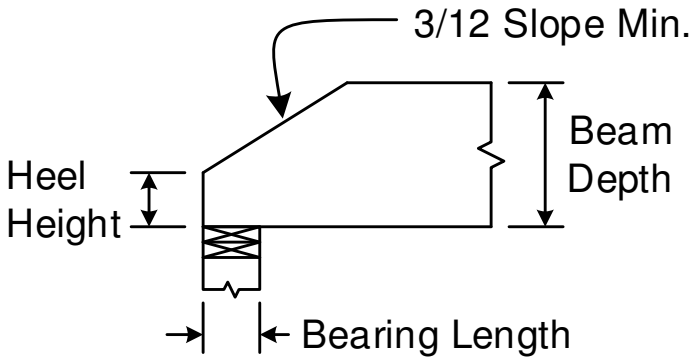
Boise Cascade®
ENGINEERED WOOD PRODUCTS

Technical Note

VERSA-LAM® Beam Allowable Reactions with End Bevel Cuts

3 ½" VERSA-LAM® Beams: Allowable Reaction (lb)										
Load Duration	Bearing Length	Beam Depth	Heel Height							
			4½"	5"	5½"	6"	6½"	7"	7½"	8"
100%	3½"	7¼"	3,574	3,907	4,239	4,572	4,821	4,821	---	---
		9¼"	3,574	3,907	4,239	4,572	4,904	5,206	5,206	5,206
		9½"	3,574	3,907	4,239	4,572	4,904	5,206	5,206	5,206
		11¼"	3,574	3,907	4,239	4,572	4,904	5,206	5,206	5,206
		11⅞"	3,574	3,907	4,239	4,572	4,904	5,206	5,206	5,206
		14"	---	3,907	4,239	4,572	4,904	5,206	5,206	5,206
		16"	---	---	4,239	4,572	4,904	5,206	5,206	5,206
		18"	---	---	---	4,572	4,904	5,206	5,206	5,206
		20"	---	---	---	---	---	5,206	5,206	5,206
		22"	---	---	---	---	---	---	5,206	5,206
		24"	---	---	---	---	---	---	---	5,206
	5½"	7¼"	3,907	4,239	4,572	4,821	4,821	4,821	---	---
		9¼"	3,907	4,239	4,572	4,904	5,237	5,569	5,902	6,151
		9½"	3,907	4,239	4,572	4,904	5,237	5,569	5,902	6,234
		11¼"	3,907	4,239	4,572	4,904	5,237	5,569	5,902	6,234
		11⅞"	3,907	4,239	4,572	4,904	5,237	5,569	5,902	6,234
		14"	---	4,239	4,572	4,904	5,237	5,569	5,902	6,234
		16"	---	---	4,572	4,904	5,237	5,569	5,902	6,234
		18"	---	---	---	4,904	5,237	5,569	5,902	6,234
		20"	---	---	---	---	---	5,569	5,902	6,234
		22"	---	---	---	---	---	---	5,902	6,234
		24"	---	---	---	---	---	---	---	6,234

Table Notes:
1. For 1¾", 5¼" and 7" wide beams, multiply by 0.5, 1.5 and 2.0 respectively.
2. Table values limited by reduced shear capacity or bearing based on SPF plates (425 psf).
3. Bevel Cut Slope: 3/12 minimum (see detail below).
4. No holes or concentrated loads permitted within tapered cut.
5. Brace compression edge of member as required per member design.
6. Table considers only downward loading.
7. VERSA-LAM® with bevel cut is not permitted to be used as a tension tie or drag strut.
8. Table values valid for VERSA-LAM® 2400, 2650, 2800, 3100 grades.
9. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC Calc® software.



VERSA-LAM® End Bevel Cut Detail

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3 ½" VERSA-LAM® Beams: Allowable Reaction (lb)										
Load Duration	Bearing Length	Beam Depth	Heel Height							
			4½"	5"	5½"	6"	6½"	7"	7½"	8"
115%	3½"	7¼"	4,111	4,493	4,875	5,206	5,206	5,206	---	---
		9¼"	4,111	4,493	4,875	5,206	5,206	5,206	5,206	5,206
		9½"	4,111	4,493	4,875	5,206	5,206	5,206	5,206	5,206
		11¼"	4,111	4,493	4,875	5,206	5,206	5,206	5,206	5,206
		11⅞"	4,111	4,493	4,875	5,206	5,206	5,206	5,206	5,206
		14"	---	4,493	4,875	5,206	5,206	5,206	5,206	5,206
		16"	---	---	4,875	5,206	5,206	5,206	5,206	5,206
		18"	---	---	---	5,206	5,206	5,206	5,206	5,206
		20"	---	---	---	---	---	5,206	5,206	5,206
		22"	---	---	---	---	---	---	5,206	5,206
		24"	---	---	---	---	---	---	---	5,206
	5½"	7¼"	4,493	4,875	5,258	5,544	5,544	5,544	---	---
		9¼"	4,493	4,875	5,258	5,640	6,022	6,405	6,787	7,074
		9½"	4,493	4,875	5,258	5,640	6,022	6,405	6,787	7,170
		11¼"	4,493	4,875	5,258	5,640	6,022	6,405	6,787	7,170
		11⅞"	4,493	4,875	5,258	5,640	6,022	6,405	6,787	7,170
		14"	---	4,875	5,258	5,640	6,022	6,405	6,787	7,170
		16"	---	---	5,258	5,640	6,022	6,405	6,787	7,170
		18"	---	---	---	5,640	6,022	6,405	6,787	7,170
		20"	---	---	---	---	---	6,405	6,787	7,170
		22"	---	---	---	---	---	---	6,787	7,170
		24"	---	---	---	---	---	---	---	7,170
125%	3½"	7¼"	4,468	4,884	5,206	5,206	5,206	5,206	---	---
		9¼"	4,468	4,884	5,206	5,206	5,206	5,206	5,206	5,206
		9½"	4,468	4,884	5,206	5,206	5,206	5,206	5,206	5,206
		11¼"	4,468	4,884	5,206	5,206	5,206	5,206	5,206	5,206
		11⅞"	4,468	4,884	5,206	5,206	5,206	5,206	5,206	5,206
		14"	---	4,884	5,206	5,206	5,206	5,206	5,206	5,206
		16"	---	---	5,206	5,206	5,206	5,206	5,206	5,206
		18"	---	---	---	5,206	5,206	5,206	5,206	5,206
		20"	---	---	---	---	---	5,206	5,206	5,206
		22"	---	---	---	---	---	---	5,206	5,206
		24"	---	---	---	---	---	---	---	5,206
	5½"	7¼"	4,884	5,299	5,715	6,027	6,027	6,027	---	---
		9¼"	4,884	5,299	5,715	6,130	6,546	6,962	7,377	7,689
		9½"	4,884	5,299	5,715	6,130	6,546	6,962	7,377	7,793
		11¼"	4,884	5,299	5,715	6,130	6,546	6,962	7,377	7,793
		11⅞"	4,884	5,299	5,715	6,130	6,546	6,962	7,377	7,793
		14"	---	5,299	5,715	6,130	6,546	6,962	7,377	7,793
		16"	---	---	5,715	6,130	6,546	6,962	7,377	7,793
		18"	---	---	---	6,130	6,546	6,962	7,377	7,793
		20"	---	---	---	---	---	6,962	7,377	7,793
		22"	---	---	---	---	---	---	7,377	7,793

Table Notes:

1. For 1¾", 5¼" and 7" wide beams, multiply by 0.5, 1.5 and 2.0 respectively.
2. Table values limited by reduced shear capacity or bearing based on SPF plates (425 psf).
3. Bevel Cut Slope: 3/12 minimum (see detail on page 1).
4. No holes or concentrated loads permitted within tapered cut.
5. Brace compression edge of member as required per member design.
6. Table considers only downward loading.
7. VERSA-LAM® with bevel cut is not permitted to be used as a tension tie or drag strut.
8. Table values valid for VERSA-LAM® 2400, 2650, 2800, 3100 grades.
9. It may be possible to exceed the limitations of this table by analyzing a specific application with the BC Calc® software.

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Heel Height for Rafters

Bearing Length	Rafter Depth	Rafter Slope									
		3/12	4/12	5/12	6/12	7/12	8/12	9/12	10/12	11/12	12/12
3½"	2x4	2¾"	2½"	2⅜"	2⅛"	2"	1⅞"	1¾"	1⅝"	1½"	1½"
	2x6	4¾"	4⅝"	4½"	4⅜"	4⅜"	4¼"	4¼"	4¼"	4¼"	4¼"
	2x8	6⅝"	6½"	6⅜"	6⅜"	6⅜"	6⅜"	6½"	6½"	6⅝"	6¾"
	2x10	8⅝"	8⅝"	8⅝"	8⅝"	8⅝"	8¾"	9"	9⅛"	9⅜"	9⅝"
	2x12	10¾"	10¾"	10¾"	10⅞"	11"	11⅛"	11½"	11¾"	12"	12⅜"
5½"	2x4	2¼"	1⅞"	1½"	1⅛"	---	---	---	---	---	---
	2x6	4¼"	4"	3⅝"	3⅜"	3⅛"	3"	2¾"	2⅝"	2⅜"	2¼"
	2x8	6⅛"	5¾"	5⅝"	5⅜"	5⅛"	5"	5"	4⅞"	4¾"	4¾"
	2x10	8⅛"	7⅞"	7¾"	7⅝"	7½"	7½"	7½"	7½"	7½"	7⅝"
	2x12	10¼"	10"	9⅞"	9⅞"	9⅞"	9⅞"	10"	10"	10¼"	10⅜"

1. VERSA-LAM® beams require a minimum heel height of depth/3. Use table to confirm that VERSA-LAM® beam will meet minimum heel height requirement.
2. Table is based on rafters being seat cut over bearing support and assumes seat cut does NOT extend past inside edge of bearing.
3. Consult governing building code for any minimum heel height requirements per energy conservation code or other applicable section.

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