

Cable Tray Selection - Material & Finish

Thermal Contraction and Expansion

It is important that thermal contraction and expansion be considered when installing cable tray systems. The length of the straight cable tray runs and the temperature differential govern the number of expansion splice plates required (see Table 2 below).

The cable tray should be anchored at the support nearest to its midpoint between the expansion splice plates and secured by expansion guides at all other support locations (see Figure 1). The cable tray should be permitted longitudinal movement in both directions from that fixed point. When used, covers should be overlapped at expansion splices.

Accurate gap settings at the time of installation are necessary for the proper operation of the expansion splice plates. The following procedure should assist the installer in determining the correct gap: (see Figure 2)

- 1 Plot the highest expected metal temperature on the maximum temperature line.
- 2 Plot the lowest expected metal temperature on the minimum temperature line.
- 3 Draw a line between the maximum and minimum points.
- 4 Plot the metal temperature at the time of installation to determine the gap setting.

Refer to page 311 for thermal contraction and expansion of fiberglass cable trays.

Figure 1

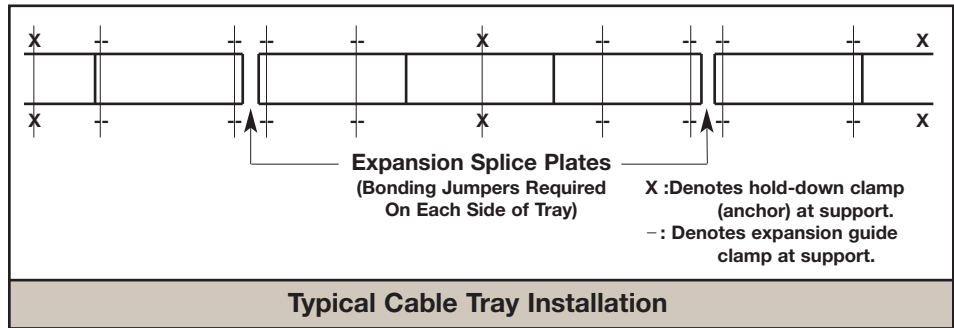


Figure 2

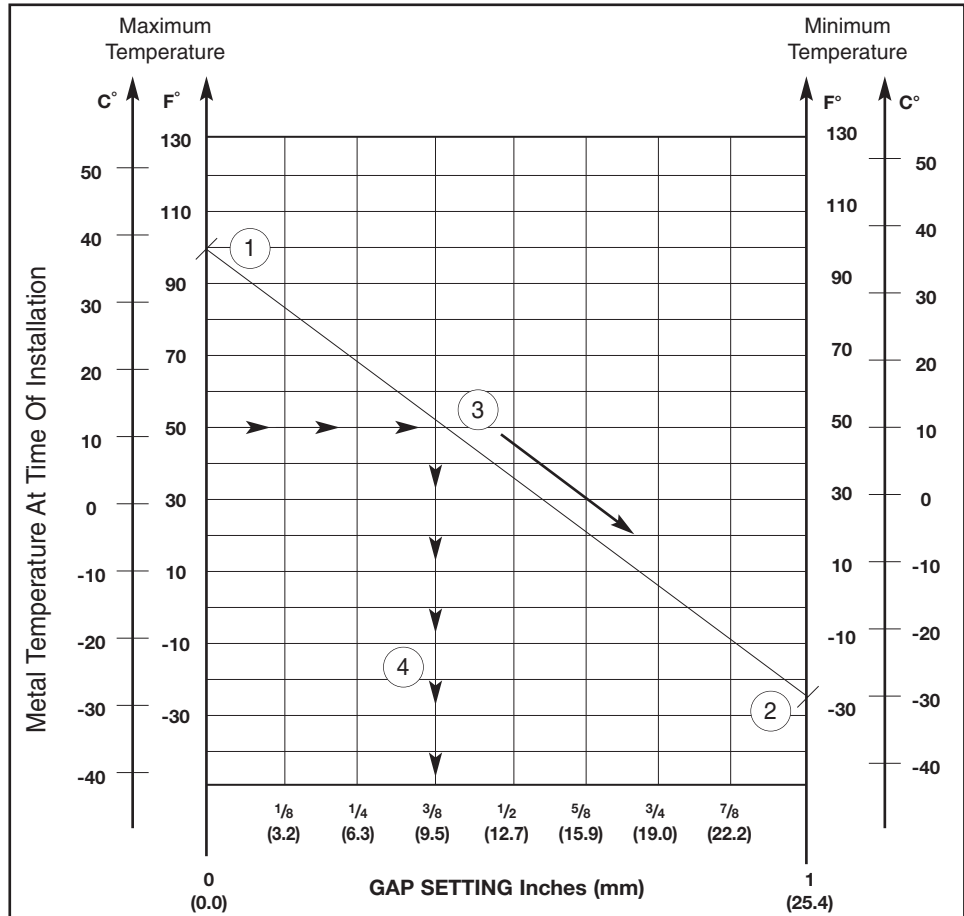


Table 2

Maximum Spacing Between Expansion Joints For 1" Movement									
Temperature Differential		Steel		Aluminum		Stainless Steel			
°F	°C	Feet	m	Feet	m	304	316	304	316
25	13.9	512	156.0	260	79.2	347	105.7	379	115.5
50	27.8	256	78.0	130	39.6	174	53.0	189	57.6
75	41.7	171	52.1	87	26.5	116	35.4	126	38.4
100	55.6	128	39.0	65	19.8	87	26.5	95	29.0
125	69.4	102	31.1	52	15.8	69	21.0	76	23.2
150	83.3	85	25.9	43	13.1	58	17.7	63	19.2
175	97.2	73	22.2	37	11.3	50	15.2	54	16.4

Note: every pair of expansion splice plates requires two bonding jumpers for grounding continuity.