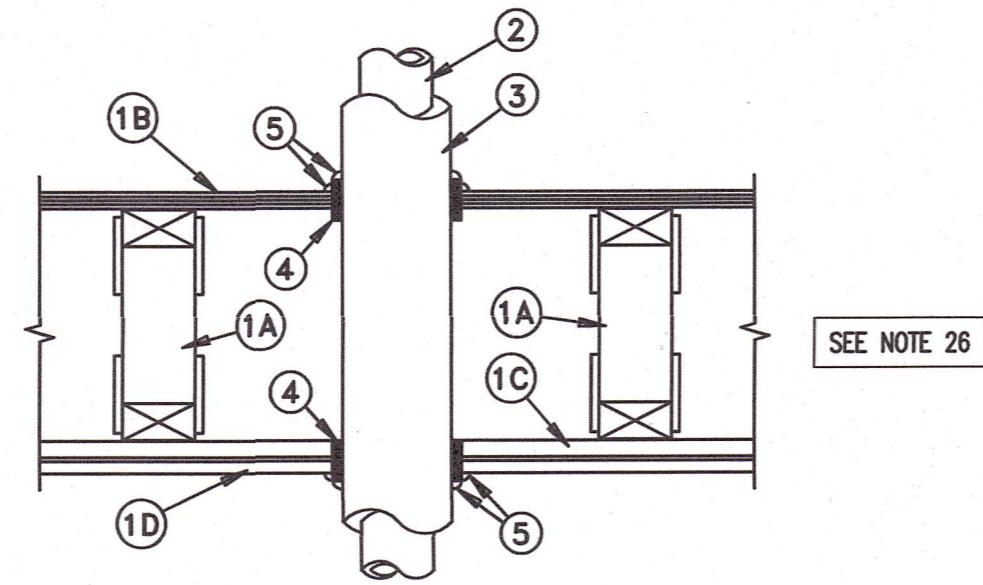


SYSTEM NO. FC5002
 (Formerly System No. 454)
 F Rating - 1 Hr
 T Rating - 1 Hr
 L Rating At Ambient - 7 CFM/sq ft (See Item 5)
 L Rating At 400 F - Less Than 1 CFM/sq ft (See Item 5)



- FLOOR ASSEMBLY - THE FIRE RATED WOOD TRUSS OR COMBINATION WOOD AND STEEL TRUSS FLOOR-CEILING ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL L500 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
 - TRUSSES - MIN 12" DEEP PARALLEL CHORD TRUSSES FABRICATED FROM NOMINAL 2"x4" LUMBER IN CONJUNCTION WITH GALVANIZED STEEL TRUSS PLATES OR STRUCTURAL WOOD MEMBERS* WITH BRIDGING AS REQUIRED.
 - FLOORING - NOMINAL 3/4" THICK PLYWOOD FLOORING WITH OR WITHOUT FLOOR TOPPING MIXTURE* MAX. DIAMETER OF HOLE-SAWED OPENING IN FLOORING IS 7".
 - FURRING CHANNELS - RIGID OR RESILIENT GALVANIZED STEEL FURRING CHANNELS INSTALLED PERPENDICULAR BOTTOM CHORD OF TRUSSES.
 - WALLBOARD, GYPSUM* - NOMINAL 4" WIDE BY 5/8" THICK, SCREW-ATTACHED TO FURRING CHANNELS. MAX. DIAMETER OF HOLE-SAWED OPENING IN GYPSUM WALLBOARD CEILING IS 7".
- PIPE - NOMINAL 4" DIAMETER (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE OR NOMINAL 3" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER PIPE. PIPE TO BE INSTALLED APPROXIMATELY MIDWAY BETWEEN JOISTS OR TRUSSES AND CENTERED IN CIRCULAR CUTOUPS IN FLOORING (ITEM 1B) AND GYPSUM WALLBOARD CEILING (ITEM 1D). DIAMETER OF CIRCULAR CUTOUPS IN FLOORING AND GYPSUM WALLBOARD CEILING TO BE 1/2" TO 3/4" LARGER THAN OUTSIDE DIAMETER OF PIPE COVERING (ITEM 3) OR TUBE INSULATION (ITEM 3A) ON PIPE. PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR-CEILING ASSEMBLY.
- PIPE COVERING* - NOMINAL 1" THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN 3.5 PCF) GLASS FIBER 1/2" OR 5/8" THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN FASTENERS OR FACTORY-APPLIED SELF-SEALING LAP TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT STRIP TAPE SUPPLIED WITH THE PRODUCT.

SEE PIPE AND EQUIPMENT COVERING - MATERIALS* (BRG) CATEGORY IN 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.
- TUBE INSULATION - PLASTICS* - AS AN ALTERNATE TO THE GLASS FIBER PIPE COVERING (ITEM 3), NOMINAL 1/2" OR 5/8" THICK ACRYLONITRILE BUTADIENE/POLYVINYL CHLORIDE (AB/PVC) FLEXIBLE FOAM FURNISHED IN THE FORM OF TUBING WITH SKIN MAY BE USED.

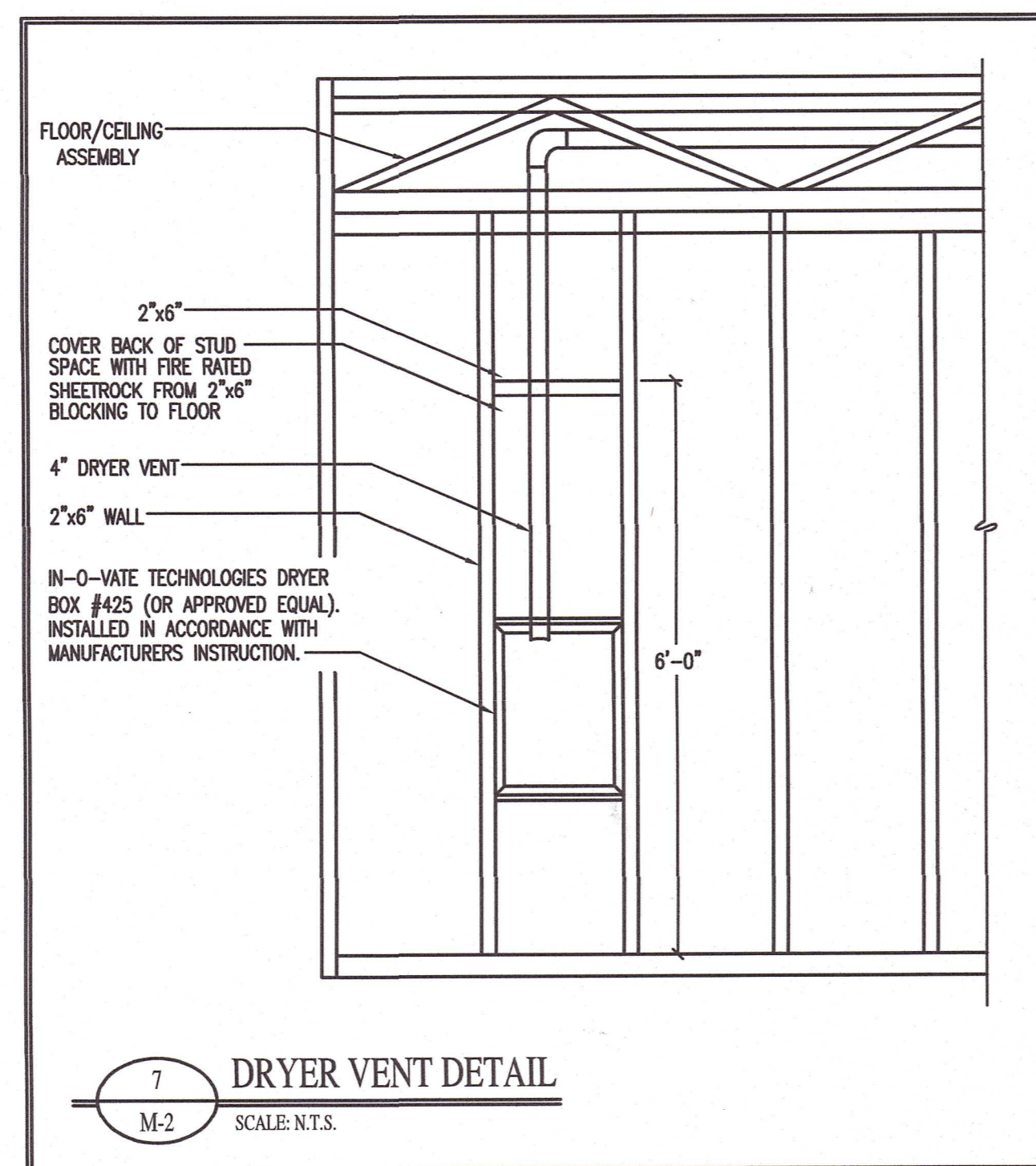
SEE PLASTICS (DMF22) CATEGORY IN THE RECOGNIZED COMPONENT DIRECTORY FOR NAMES OF MANUFACTURERS. ANY RECOGNIZED COMPONENT TUBE INSULATION MATERIAL MEETING THE ABOVE SPECIFICATIONS AND HAVING A UL 94 FLAMMABILITY CLASSIFICATION OF 94-5 VA MAY BE USED.
- FILL VOID OR CAVITY MATERIALS* - WRAP STRIP - NOMINAL 1/4" THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2" WIDE STRIPS. NOMINAL 2" WIDE STRIP TIGHTLY WRAPPED AROUND PIPE COVERING OR TUBE INSULATION (FOIL SIDE EXPOSED), SECURED WITH TWO STEEL WIRE AND SLID INTO HOLE-SAWED OPENING IN FLOORING (ITEM 1B) AND IN GYPSUM WALLBOARD (ITEM 1D). BOTTOM EDGE OF WRAP STRIP TO PROJECT 9/16" TO 11/16" BELOW BOTTOM SURFACE OF FLOORING AND BELOW BOTTOM (CEILING) SURFACE OF GYPSUM WALLBOARD.

MINNESOTA MINING & MFG. CO. - TYPES FS-195, FS-195+
- FILL VOID OR CAVITY MATERIALS* - CAULK - NOMINAL 1/4" THICKNESS OF CAULK TO BE APPLIED TO THE EXPOSED EDGE OF THE WRAP STRIP LAYER (TOP OF FLOORING AND BOTTOM OF GYPSUM WALLBOARD CEILING). GENEROUS APPLICATION OF CAULK TO BE APPLIED TO FILL ALL GAPS AT THE WRAP STRIP/FLOORING AND WRAP STRIP/GYPSUM WALLBOARD CEILING INTERFACES.

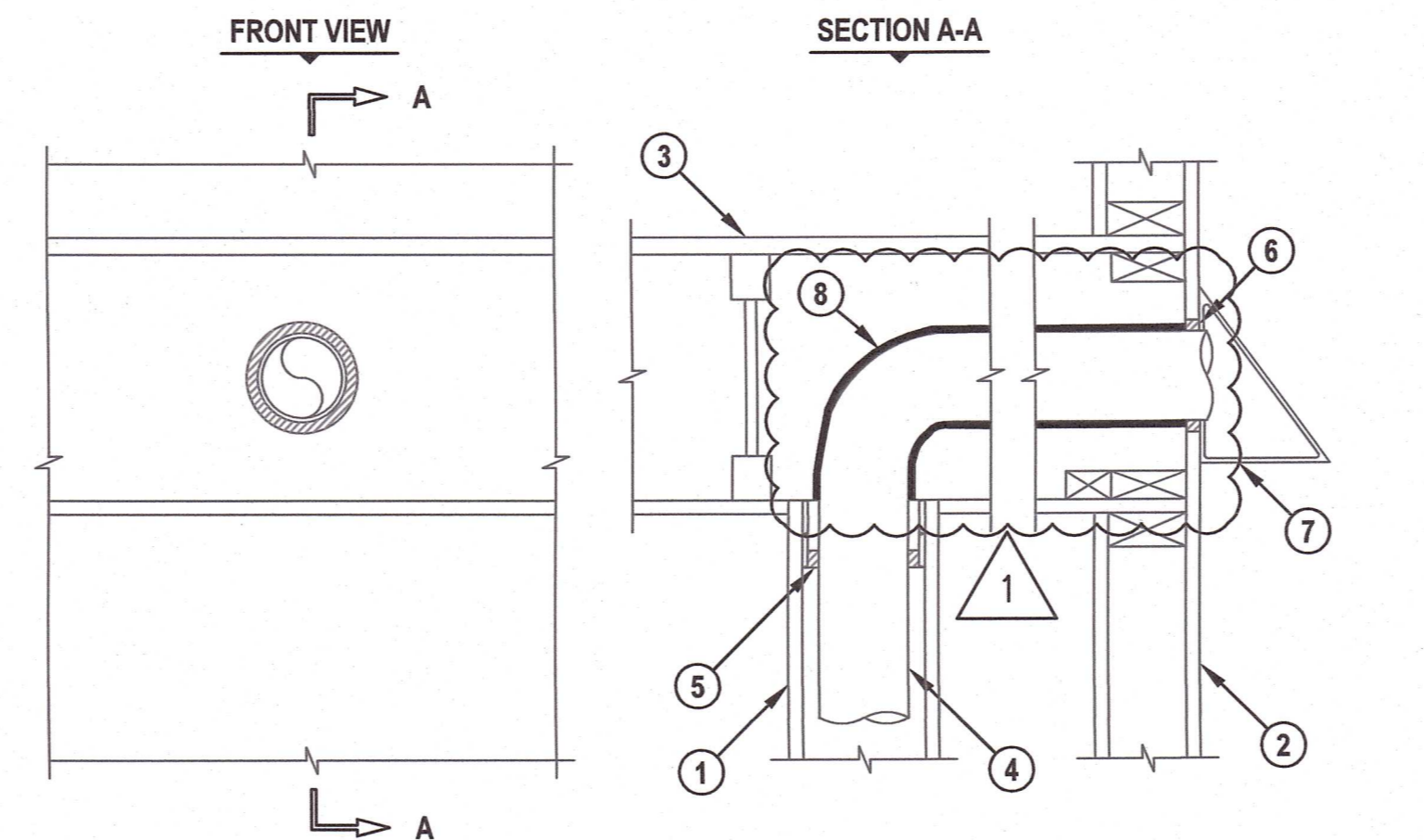
MINNESOTA MINING & MFG. CO. - TYPES CP-25 WB, CP-25 WB+. (NOTE: L RATINGS APPLY ONLY WHEN TYPE CP-25 WB+ CAULK IS USED.)

* BEARING THE UL CLASSIFICATION MARKING.

6 PENETRATION DETAIL
 M-2 SCALE: N.T.S.



7 DRYER VENT DETAIL
 M-2 SCALE: N.T.S.



- GYPSUM WALL ASSEMBLY (UL/CUL CLASSIFIED U-300 SERIES) (1-HR. FIRE-RATING).
- GYPSUM WALL ASSEMBLY (UL/CUL CLASSIFIED U-356 SERIES) (1-HR. FIRE-RATING) (SEE NOTE NO. 3 BELOW).
- WOOD FLOOR/CEILING ASSEMBLY (UL CLASSIFIED L521 SERIES) (1-HR. FIRE-RATING).
- MAXIMUM 4" NOMINAL DIAMETER SHEET METAL DUCT (MINIMUM 28 GA. (0.016") WALL THICKNESS).
- MINIMUM 3/4" DEPTH HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT.
- MINIMUM 5/8" DEPTH HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT.
- DRYER VENT (EXTERIOR BRICK OR VINYL; NOT SHOWN).
- PROVIDE WITH APPROVED 1-HR FIRE WRAP

NOTES: 1. MAXIMUM DIAMETER OF OPENING = 5".
 2. ANNULAR SPACE = MINIMUM 1/4", MAXIMUM 3/4".
 3. U-356 GYPSUM WALL TO BE EXPOSED TO FIRE ON INTERIOR FACE ONLY.

CODE REFERENCES:

MECHANICAL CODE

504.2 STATES CLOTHES DRYER EXHAUST PENETRATING IN FIRE RATED FLOOR CEILING ASSEMBLIES SHALL BE MINIMUM 28 GAUGE STEEL (TABLE 603.4) AND MAINTAIN THE FIRE RESISTANCE RATINGS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE.

BUILDING CODE

711.5 STATES PENETRATIONS OF HORIZONTAL RATED ASSEMBLIES SHALL BE IN ACCORDANCE WITH SECTION 714 (IBC).
 714.4.1.2 STATES MEMBRANE PENETRATIONS OF HORIZONTAL RATED ASSEMBLIES REQUIRED TO BE IN ACCORDANCE WITH 714.4.1.1.1 OR 714.4.1.1.2
 714.4.1.1.2 REQUIRES DUCT TO BE SEALED WITH APPROVED A THROUGH-PENETRATION FIRESTOP SYSTEM TESTED IN ACCORDANCE WITH ASTM E 814. HILTI PRODUCTS LISTED MEET ASTM E 814 AND ARE APPROVED FOR THROUGH-PENETRATION OF UL L500 FLOOR CEILING ASSEMBLIES. FIRESTOP SPECIFICATIONS AVAILABLE IF REQUESTED OR CAN BE FOUND ONLINE.

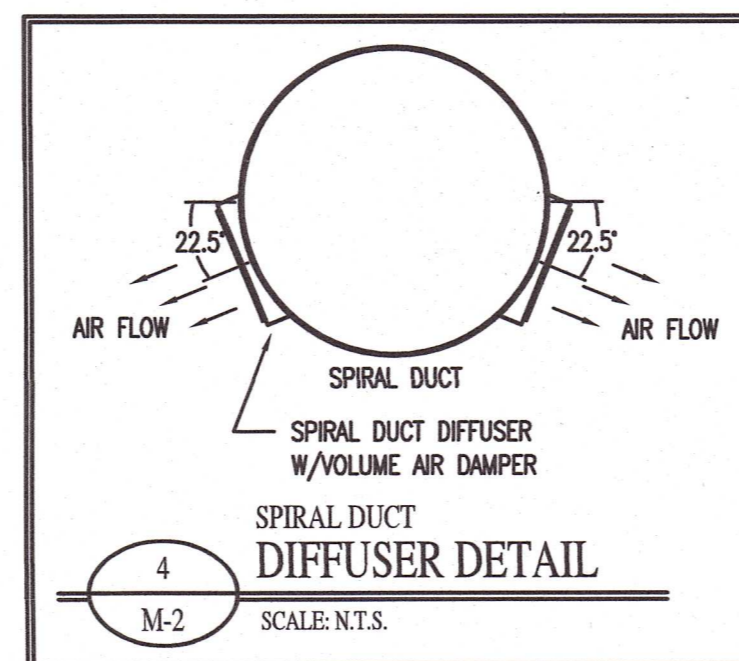
ADDITIONAL NOTES:

- DUCTING IN THE SPACE ABOVE AN APARTMENT CEILING AND BELOW THE FLOOR OF THE APARTMENT ABOVE IS CONSIDERED TO BE LOCATED WITHIN THE APARTMENT UNIT BELOW. THEREFORE ALL DRYER DUCTING MUST GO UP INTO THE FLOOR/CEILING ASSEMBLY AND NOT DOWN INTO THE FLOOR/CEILING ASSEMBLY IN WHICH CASE IT WOULD BY DEFINITION BE LOCATED IN THE APARTMENT BELOW AND WOULD CONSEQUENTLY REQUIRE A SHAFT.
- THE EXTERIOR WALLS OF THE APARTMENTS ARE DESIGNATED AS 1 HOUR RATED BECAUSE THEY SUPPORT FIRE RATED FLOOR/CEILING ASSEMBLIES (SEE ARCHITECTURAL SHEETS). THEREFORE THE DUCT PENETRATION OF THE EXTERIOR WALL MUST BE FIRE CAULKED ON THE INTERIOR SIDE OF WHERE IT PENETRATES THE EXTERIOR WALL.
- THE DRYER DUCT ON THE TOP FLOOR WILL EXTEND ABOVE THE FIRE RATED EXTERIOR WALL AND TERMINATE ON THE UNDERSIDE OF THE SOFFIT WITH AN APPROVED BACKDRAFT DAMPER ASSEMBLY. NO FIRE CAULKING WOULD BE REQUIRED AT THE EXTERIOR TERMINATION SINCE IT DOES NOT PENETRATE A FIRE RATED ASSEMBLY.

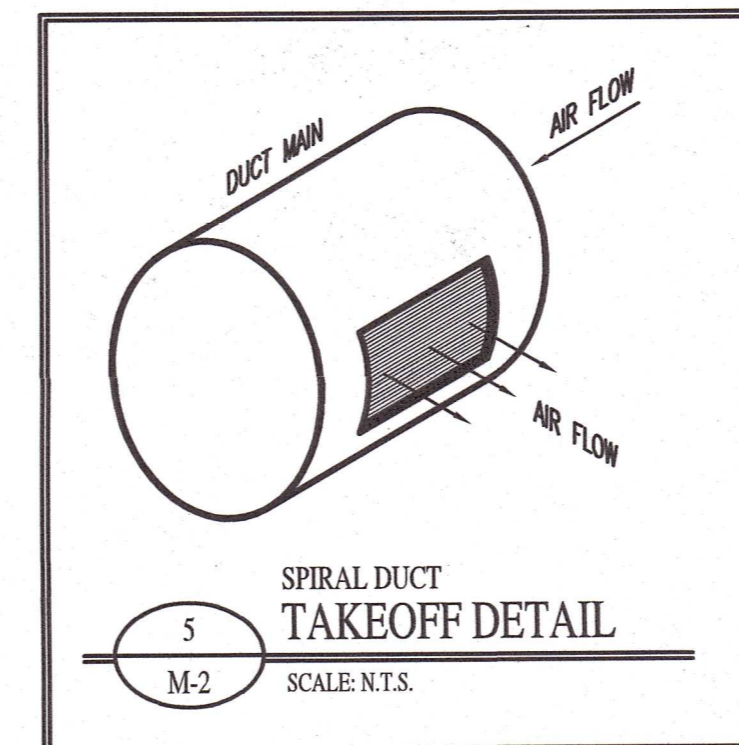
REFERENCE:

(a) 2018 NC BUILDING CODE AND 2018 NC MECHANICAL CODE.

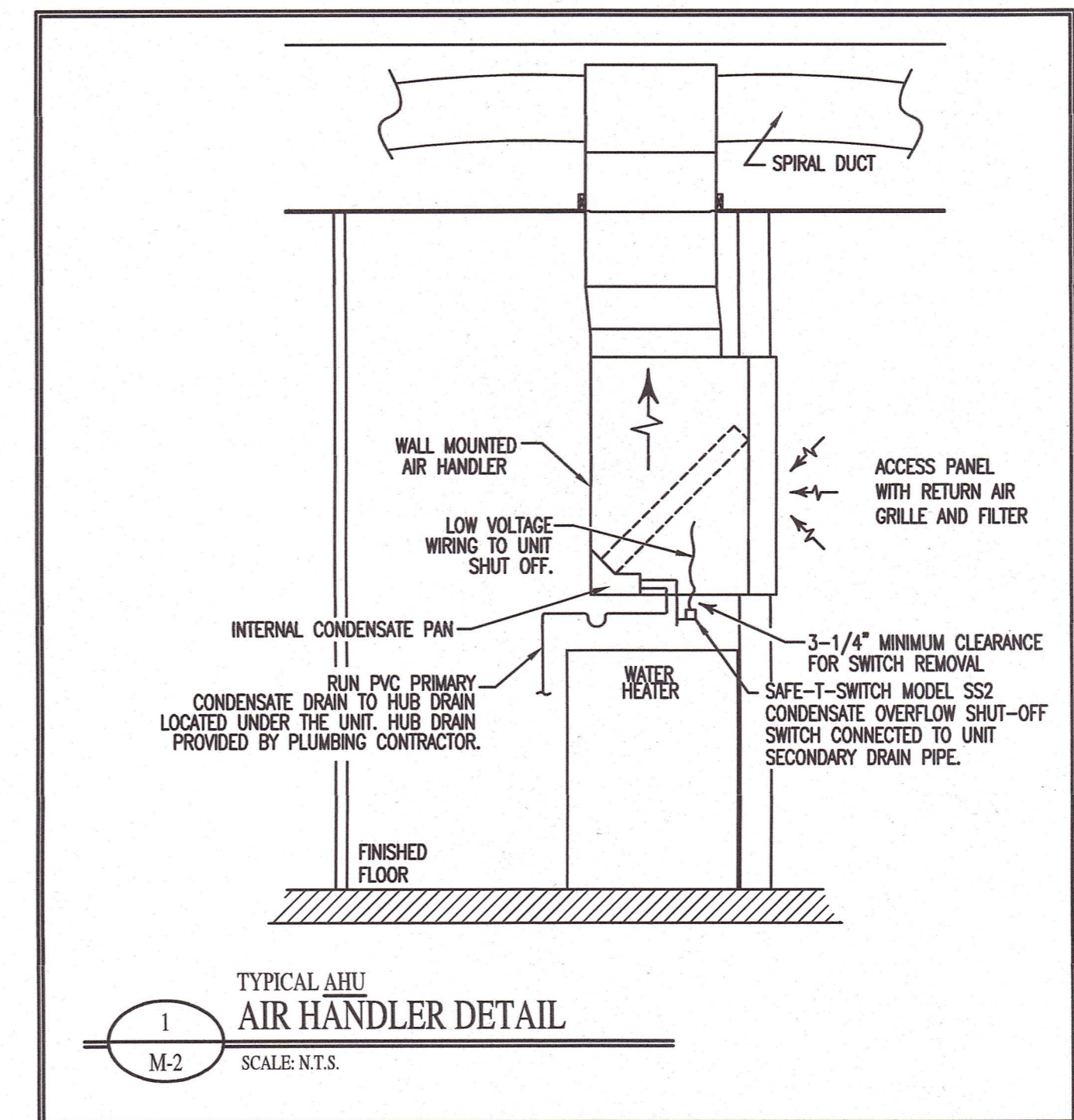
4 CLOTHES DRYER DUCT FIRESTOP DETAIL
 M-2 SCALE: N.T.S.



4 SPIRAL DUCT DIFFUSER DETAIL
 M-2 SCALE: N.T.S.

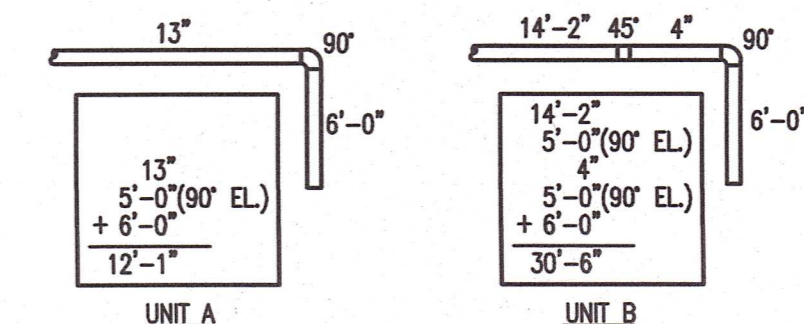


5 SPIRAL DUCT TAKEOFF DETAIL
 M-2 SCALE: N.T.S.



1 TYPICAL AHU AIR HANDLER DETAIL
 M-2 SCALE: N.T.S.

NOTE:
 ALL DRYER DUCTS SHALL BE 4" IN SIZE, AND CONSTRUCTED OF MINIMUM 0.016" THICK (28 GAUGE) GALVANIZED STEEL. DRYER EXHAUST DUCT TO BE EQUIPPED WITH A BACKDRAFT DAMPER. DRYERS INDICATED "*" HAVE DUCT LENGTHS GREATER THAN THE CODE REQUISITE 35' EQUIVALENT LENGTH. A PERMANENT PLACARD SHALL BE INSTALLED ABOVE THE DRYER LOCATION LISTING THE DEVELOPED LENGTH OF THE INSTALLED DRYER DUCT AS LISTED ABOVE.



2 DRYER DUCT DETAILS
 M-2 SCALE: N.T.S.