

IP UNITS (INCHES AND POUNDS)

TYPE	DIMENSION																	
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
FMSA	3.38	7.50	4.00	7.13	0.38	0.38	3.38	0.44	0.44	0.56	3.00	6.00	0.56	2.50	0.88	0.56	1.00	1.69

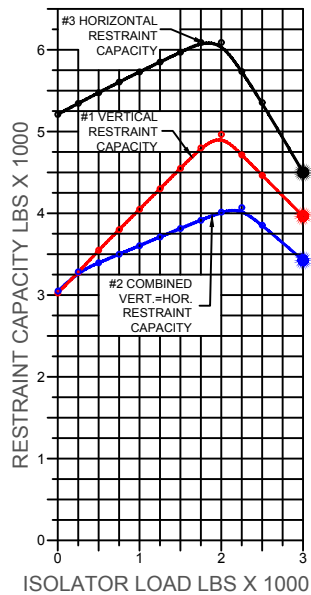


FIGURE 2  
STEEL ATTACHMENT

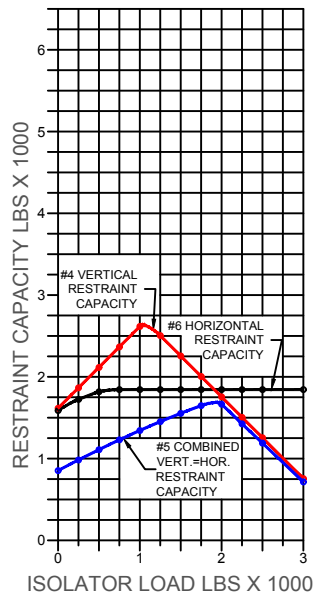


FIGURE 3  
CONCRETE ATTACHMENT

FMSA REQUIRES 0.38 DIA X 2.50 MIN. EMBED ANCHORS IN CONCRETE (ALLOWABLE LOADS BASED ON 3000 PSI MIN. CONCRETE)  
FMSA ANCHOR BOLT TORQUE - 20 FT-LB, PULL TEST - 1210 LBS

**RESTRAINT CAPACITY ENVELOPE GENERATION**

**RESTRAINT ONLY (NO SPRING ELEMENT)**

1) READ THE ANCHORED (CONCRETE) OR BOLTED (STEEL) ENVELOPES DIRECTLY FROM FIGURE 1.

**RESTRAINT WITH SPRING SUPPORT ELEMENT (ISOLATOR/RESTRAINT)**

- 1) DETERMINE THE MAXIMUM EQUIPMENT LOAD SUPPORTED BY THE ISOLATOR(S)
- 2) IF THROUGH-BOLTED (STEEL), REFER TO FIGURE 2. IF ANCHORED (CONCRETE), REFER TO FIGURE 3.
- 3) PLOT THE VERTICAL RESTRAINT CAPACITY FROM CURVE #1 (FIGURE 2) OR #4 (FIGURE 3) ON THE VERTICAL AXIS OF FIGURE 1.
- 4) PLOT THE HORIZONTAL RESTRAINT CAPACITY FROM CURVE #3 (FIGURE 2) OR #6 (FIGURE 3) ON THE HORIZONTAL AXIS OF FIGURE 1.
- 5) PLOT THE COMBINED RESTRAINT CAPACITY FROM CURVE #2 (FIGURE 2) OR #5 (FIGURE 3) AT THE POINT ON FIGURE 1 WHERE THE VERTICAL AND HORIZONTAL FORCES BOTH MATCH THIS VALUE.
- 6) CONNECTING THESE POINTS CREATES AN ENVELOPE THAT SHOWS THE RESTRAINT'S CAPACITY WHEN SUBJECTED TO EQUIPMENT SUPPORT AND SEISMIC LOADS SIMULTANEOUSLY.
- 7) FOR THE RESTRAINT TO BE ADEQUATE, ALL WORST CASE SEISMIC LOADS MUST FALL WITHIN THE ENVELOPE.

**SPECIFICATIONS:**

- 3 AXIS RESTRAINT WITH REPLACEABLE NEOPRENE SNUBBING ELEMENTS.
- RESTRAINTS ARE POWDER COATED.
- HOUSINGS MAY BE USED FOR BLOCKING DURING EQUIPMENT ERECTION.
- CAN BE USED WITH OR WITHOUT SPRING COIL.

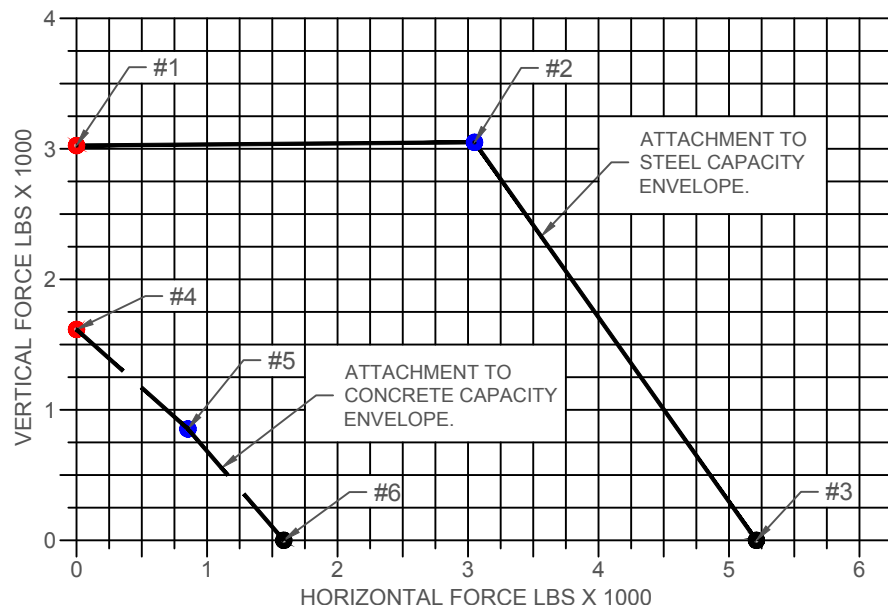
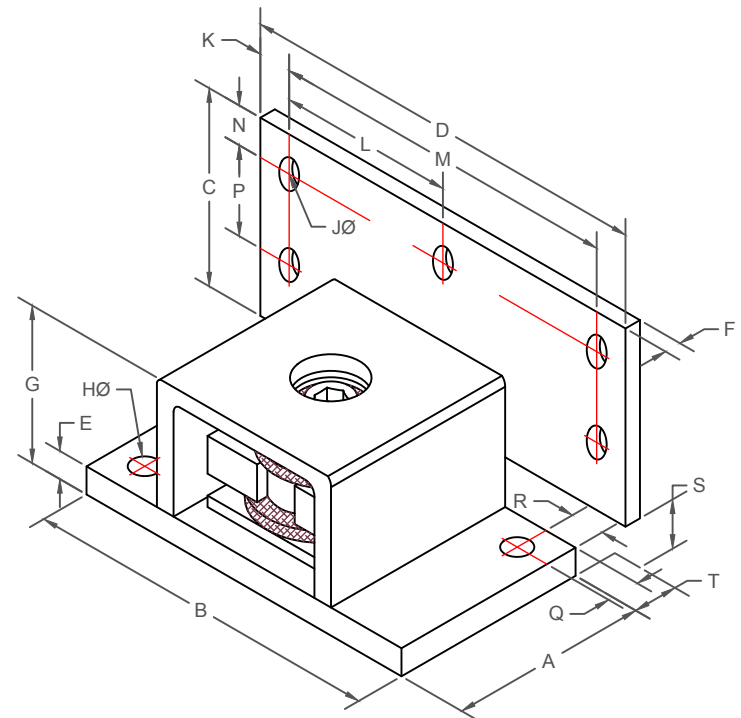


FIGURE 1  
RESTRAINT CAPACITY ENVELOPE



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Model:  
**FMSA  
RESTRAINT**

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