

6 in. wg Static Pos. or Neg.	5 ft Joints			5 ft Joints w/2 ½ ft Reinf. Spacing				
	Min ga	Joint Reinf.	Alt. Joint Reinf.	Joints/Reinf.			Int. Reinf.	
				Min ga	Joint Reinf.	Alt. Joint Reinf.	Tie Rod	Alt. Reinf.
Duct Dimension								
8 in. and under	26	N/R	N/A	Use 5 ft Joints				
9 – 10 in.	24	N/R	N/A	26	N/R	N/R	MPT	B
11 – 12 in.	24	N/R	N/A	26	N/R	N/R	MPT	C
13 – 14 in.	22	N/R	N/A	26	N/R	N/R	MPT	C
15 – 16 in.	22	N/R	N/A	26	N/R	N/R	MPT	C
17 – 18 in.	22	N/R	N/A	26	N/R	N/R	MPT	D
19 – 20 in.	22	N/R	N/A	26	N/R	N/R	MPT	D
21 – 22 in.	22	N/R	N/A	24	N/R	N/R	MPT	E
23 – 24 in.	22	N/R	N/A	24	N/R	N/R	MPT	E
25 – 26 in.	20	N/R	N/A	24	N/R	N/R	MPT	E
27 – 28 in.	20	JTR	(2) E	22	N/R	N/R	MPT	F
29 – 30 in.	18	N/R	N/R	22	N/R	N/R	MPT	F
31 – 36 in.	18	JTR	(2) H	20	N/R	N/R	MPT	G
37 – 42 in.	16	JTR	(2) H	20	JTR	(2) E	MPT	H
				18	N/R	N/R	MPT	H
43 – 48 in.	16	JTR	(2) H	20	JTR	(2) H	MPT	I
49 – 54 in.	Not Designed			20	JTR	(2) H	MPT	I
55 – 60 in.				20	JTR	(2) H	MPT	I
61 – 72 in.				18	JTR	(2) I	MPT	J
73 – 84 in.				18	JTR	(2) K	2 MPT	L
85 – 96 in.				16	JTR	N/A	2 MPT	It
97 – 108 in.				16	JTR	N/A	X	Jt
109 – 120 in.				16	JTR	N/A	X	Kt

Table 2-20 5 ft Coil/Sheet Stock/T25a/T25b (TDC/TDF) Duct Reinforcement

N/R - Not Required

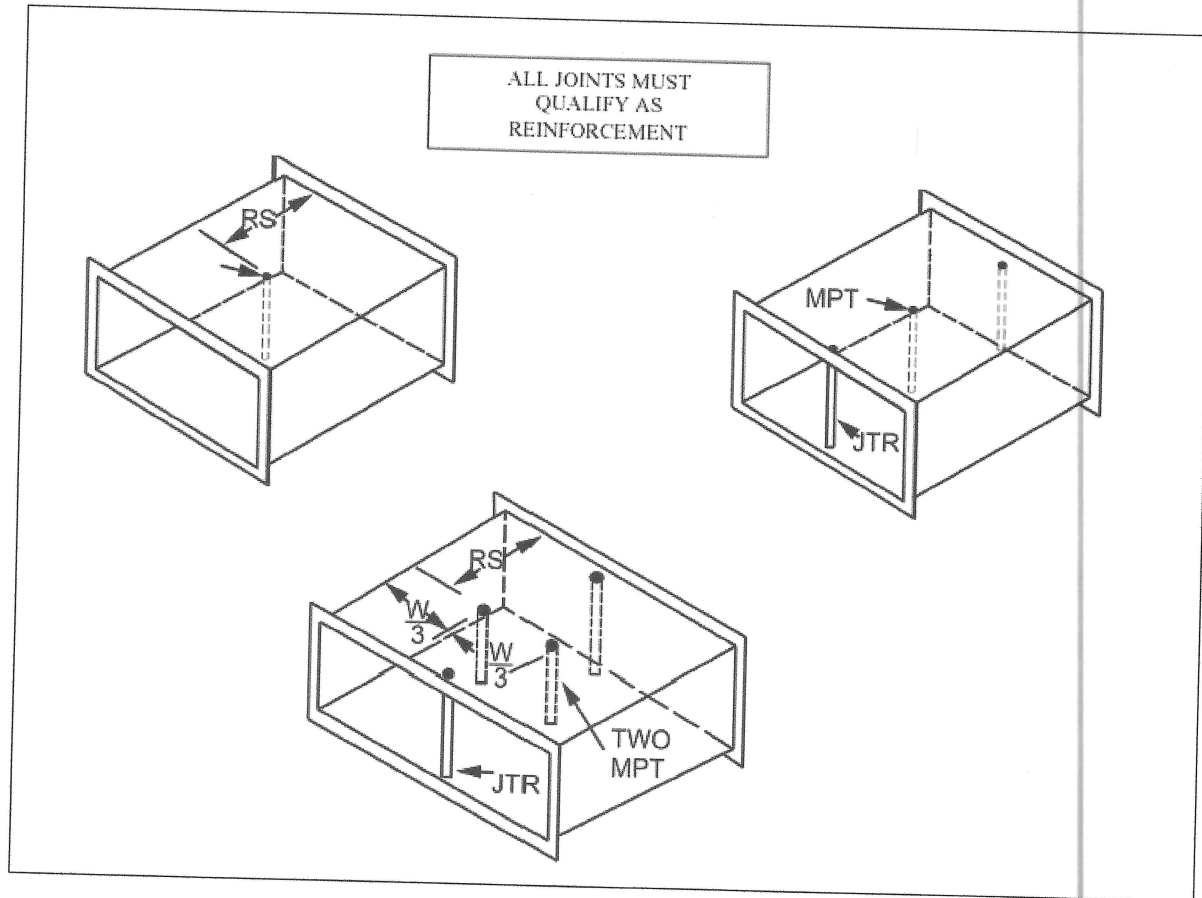
N/A - Not Applicable

JTR - Joint Tie Rod

MPT - Mid Panel Tie Rod(s)

(2) (X) - Indicates 2 external reinforcements of class (X) to be used in lieu of Joint Tie Rods

Note: t following Reinforcement Class letter indicates tie rod required.



2.9 MIDPANEL TIE ROD SELECTIONS

Example No. 1:

48 × 18 in. (1200 × 450 mm) duct, 2 in. wg (500 Pa) positive pressure per Table 2-3; 5 ft (1.50 m) joint spacing; T-25a or T-25b joints:

In Table 2-3 for 48 in. (1200 mm) width, Column 6 gives reinforcement for 5 ft (1.50 m) RS (reinforcement spacing) as H-20 and Column 9 for 2 1/2 ft (0.75 m) RS as F-24; these are basic alternatives, but the joint ratings must be checked for duct gage override per text Section 2.1.4 and S1.13 and S1.14.

Therefore, for 5 ft (1.50 m) RS option Table 2-32 shows T-25 joints of H Code requiring 18 ga (1.31 mm) duct wall to satisfy the H joint rating; however, T-25 of 20 ga (1.00 mm) with tie rods at the joints (JTR) is I Code which satisfies both Tables 2-3 and 2-32. No between joint reinforcement is required. On the 18 in. (1.31 mm) wide sides, Column 2 shows that reinforcement is not required.

For 48 in. (1200 mm) width, the alternative of 2-1/2 ft (0.75 m) RS would only require 24 ga (0.70 mm) duct

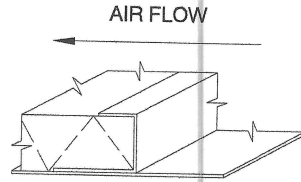
wall per Table 2-3, Column 9, but the F Code in Table 2-32 requires the use of T-25 of 22 ga (0.85 mm) duct wall, an override upgrade from Table 2-3. No tie rod is required at the joint, but one must be used at mid panel between joints (unless external reinforcement per Table 2-29 and 2-30 is used there). 22 ga (0.85 mm) metal will be used on all four sides; see text section 2.1.1 (3). On the 18 in. (1.31 mm) side, T-25 of 22 ga (0.85 mm) is F Code (which exceeds the C Code required in Column 9 of Table 2-3).

The requirements for tie rods at T-25 joints are the same as they would be for external reinforcement systems. The joints must qualify independently according to the reinforcement interval. For the conditions in Example No. 1, rods at T-25 joints are only required for 5 ft (1.50 m) RS intervals. Therefore, the rod size for the joint is selected based on one rod per Fig. 2-5(G) or two rods per Fig. 2-5(D) and the load from Table 2-34. In Table 2-34, the load for 2 in. wg (500 Pa) and 5 ft (1.50 m) RS on 48 in. (1200 mm) width is 156 pounds (70.76 kgs) (for one rod or 78 pounds (35.38 kgs) for each of two). From Table 2-35, 1/4 in. (6.4 mm) rod suffices. From S1.19.4, 1/2 in. (12.7 mm) EMT is adequate.

NOTE:

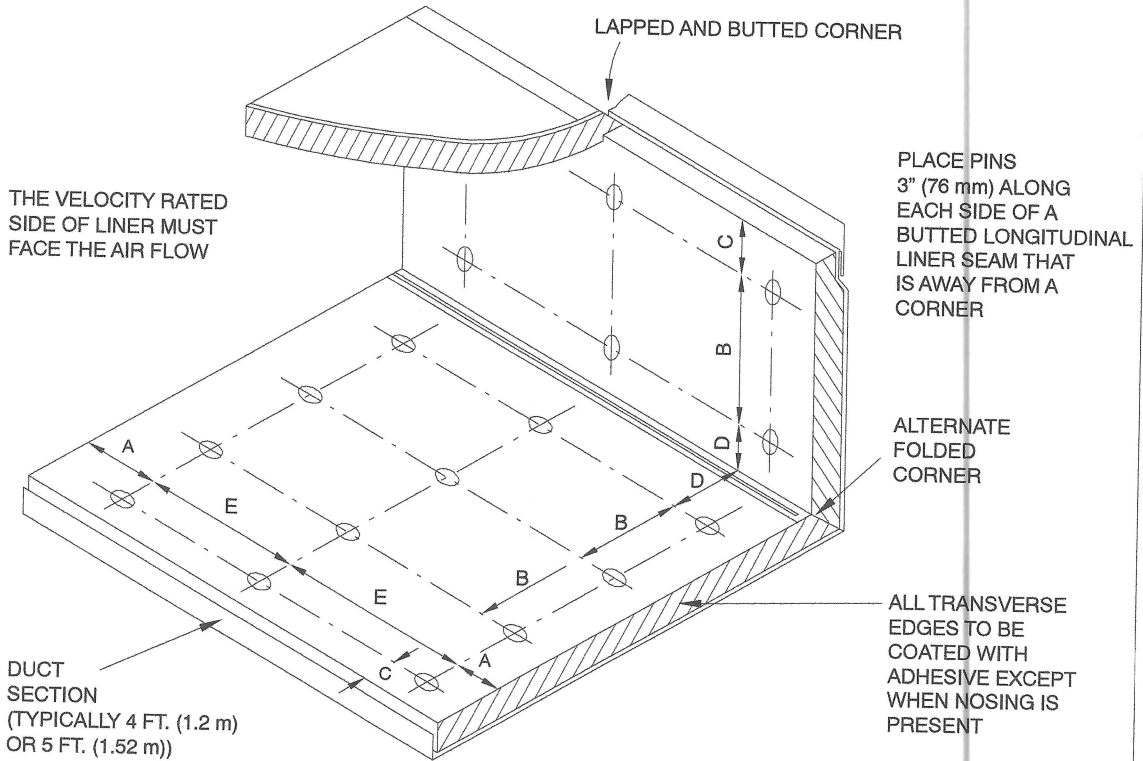
SEE TYPICAL DUCT BRANCH ENTRY CONDITION IN FIG. 4-6.

METAL NOSING MUST BE USED WHEREVER LINER IS PRECEDED BY UNLINED METAL; OTHERWISE WHEN VELOCITY EXCEEDS 4000 FPM (20.3 MPS) USE METAL NOSING ON EVERY LEADING EDGE. NOSING MAY BE FORMED ON DUCT OR BE CHANNEL OR ZEE ATTACHED BY SCREWS, RIVETS OR WELDS.



DETAIL - A
METAL NOSING
CHANNEL OR ZEE

INTERIOR WIDTH OF 8" (200 mm) AND LESS DOES NOT REQUIRE PINS.



THE VELOCITY RATED SIDE OF LINER MUST FACE THE AIR FLOW

PLACE PINS 3" (76 mm) ALONG EACH SIDE OF A BUTTED LONGITUDINAL LINER SEAM THAT IS AWAY FROM A CORNER

ALTERNATE FOLDED CORNER

ALL TRANSVERSE EDGES TO BE COATED WITH ADHESIVE EXCEPT WHEN NOSING IS PRESENT

MAXIMUM SPACING FOR FASTENERS. ACTUAL INTERVALS ARE APPROXIMATE.

"A" PIN ROW MAY BE OMITTED WHEN METAL NOSING IS USED. "E" THEN STARTS FROM THE NOSING.

LINER ADHERED TO THE DUCT WITH 90% MIN. AREA COVERAGE OF ADHESIVE

Velocity *	Dimensions				
	A	B	C	D	E
0 - 2500 FPM (0 - 12.7 MPS)	3" (76.2)	12" (305)	4" (102)	6" (152)	18" (457)
2501 - 6000 FPM (12.7 - 30.5 MPS)	3" (76.2)	6" (152)	4" (102)	6" (152)	16" (406)

* UNLESS A LOWER LEVEL IS SET BY MANUFACTURER OR LISTING AGENCY

FIGURE 7-11 FLEXIBLE DUCT LINER INSTALLATION

