

iLevel® Shear Brace – UBC Values

The iLevel® Shear Brace (iSB) code report, ESR-2652, contains design values applicable to the 2000, 2003, and 2006 versions of the International Building Code (IBC); however these values are conservative for designs using the 1997 Uniform Building Code (UBC).

iLevel® Shear Brace values in this Technical Bulletin have been derived for the 1997 UBC and were developed from information in ICC-ES AC130 *Acceptance Criteria for Prefabricated Wood Shear Panels*, provisions in the 1997 UBC, and through empirical testing.

Design Assumptions

- iLevel® Shear Braces meet provisions in ICC-ES AC 130.
- For designs using the UBC, use an R factor of 5.5 and $\Omega = 2.8$.
- iLevel® Shear Braces are part of the overall lateral-force-resisting system of the structure. Design of this system, including a complete load path necessary to transfer lateral forces from the structure to the ground, is the responsibility of the design professional of record.

Allowable Design Loads⁽¹⁾ - Standard Brace on Concrete Foundation

Brace	Width	Height	Total Vertical Load (lbs)	Seismic Design			Wind Design		
				Allowable Shear (lbs)	Drift at Allowable Shear (in.)	Holdown Uplift at Allowable Shear (lbs) ⁽²⁾	Allowable Shear (lbs)	Drift at Allowable Shear (in.)	Holdown Uplift at Allowable Shear (lbs) ⁽²⁾
iSB 12x8	12"	93.25"	4,500	935	0.40	8,720	1,025	0.44	9,560
iSB 12x9	12"	105.25"	4,500	815	0.44	8,580	895	0.50	9,420
iSB 12x10	12"	117.25"	4,500	625	0.50	7,330	690	0.56	8,090
iSB 12x11	12"	129.25"	4,500	565	0.56	7,305	620	0.62	8,015
iSB 12x12	12"	141.25"	4,500	500	0.61	7,065	550	0.67	7,770
iSB 18x8	18"	93.25"	8,000	2,275	0.39	13,260	2,505	0.43	14,600
iSB 18x9	18"	105.25"	8,000	1,960	0.44	12,895	2,155	0.49	14,175
iSB 18x10	18"	117.25"	8,000	1,780	0.50	13,045	1,955	0.56	14,325
iSB 18x11	18"	129.25"	8,000	1,580	0.56	12,765	1,740	0.63	14,055
iSB 18x12	18"	141.25"	8,000	1,385	0.62	12,225	1,520	0.69	13,420
iSB 24x8	24"	93.25"	8,000	4,565	0.38	19,350	5,020	0.43	21,280
iSB 24x9	24"	105.25"	8,000	4,010	0.43	19,185	4,410	0.48	21,100
iSB 24x10	24"	117.25"	8,000	3,430	0.49	18,280	3,770	0.55	20,090
iSB 24x11	24"	129.25"	8,000	3,100	0.54	18,215	3,410	0.61	20,035
iSB 24x12	24"	141.25"	8,000	2,770	0.59	17,785	3,050	0.67	19,580

(1) Interpolation of design values is allowed for custom heights. For braces less than 93¾", use the values for a 93¾" tall shear brace.

(2) **Holdown Uplift at Allowable Shear** is based on an assumed moment arm equal to the brace width minus 2".

General Notes

- **Allowable Design Loads** table is based on:
 - No increase for duration of load is permitted.
 - iSB height of 89¾" to 141¾" trimmed.
- For information about out-of-plane loads, anchorage and installation, see TJ-8620.

For out-of-plane capacities or information about installation, see ESR-2652 or the iLevel Shear Brace Specifier's Guide, TJ-8620.

Allowable Design Loads⁽¹⁾ – Portal on Concrete Foundation

Portal Brace Assembly	Width	Height	Total Vertical Load (lbs)	Seismic Design			Wind Design			
				Allowable Shear (lbs)	Drift at Allowable Shear (in.)	Holdown Uplift at Allowable Shear (lbs) ⁽²⁾	Allowable Shear (lbs)	Drift at Allowable Shear (in.)	Holdown Uplift at Allowable Shear (lbs) ⁽²⁾	
Double	iSB 12x7	12"	78"	8,000	2,820	0.29	8,800	3,100	0.32	9,670
	iSB 12x7.5	12"	85.5"	8,000	2,605	0.32	8,910	2,865	0.36	9,800
	iSB 12x8	12"	93.25"	8,000	2,390	0.35	8,915	2,625	0.40	9,790
	iSB 18x7	18"	78"	8,000	5,600	0.30	12,285	6,160	0.33	12,010
	iSB 18x7.5	18"	85.5"	8,000	5,380	0.34	12,935	5,920	0.37	12,655
	iSB 18x8	18"	93.25"	8,000	5,150	0.37	13,505	5,665	0.40	13,205
Single	iSB 12x7	12"	78"	8,000	1,330	0.26	8,300	1,465	0.30	9,140
	iSB 12x7.5	12"	85.5"	8,000	1,230	0.31	8,415	1,355	0.35	9,270
	iSB 12x8	12"	93.25"	8,000	1,130	0.35	8,430	1,245	0.39	9,290
	iSB 18x7	18"	78"	8,000	2,880	0.29	12,635	3,165	0.32	13,885
	iSB 18x7.5	18"	85.5"	8,000	2,705	0.33	13,010	2,975	0.36	14,310
	iSB 18x8	18"	93.25"	8,000	2,530	0.36	13,270	2,785	0.40	14,610

(1) Interpolation of design values is allowed for custom heights. For braces less than 93³/₄", use the values for a 93¹/₄" tall shear brace.

(2) **Holdown Uplift at Allowable Shear** is based on an assumed moment arm equal to the brace width minus 2".

General Notes

- **Allowable Design Loads** table is based on:
 - 160% load duration. No further increases for duration of load are permitted.
 - iSB height of 74¹/₂" to 93³/₄" trimmed.
 - Portal header clear spans of 8' (min) to 18'-6" (max).
- For information about out-of-plane loads, anchorage and installation, see TJ-8620.