Bearing Capacity Used In Mitek Engineering

The bearing capacity used for a bearing in Mitek's Engineering software is calculated as described below. For certain specific heel configurations, the values that the algorithm will compute have been tabulated into charts available from Mitek, to which we will provide reference. The charts can be consulted to know whether a certain configuration would suffice for a truss's reaction, before actually going through with the changes to the truss.

- When the truss sits in a hanger, as of a 2018 update Engineering will allow the truss to pass regardless of end reaction, and a printed drawing will simply say "MECHANICAL" where a required bearing length would normally be given. While it makes sense to indicate that the hanger is a separate responsibility from the truss, the truss itself may be over bearing capacity. In this case Engineering will simply place an exclamation mark next to the truss in the truss list. Such an exclamation mark already has a meaning—that the truss is a commercial girder carrying residential spans—so the designer must be careful to manually calculate bearing capacity for all hangered trusses with an exclamation mark, including those girders that would have the mark regardless of the hanger.

- When the truss uses a top-chord-bearing detail, Engineering limits the reaction to the lesser of the bearing's capacity[1], the capacity of the top chord or end vertical that sits on the bearing, and the values listed for the various top-chord-bearing details in Table E.1 of the TPIC document.

- When the heel consists of the bottom chord sitting on the bearing, with a secondary member on top of it, Engineering initially uses a capacity equal to the lesser of 1) the bearing's capacity[1], 2) the bottom chord's capacity and 3) 2/3 of the capacity the bottom chord would have, if the bearing length was averaged with the contact surface length between secondary member and bottom chord. The third case is an application of the "Secondary Bearing Check" required by CSA O86[2].
  For cases where the secondary member is equal or lesser in width to the bearing, the bottom chord capacity falls out of the equation as it will always exceed the value of the Secondary Bearing Check. Pre-computed values for these cases appear on chart B37579Q2.
  For wider secondary members, the bottom chord capacity must again be considered as the average length used in the Secondary Bearing Check grows and counteracts the effect of factoring by 2/3. The set of B37579Q1 charts each contain values in the top block, for the case where the secondary member consists of both a vertical and compression web, which combined have width at least twice the bearing's width. At this point the 2/3 is exactly undone, ie. the Secondary Bearing Check becomes equal to the bottom chord capacity. For some of the values on the charts the bearing's capacity is governing, and for some the bottom chord's capacity/Secondary Bearing Check is governing. For secondary member widths in the range between the bearing width and twice the bearing width, any of the three factors might govern the calculation.
  If the above does not compute to sufficient bearing, Engineering will automatically attempt to use a "flush plate"—a plate covering the entire bearing width with its bottom edge not more than ¼" from the bearing. In this case the Secondary Bearing Check is not carried out, and the capacity of the bottom chord is multiplied by 1.18. Pre-computed values for this case exist in the middle block of each B37579Q1 chart. The bearing's capacity must still be tested, and of course it often governs over the enhanced bottom chord capacity.
  If the bearing is still not sufficient, Engineering will try again using a flush plate combined with a Mitek bearing enhancer, provided that a flush plate is possible and the user has enabled the Truss Basics->Design Info->Bearing Design Options->Use Bearing Enhancer option. Capacities with this technique are as shown in the bottom block of each B37579Q1 chart.

- When a heel has a secondary member that is at least as wide as the bearing, an end-cut vertical might be an option, which will increase the capacity to the point that the bearing's capacity[1] will govern, or if the bearing is steel or LVL, to the compression parallel-to-grain capacity of the vertical member. If the vertical is SPF, chart B37579Q3 can be consulted for pre-computed values. There is an "End Cut Vertical…" option available in Engineering when a bearing is right-clicked.

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[1] The compression resistance of the plate is multiplied by the size factor K_{Zcp} as per clause 5.5.7.5 of CSA O86-09, if enabled in the bearing's properties. This factor is based on the ratio of the bearing's length to its depth, which is also entered in its properties. With regard to the depth to be entered, we might seek guidance in Mitek's tables, which use the value 1.15 which applies to ratios greater than 2. While a wall's top plate is typically doubled which would mean a ratio of less than 2 if the total depth is used, Mitek only considers the top ply of the plate in calculating the ratio. In Engineering's Bearing settings a custom K_{Zcp} can also be set.

It seems that Mitek also uses a factor—not discussed in the CWC's Wood Design Manual—for the case where the truss is ≥ 3" from a bearing plate splice or end of plate. In the upper and middle blocks of the Q1 tables, a multiple is provided below each column where the bearing capacity is governing, to increase the capacity by 1.25 for 1 ply, 1.125 for 2 ply, 1.0833 for 3 ply, or if more conservative, to the capacity of the bottom chord, Secondary Bearing Check, or the "flush plate" solution that we will discuss. **For trusses with secondary member of equal or lesser width than bearing, Engineering uses capacities that align with those in B37579Q2, which *does* assume ≥ 3" from plate splice/end. For wider secondary members, Engineering uses capacities that align with those in the Q1 tables before applying the aforementioned factors, ie. it *does not* assume ≥ 3" from plate splice/end.**

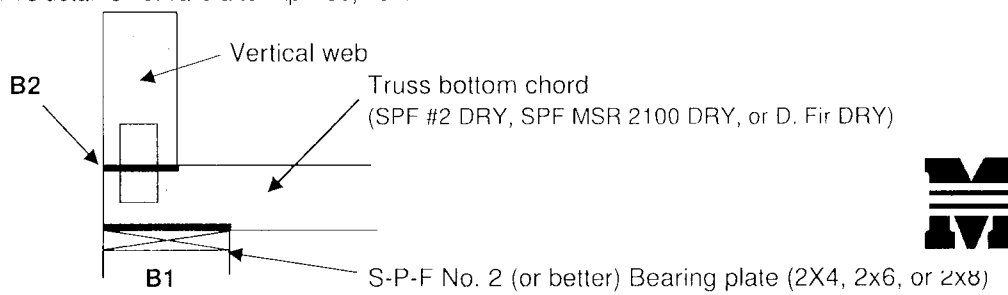
[2] This is actually a variation of the Secondary Bearing Check, which normally considers only the load coming down onto the beam (the bottom chord in this case) from above, in vicinity of the bearing. For a truss this translates to the load from the secondary member, however Engineering instead considers all loads contributing to the reaction.

TRUSS BEARING CAPACITIES (LB) BY CHORD LUMBER TYPE (WITH NO FLUSH PLATE) B37579Q2

BEARING ENHANCER	BEARING PLATE (B1)	WEB SIZE (B2) ABOVE BEARING	BASIC BEARING CAPACITY (LB) WITH S-P-F No. 2 (or better) BEARING PLATE AND NO FLUSH PLATE											
			1-PLY			2-PLY			3-PLY			4-PLY		
			D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
NONE	2X4	2x3	2,436	2,263	1,845	4,872	4,525	3,690	7,308	6,788	5,535	9,744	9,050	7,380
		2x4	2,842	2,640	2,153	5,684	5,279	4,305	8,526	7,919	6,458	11,368	10,559	8,610
		2x5	3,248	3,017	2,460	6,496	6,034	4,920	9,744	9,050	7,380	12,992	12,067	9,840
		2x6	3,654	3,394	2,768	7,308	6,788	5,535	10,962	10,182	8,303	14,616	13,576	11,070
	2X6	2x3	3,045	2,828	2,306	6,090	5,657	4,613	9,135	8,485	6,919	12,180	11,313	9,225
		2x4	3,654	3,394	2,768	7,308	6,788	5,535	10,962	10,182	8,303	14,616	13,576	11,070
		2x5	4,060	3,771	3,075	8,120	7,542	6,150	12,180	11,313	9,225	16,240	15,084	12,300
		2x6	4,466	4,148	3,383	8,932	8,296	6,765	13,398	12,444	10,148	17,864	16,592	13,530
	2x8	2x4	4,263	3,960	3,229	8,526	7,919	6,458	12,789	11,879	9,686	17,052	15,838	12,915
		2x5	4,771	4,431	3,613	9,541	8,862	7,226	14,312	13,293	10,839	19,082	17,724	14,453
		2x6	5,177	4,808	3,921	10,353	9,616	7,841	15,530	14,424	11,762	20,706	19,232	15,683
		2x8	5,887	5,468	4,459	11,774	10,936	8,918	17,661	16,404	13,376	23,548	21,872	17,835

NOTES:

1. Factored truss reaction shall not exceed bearing capacity corresponding to size of bearing plate, vertical web size, and number of plys shown in table. Capacities in table conform to CSA O86-09, Section 5.5.7 and may be used for residential, commercial and farm designs.
2. Web contact on opposite surface to bearing must be at least **2.5" (B2 ≥ 2.5")** and flush plate is not required.
3. Truss chord lumber is D. Fir, MSR 2100 (or better), or S-P-F # 2. **Bearing plate is S-P-F No. 2**, or better.
4. Truss must be at least 3" (75 mm) away from any bearing plate splice or from the end of bearing plate.
5. Bearing plate and truss lumber are DRY (< 19% moisture content).
6. Bearing plate lumber and truss vertical web over bearing plate is SPF # 2 DRY, or better.
7. Bearing capacities were developed for Standard term duration of load , K_D = 1.0.
8. This detail is not valid after April 30, 2017



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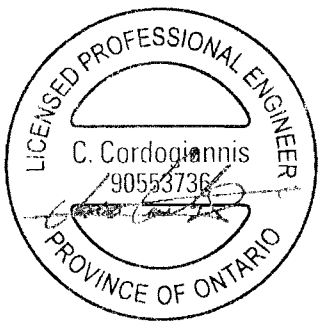

TRUSS BEARING CAPACITIES (LB) BY CHORD LUMBER TYPE (S-P-F No. 2 Bearing plate) B37579Q1

BEARING ENHANCER	BASIC BEARING CAPACITY (LB): WITH NO FLUSH PLATE, S-P-F BEARING PLATE AND B2 ≥ 2B1											
	S-P-F No. 2	1-PLY			2-PLY			3-PLY			4-PLY		
	Bearing Plate	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
NONE (See note 2)	2x4	3,713	3,713	3,229	7,426	7,426	6,458	11,139	11,139	9,686	14,852	14,852	12,915
	2x6	5,835	5,835	5,074	11,670	11,670	10,148	17,504	17,504	15,221	23,339	23,339	20,295
	2x8	7,691	7,691	6,688	15,383	15,383	13,376	23,074	23,074	20,064	30,765	30,765	26,753
Factor (see note 5) :		*1.1481*	*1.0664*		*1.125*	*1.0664*		*1.0833*	*1.0664*				

BEARING ENHANCER	BEARING CAPACITY (LB): WITH FLUSH PLATE AND S-P-F BEARING PLATE											
	S-P-F No. 2	1-PLY			2-PLY			3-PLY			4-PLY		
	Bearing Plate	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
MITEK FLUSH PLATE	2x4	3,713	3,713	3,713	7,426	7,426	7,426	11,139	11,139	11,139	14,852	14,852	14,852
	2x6	5,835	5,835	5,835	11,670	11,670	11,670	17,504	17,504	17,504	23,339	23,339	23,339
	2x8	7,691	7,691	7,691	15,383	15,383	15,383	23,074	23,074	23,074	30,765	30,765	30,765
Factor (see note 5) :		*1.25*	*1.25*	*1.0261*	*1.125*	*1.125*	*1.0261*	*1.0833*	*1.0833*	*1.0261*			

BEARING ENHANCER	Truss distance from end of a support/splice [5]	BEARING CAPACITY (LB): WITH USP SUPPLEMENTAL BEARING PLATE AND FLUSH PLATE											
		1 - PLY			2 - PLY			3 - PLY			4 - PLY		
		D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
SBP4 (2x4 brg plate)	< 3 in :	7,288	7,288	7,288	11,001	11,001	11,001	14,714	14,714	14,714	18,427	18,427	18,427
	≥ 3 in :	8,216	8,216	7,385	11,929	11,929	11,195	15,642	15,642	15,005	18,427	18,427	18,427
SBP6 (2x6 brg plate)	< 3 in :	11,030	11,030	11,030	16,865	16,865	16,865	22,699	22,699	22,699	28,534	28,534	28,534
	≥ 3 in :	12,489	12,489	11,182	18,323	18,323	17,169	24,158	24,158	23,156	28,534	28,534	28,534
SBP6 (2x8 brg plate)	< 3 in :	12,886	12,886	12,886	20,578	20,578	20,578	28,269	28,269	28,269	35,960	35,960	35,960
	≥ 3 in :	14,809	14,809	13,087	22,501	22,501	20,979	30,191	30,191	28,871	35,960	35,960	35,960

NOTES:

1. Factored truss reaction shall not exceed bearing capacity corresponding to size of bearing plate and number of plys. Values in table conform to CSA O86-09, Sec. 5.5.7 and may be used for residential, commercial or farm designs. Web contact on opposite surface to bearing must be at least equal to that of bearing (**B2 ≥ B1**).
2. For Bearing Enhancer type "NONE", web contact length must be at least 2 times the bearing length (**B2 ≥ 2B1**) and flush plate is not required.
3. Flush plate, when required, must not be located further than ¼" away from bearing surface and must cover the entire bearing length (**B1**).
4. Truss chord lumber is D. Fir, MSR 2100 (or better), or S-P-F # 2. **Bearing plate is S-P-F # 2**, or better.
5. For trusses resting ≥ 3 inches away from a bearing plate splice or end of bearing plate member multiply the Bearing Enhancer - "None" and "Mitek Flush Plate" column values by the factor shown. Ex1: 1-ply truss with MSR 2100 truss chord & continuous 2x6 S-P-F bearing plate: Bearing capacity = 5835 lb x 1.0664 = 6222 lb. Ex2: For a 2-ply truss with FLUSH plate, MSR 2100 truss chord, and continuous 2x4 S-P-F bearing plate the bearing capacity is equal to 7426 lb x 1.125 = 8354 lb
6. USP Supplemental bearing plates (SBP4, SBP6) values are based on USP Structural Connectors catalog, 58th ed. with "SBP's Alone" Factored Resistance and MiTek Flush Plates. SBP bearing plates may be used on single or double bearing plate and for 1 to 4-ply trusses.
7. Bearing plate and truss lumber is DRY when using SBP4 or SBP6 bearing plates.
8. Bearing capacities apply to "Standard" term duration of load , K_D = 1.0.
9. This detail is not valid after April 30, 2017.

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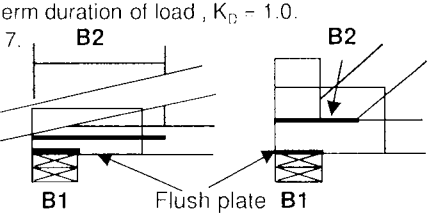
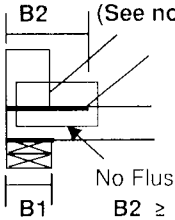
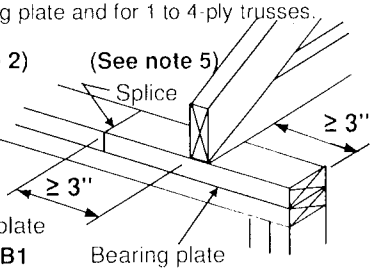




No Flush plate
B2 ≥ 2 B1



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TRUSS BEARING CAPACITIES (LB) BY CHORD LUMBER TYPE (Douglas-Fir-L Bearing plate) B37579Q1a

BEARING ENHANCER	BASIC BEARING CAPACITY (LB): WITH NO FLUSH PLATE, DOUGLAS-FIR BEARING PLATE AND B2 ≥ 2B1											
	D.- Fir-L	1-PLY			2-PLY			3-PLY			4-PLY		
	Bearing plate	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
NONE (See note 2)	2x4	4,263	3,960	3,229	8,526	7,919	6,458	12,789	11,879	9,686	17,052	15,838	12,915
	2x6	6,699	6,222	5,074	13,398	12,444	10,148	20,097	18,666	15,221	26,796	24,889	20,295
	2x8	8,831	8,202	6,688	17,661	16,404	13,376	26,492	24,606	20,064	35,322	32,808	26,753

BEARING ENHANCER	BEARING CAPACITY (LB): WITH FLUSH PLATE AND DOUGLAS-FIR BEARING PLATE											
	D.- Fir-L	1-PLY			2-PLY			3-PLY			4-PLY		
	Bearing plate	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
MITEK FLUSH PLATE	2x4	4,902	4,672	3,810	9,805	9,345	7,620	14,707	14,017	11,430	19,610	18,689	15,240
	2x6	7,704	7,342	5,987	15,408	14,684	11,974	23,112	22,026	17,961	30,815	29,369	23,948
	2x8	10,155	9,678	7,892	20,310	19,357	15,784	30,465	29,035	23,676	40,620	38,713	31,568
Factor (see note 5) :		*1.0261*			*1.0261*			*1.0261*					

BEARING ENHANCER	Truss distance from end of a support/splice [5]	BEARING CAPACITY (LB): WITH USP SUPPLEMENTAL BEARING PLATE AND FLUSH PLATE											
		1 - PLY			2 - PLY			3 - PLY			4 - PLY		
		D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
SBP4 (2x4 brg plate)	< 3 in :	9,937	9,707	8,845	14,840	14,380	12,655	19,742	19,052	16,465	24,645	23,724	20,275
	≥ 3 in :	10,065	9,707	8,845	15,096	14,380	12,655	20,126	19,052	16,465	24,645	23,724	20,275
SBP6 (2x6 brg plate)	< 3 in :	15,019	14,657	13,302	22,723	21,999	19,289	30,427	29,341	25,276	38,130	36,684	31,263
	≥ 3 in :	15,220	14,657	13,302	23,125	21,999	19,289	31,029	29,341	25,276	38,130	36,684	31,263
SBP6 (2x8 brg plate)	< 3 in :	17,470	16,993	15,207	27,625	26,672	23,099	37,780	36,350	30,991	47,935	46,028	38,883
	≥ 3 in :	17,735	16,993	15,207	28,155	26,672	23,099	38,575	36,350	30,991	47,935	46,028	38,883

NOTES:

1. Factored truss reaction shall not exceed bearing capacity corresponding to size of bearing plate and number of plys. Values in table conform to CSA O86-09, Sec. 5.5.7 and may be used for residential, commercial or farm designs. Web contact on opposite surface to bearing must be at least equal to that of bearing (**B2 ≥ B1**).
2. For Bearing Enhancer type "NONE", web contact length must be at least 2 times the bearing length (**B2 ≥ 2B1**) and flush plate is not required.
3. Flush plate, when required, must not be located further than ¼" away from bearing surface and must cover the entire bearing length (**B1**).
4. Truss chord lumber is D. Fir, MSR 2100 (or better), or S-P-F # 2. **Bearing plate is Douglas-Fir-L**, or better.
5. For trusses resting ≥ 3 inches away from a bearing plate splice or end of bearing plate member multiply the Bearing Enhancer = "Mitek Flush Plate" column values by factor shown. Ex: 2-ply truss with FLUSH plate, D.Fir-L truss chord & continuous 2x4 D.Fir-L bearing plate: Capacity = 9805 lb x 1.0261 = 10061 lb.
6. USP Supplemental bearing plates (SBP4, SBP6) values are based on USP Structural Connectors catalog, 58th ed. with "SBP's Alone" Factored Resistance and MiTek Flush Plates. SBP bearing plates may be used on single or double bearing plate and for 1 to 4-ply trusses.
7. Bearing plate and truss lumber is DRY when using SBP4 or SBP6 bearing plates.
8. Bearing capacities apply to "Standard" term duration of load , K_D = 1.0.
9. This detail is not valid after April 30, 2017

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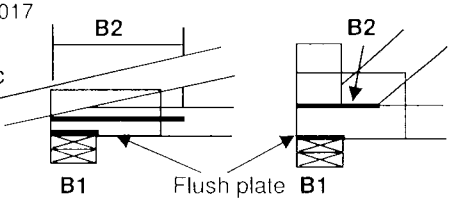

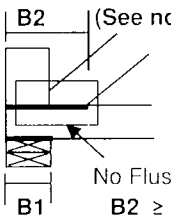

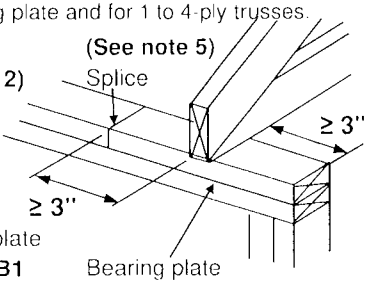

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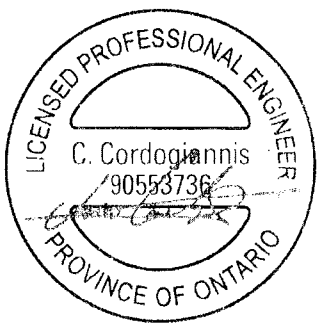

TRUSS BEARING CAPACITIES (LB) BY CHORD LUMBER TYPE (MSR 2100 SPF Bearing plate) B37579Q1b

BEARING ENHANCER	BASIC BEARING CAPACITY (LB): WITH NO FLUSH PLATE, MSR 2100 SPF BEARING PLATE AND B2 ≥ 2B1											
	MSR 2100 SPF	1-PLY			2-PLY			3-PLY			4-PLY		
	Bearing plate	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
NONE (See note 2)	2x4	4,263	3,960	3,229	8,526	7,919	6,458	12,789	11,879	9,686	17,052	15,838	12,915
	2x6	6,699	6,222	5,074	13,398	12,444	10,148	20,097	18,666	15,221	26,796	24,889	20,295
	2x8	8,831	8,202	6,688	17,661	16,404	13,376	26,492	24,606	20,064	35,322	32,808	26,753

BEARING ENHANCER	BEARING CAPACITY (LB): WITH FLUSH PLATE AND MSR 2100 SPF BEARING PLATE											
	MSR 2100 SPF	1-PLY			2-PLY			3-PLY			4-PLY		
	Bearing plate	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
MITEK FLUSH PLATE	2x4	4,553	4,553	3,810	9,107	9,107	7,620	13,660	13,660	11,430	18,214	18,214	15,240
	2x6	7,155	7,155	5,987	14,311	14,311	11,974	21,466	21,466	17,961	28,622	28,622	23,948
	2x8	9,432	9,432	7,892	18,864	18,864	15,784	28,297	28,297	23,676	37,729	37,729	31,568
Factor (see note 5) :		*1.1047*	*1.0261*		*1.1047*	*1.0261*		*1.0833*	*1.0261*				

BEARING ENHANCER	Truss distance from end of a support/splice [5]	BEARING CAPACITY (LB): WITH USP SUPPLEMENTAL BEARING PLATE AND FLUSH PLATE											
		1 - PLY			2 - PLY			3 - PLY			4 - PLY		
		D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F	D.Fir-L	MSR 2100	S-P-F
SBP4 (2x4 brg plate)	< 3 in :	8,128	8,128	7,385	12,682	12,682	11,195	17,235	17,235	15,005	21,789	21,789	18,815
	≥ 3 in :	8,605	8,247	7,385	13,636	12,920	11,195	18,373	17,592	15,005	21,789	21,789	18,815
SBP6 (2x6 brg plate)	< 3 in :	12,350	12,350	11,182	19,506	19,506	17,169	26,661	26,661	23,156	33,817	33,817	29,143
	≥ 3 in :	13,100	12,537	11,182	21,005	19,879	17,169	28,450	27,221	23,156	33,817	33,817	29,143
SBP6 (2x8 brg plate)	< 3 in :	14,627	14,627	13,087	24,059	24,059	20,979	33,492	33,492	28,871	42,924	42,924	36,763
	≥ 3 in :	15,615	14,873	13,087	26,035	24,552	20,979	35,849	34,230	28,871	42,924	42,924	36,763

NOTES:

1. Factored truss reaction shall not exceed bearing capacity corresponding to size of bearing plate and number of plys. Values in table conform to CSA O86-09, Sec. 5.5.7 and may be used for residential, commercial or farm designs. Web contact on opposite surface to bearing must be at least equal to that of bearing (**B2 ≥ B1**).
2. For Bearing Enhancer type "NONE", web contact length must be at least 2 times the bearing length (**B2 ≥ 2B1**) and flush plate is not required.
3. Flush plate, when required, must not be located further than ¼" away from bearing surface and must cover the entire bearing length (**B1**).
4. Truss chord lumber is D. Fir, MSR 2100 (or better), or S-P-F # 2. **Bearing plate is MSR 2100 S-P-F**, or better.
5. For trusses resting ≥ 3 inches away from a bearing plate splice or end of bearing plate member multiply the Bearing Enhancer = "Mitek Flush Plate" column values by the factor shown. Ex: 1-ply truss with FLUSH plate & D.Fir-L truss chord and 2x6 MSR 2100 bearing plate: Capacity is 7155 lb x 1.1047 = 7904 lb.
6. USP Supplemental bearing plates (SBP4, SBP6) values are based on USP Structural Connectors catalog, 58th ed. with "SBP's Alone" Factored Resistance and MiTek Flush Plates. SBP bearing plates may be used on single or double bearing plate and for 1 to 4-ply trusses.
7. Bearing plate and truss lumber is DRY when using SBP4 or SBP6 bearing plates.
8. Bearing capacities apply to "Standard" term duration of load , K_D = 1.0.
9. This detail is not valid after April 30, 2017

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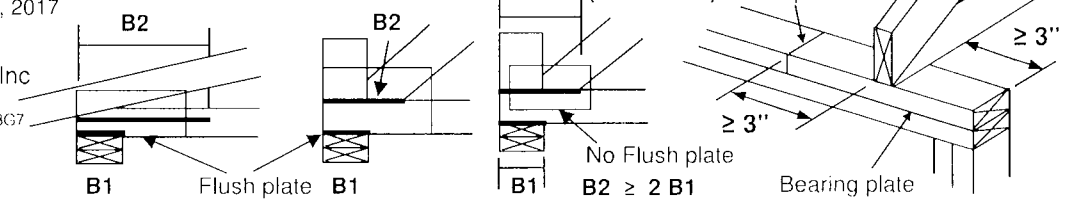

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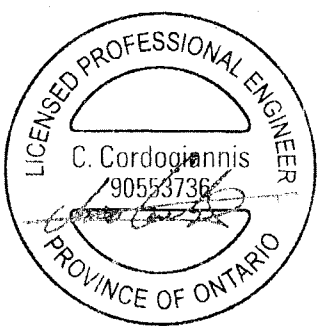


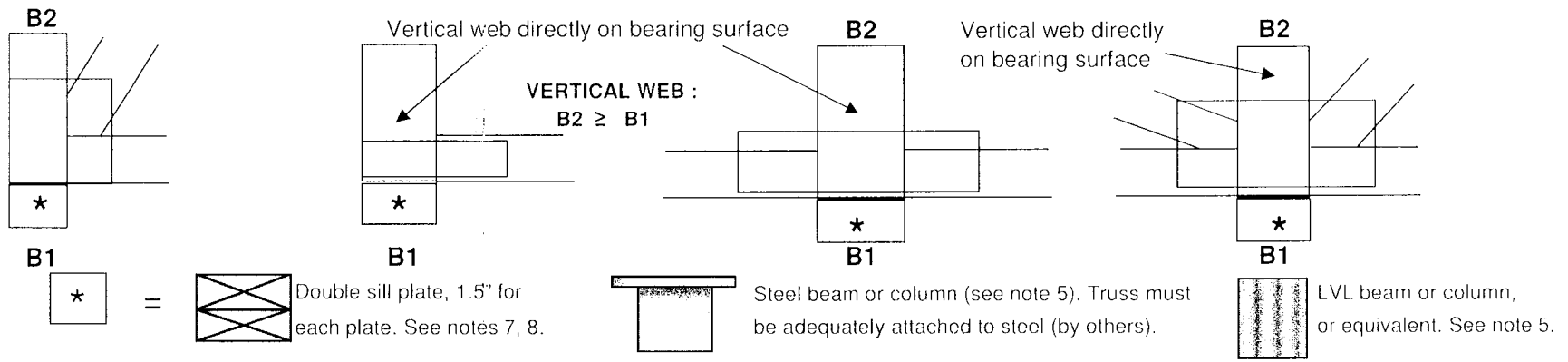
April 29, 2015

TRUSS BEARING CAPACITIES (LB) WITH VERTICAL WEB ON BEARING

B37579Q3

BEARING CAPACITY (LB) WITH B2 ≥ B1

	1-PLY Truss				2-PLY Truss				3-PLY Truss				4-PLY Truss			
	Type of bearing plate				Type of bearing plate				Type of bearing plate				Type of bearing plate			
Bearing width (B1)	S-P-F No. 2	MSR 2100 SPF	Douglas Fir-L	Steel or LVL	S-P-F No. 2	MSR 2100 SPF	Douglas Fir-L	Steel or LVL	S-P-F No. 2	MSR 2100 SPF	Douglas Fir-L	Steel or LVL	S-P-F No. 2	MSR 2100 SPF	Douglas Fir-L	Steel or LVL
2x3	2,537	3,111	3,350	5004	5,074	6,222	6,699	10008	7,611	9,333	10,049	15012	10,148	12,444	13,398	20016
2x4	3,713	4,553	4,902	7005	7,426	9,107	9,805	14011	11,139	13,660	14,707	21016	14,852	18,214	19,610	28022
2x5	4,774	5,854	6,303	9007	9,548	11,709	12,606	18014	14,322	17,563	18,909	27021	19,096	23,418	25,213	36028
2x6	5,835	7,155	7,704	11009	11,670	14,311	15,408	22017	17,504	21,466	23,112	33026	23,339	28,622	30,815	44034
2x8	7,691	9,432	10,155	14511	15,383	18,864	20,310	29023	23,074	28,297	30,465	43534	30,765	37,729	40,620	58045
	K_B = 1.25 (see notes 7, 8)				K_B = 1.125 (see notes 7, 8)				K_B = 1.0833 (see notes 7, 8)							



NOTES:

1. Factored truss reaction shall not exceed table values corresponding to size & type of support and number of plys.
2. Bearing plate lumber and vertical web member are to be SPF #2 DRY, or better. Capacities in table conform to CSA O86-09, section 5.5.7.
3. Web contact on bearing surface must be at least equal to bearing width (**B2 ≥ B1**). The lumber bearing plate values in table are for lumber on flat only .
4. Plates must overlap bearing width (**B1**) by at least 1.5". When the vertical web (**B2**) is greater than the bearing width (**B1**) the plate may need to cover the entire bearing width.
5. Table values for "**Steel or LVL**" (or equivalent) are calculated using S-P-F No. 2 parallel to grain factored resistance of 1334.4 psi (ϕf_c). For web lumber other than SPF No. 2 multiply the "**Steel or LVL**" column values by the following factors: 1650 MSR web: 1.574; 1950 MSR web: 1.678; 2100 MSR web: 1.730; 2400 MSR web: 1.835; D.-Fir web: 1.217. **Note:** The actual support must have a factored bearing capacity ≥ The parallel to grain compression resistance of the vertical web, but not less than 1334.4 psi.
6. Bearing capacities in table apply to "Standard" term duration of load (K_D = 1.0) and may be used for residential, commercial and farm designs.
7. For trusses located at least 3" away from a sill plate splice or end of sill plate member the values for 1-ply to 3-ply trusses for lumber bearing plates may be multiplied by the K_B factor shown (1.25 for 1-ply, 1.125 for 2-ply, 1.0833 for 3-ply truss). Ex. : For a 1-ply truss on a 2x6 S-P-F sill plate, bearing capacity = 5835 x 1.25 = 7294 lb ; Ex_2 : 3-ply truss on 2x4 MSR 2100 sill plate, bearing capacity = 13660 x 1.0833 = 14798 lb.
8. Table values **DO NOT** apply if the truss rests on a girder truss.
9. Values in table take into account the lesser of truss vertical web and bearing plate capacities.
10. This detail is not valid after April 30, 2017

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April 29, 2015

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