BRACE FRAME

HARDY FRAMES™ Inc.
A MiTek Company

IBC Table 3.1: Hardy Frame® Brace Frames, Standard and "H" Series on FOUNDATIONS [1]

Model Number	Net Height H (in)	HD Bolt Dia. (in)	V-Seismic Governs			V-Wind Governs			Screw [4,5] Qty at Top	Add'l [6,7] Vertical Load W (plf)	Add'l [6,7] Vertical Load P (lbs)
			Allowable[2] In-Plane Shear V (lbs)	Drift at V (in)	Uplift [3] at V (lbs)	Allowable[2] In-Plane Shear V (lbs)	Drift at V (in)	Uplift [3] at V (lbs)			
Standard, 14 gage											
HF8x32	92-1/4"	7/8	3,083	0.253	9,401	3,083	0.253	9,401	10	1,988	7,576
HF9x32	104-1/4"	7/8	2,594	0.280	8,940	2,594	0.280	8,940	9	1,988	6,842
HF10x32	116-1/4"	7/8	2,218	0.324	8,524	2,218	0.324	8,524	8	1,988	5,876
HF8x48	92-1/4"	7/8	4,361	0.171	8,698	4,361	0.171	8,698	15	722	8,278
HF9x48	104-1/4"	7/8	3,699	0.203	8,338	3,699	0.203	8,338	12	722	7,444
HF10x48	116-1/4"	7/8	3,308	0.205	8,315	3,308	0.205	8,315	11	722	6,085
HF11x48	128-1/4"	7/8	2,639	0.235	7,318	2,639	0.235	7,318	9	722	5,571
HF8x64	92-1/4"	7/8	5,714	0.128	8,468	5,714	0.128	8,468	19	369	8,508
HF9x64	104-1/4"	7/8	4,511	0.147	7,555	4,511	0.147	7,555	15	369	8,227
HF10x64	116-1/4"	7/8	3,910	0.161	7,301	3,910	0.161	7,301	13	369	7,098
HF11x64	128-1/4"	7/8	3,196	0.156	6,584	3,196	0.156	6,584	11	369	6,306
HF12x64	140-1/4"	7/8	2,519	0.156	5,675	2,519	0.156	5,675	9	369	5,581
HF13x64	152-1/4"	7/8	1,805	0.098	4,413	1,805	0.098	4,413	6	369	5,282
HF8x80	92-1/4"	7/8	5,827	0.103	6,870	5,827	0.103	6,870	19	224	10,107
HF9x80	104-1/4"	7/8	4,887	0.113	6,511	4,887	0.113	6,511	16	224	9,271
HF10x80	116-1/4"	7/8	4,331	0.120	6,434	4,331	0.120	6,434	15	224	7,966
HF11x80	128-1/4"	7/8	3,699	0.116	6,063	3,699	0.116	6,063	12	224	6,826
HF12x80	140-1/4"	7/8	2,669	0.120	4,784	2,669	0.120	4,784	9	224	6,472
HF13x80	152-1/4"	7/8	1,823	0.120	3,548	1,823	0.120	3,548	6	224	6,148
"H" Series, 12 gage											
HF8x32 H	92-1/4"	7/8	3,515	0.164	10,719	3,515	0.164	10,719	12	2,812	15,959
HF9x32 H	104-1/4"	7/8	3,327	0.229	11,466	3,327	0.229	11,466	11	2,812	12,708
HF10x32 H	116-1/4"	7/8	2,981	0.266	11,457	2,981	0.266	11,457	10	2,812	10,183
HF8x48 H	92-1/4"	7/8	5,766	0.086	11,500	5,766	0.086	11,500	19	1,021	15,154
HF9x48 H	104-1/4"	7/8	5,094	0.147	11,482	5,094	0.147	11,482	17	1,021	12,692
HF10x48 H	116-1/4"	7/8	4,568	0.177	11,481	4,568	0.177	11,481	15	1,021	10,158
HF8x64 H	92-1/4"	7/8	7,756	0.099	11,493	7,756	0.099	11,493	25	523	15,186
HF9x64 H	104-1/4"	7/8	6,865	0.119	11,496	6,865	0.119	11,496	23	523	12,677
HF10x64 H	116-1/4"	7/8	6,154	0.114	11,493	6,154	0.114	11,493	20	523	10,147
HF8x80 H	92-1/4"	7/8	9,755	0.083	11,500	9,755	0.083	11,500	38	317	16,204
HF9x80 H	104-1/4"	7/8	8,632	0.108	11,500	8,632	0.108	11,500	28	317	12,674
HF10x80 H	116-1/4"	7/8	7,741	0.098	11,500	7,741	0.098	11,500	25	317	10,138

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N

Notes

1) Installation on Foundations includes concrete, masonry, or double nut & washer.
2) Loads shown are Allowable Stress Design per the IBC and exclude a stress increase of 1.33.
3) For seismic loads under the 2006 IBC or 2007 CBC (California Building Code) R=4.0, Ω_0=2 and Cd=3.5.
4) The uplift values listed are those corresponding to the allowable shear V.
5) For reduced shear loading the uplift and drift are proportionately reduced.
6) The 1/4-inch diameter by 3-inch long wood screws are Hardy Frame HFS-series, USP WS-series (ICC-ES PFC-5634) or equal.
7) When installing a 2-by wood filler (specific gravity of 0.5 or greater) at the top connection, the minimum screw length is 4-1/2 in.
8) Loads "W" & "P" indicate the maximum allowable vertical load permitted on top of Brace Frames, in addition to the vertical load produced by overturning at the maximum Allowable Shear V.
9) Loads "W" & "P" can act concurrently provided that the actual total load resultant does not exceed 2 x P.
10) Braced Wall Panels as required by the IBC and IRC may be replaced with a **Hardy Frame**® Brace Frame that has an allowable shear V of 640 lbs. minimum for single story applications and 1,040 lbs. minimum for two or three story applications.
11) Braced Wall Panels as required by the IBC and IRC may be replaced with a **Hardy Frame**® Brace Frame that has an allowable shear V of 640 lbs. minimum for single story applications and 1,040 lbs. minimum for two or three story applications.

MODEL NUMBERING

HF 9 X 32
- 32 — ACTUAL WIDTH (IN.)
- 9 — NOMINAL HEIGHT (FT.)
- HF — Hardy Frame®

MODEL NUMBERING

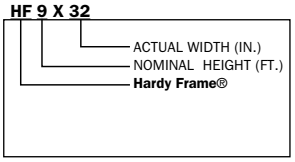
HF 9 X 32 H
- H — "H" SERIES
- 32 — ACTUAL WIDTH (IN.)
- 9 — NOMINAL HEIGHT (FT.)
- HF — Hardy Frame®

IBC Table 3.2: Hardy Frame® Brace Frames, Standard and "H" Series on WOOD SILL PLATE [1,2]

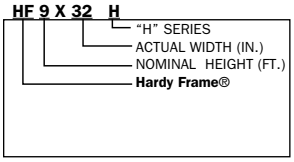
Model Number	Net Height H (in)	HD Bolt Diameter (in)	V-Seismic Governs			V-Wind Governs			Screw [6,7] Qty at Top
			Allowable[3] In-Plane Shear V (lbs)	Drift [4] at V (in)	Uplift [5] at V (lbs)	Allowable[3] In-Plane Shear V (lbs)	Drift [4] at V (in)	Uplift [5] at V (lbs)	
Standard, 14 gage									
HF8x32	92-1/4"	7/8	3,083	0.365	9,401	3,083	0.365	9,401	10
HF9x32	104-1/4"	7/8	2,594	0.404	8,940	2,594	0.404	8,940	9
HF10x32	116-1/4"	7/8	2,218	0.459	8,524	2,218	0.459	8,524	8
HF8x48	92-1/4"	7/8	4,361	0.243	8,698	4,361	0.243	8,698	15
HF9x48	104-1/4"	7/8	3,699	0.282	8,338	3,699	0.282	8,338	12
HF10x48	116-1/4"	7/8	3,308	0.293	8,315	3,308	0.293	8,315	11
HF11x48	128-1/4"	7/8	2,639	0.327	7,318	2,639	0.327	7,318	9
HF8x64	92-1/4"	7/8	5,714	0.181	8,468	5,714	0.181	8,468	19
HF9x64	104-1/4"	7/8	4,511	0.204	7,555	4,511	0.204	7,555	15
HF10x64	116-1/4"	7/8	3,910	0.223	7,301	3,910	0.223	7,301	13
HF11x64	128-1/4"	7/8	3,196	0.222	6,584	3,196	0.222	6,584	11
HF12x64	140-1/4"	7/8	2,519	0.225	5,675	2,519	0.225	5,675	9
HF13x64	152-1/4"	7/8	1,805	0.167	4,413	1,805	0.167	4,413	6
HF8x80	92-1/4"	7/8	5,827	0.142	6,870	5,827	0.142	6,870	19
HF9x80	104-1/4"	7/8	4,887	0.156	6,511	4,887	0.156	6,511	16
HF10x80	116-1/4"	7/8	4,331	0.168	6,434	4,331	0.168	6,434	15
HF11x80	128-1/4"	7/8	3,699	0.167	6,063	3,699	0.167	6,063	12
HF12x80	140-1/4"	7/8	2,669	0.172	4,784	2,669	0.172	4,784	9
HF13x80	152-1/4"	7/8	1,823	0.172	3,548	1,823	0.172	3,548	6
"H" Series, 12 gage									
HF8x32 H	92-1/4"	7/8	3,515	0.285	10,719	3,515	0.285	10,719	12
HF9x32 H	104-1/4"	7/8	3,327	0.379	11,466	3,327	0.379	11,466	11
HF10x32 H	116-1/4"	7/8	2,981	0.432	11,457	2,981	0.432	11,457	10
HF8x48 H	92-1/4"	7/8	5,766	0.172	11,500	5,766	0.172	11,500	19
HF9x48 H	104-1/4"	7/8	5,094	0.244	11,482	5,094	0.244	11,482	17
HF10x48 H	116-1/4"	7/8	4,568	0.286	11,481	4,568	0.286	11,481	15
HF8x64 H	92-1/4"	7/8	7,756	0.163	11,493	7,756	0.163	11,493	25
HF9x64 H	104-1/4"	7/8	6,865	0.191	11,496	6,865	0.191	11,496	23
HF10x64 H	116-1/4"	7/8	6,154	0.194	11,493	6,154	0.194	11,493	20
HF8x80 H	92-1/4"	7/8	9,755	0.133	11,500	9,755	0.133	11,500	38
HF9x80 H	104-1/4"	7/8	8,632	0.165	11,500	8,632	0.165	11,500	28
HF10x80 H	116-1/4"	7/8	7,741	0.162	11,500	7,741	0.162	11,500	25

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N

MODEL NUMBERING



MODEL NUMBERING



Notes

1) Installation on wood sill plate is for a nominal 2-inch-thick member installed on concrete or masonry foundations.
2) When seismic governs and wood sill plates are different than described above, Procedure 2 of this catalog must be used to verify that the corresponding drift is within the code limits.
3) Loads shown are Allowable Stress Design per the IBC and exclude a stress increase of 1.33.
4) For seismic loads under the 2006 IBC or 2007 CBC (California Building Code) R=4.0, Ω_0=2 and Cd=3.5.
5) In the Seismic Governs column, Drift at Allowable Shear V considers shrinkage and crushing of the wood sill plate. Shrinkage is based on 1-1/2" net vertical dimension (2 by sill plate) and a 7% change in moisture content. Compression is based on Fc of 625 psi and a compression load equal to the uplift.
6) The uplift values listed are those corresponding to the allowable shear V.
7) For reduced shear loading the uplift and drift are proportionately reduced.
8) The 1/4-inch diameter by 3-inch long wood screws are Hardy Frame HFS-series, USP WS-series (ICC-ES PFC-5634) or equal.
9) When installing a 2-by wood filler (specific gravity of 0.5 or greater) at the top connection, the minimum screw length is 4-1/2 in.
10) Additional vertical loads "W" & "P" are permitted on top of Brace Frames as per Table 3.1.
11) When additional loads "W" and/or "P" are applied, Procedure 2 shall be used to verify that drift is within the code limit.
12) Braced Wall Panels as required by the IBC and IRC may be replaced with a **Hardy Frame®** Brace Frame that has an allowable shear V of 640 lbs. minimum for single story applications and 1,040 lbs. minimum for two or three story applications.

IBC Table 3.3: Hardy Frame® Brace Frames, Standard and "H" Series on RAISED FLOOR [1,2]

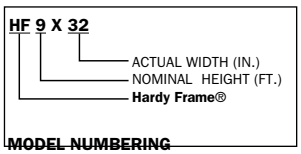
Model Number	Net Height H (in)	HD Bolt Diameter (in)	V-Seismic Governs			V-Wind Governs			Screw 6,7 Qty at Top	Screw 6,7 Qty at Bottom
			Allowable3 In-Plane Shear V (lbs)	Drift 4 at V (in)	Uplift 5 at V (lbs)	Allowable3 In-Plane Shear V (lbs)	Drift 4 at V (in)	Uplift 5 at V (lbs)		
Standard, 14 gage										
HF8x32	92-1/4"	7/8	3,083	0.426	9,401	3,083	0.426	9,401	10	10
HF9x32	104-1/4"	7/8	2,594	0.473	8,940	2,594	0.473	8,940	9	9
HF10x32	116-1/4"	7/8	2,218	0.535	8,524	2,218	0.535	8,524	8	8
HF8x48	92-1/4"	7/8	4,361	0.283	8,698	4,361	0.283	8,698	15	15
HF9x48	104-1/4"	7/8	3,699	0.328	8,338	3,699	0.328	8,338	12	12
HF10x48	116-1/4"	7/8	3,308	0.344	8,315	3,308	0.344	8,315	11	11
HF11x48	128-1/4"	7/8	2,639	0.383	7,318	2,639	0.383	7,318	9	9
HF8x64	92-1/4"	7/8	5,714	0.211	8,468	5,714	0.211	8,468	19	19
HF9x64	104-1/4"	7/8	4,511	0.238	7,555	4,511	0.238	7,555	15	15
HF10x64	116-1/4"	7/8	3,910	0.262	7,301	3,910	0.262	7,301	13	13
HF11x64	128-1/4"	7/8	3,196	0.264	6,584	3,196	0.264	6,584	11	11
HF12x64	140-1/4"	7/8	2,519	0.271	5,675	2,519	0.271	5,675	9	9
HF13x64	152-1/4"	7/8	1,805	0.217	4,413	1,805	0.217	4,413	6	6
HF8x80	92-1/4"	7/8	5,827	0.166	6,870	5,827	0.166	6,870	19	19
HF9x80	104-1/4"	7/8	4,887	0.183	6,511	4,887	0.183	6,511	16	16
HF10x80	116-1/4"	7/8	4,331	0.198	6,434	4,331	0.198	6,434	15	15
HF11x80	128-1/4"	7/8	3,699	0.201	6,063	3,699	0.201	6,063	12	12
HF12x80	140-1/4"	7/8	2,669	0.209	4,784	2,669	0.209	4,784	9	9
HF13x80	152-1/4"	7/8	1,823	0.212	3,548	1,823	0.212	3,548	6	6
"H" Series, 12 gage										
HF8x32 H	92-1/4"	7/8	3,515	0.345	10,719	3,515	0.345	10,719	12	12
HF9x32 H	104-1/4"	7/8	3,327	0.447	11,466	3,327	0.447	11,466	11	11
HF10x32 H	116-1/4"	7/8	2,981	0.509	11,457	2,981	0.509	11,457	10	10
HF8x48 H	92-1/4"	7/8	5,766	0.212	11,500	5,766	0.212	11,500	19	19
HF9x48 H	104-1/4"	7/8	5,094	0.289	11,482	5,094	0.289	11,482	17	17
HF10x48 H	116-1/4"	7/8	4,568	0.336	11,481	4,568	0.336	11,481	15	15
HF8x64 H	92-1/4"	7/8	7,756	0.193	11,493	7,756	0.193	11,493	25	25
HF9x64 H	104-1/4"	7/8	6,865	0.225	11,496	6,865	0.225	11,496	23	23
HF10x64 H	116-1/4"	7/8	6,154	0.232	11,493	6,154	0.232	11,493	20	20
HF8x80 H	92-1/4"	7/8	9,755	0.157	11,500	9,755	0.157	11,500	38	38
HF9x80 H	104-1/4"	7/8	8,632	0.192	11,500	8,632	0.192	11,500	28	28
HF10x80 H	116-1/4"	7/8	7,741	0.193	11,500	7,741	0.193	11,500	25	25

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N

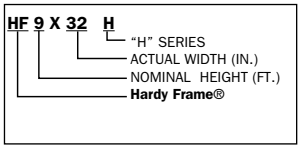
Notes

1) Raised Floor assumes 2-by sill plate, Engineered Wood rim, floor sheathing and a 2-by bottom plate below the Brace Frame.
2) When seismic governs and Raised Floor conditions are different than described above, Procedure 2 of this catalog must be used to verify that the corresponding drift is within the code limits.
3) Loads shown are Allowable Stress Design per the IBC and exclude a stress increase of 1.33.
4) For seismic loads under the 2006 IBC or 2007 CBC (California Building Code) R=4.0, Ω_0=2 and Cd=3.5.
5) In the Seismic Governs column, Drift at Allowable Shear V considers shrinkage and crushing of wood members. Shrinkage is based on 3" net vertical dimension (2x Mudsill + 2x Plate) and a 7% change in moisture content. Compression is based on Fc of 625 psi and a compression load equal to the uplift.
6) The uplift values listed are those corresponding to the allowable shear V.
7) For reduced shear loading the uplift and drift are proportionately reduced.
8) The 1/4-inch diameter by 3-inch long wood screws are Hardy Frame HFS-series, USP WS-series (ICC-ES PFC-5634) or equal.
9) Minimum screw length is 3-inches at the top and 4-1/2 inches at the bottom connection. When installing a 2-by wood filler (specific gravity of 0.5 or greater) at the top connection, the minimum screw length is 4-1/2 inches.
10) Additional vertical loads "W" & "P" are permitted on top of Brace Frames as per Table 3.1.
11) When additional loads "W" and/or "P" are applied, Procedure 2 shall be used to verify that drift is within the code limit.
12) Braced Wall Panels as required by the IBC and IRC may be replaced with a **Hardy Frame**® Brace Frame that has an allowable shear V of 640 lbs. minimum for single story applications and 1,040 lbs. minimum for two or three story applications.

MODEL NUMBERING



MODEL NUMBERING



IBC Table 3.4: Hardy Frame® Brace Frames, Standard and "H" Series on UPPER FLOOR [1,2]

Model Number	Net Height H (in)	HD Bolt Diameter (in)	V-Seismic Governs			V-Wind Governs			Screw [6,7] Qty at Top	Screw [6,7] Qty at Bottom
			Allowable[2] In-Plane Shear V (lbs)	Drift [4] at V (in)	Uplift [5] at V (lbs)	Allowable[2] In-Plane Shear V (lbs)	Drift 4 at V (in)	Uplift [5] at V (lbs)		
Standard, 14 gage										
HF8x32	92-1/4"	7/8	3,083	0.486	9,401	3,083	0.486	9,401	10	10
HF9x32	104-1/4"	7/8	2,594	0.541	8,940	2,594	0.541	8,940	9	9
HF10x32	116-1/4"	7/8	2,218	0.612	8,524	2,218	0.612	8,524	8	8
HF8x48	92-1/4"	7/8	4,361	0.324	8,698	4,361	0.324	8,698	15	15
HF9x48	104-1/4"	7/8	3,699	0.374	8,338	3,699	0.374	8,338	12	12
HF10x48	116-1/4"	7/8	3,308	0.395	8,315	3,308	0.395	8,315	11	11
HF11x48	128-1/4"	7/8	2,639	0.439	7,318	2,639	0.439	7,318	9	9
HF8x64	92-1/4"	7/8	5,714	0.241	8,468	5,714	0.241	8,468	19	19
HF9x64	104-1/4"	7/8	4,511	0.273	7,555	4,511	0.273	7,555	15	15
HF10x64	116-1/4"	7/8	3,910	0.300	7,301	3,910	0.300	7,301	13	13
HF11x64	128-1/4"	7/8	3,196	0.306	6,584	3,196	0.306	6,584	11	11
HF12x64	140-1/4"	7/8	2,519	0.317	5,675	2,519	0.317	5,675	9	9
HF13x64	152-1/4"	7/8	1,805	0.267	4,413	1,805	0.267	4,413	6	6
HF8x80	92-1/4"	7/8	5,827	0.190	6,870	5,827	0.190	6,870	19	19
HF9x80	104-1/4"	7/8	4,887	0.210	6,511	4,887	0.210	6,511	16	16
HF10x80	116-1/4"	7/8	4,331	0.229	6,434	4,331	0.229	6,434	15	15
HF11x80	128-1/4"	7/8	3,699	0.235	6,063	3,699	0.235	6,063	12	12
HF12x80	140-1/4"	7/8	2,669	0.245	4,784	2,669	0.245	4,784	9	9
HF13x80	152-1/4"	7/8	1,823	0.252	3,548	1,823	0.252	3,548	6	6
"H" Series, 12 gage										
HF8x32 H	92-1/4"	7/8	3,515	0.406	10,719	3,515	0.406	10,719	12	12
HF9x32 H	104-1/4"	7/8	3,327	0.515	11,466	3,327	0.515	11,466	11	11
HF10x32 H	116-1/4"	7/8	2,981	0.585	11,457	2,981	0.585	11,457	10	10
HF8x48 H	92-1/4"	7/8	5,766	0.252	11,500	5,766	0.252	11,500	19	19
HF9x48 H	104-1/4"	7/8	5,094	0.335	11,482	5,094	0.335	11,482	17	17
HF10x48 H	116-1/4"	7/8	4,568	0.387	11,481	4,568	0.387	11,481	15	15
HF8x64 H	92-1/4"	7/8	7,756	0.223	11,493	7,756	0.223	11,493	25	25
HF9x64 H	104-1/4"	7/8	6,865	0.259	11,496	6,865	0.259	11,496	23	23
HF10x64 H	116-1/4"	7/8	6,154	0.270	11,493	6,154	0.270	11,493	20	20
HF8x80 H	92-1/4"	7/8	9,755	0.182	11,500	9,755	0.182	11,500	38	38
HF9x80 H	104-1/4"	7/8	8,632	0.219	11,500	8,632	0.219	11,500	28	28
HF10x80 H	116-1/4"	7/8	7,741	0.223	11,500	7,741	0.223	11,500	25	25

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N

Notes

1) Upper Floor assumes wall below Engineered Wood Product rim, floor sheathing and 2x plate below Brace Frame.
2) When seismic governs and Upper Floor conditions are different than described above, Procedure 2 of this catalog must be used to verify that the corresponding drift is within the code limits.
3) Loads shown are Allowable Stress Design per the IBC and exclude a stress increase of 1.33.
4) For seismic loads under the 2006 IBC or 2007 CBC (California Building Code) R=4.0, Ω_0=2 and Cd=3.5.
5) In the Seismic Governs column, Drift at Allowable Shear V considers shrinkage and crushing of wood members. Shrinkage is based on 4-1/2" net vertical dimension (3-2 by plates) and a 7% change in moisture content. Compression is based on Fc of 625 psi and a compression load equal to the uplift.
6) The uplift values listed are those corresponding to the allowable shear V.
7) For reduced shear loading the uplift and drift are proportionately reduced.
8) The 1/4-inch diameter by 3-inch long wood screws are Hardy Frame HFS-series, USP WS-series (ICC-ES PFC-5634) or equal.
9) Minimum screw length is 3-inches at the top and 4-1/2 inches at the bottom connection. When installing a 2-by wood filler (specific gravity of 0.5 or greater) at the top connection, the minimum screw length is 4-1/2 inches.
10) Additional vertical loads "W" & "P" are permitted on top of Brace Frames as per Table 3.1.
11) When additional loads "W" and/or "P" are applied, Procedure 2 shall be used to verify that drift is within the code limit.
12) Braced Wall Panels as required by the IBC and IRC may be replaced with a **Hardy Frame**® Brace Frame that has an allowable shear V of 640 lbs. minimum for single story applications and 1,040 lbs. minimum for two or three story applications.