

Oversized Base Plates – Capacities and Selection Guide

In Document D5.2.1 it was shown why oversized base plates are used with Kinetics Noise Control designed seismic isolators and brackets when attaching to structural concrete. This document also showed how the oversized base plates were intended to work, and gave the mathematical basis for computing the capacities for square base plates with varying isolator/bracket heights. This document is intended to show the capacities for the current family of Kinetics Noise Control oversized base plates, and provide some guidance in selecting the proper one for a given application.

Currently, Kinetics Noise Control has a standard series of square oversized base plates that follow the form shown in Figure D5.2.2-1. The dimensional data for the series is provided in Table D5.2.2-1.

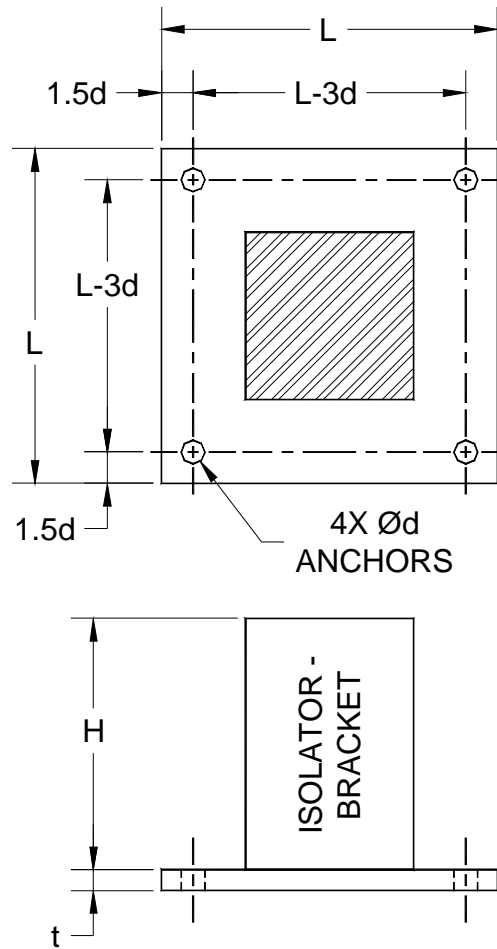


Figure D5.2.2-1: Standard Oversized Base Plate Dimensions

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Table D5.2.2-1: Standard Oversized Base Plate Dimensions.

Oversized Base Plate Number	Side Length L (in)	Plate Thickness t (in)	Anchor Size d (in)	Anchor Embedment (in)
01	8.00	0.38	0.38	3.00
02	10.00	0.50	0.50	4.00
03	12.00	0.50	0.63	5.00
04	14.00	0.63	0.75	6.00
05	16.00	0.63	0.75	6.00
06-A	20.00	0.75	1.00	8.00
06-B	20.00	0.75	1.00	9.00
07-A	22.00	1.00	1.00	8.00
07-B	22.00	1.00	1.00	9.00
08	24.00	1.00	1.25	10.00

Tables and Figures D5.2.5-2 through D5.2.2-11 Define the seismic capacities the of the oversized base plates described in Table D5.2.2-1. These capacities are based on Document D5.2.1. The isolator/bracket must be located more-or-less in the center of the oversized base plate and Kinetics Noise Control supplied wedge type concrete anchors must be used.

Selection of Oversized Base Plates:

- 1.) Choose an oversized base plate that fits the base plate of the isolator/bracket and allows room enough for welding without interfering with the concrete anchor installation.
- 2.) Determine the distance from the base of the isolator/bracket to the center of the restraint, **H**.
- 3.) Determine the horizontal and vertical seismic loads from the Kinetics Noise Control Seismic Certification sheet for the most highly loaded isolator/bracket, and plot this point on the Seismic Capacity Envelope for the selected oversized base plate.
- 4.) The point from Step 3 should fall under the capacity envelope for the next larger value of **H** than that determined in Step 2.
- 5.) For special cases, linear interpolation may be used to determine the capacity envelope for the actual value of **H** determined in Step 2.

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Oversized Base Plate No. 01: $L = 8.00$ inches; $t = 0.38$ inches; $d = 0.38$ inches

Table D5.2.2-2: Seismic Capacities for Oversized Base Plate No. 01

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	4,310	3,140	1,930
4.00	2,280	3,140	1,315
8.00	1,315	3,140	915
12.00	915	3,140	700
16.00	700	3,140	565
20.00	565	3,140	470

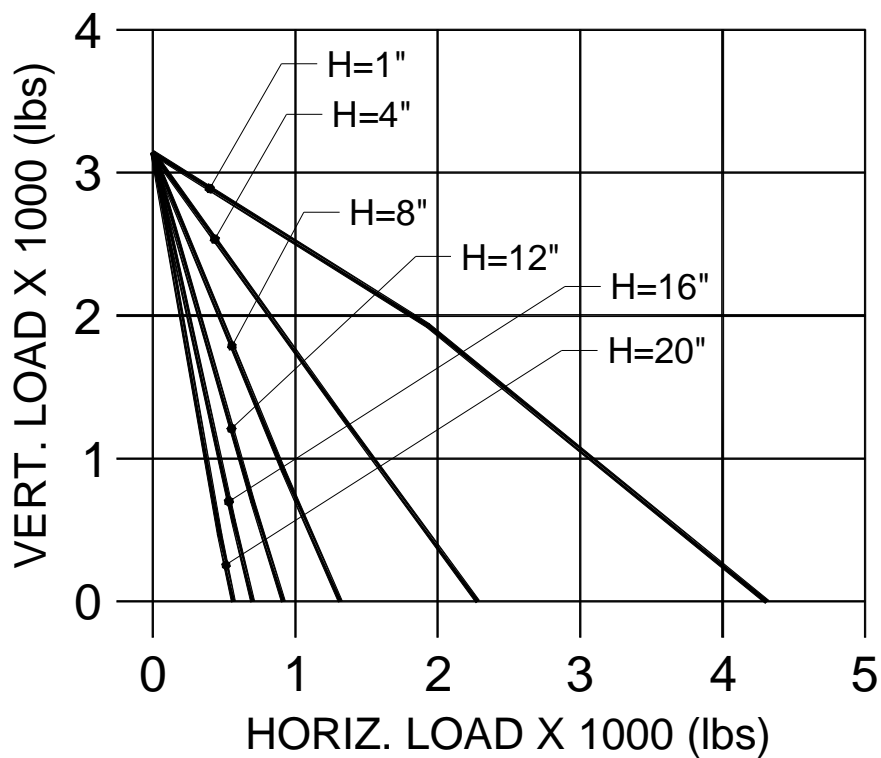


Figure D5.2.2-2: Seismic Capacity Envelopes for Oversized Base Plate No. 01

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Oversized Base Plate No. 02: $L = 10.00$ inches; $t = 0.50$ inches; $d = 0.50$ inches

Table D5.2.2-3: Seismic Capacities for Oversized Base Plate No. 02

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	7,500	4,675	3,030
4.00	4,085	4,675	2,160
8.00	2,395	4,675	1,555
12.00	1,675	4,675	1,210
16.00	1,285	4,675	990
20.00	1,040	4,675	840

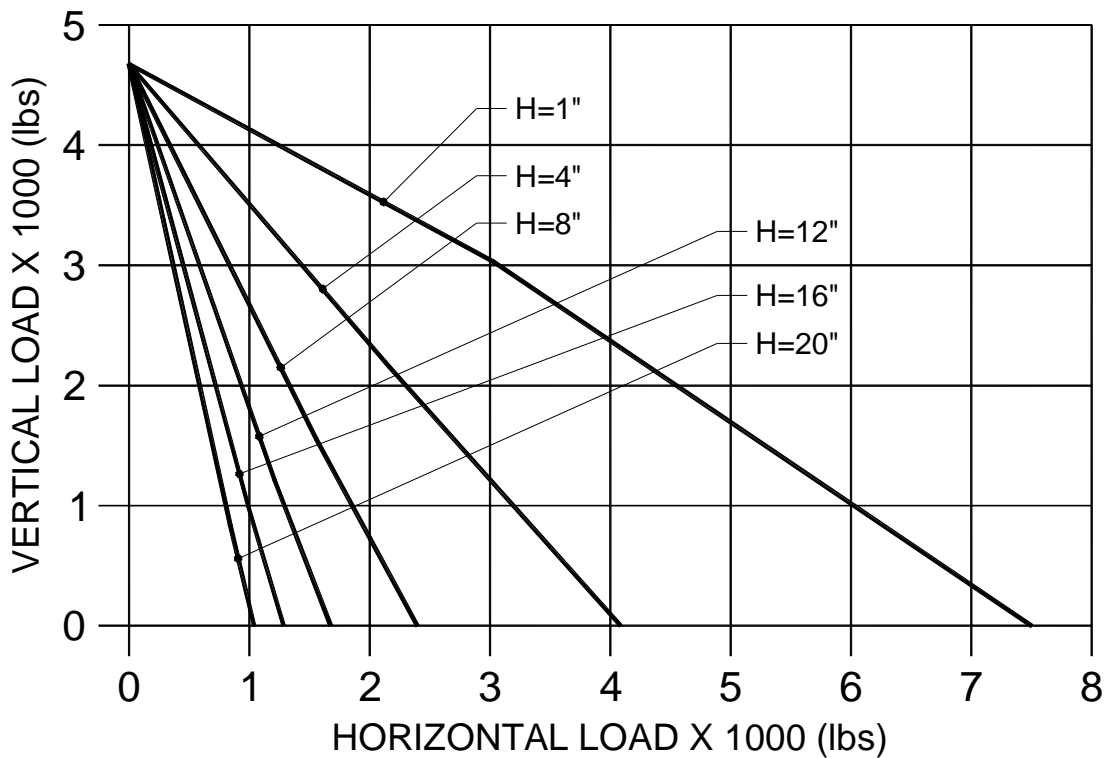


Figure D5.2.2-3: Seismic Capacity Envelopes for Oversized Base Plate No. 02

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Oversized Base Plate No. 03: $L = 12.00$ inches; $t = 0.50$ inches; $d = 0.63$ inches

Table D5.2.2-4: Seismic Capacities for Oversized Base Plate No. 03

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	11,845	7,045	4,700
4.00	6,995	7,045	3,500
8.00	4,230	7,045	2,595
12.00	2,985	7,045	2,060
16.00	2,300	7,045	1,705
20.00	1,865	7,045	1,450

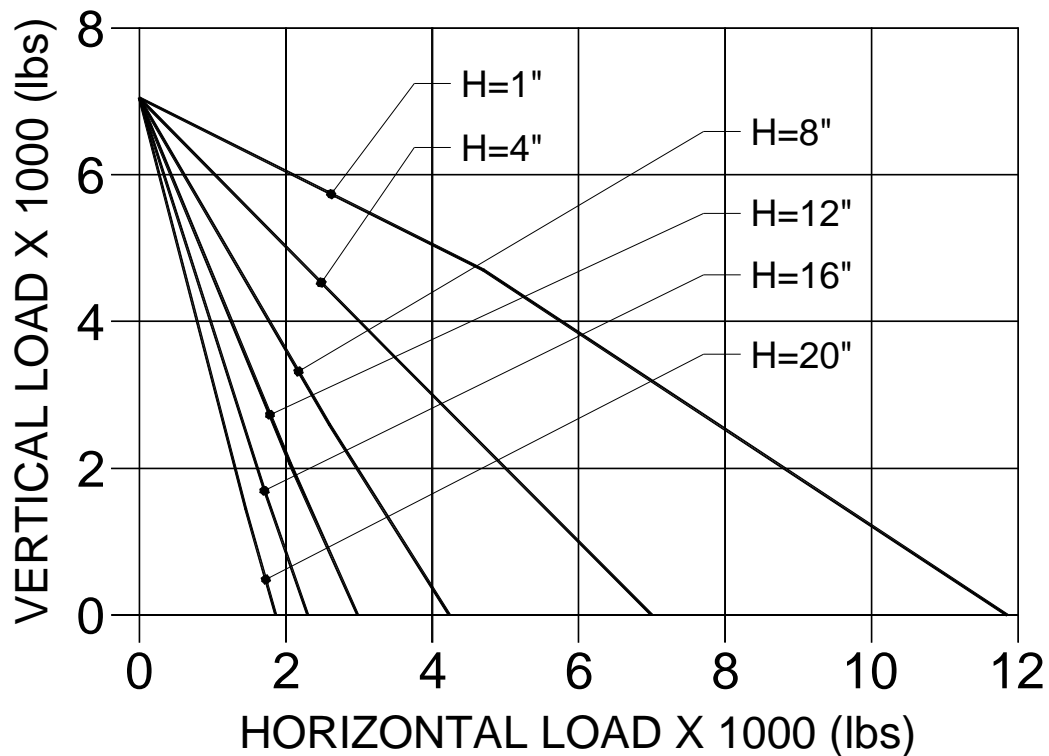


Figure D5.2.2-4: Seismic Capacity Envelopes for Oversized Base Plate No. 03

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Oversized Base Plate No. 04: $L = 14.00$ inches; $t = 0.63$ inches; $d = 0.75$ inches

Table D5.2.2-5: Seismic Capacities for Oversized Base Plate No. 04

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	17,925	8,930	6,200
4.00	10,320	8,930	4,730
8.00	6,210	8,930	3,580
12.00	4,390	8,930	2,875
16.00	3,375	8,930	2,400
20.00	2,745	8,930	2,060

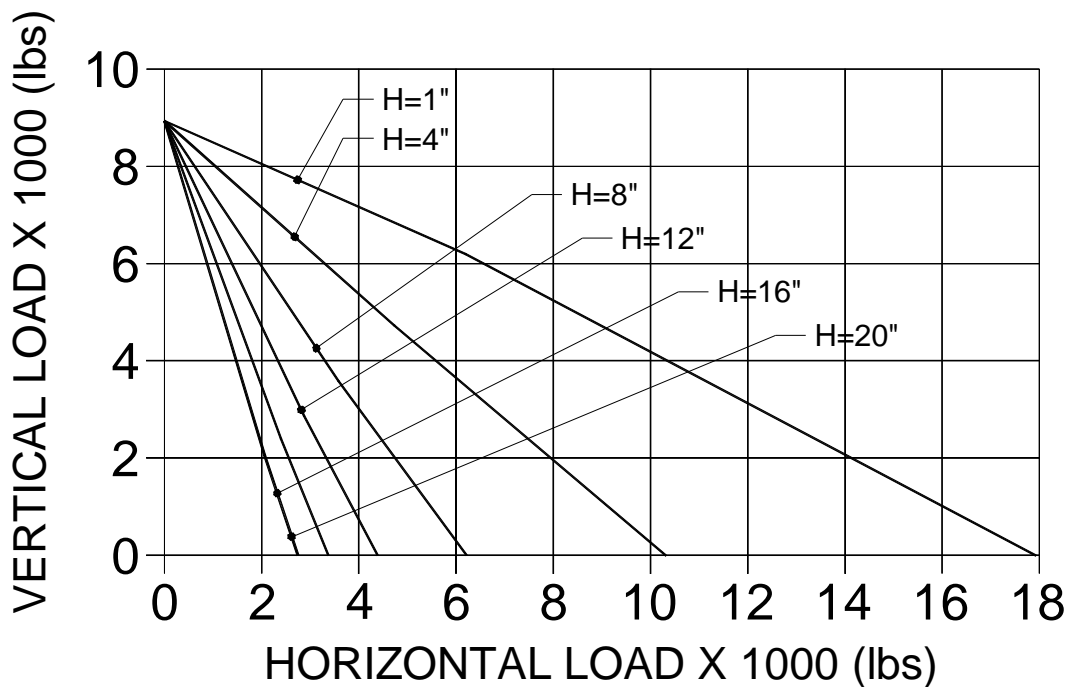


Figure D5.2.2-5: Seismic Capacity Envelopes for Oversized Base Plate No. 04

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Oversized Base Plate No. 05: $L = 16.00$ inches; $t = 0.63$ inches; $d = 0.75$ inches

Table D5.2.2-6: Seismic Capacities for Oversized Base Plate No. 05

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	18,700	8,930	6,390
4.00	11,420	8,930	5,005
8.00	7,035	8,930	3,870
12.00	5,010	8,930	3,150
16.00	3,875	8,930	2,655
20.00	3,155	8,930	2,290

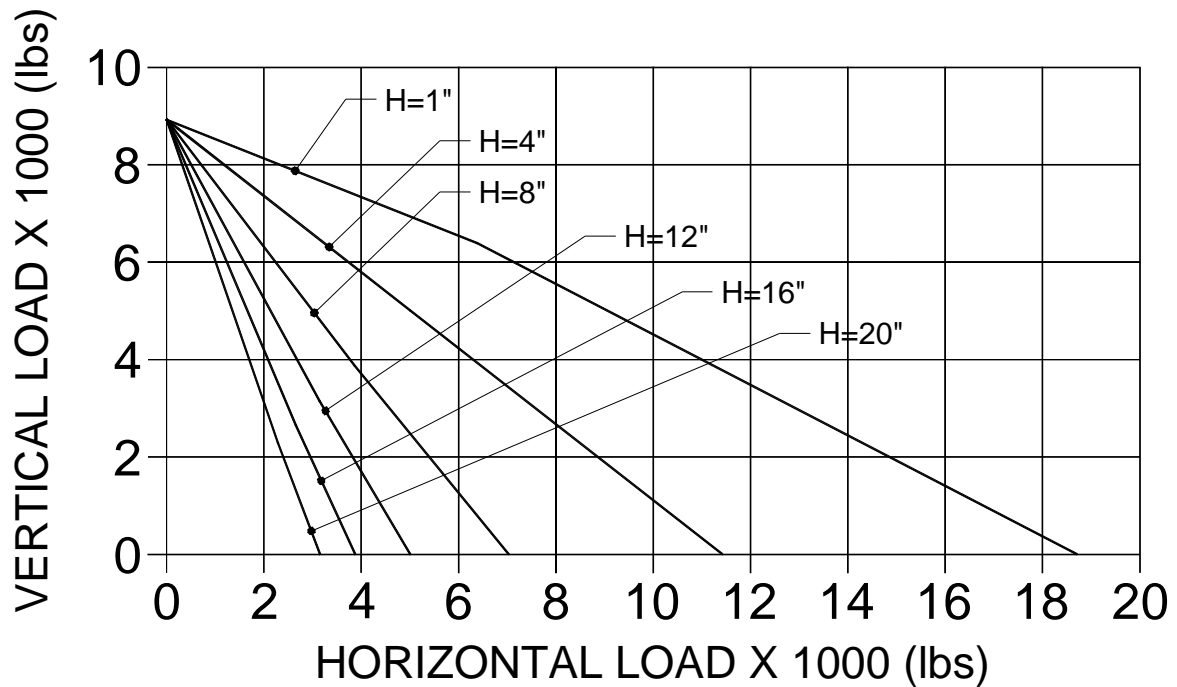


Figure D5.2.2-6: Seismic Capacity Envelopes for Oversized Base Plate No. 05

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Table D5.2.2-7: Seismic Capacities for Oversized Base Plate No. 06-A

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	35,625	13,550	10,125
4.00	21,440	13,550	8,200
8.00	13,195	13,550	6,525
12.00	9,405	13,550	5,415
16.00	7,280	13,550	4,625
20.00	5,930	13,550	4,035

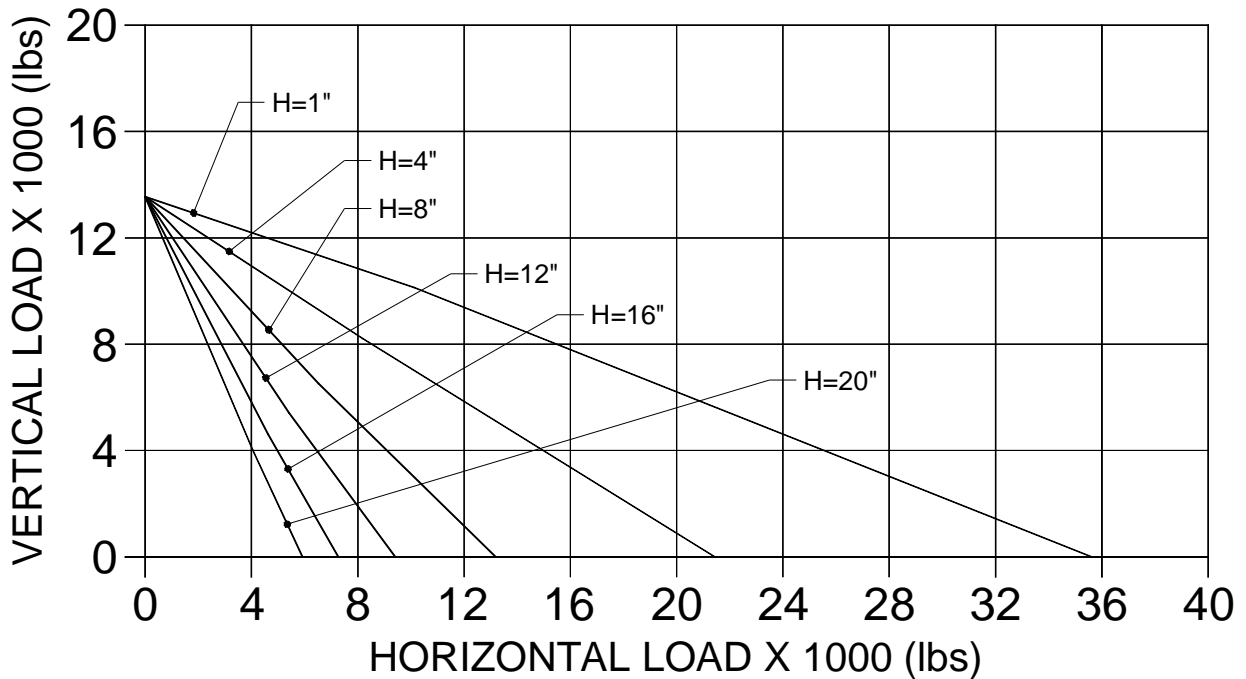


Figure D5.2.2-7: Seismic Capacity Envelopes for Oversized Base Plate No. 6A

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Table D5.2.2-8: Seismic Capacities for Oversized Base Plate No. 06-B

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	39,865	18,855	13,650
4.00	26,905	18,855	11,155
8.00	17,495	18,855	8,940
12.00	12,725	18,855	7,450
16.00	9,945	18,855	6,380
20.00	8,140	18,855	5,575

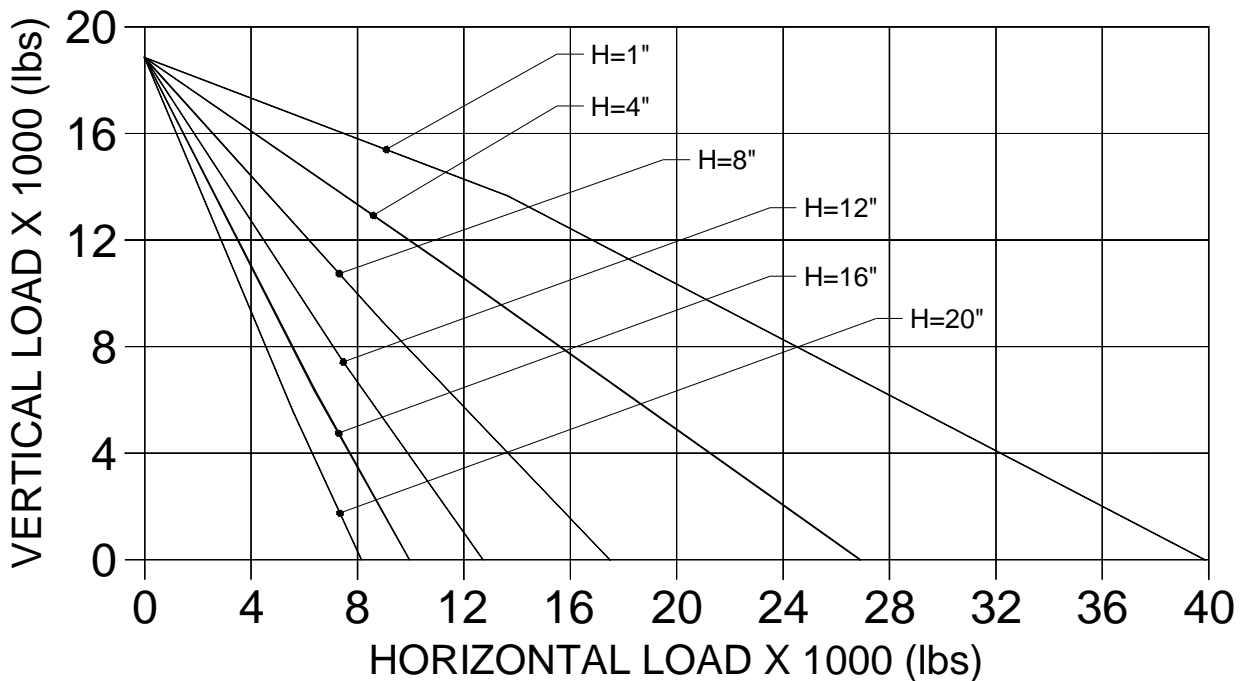


Figure D5.2.2-8: Seismic Capacity Envelopes for Oversized Base Plate No. 06-B

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Table D5.2.2-9: Seismic Capacities for Oversized Base Plate No. 07-A

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	35,275	13,500	10,135
4.00	22,210	13,500	8,360
8.00	14,065	13,500	6,765
12.00	10,150	13,500	5,675
16.00	7,910	13,500	4,885
20.00	6,465	13,500	4,290

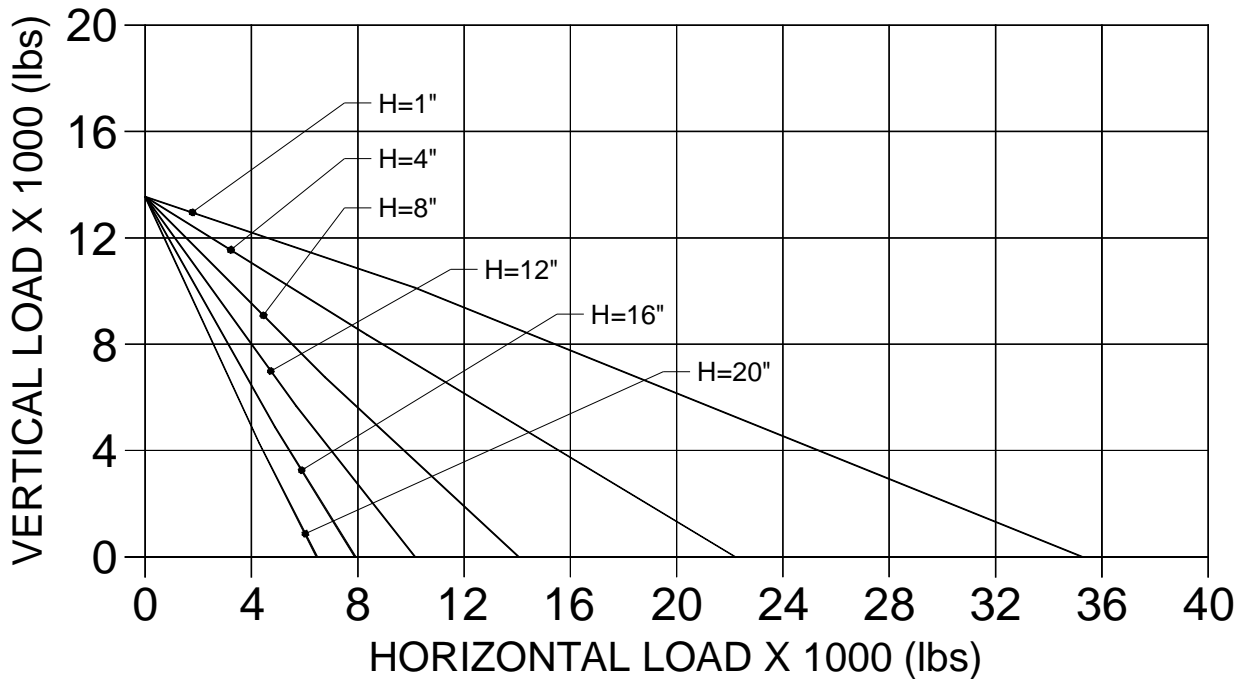


Figure D5.2.2-10: Seismic Capacity Envelopes for Oversized Base Plate No. 07-A

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Table D5.2.2-10: Seismic Capacities for Oversized Base Plate No. 07-B

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	39,585	18,855	13,665
4.00	27,710	18,855	11,370
8.00	18,550	18,855	9,265
12.00	13,685	18,855	7,805
16.00	10,775	18,855	6,735
20.00	8,860	18,855	5,920

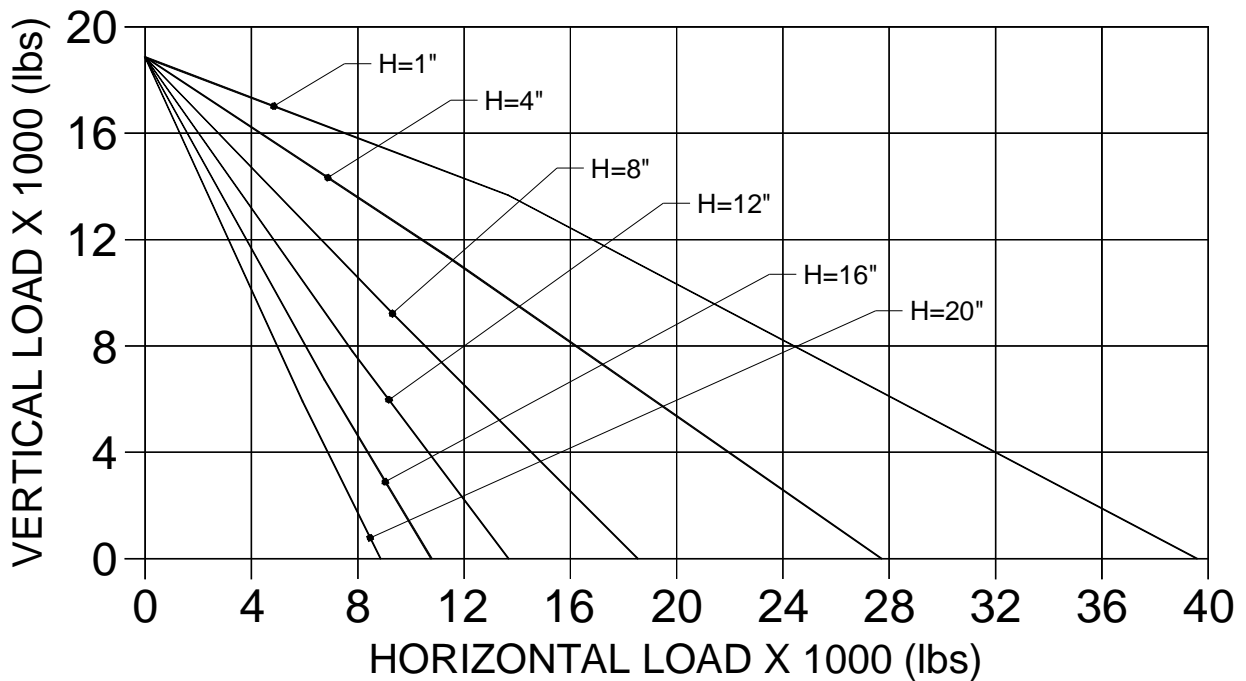


Figure D5.2.2-10: Seismic Capacity Envelopes for Oversized Base Plate No. 07-B

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Oversized Base Plate No. 08: $L = 24.00$ inches; $t = 1.00$ inches; $d = 1.25$ inches

Table D5.2.2-11: Seismic Capacities for Oversized Base Plate No. 08

Restraint Height H (in)	Horizontal Load F_h ; $F_v=0$ (lbs)	Vertical Load F_v ; $F_h=0$ (lbs)	Combined Load F_c ; $F_h=F_v$ (lbs)
1.00	48,185	27,310	19,145
4.00	37,280	27,310	16,265
8.00	26,745	27,310	13,505
12.00	20,355	27,310	11,525
16.00	16,290	27,310	10,040
20.00	13,530	27,310	8,885

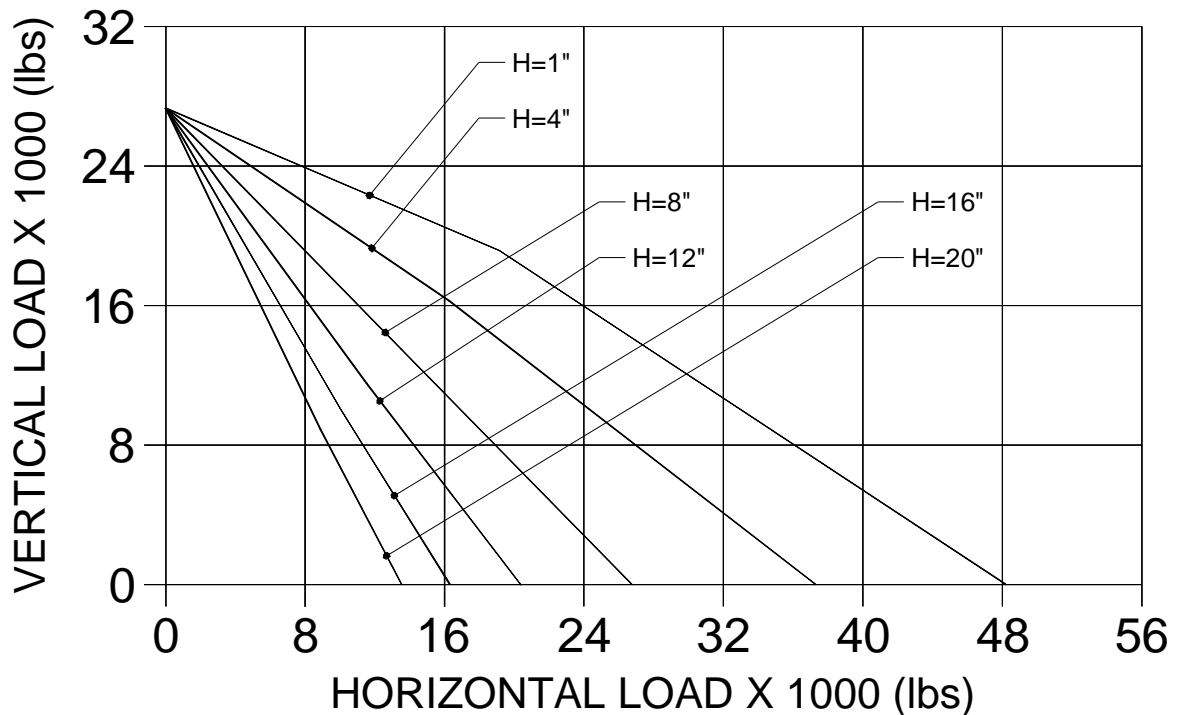


Figure D5.2.2-11: Seismic Capacity Envelopes for Oversized Base Plate No. 08

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