



# Open-Web Trusses



## Including Red-L™, Red-W™, Red-S™, Red-M™ and Red-H™ Trusses



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at RedBuilt.com.

Specify Open-Web trusses  
for your next project using  
RedSpec™ single-member  
sizing software.

- Outstanding Strength-to-Weight Performance
- Easy Installation
- Custom Manufacturing
- Design Flexibility
- Economical Truss Solutions
- Limited Product Warranty



# Welcome to RedBuilt

RedBuilt is an exciting business offering building solutions for a broad range of commercial and custom residential applications. In addition to pioneering unique manufacturing technologies, RedBuilt provides world-class service and technical support for architects, specifiers and builders.

RedBuilt gives you access to reliable, innovative products, including RedBuilt™ open-web trusses, Red-I™ joists, and RedLam™ LVL beams and headers. And we keep things simple: You'll work with just one service-oriented supplier to get all these products—plus the support you need to build smarter.

**RedBuilt:** A family of brand-name building products... a source for innovative ideas and solutions... a supplier that's simpler to do business with.



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## ABOUT THIS GUIDE

The RedBuilt™ Open-Web Truss Specifier's Guide is one of several guides that offer technical information and design recommendations for RedBuilt™ products. This guide provides architects, designers, and engineers with information regarding open-web trusses for commercial and custom residential applications.



### Product Selection

This guide provides specifiers with technical information about the RedBuilt™ open-web truss product line. However, complex or custom applications can often make specifying the right products in the right places a challenge—especially when you have factors such as span, wind or load-carrying capacity and other design constraints to consider. But whatever your project entails, RedBuilt is here to help. Your local RedBuilt technical representative, along with our Design Center teams, can assist you in choosing the best products and designing the best system for your specific application.

Contact us for help with any of the following:

- Product selection
- Building department calculations
- Complete cost analysis
- System selection (system packages can include horizontal framing, main carrying beams, headers, wall framing, mansard framing, and accessories)

### Products for Every Application

In addition to open-web trusses, RedBuilt offers a variety of other engineered lumber products that are ideal for use in commercial and custom residential projects. For more information, contact your RedBuilt technical representative or visit [redbuilt.com](http://redbuilt.com) to download literature for products such as Red-I™ joists and RedLam™ LVL.

### Unsurpassed Technical Support

RedBuilt has one of the largest networks of technical representatives in the business. Their services include consultation, computer-assisted design and layout, delivery coordination, and installation review. They can suggest cost-reduction techniques and check special application requirements. In addition, they're backed by a staff of professional engineers who provide comprehensive technical support when needed. Special requests are accommodated wherever practical, and they offer cost analysis, engineering analysis, assistance with building code approvals—even the creation of special product applications for more creative designs. The goal of RedBuilt technical support is to help architects and engineers achieve quality design applications with the most cost-efficient product selection possible.



*Our network of technical representatives offers a wide range of services to help guide your projects through planning and construction.*

### Resource Efficiency

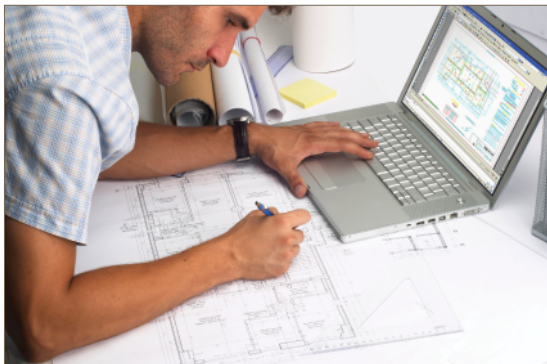
Consider all of the positive attributes of wood when selecting your building material of choice. In addition to its structural properties, high strength-to-weight ratio, and ease of construction, wood is a naturally occurring, renewable resource that requires less energy to produce than steel or concrete. And it sequesters carbon—whether on the stump or in your structure.

Our RedBuilt™ open-web trusses with RedLam™ LVL chords, as well as other RedBuilt™ products, are made with responsibly sourced fiber. Whether you're looking for LEED® certification or simply want to ensure efficient use of raw materials, we can help. By making better use of every tree, RedBuilt produces cost-effective, consistently available engineered wood products that reduce environmental impact. The result is a quality wood product that offers superior strength and reliable performance.

# DESIGN CENTER SERVICES

Upon request, RedBuilt can provide the following services for the products described in this Open-Web Truss Specifier's Guide:

- A complete design package including layout drawings (placement diagrams) and detailed design calculations.
- Review and analysis of the application.
- Drawings or calculations sealed by a professional engineer.



Our technical support team offers professional capabilities in the design and application of all RedBuilt™ products.

## Installation Review

Although responsibility for proper installation lies with the contractor-builder, RedBuilt provides detailed suggestions and guidelines for installation. If requested, a RedBuilt representative will visit the site to verify the contractor's understanding of proper installation. RedBuilt professional engineers also are available to help solve jobsite application problems.

## Engineering Responsibility Position Statement

RedBuilt is a manufacturer of proprietary structural components.

It employs a staff of professional engineers to aid in the development, manufacture, and marketing of its products. RedBuilt does not replace or accept the responsibility of the design professional of record for any structure.

RedBuilt accepts the delegation of engineering responsibility only for the products it manufactures, provided that the application conditions are specified by the design professional of record, or other responsible party when a design professional is not engaged. RedBuilt provides engineering in the design of its products and does not displace the need on any project for a design professional of record.

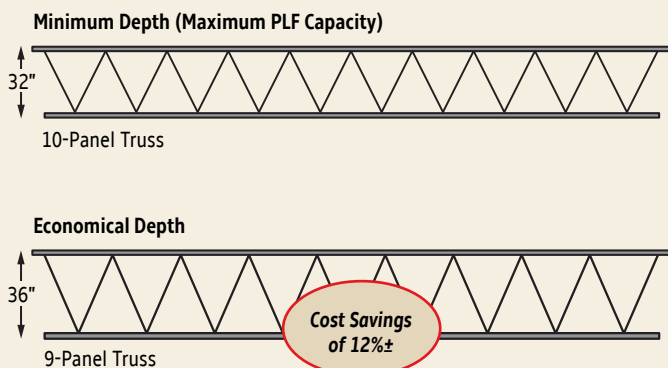
## HOW TO SPECIFY TRUSSES FOR MAXIMUM ECONOMY

It is in the designer's best interest to specify the most economically efficient materials and ensure that their customers are not paying extra for structural components that are oversized for the given loads. However, specifying a minimum depth truss with the maximum plf loading (as shown in the load tables on pages 6–11) may not be the most economical solution.

**Designing to the maximum depth allowed for the application, and not maximizing loads in tables, will produce the most economical solution.** Keep this and the following two examples in mind when consulting the load tables in this guide:

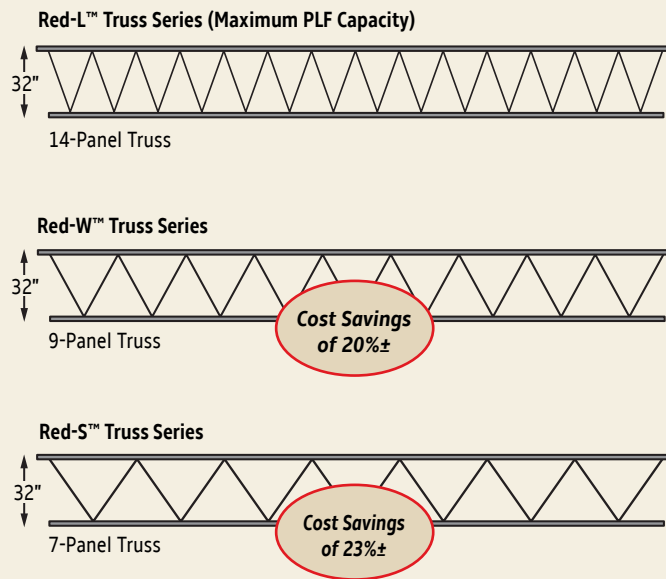
### Deeper Can Be More Economical

Example:

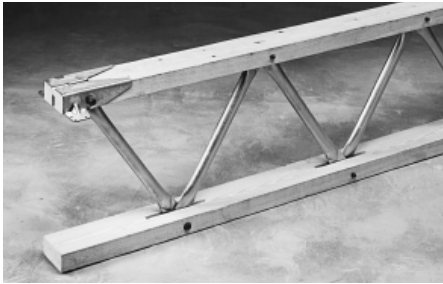


### Consider An Alternative Truss Series

Example:



Top chord bearing at each end provides the easiest installation and the most cost-effective truss system. Note that these are general guidelines only and they are not reflective of all applications. Consult your local RedBuilt technical representative to assist you in specifying the most economical truss solutions for your particular applications.



## Red-L™ and Red-W™ Trusses

### Chords:

- Red-L™ trusses: 1½" x 3½" MSR lumber\*
- Red-W™ trusses: 1½" x 4¾" MSR lumber

### Webs:

1" and 1½" diameter tubular steel members varying in gauge and diameter according to requirements.

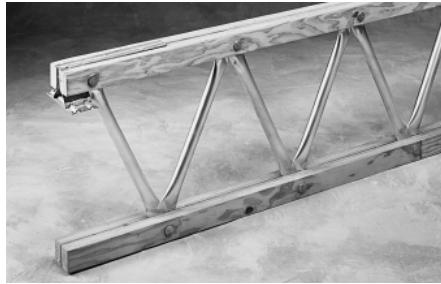
### Weight:

- Red-L™ trusses: 3.75 to 4.25 lbs/ft
- Red-W™ trusses: 4.5 to 5.25 lbs/ft

### Depths:

Minimum depth at wall .....14"  
Maximum depth at wall .....50"  
Maximum pitched ridge depth.....50"

Any depth between minimum and maximum is available.



## Red-S™ Trusses

### Chords:

Double 1½" x 2.3" RedLam™ LVL

### Webs:

1", 1¼", and 1½" diameter tubular steel members varying in gauge and diameter according to requirements.

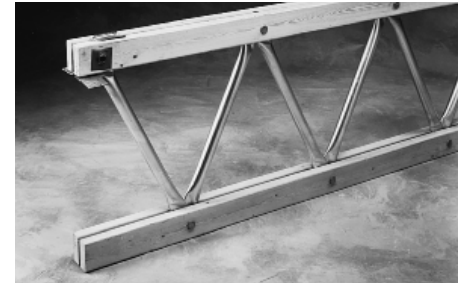
### Weight:

4.75 to 5.75 lbs/ft

### Depths:

Minimum depth at wall .....16"  
Maximum depth at wall .....60"  
Maximum pitched ridge depth.....84"

Any depth between minimum and maximum is available.



## Red-M™ and Red-H™ Trusses

### Chords:

- Red-M™ trusses: Double 1½" x 3½" MSR lumber\*
- Red-H™ trusses: Double 1½" x 5½" MSR lumber\*

### Webs:

Up to 2" diameter tubular steel members varying in gauge and diameter according to requirements.

### Weight:

- Red-M™ trusses: 8 to 9 lbs/ft
- Red-H™ trusses: 10 to 12 lbs/ft

### Depths:

	Red-M™	Red-H™
Minimum depth at wall	20"	24"
Maximum depth at wall	60"	72"
Maximum pitched ridge depth	72"	114"

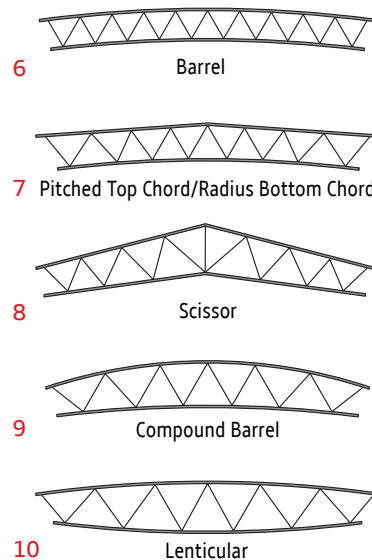
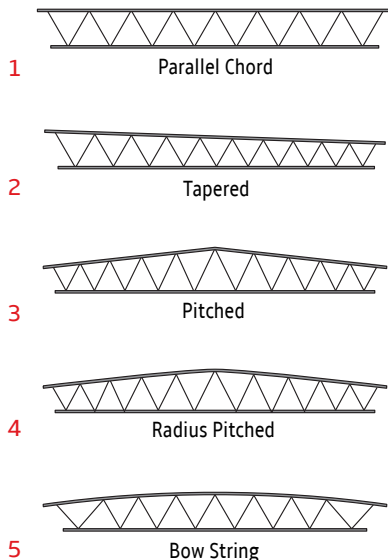
Any depth between minimum and maximum is available.

**Open-web trusses are intended for dry use, untreated applications.**

\* RedLam™ LVL chords may be available for Red-L™, Red-M™, and Red-H™ truss series. Consult your technical representative for availability and limitations.

**Building Codes and Product Acceptance:** See ICC-ES ESR-1774, L.A. City RR #22614

## Truss Profiles



## Tightest Curvature Available:

Red-L™ and Red-W™ trusses ..... 52' radius  
Red-S™ trusses ..... 200' radius  
Red-M™ trusses ..... Camber only  
Red-H™ trusses ..... Camber only

Truss Series	Profiles Available									
	1	2	3	4	5	6	7	8	9	10
Red-L™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Red-W™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Red-S™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Red-M™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Red-H™	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

☐ Indicates that the profile is available.

In radius truss applications (Profiles 5, 6, 7, 9, and 10), allowable loads are reduced due to radial stresses. Contact your RedBuilt technical representative for job-specific possibilities.

Maximum top chord slope for Profile 4 (Radius Pitched) is ½:12 for Red-L™ and Red-W™ truss series, and ¾:12 for Red-S™ truss series.

## RED-L™ TRUSS ALLOWABLE UNIFORM LOAD TABLE (PLF) / PARALLEL CHORD

SEE PAGE 4 FOR ECONOMICAL TRUSS DESIGN

Span	Depth													
	14"		16"		18"		20"		22"		24"		26"	
	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL
14'	292	341	329	383	376	400	380	412	340	390	309	360	299	356
	208	370	254	395	323	412	367	429		422		385		386
16'	265	306	306	340	341	361	342	366	335	369	338	351	305	350
	143	311	190	361	232	370	270	376	318	380		375		380
18'	215	250	200	286	232	319	309	328	301	332	315	334	301	332
	110	271	145	306	180	329	215	333	250	340	278	336		339
20'	184	208	171	245	184	275	203	295	227	297	283	299	291	297
	84	229	109	260	139	292	167	298	197	303	226	305	255	310
22'	158	177	142	204	160	233	177	260	200	272	220	271	270	275
	66	192	84	217	110	252	134	269	155	271	184	276	196	280
24'	133	150	133	174	143	199	157	223	173	239	185	247	202	249
	52	164	68	189	88	215	106	241	126	251	146	252	167	254
26'	106	131	113	152	129	173	136	189	151	213	166	225	176	230
	43	137	55	160	70	188	86	210	103	222	123	231	140	236
28'	86	111	109	129	118	148	125	163	136	181	151	199	163	212
	34	111	45	142	57	158	69	181	86	200	102	214	117	213
30'		91	93	114	108	128	121	145	127	158	140	173	150	192
		91	37	121	47	140	58	155	69	175	81	192	93	202
32'		76	76	100	95	113	107	125	118	142	127	155	136	169
		76	31	102	39	124	48	140	58	155	68	170	78	184
34'		63		85	83	101	99	114	105	126	120	138	127	151
		64		85	33	110	41	124	49	136	58	150	67	164
36'		55		73		87	86	98	97	108	107	117	114	129
		55		73		94	35	102	42	117	50	128	58	140
38'		47		62		78	75	86	85	97	92	105	97	116
		47		62		80	30	91	36	104	43	115	50	126
40'		40		53		69		79	79	87	81	96	94	103
		41		53		69		86	31	94	37	100	43	114
42'		35		46		60		72		78	79	87	85	95
		35		47		60		73		82	32	92	38	103
44'		31		40		50		65		70		80	77	82
		31		39		52		66		74		85	33	94
46'				36		45		58		66		73		79
				36		45		58		69		79		86
48'				32		40		52		61		67		73
				32		41		52		62		68		79
50'						36		45		54		62		65
						36		45		56		62		73
52'						32		40		49		57		61
						33		39		50		59		63
54'								35		43		52		55
								36		43		53		62
56'								32		40		48		54
								33		40		47		56
58'										36		43		48
										36		42		49
60'										33		39		46
										33		39		44

• See page 5 for available depths and profiles. For depths and profiles not shown, contact your RedBuilt technical representative for assistance.

• Red numbers refer to 115% Total Load (TL).

## General Notes

- Values shown demonstrate maximum allowable load capacities based on the following assumptions:

- Simple span, uniformly loaded conditions, with provisions for positive drainage (¼:12 slope, minimum) in roof applications.
- Span indicates distance from inside face to inside face of bearing.
- Top chord no-notch bearing clips with 1¾" bearing. Higher values may be possible with other types of bearing clips.

- Straight line interpolations may be made between depths and spans.
- Values in shaded areas may be increased 7% for repetitive-member use.
- Bold italic values are controlled by minimum concentrated load analysis of 2,000 lbs. Higher loads are possible where minimum concentrated load analysis is not required by code. Contact your RedBuilt technical representative for assistance.

General Notes continued on page 7

Trusses delivered to the jobsite are custom manufactured to resist only project specific application loads provided by the design professional. Actual trusses may not be able to resist the maximum loads shown in the tables above. For questions regarding actual truss capacity contact your RedBuilt technical representative.

# RED-L™ TRUSS ALLOWABLE UNIFORM LOAD TABLE (PLF) / PARALLEL CHORD

Continued from page 6

SEE PAGE 4 FOR ECONOMICAL TRUSS DESIGN

Load Tables

Span	Depth													
	28"		30"		32"		34"		36"		38"		40"	
	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL	100% TL 100% LL	115% TL 125% TL
14'	295	353	294	324	290	308	277	309	262	300	264	304	243	280
		374		367		365		336		308		318		301
16'	303	347	266	306	264	288	265	305	255	271	256	273	240	275
		380		359		331		332		288		282		283
18'	263	341	266	317	261	279	261	287	237	271	239	250	231	263
		339		345		308		314		297		276		303
20'	270	303	285	298	239	287	242	281	221	259	219	264	221	250
	250	311	267	309		307		327		284		289		274
22'	259	279	257	279	241	266	233	259	228	258	224	253	223	236
	208	282	232	282		279		281		281		278		259
24'	219	255	252	255	242	259	237	258	227	259	218	246	213	246
	185	257	190	260	211	263	228	264		263		264		252
26'	195	231	205	233	233	238	227	237	221	238	232	228	212	230
	158	235	175	242	177	239	198	242	214	243	231	241		237
28'	175	216	214	215	216	220	216	218	218	222	198	222	210	215
	132	220	137	221	152	221	169	224	184	224	195	221		218
30'	159	201	167	204	200	205	194	208	204	208	201	208	204	205
	111	205	124	204	133	207	145	208	159	207	174	205	191	202
32'	149	184	158	191	170	191	181	191	190	195	192	192	189	191
	89	191	99	191	113	193	123	192	137	194	152	190	163	191
34'	138	162	147	174	157	181	165	189	169	182	179	179	180	179
	77	176	87	177	95	174	108	189	119	181	130	182	144	180
36'	123	138	132	146	140	160	151	166	161	170	169	170	170	166
	66	151	75	162	84	171	94	178	103	170	113	169	125	166
38'	113	116	115	134	127	144	136	152	144	161	152	161	159	157
	57	136	64	147	72	157	82	161	91	161	99	161	109	154
40'	102	110	110	122	117	130	125	139	129	147	140	153	148	151
	49	122	55	132	63	142	71	150	79	151	87	151	95	149
42'	92	102	99	108	107	114	114	125	121	129	128	141	133	142
	43	112	49	120	55	127	62	136	69	145	77	145	83	143
44'	78	92	91	96	96	107	103	114	109	121	116	129	121	131
	38	97	43	109	49	117	55	125	61	133	68	137	75	134
46'	77	84	82	92	89	98	95	105	101	112	105	118	112	120
	33	93	38	100	43	106	48	114	54	121	60	128	66	127
48'	70	79	73	85	82	91	87	97	91	102	98	108	103	113
	30	86	34	92	38	98	43	105	48	111	54	118	59	122
50'		72	69	78	71	83	80	89	85	94	90	100	95	105
		79	30	85	34	86	39	96	43	103	48	108	52	115
52'		66		72	70	77	74	82	79	87	83	92	88	97
		73		78	31	84	34	89	39	95	43	100	48	106
54'		62		65		67	69	76	73	81	77	86	82	90
		68		71		78	31	83	34	88	38	93	42	94
56'		57		62		69		72	68	78	72	81	76	86
		65		68		71		78	31	83	35	88	38	93
58'		55		57		62		68		73	67	77	71	82
		58		62		68		75		79	31	83	35	88
60'		52		55		60		64		68		71	66	75
		50		61		65		70		74		78	32	83

- See page 5 for available depths and profiles. For depths and profiles not shown, contact your RedBuilt technical representative for assistance.
- Red numbers refer to 115% Total Load (TL).

## General Notes continued from page 6

### To size floor trusses:

Check both total load (100% TL) and live load (100% LL). When live load is not shown, total load will control. Total load values limit deflection to L/240. Live load values are based on the **Commercial Floor Deflection Limit** shown on page 35, and assume a nailed floor system. Live load (100% LL) values may be increased with a glue-nailed floor system; contact your RedBuilt technical representative for assistance.

### To size roof trusses:

Check the appropriate snow load area (115% TL) or non-snow load area (125% TL) value to determine the maximum allowable total load. Total load (115% TL and 125% TL) values limit truss deflection to L/180.

**Consult local codes to verify deflection limits required for specific applications.**

Trusses delivered to the jobsite are custom manufactured to resist only project specific application loads provided by the design professional. Actual trusses may not be able to resist the maximum loads shown in the tables above. For questions regarding actual truss capacity contact your RedBuilt technical representative.



## RED-W™ TRUSS ALLOWABLE UNIFORM LOAD TABLE (PLF) / PARALLEL CHORD

SEE PAGE 4 FOR ECONOMICAL TRUSS DESIGN

Span	Depth																												
	14"		16"		18"		20"		22"		24"		26"		28"		30"		32"		34"		36"		38"		40"		
	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	
	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	
14'	380	416	402	427	407	442	414	440	422	445	389	442	383	445	375	432	367	411	337	370	335	362	324	326	318	325	304	342	
16'	258	421	315	438	384	453	404	445	451	454	385	388	380	397	369	390	359	385	338	383	314	383	302	331	299	324	299	325	
	190	365	244	374	280	385	316	397	398	399	385	388	380	397	369	390	359	385	338	383	314	383	302	331	299	324	299	325	
18'	270	292	307	329	334	336	334	339	340	348	339	350	346	355	353	351	334	354	306	354	301	352	296	344	282	316	269	331	
	138	320	184	327	222	336	249	342	292	353	328	355	362	335	359	335	358	306	354	301	352	296	344	282	316	269	331		
20'	220	236	258	289	288	299	303	308	305	314	308	316	309	322	315	321	311	321	325	318	303	322	283	325	288	319	276	315	
	105	271	139	296	174	297	206	309	236	312	264	315	289	316	304	323	311	321	325	318	303	322	283	325	288	319	276	315	
22'	185	208	215	242	243	272	271	273	275	280	280	285	284	289	283	291	283	288	281	295	289	292	287	291	276	293	259	291	
	85	230	105	258	132	273	160	277	188	281	212	281	237	289	255	287	279	288	277	294	289	292	295	293	293	293	283	283	
24'	156	180	177	208	206	234	227	251	251	252	253	260	259	257	259	261	265	262	261	267	263	266	262	264	266	265	263	259	
	67	182	85	226	103	245	127	252	152	258	174	259	194	264	212	263	232	267	235	267	259	264	267	265	265	265	259	259	
26'	127	153	146	177	166	201	191	226	212	236	231	237	237	238	240	240	242	242	245	242	248	241	242	245	244	243	240	238	
	53	166	69	192	86	215	104	231	122	231	142	236	162	237	179	239	196	243	216	243	220	243	245	245	243	243	238	238	
28'	107	132	125	153	146	174	162	194	179	216	199	219	217	219	219	218	224	220	224	225	231	225	224	226	225	220	222	217	
	43	141	57	166	70	188	87	207	102	216	118	216	134	221	149	222	167	223	185	226	202	224	218	226	220	220	217	217	
30'	88	115	112	133	127	152	141	170	157	188	172	206	189	204	203	204	206	206	209	209	209	206	208	208	209	207	204	202	
	35	117	47	144	59	165	71	184	86	203	100	202	111	204	127	201	141	206	158	209	175	206	188	208	208	208	202	202	
32'	74	98	98	116	112	133	122	149	136	164	153	181	166	190	181	191	193	193	192	193	201	193	195	193	195	194	189	191	
	30	98	39	127	49	144	59	162	72	177	85	185	95	190	106	193	121	193	137	193	149	193	162	193	178	194	187	191	
34'	81	82	104	101	118	115	132	127	147	140	161	150	174	165	180	172	177	183	179	189	182	182	183	181	182	180	180	180	
	81	33	111	42	128	51	144	62	159	72	175	82	180	92	179	104	181	117	181	131	182	143	183	159	182	167	180	180	
36'	70	90	90	102	100	114	114	127	125	135	134	151	145	163	158	167	167	170	169	170	170	170	170	170	170	170	170	166	
	69	93	36	109	44	125	53	138	62	151	71	165	81	169	91	166	100	170	113	170	126	170	142	170	146	166	166		
38'	59	80	74	92	90	103	102	114	112	125	122	136	130	146	142	158	152	162	160	159	162	160	162	160	162	160	159	157	
	59	79	31	100	38	112	46	124	54	136	62	148	70	160	78	159	88	160	97	162	109	161	121	160	127	157	157		
40'	50	68	83	82	93	90	103	101	113	110	123	117	133	128	143	137	148	145	149	153	151	153	151	152	150	151	151	151	
	52	68	89	33	101	39	112	47	123	54	133	61	143	69	151	77	149	85	152	95	151	106	151	112	151	112	151		
42'	45	59	75	84	82	93	91	102	96	112	108	116	116	129	124	138	132	143	139	143	143	143	143	143	143	143	143	143	
	45	59	78	92	34	102	41	110	47	119	54	131	61	140	68	144	75	145	84	144	94	145	101	145	101	143	143		
44'	39	52	67	77	73	84	83	93	91	100	97	110	105	118	113	126	121	135	128	139	135	138	137	136	137	136	136	136	
	39	52	68	83	30	92	36	102	42	111	47	120	54	128	60	137	67	137	75	137	82	135	91	136	91	136	136		
46'	35	46	59	70	78	76	86	83	93	89	99	97	108	104	116	110	123	117	130	124	130	130	130	130	130	130	128	128	
	35	46	59	74	85	32	93	37	101	42	109	48	117	53	126	59	131	66	130	73	132	81	128	81	128	128	128		
48'	31	40	52	64	67	74	76	83	83	91	89	99	95	106	101	113	108	120	114	126	120	125	120	125	120	125	125	125	
	31	40	51	66	78	85	33	93	38	100	42	108	48	116	53	123	59	126	65	126	73	123	73	123	73	123	123		
50'	36	46	58	65	71	79	86	34	92	38	100	43	106	48	111	53	117	59	120	65	117	65	117	65	117	65	117	117	
	36	46	58	71	79	86	34	92	38	100	43	106	48	111	53	117	59	120	65	117	65	117	65	117	65	117	117		
52'	33	42	49	59	67	73	70	79	76	85	81	91	86	96	92	102	97	108	102	113	102	113	102	113	102	113	102	113	
	33	42	52	63	72	79	30	81	34	92	39	97	43	105	47	111	53	114	58	113	58	113	58	113	58	113	58	113	
54'	37	44	55	60	68	73	69	78	75	84	80	89	85	95	90	99	95	106	101	113	108	120	114	126	120	125	125	125	
	38	45	56	66	73	79	31	85	35	91	39	97	43	103	47	109	53	107	47	109	53	107	47	109	53	107	107		
56'	34	42	50	57	64	68	75	70	80	75	86	79	91	83	96	88	101	96	108	102	113	102	113	102	113	102	113	102	113
	34	38	50	61	69	76	82	31	86	35	93	39	98	43	103	47	109	53	107	47	109	53	107	47	109	53	107		
58'	30	37	47	53	60	65	69	75	81	86	91	96	101	106	111	116	121	126	131	136	141	146	151	156	161	166	171	176	
	30	38	42	55	61	69	75	81	86	91	96	101	106	111	116	121	126	131	136	141	146	151	156	161	166	171	176		
60'	33	42	50	55	63	71	76	84	91	99	107	115	123	131	139	147	155	163	171	179	187	195	203	211	219	227	235	243	
	33	42	50	55	63	71	76	84	91	99	107	115	123	131	139	147	155	163	171	179	187	195	203	211	219	227	235		

• See page 5 for available depths and profiles. For depths and profiles not shown, contact your RedBuilt technical representative for assistance.

• Red numbers refer to 115% Total Load (TL).

## General Notes

- Values shown demonstrate maximum allowable load capacities based on the following assumptions:
  - Simple span, uniformly loaded conditions, with provisions for positive drainage (¼:12 slope, minimum) in roof applications.
  - Span indicates distance from inside face to inside face of bearing.
  - Top chord no-notch bearing clips with 2¾" bearing for Red-W™ trusses and standard bearing clips for Red-S™ trusses. Higher values may be possible with other types of bearing clips.

- Straight line interpolations may be made between depths and spans.
- Values in shaded areas may be increased for repetitive-member use as follows: 7% for Red-W™ trusses and 4% for Red-S™ trusses.
- Bold italic values are controlled by minimum concentrated load analysis of 2,000 lbs. Higher loads are possible where minimum concentrated load analysis is not required by code. Contact your RedBuilt technical representative for assistance.

General Notes continued on page 9

Trusses delivered to the jobsite are custom manufactured to resist only project specific application loads provided by the design professional. Actual trusses may not be able to resist the maximum loads shown in the tables above. For questions regarding actual truss capacity contact your RedBuilt technical representative.



# RED-S™ TRUSS ALLOWABLE UNIFORM LOAD TABLE (PLF) / PARALLEL CHORD

SEE PAGE 4 FOR ECONOMICAL TRUSS DESIGN

Span	Depth													
	16"		18"		20"		22"		24"		26"		28"	
	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL
Span	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL
16'	399	459	465	528	487	558	496	570	464	533	467	516	416	478
	262	499	334	572	410	564	488	566		590		565		531
18'	325	376	379	436	433	498	453	507	466	553	433	496	406	464
	189	411	243	474	300	531	357	541	425	567		520		511
20'	279	321	320	367	359	413	387	449	416	479	414	501	388	457
	140	349	178	399	221	449	273	488	318	509	375	514	382	484
22'	233	266	264	286	278	314	334	380	365	422	376	438	386	443
	107	289	137	333	170	375	207	417	249	456	287	466	330	467
24'	196	226	219	253	250	288	279	320	309	351	338	388	355	408
	84	246	106	281	133	313	162	346	194	383	228	422	261	430
26'	164	192	190	220	216	247	240	276	264	303	288	331	312	359
	66	208	85	237	105	269	129	297	154	326	182	360	211	390
28'	131	166	165	190	184	214	207	238	225	262	249	286	269	310
	52	169	68	207	85	233	105	259	126	285	146	311	174	337
30'	107	137	139	166	161	187	179	207	197	227	217	249	235	270
	43	137	56	179	70	203	86	223	102	248	121	268	139	291
32'	88	114	115	146	143	164	159	182	175	201	187	219	207	238
	35	114	46	149	58	178	71	198	84	218	101	238	117	256
34'	95	96	124	120	145	141	162	152	178	167	194	180	211	195
	91	38	124	48	157	59	176	71	193	84	211	98	229	113
36'	80	80	104	102	129	125	144	137	159	148	173	160	188	176
	80	32	104	41	133	50	157	60	173	71	188	83	204	96
38'	69	90	87	113	107	129	123	143	132	151	145	164	155	178
	67	89	35	113	43	139	51	155	61	169	71	183	82	197
40'	59	77	74	96	92	117	110	129	119	140	129	152	139	164
	59	76	30	97	37	120	44	139	52	152	61	164	71	177
42'	51	66	84	79	104	96	116	110	127	120	138	126	149	138
	51	66	84	32	104	38	125	45	137	53	149	61	160	70
44'	45	58	73	90	83	106	98	115	105	126	117	134	123	145
	45	57	73	90	33	109	39	125	46	137	53	147	61	158
46'	39	51	64	79	96	87	106	100	114	108	123	116	133	124
	39	51	64	79	96	35	114	40	124	47	135	53	143	60
48'	35	45	57	68	84	76	98	89	106	99	114	105	121	113
	35	45	57	70	84	31	101	36	115	41	124	47	133	53
50'	31	40	50	62	74	88	79	98	91	105	98	113	105	120
	31	40	50	60	74	88	32	104	37	114	42	123	47	131
52'		35	45	55	67	79		90	81	97	91	104	97	111
		35	45	55	67	79		93	33	106	37	113	42	121
54'		32	40	49	58	71		83		96	83	97	90	103
		32	40	48	60	70		83		96	33	105	38	112
56'			36	44	53	64		74		84	75	90	83	96
			36	44	53	64		74		86	30	98	34	104
58'			32	40	48	56		66		78		83	77	89
			32	40	48	57		67		77		90	31	97
60'				36	43	51		61		71		74	77	89
				36	44	50		61		70		81	31	97
62'				33	40	44		54		64		70		83
				33	40	47		54		64		74		83

- See page 5 for available depths and profiles. For depths and profiles not shown, contact your RedBuilt technical representative for assistance.
- Red numbers refer to 115% Total Load (TL).

## General Notes continued from page 8

### To size floor trusses:

Check both total load (100% TL) and live load (100% LL). When live load is not shown, total load will control. Total load values limit deflection to L/240. Live load values are based on the **Commercial Floor Deflection Limit** shown on page 35, and assume a nailed floor system. Live load (100% LL) values may be increased with a glue-nailed floor system; contact your RedBuilt technical representative for assistance.

### To size roof trusses:

Check the appropriate snow load area (115% TL) or non-snow load area (125% TL) value to determine the maximum allowable total load. Total load (115% TL and 125% TL) values limit truss deflection to L/180.

**Consult local codes to verify deflection limits required for specific applications.**

Trusses delivered to the jobsite are custom manufactured to resist only project specific application loads provided by the design professional. Actual trusses may not be able to resist the maximum loads shown in the tables above. For questions regarding actual truss capacity contact your RedBuilt technical representative.

## RED-M™ TRUSS ALLOWABLE UNIFORM LOAD TABLE (PLF) / PARALLEL CHORD

SEE PAGE 4 FOR ECONOMICAL TRUSS DESIGN

Span	Depth																											
	20"		22"		24"		26"		28"		30"		32"		34"		36"		38"		40"		42"		44"		46"	
	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL
24'	292	327	330	369	368	406	393	449	412	449	409	457	401	455	406	455	370	455	386	456	366	434	367	456	347	437	356	436
26'	183	348	226	390	266	433	311	461	357	476	396	479	486	480	384	431	377	424	384	423	368	417	347	432	340	417	332	414
28'	251	278	277	313	315	345	347	383	366	419	386	424	388	433	384	431	377	424	384	423	368	417	347	432	340	417	332	414
30'	147	294	181	328	218	365	251	403	290	437	329	436	371	447	238	448	288	452	288	452	318	361	318	361	318	361	318	361
32'	215	235	239	271	269	301	299	330	322	362	351	391	369	402	368	412	365	404	352	400	349	400	363	391	339	391	363	392
34'	119	255	148	286	177	316	209	350	239	383	272	400	305	402	344	409	288	452	288	452	318	361	318	361	318	361	318	361
36'	186	206	208	231	235	260	261	285	283	312	303	341	331	367	349	381	348	381	348	380	346	379	336	377	330	374	309	372
38'	99	224	121	245	146	277	172	303	198	333	227	360	255	381	285	386	315	387	343	386	392	379	379	382	382	382	382	382
40'	166	185	185	206	203	229	226	251	250	274	271	299	290	319	311	344	329	355	335	356	331	364	329	364	324	360	313	348
42'	82	195	101	220	121	244	144	267	166	293	190	317	215	342	238	361	263	364	288	360	318	361	318	361	318	361	318	361
44'	148	164	164	181	183	202	200	223	218	247	240	263	253	281	270	305	295	324	314	331	303	340	319	344	314	334	303	329
46'	68	173	85	196	102	216	122	237	141	259	161	279	182	299	204	324	225	340	247	342	272	346	297	339	340	340	340	340
48'	133	146	148	162	160	178	176	199	196	216	211	233	226	255	244	272	261	290	277	304	291	316	305	322	311	319	310	313
50'	58	155	72	173	86	192	103	211	119	229	137	250	155	270	174	289	193	301	212	322	235	325	255	320	279	319	301	311
52'	118	131	133	148	147	161	162	176	178	190	188	210	199	226	220	242	234	257	249	277	259	289	278	305	293	296	298	293
54'	49	141	61	155	74	175	88	191	103	206	118	218	134	241	150	259	166	273	184	293	202	305	217	301	239	295	262	295
56'	105	119	118	133	131	147	144	159	158	173	167	193	183	201	196	215	209	235	224	249	237	264	249	278	262	284	275	277
58'	42	127	52	141	64	157	76	172	89	189	103	205	116	219	130	230	144	249	159	264	175	279	188	284	204	283	225	279
60'	91	110	109	121	121	135	132	145	143	159	155	170	167	183	180	202	189	209	200	226	215	239	229	249	239	261	253	267
62'	36	115	45	129	55	142	66	155	77	170	89	178	102	200	114	211	127	226	140	234	154	253	166	264	180	266	195	261
64'	79	99	99	110	110	122	122	135	130	144	141	158	153	170	162	179	174	190	181	204	196	218	206	230	216	241	227	247
66'	32	103	39	116	48	128	58	142	67	153	78	169	89	181	100	186	111	205	123	218	134	223	145	244	160	253	172	249
68'	90	101	101	111	110	122	121	133	129	140	140	153	148	161	161	171	170	188	180	199	189	210	198	221	208	231	208	231
70'	34	107	42	120	50	129	59	142	68	153	78	159	88	176	99	188	109	199	120	206	132	222	140	234	154	237	154	237
72'	80	93	93	102	102	111	111	122	121	132	127	141	136	153	146	163	157	173	166	183	176	192	183	199	191	213	191	213
74'	80	93	93	102	102	111	111	122	121	132	127	141	136	153	146	163	157	173	166	183	176	192	183	199	191	213	191	213
76'	70	86	82	95	94	104	102	112	111	123	119	130	129	139	137	150	144	159	154	169	160	179	170	186	180	196	180	196
78'	70	88	88	95	94	104	99	111	46	118	54	129	61	138	69	144	77	161	86	162	95	181	104	189	113	193	123	208
80'	63	78	89	96	87	96	95	104	102	111	111	120	118	132	125	138	135	141	140	158	149	164	156	174	165	181	165	181
82'	63	78	92	103	35	103	41	109	48	118	55	130	62	136	69	147	77	157	85	163	94	174	102	185	110	194	110	194
84'	56	70	82	89	78	89	88	96	95	103	101	115	109	119	118	130	125	138	132	145	138	152	148	161	153	167	153	167
86'	56	70	86	96	31	96	37	104	43	113	49	118	56	130	62	136	69	143	77	152	84	161	91	169	100	177	100	177
88'	51	63	76	83	82	90	89	94	96	103	102	114	109	117	116	129	122	136	129	141	135	148	143	158	149	165	149	165
90'	51	63	76	83	82	90	89	94	96	103	102	114	109	117	116	129	122	136	129	141	135	148	143	158	149	165	149	165
92'	46	57	69	75	75	85	83	91	90	98	95	106	102	113	108	118	114	126	121	133	126	139	133	146	133	146	133	146
94'	46	57	68	82	30	90	35	97	40	104	45	113	51	118	57	123	63	131	69	139	75	150	81	153	81	153	81	153
96'	41	52	63	73	77	85	83	90	90	99	95	102	101	111	107	118	113	125	119	129	124	132	69	138	75	146	75	146
98'	37	47	57	68	75	80	78	85	83	92	89	97	94	106	100	110	106	116	111	122	117	127	117	127	117	127	117	127
100'	37	47	57	68	79	84	33	91	37	99	42	105	47	109	52	115	57	123	62	129	68	137	68	137	68	137	68	137
102'	34	43	52	62	67	75	74	81	79	88	83	92	89	99	94	105	98	110	104	116	110	122	110	122	110	122	110	122
104'	34	43	52	62	67	75	74	81	79	88	83	92	89	99	94	105	98	110	104	116	110	122	110	122	110	122	110	122
106'	31	39	47	57	65	70	77	81	74	81	79	87	84	93	89	96	94	103	99	109	104	113	104	113	104	113	104	113
108'	31	39	47	57	67	75	81	83	35	91	39	97	43	104	48	108	52	113	43	104	48	108	52	113	57	117	57	117
110'	36	43	50	61	67	73	73	83	79	87	84	93	89	97	93	102	97	108	93	102	97	108	93	102	97	108	93	102
112'	36	43	52	61	67	73	76	83	32	88	36	93	40	94	44	99	48	109	52	113	57	117	57	117	57	117	57	117
114'	33	40	45	56	64	67	72	78	75	79	79	84	84	92	88	95	93	100	88	95	93	100	88	95	93	100	88	95
116'	33	40	48	56	66	71	76	82	33	86	33	86	37	93	40	98	44	101	48	108	44	101	48	108	44	101	48	108

- See page 5 for available depths and profiles. For depths and profiles not shown, contact your RedBuilt technical representative for assistance.
- For spans over 70 feet, see page 32 or contact your RedBuilt technical representative.
- Red numbers refer to 115% Total Load (TL).

## General Notes

- Values shown demonstrate maximum allowable load capacities based on the following assumptions:
  - Simple span, uniformly loaded conditions, with provisions for positive drainage (¼:12 slope, minimum) in roof applications.
  - Span indicates distance from inside face to inside face of bearing.
  - Top chord Z bearing clips for Red-M™ and Red-H™ trusses. Higher values may be possible with other types of bearing clips.

- Straight line interpolations may be made between depths and spans.
- **Bold italic** values are controlled by minimum concentrated load analysis of 2,000 lbs. Higher loads are possible where minimum concentrated load analysis is not required by code. Contact your RedBuilt technical representative for assistance.

General Notes continued on page 11

Trusses delivered to the jobsite are custom manufactured to resist only project specific application loads provided by the design professional. Actual trusses may not be able to resist the maximum loads shown in the tables above. For questions regarding actual truss capacity contact your RedBuilt technical representative.

# RED-H™ TRUSS ALLOWABLE UNIFORM LOAD TABLE (PLF) / PARALLEL CHORD

SEE PAGE 4 FOR ECONOMICAL TRUSS DESIGN

Span	Depth															
	24"		27"		30"		33"		36"		39"		42"		45"	
	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL	100% TL	115% TL
Span	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL	100% LL	125% TL
30'	327	365	384	423	436	462	448	470	439	471	426	468	420	470	411	480
	187	388	244	452	308	464	372	470	436	481		495		479	484	487
32'	290	322	336	376	384	427	428	439	424	446	421	444	422	445	400	430
	156	341	204	395	259	434	314	440	370	448		444		454	453	453
34'	256	284	299	332	342	381	383	412	397	415	396	420	404	422	401	424
	132	303	173	349	219	401	268	414	317	423	368	427		429	431	429
36'	228	254	267	297	306	339	341	381	380	394	383	397	387	399	396	398
	112	267	147	314	187	359	230	394	272	399	317	401	365	404	406	409
38'	206	229	240	266	275	305	302	342	344	370	363	374	373	376	375	379
	96	243	126	282	160	324	197	364	236	373	276	379	317	391	357	389
40'	186	207	217	238	245	275	276	311	298	339	341	356	350	358	356	361
	83	222	109	254	138	291	171	328	206	357	239	360	276	364	314	366
42'	169	187	197	216	224	250	250	278	281	313	311	339	327	338	332	343
	72	196	95	228	121	265	149	298	179	332	209	342	240	344	277	350
44'	151	169	178	195	204	225	223	258	257	286	284	315	308	324	321	327
	62	182	83	209	106	239	130	273	158	303	185	325	212	328	243	331
46'	137	157	164	182	188	208	211	232	237	262	258	288	282	308	304	314
	55	166	73	191	93	219	115	249	139	277	164	305	190	313	215	318
48'	121	144	151	168	173	192	194	213	215	237	238	264	260	288	281	298
	48	153	64	177	82	201	102	226	123	250	145	276	168	298	191	302
50'	107	132	139	155	158	176	178	191	198	220	216	244	234	263	259	284
	43	140	57	164	73	185	91	211	110	230	130	258	150	282	172	290
52'	95	123	126	142	146	163	165	183	183	202	203	225	221	247	240	264
	38	124	51	151	65	170	81	192	98	216	116	237	135	259	154	277
54'	85	112	114	130	136	152	153	166	170	186	187	210	205	226	222	245
	34	112	45	141	58	158	72	180	88	200	104	218	122	241	140	261
56'	76	100	102	124	126	137	139	158	160	173	175	193	190	209	207	229
	30	99	41	131	52	148	65	168	79	184	94	204	110	224	126	242
58'	90	116	117	129	133	148	139	164	162	174	179	198	189	211	208	230
	90	37	120	47	139	59	156	71	173	85	191	99	208	115	228	129
60'	82	108	105	121	124	138	137	153	151	168	167	185	181	201	190	214
	82	33	109	42	131	53	143	65	162	77	176	90	191	104	211	118
62'	74	99	97	117	117	130	129	144	142	157	156	174	168	185	181	198
	74	30	99	39	122	48	137	59	150	70	166	82	179	94	194	108
64'	66	90	84	108	108	122	121	135	132	148	146	161	159	175	171	189
	68	90	35	115	44	128	54	139	64	155	75	171	86	185	98	196
66'	62	82	80	102	97	114	115	127	127	137	136	151	148	164	160	174
	62	82	32	105	40	121	49	131	58	145	68	158	79	172	90	184
68'	57	75	97	106	91	106	108	117	118	131	129	143	140	148	152	164
	57	75	96	37	114	45	125	53	136	63	149	72	164	82	177	93
70'	52	69	86	103	84	103	95	112	112	121	122	133	131	148	143	157
	52	69	89	34	106	41	119	49	130	58	141	67	153	76	163	86

- See page 5 for available depths and profiles. For depths and profiles not shown, contact your RedBuilt technical representative for assistance.
- For spans over 70 feet, see page 32 or contact your RedBuilt technical representative.
- Red numbers refer to 115% Total Load (TL).

General Notes continued from page 10

## To size floor trusses:

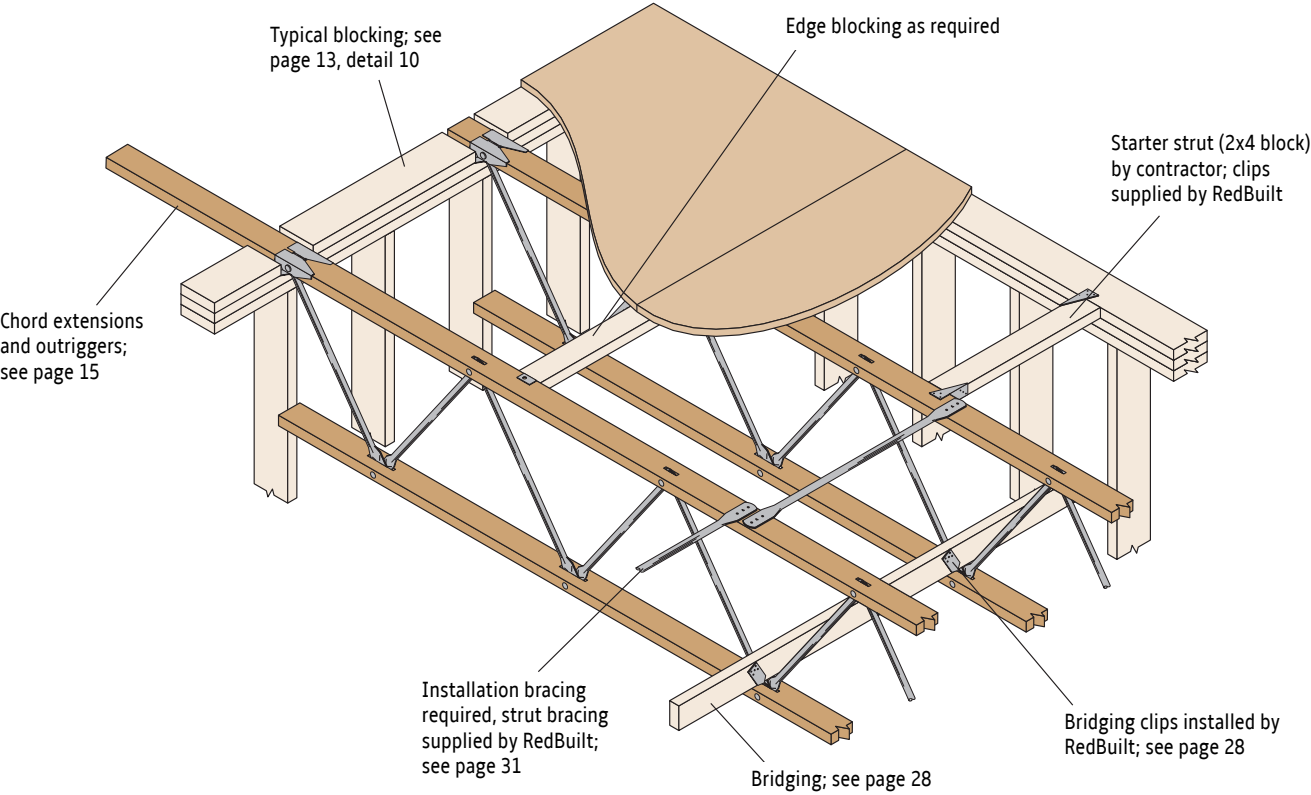
Check both total load (100% TL) and live load (100% LL). When live load is not shown, total load will control. Total load values limit deflection to L/240. Live load values are based on the **Commercial Floor Deflection Limit** shown on page 35, and assume a nailed floor system. Live load (100% LL) values may be increased with a glue-nailed floor system; contact your RedBuilt technical representative for assistance.

## To size roof trusses:

Check the appropriate snow load area (115% TL) or non-snow load area (125% TL) value to determine the maximum allowable total load. Total load (115% TL and 125% TL) values limit truss deflection to L/180.

**Consult local codes to verify deflection limits required for specific applications.**

Trusses delivered to the jobsite are custom manufactured to resist only project specific application loads provided by the design professional. Actual trusses may not be able to resist the maximum loads shown in the tables above. For questions regarding actual truss capacity contact your RedBuilt technical representative.

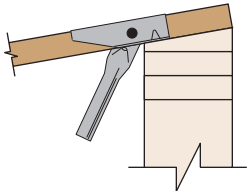


1 Beveled Plate Requirements

Beveled bearing plates are required for trusses with sloped top chords.

Beveled plates serve two functions:

- 1. Provide proper bearing for the bearing clip.
- 2. Avoid interference between the top chord and the bearing plate.



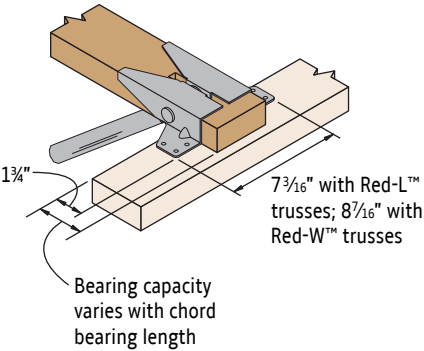
A beveled plate, to suit roof slope, is required at all common bearings and cantilevered bearings.

Slopes Requiring a Beveled Plate

Bearing Condition	No-Notch, U-Clip		
	2x8	2x6	2x4
Low end	>¼:12	>⅜:12	>½:12
High end	>⅜:12	>⅜:12	>½:12
Cantilever	Beveled plate required at all slopes		
Common			

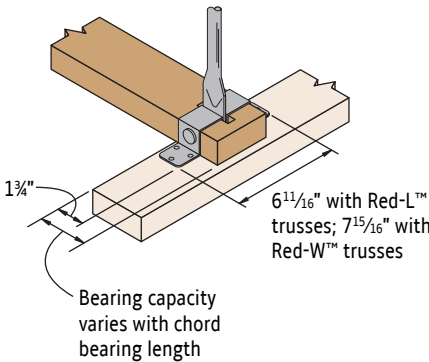
• See detail 4 for flush mount bearing clip requirements.

2 Top Bearing No-Notch Clip



Pre-notched plate not required

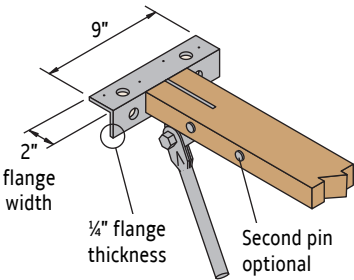
3 Bottom Bearing U-Clip



See page 22 for bearing reaction capacities

4 Top Bearing Flush-Mount Clip (Heavy Duty)

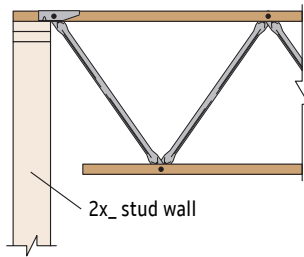
Specify for high axial load applications



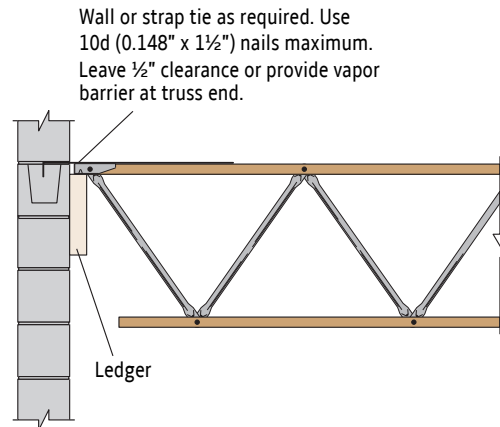
Maximum slope is ½:12. Contact your RedBuilt technical representative for truss depths less than 21". See pages 24–26 for additional information on Wind or Seismic Connections.



## 5 Top Chord Bearing No-Notch Clip

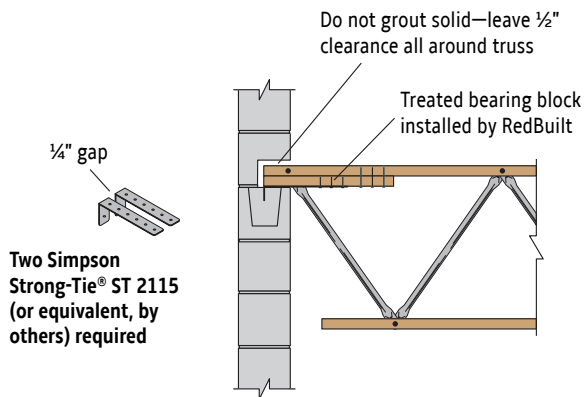


## 6 Top Chord Bearing on Ledger No-Notch Clip



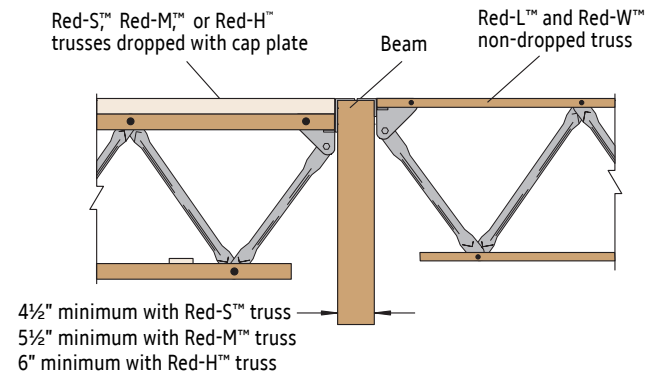
See page 24 for compatible strap ties

## 7 Bearing Block at Masonry Wall



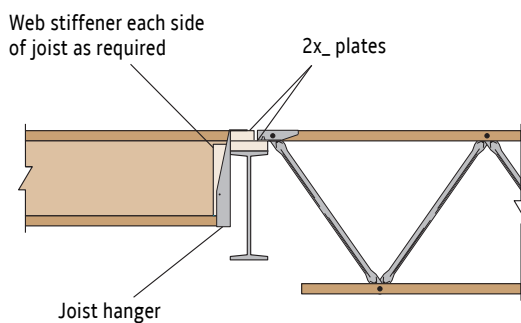
Blocking not shown for clarity

## 8 Top Chord Bearing Flush-Mount Bearing Clip (Dropped and Non-Dropped)



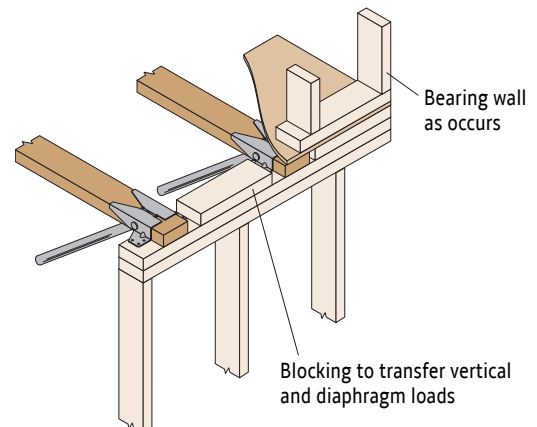
See page 25 for axial tension or compression capacity information

## 9 Red-I™ Joist Butting with Top Chord Bearing Truss

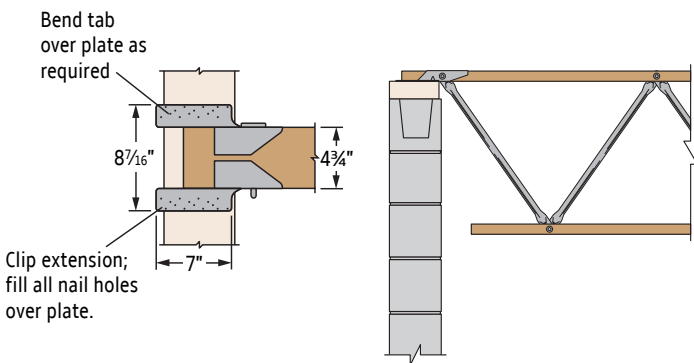


Option: Bearing clips may also be welded directly to steel beam

## 10 Typical Top Chord Bearing and Blocking No-Notch Clip

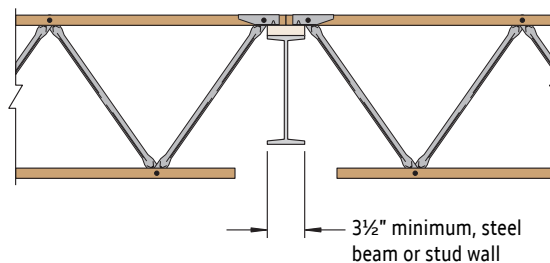


## 11 Red-W™ Truss Top Chord Bearing Lateral No-Notch Clip



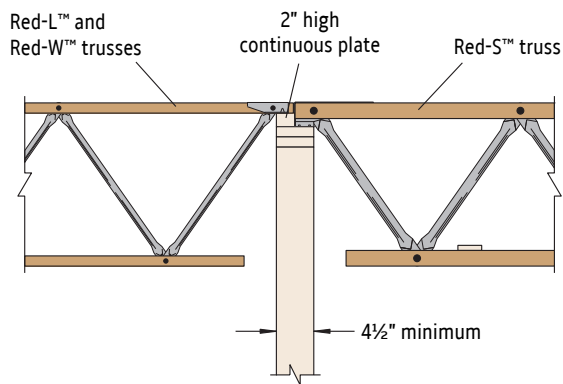
See page 26 for lateral load capacity and for Red-L™ and Red-W™ alternate detail

## 12 Top Chord Bearing on Steel Beam No-Notch Clip



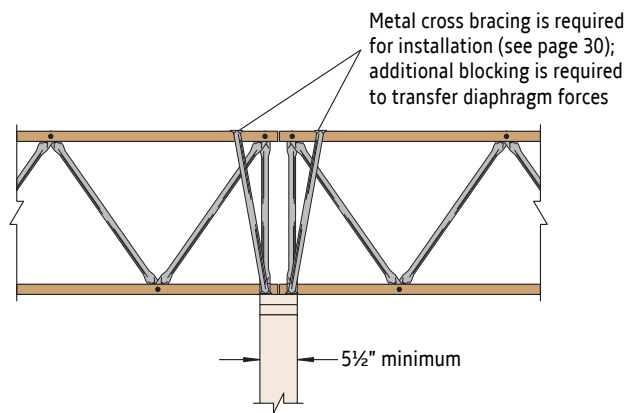
2,860 lbs reaction capacity at 100% duration of load; higher reactions require more bearing length  
Option: Bearing clips may also be welded directly to steel beam

## 13 Top Chord Bearing Truss Butting with Red-S™ Truss

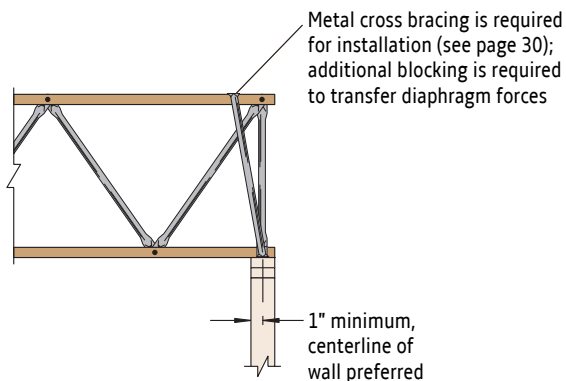


2,860 lbs reaction capacity at 100% duration of load for Red-L™ and Red-W™ trusses; higher reactions require more bearing length

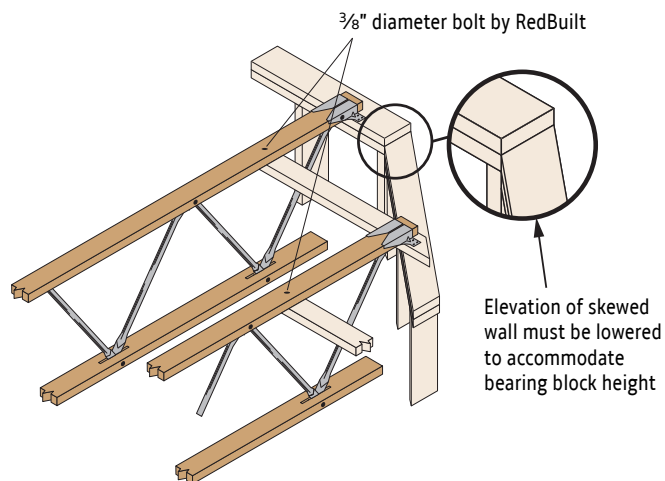
## 14 Bottom Chord Bearing with Butting Trusses U-Clip



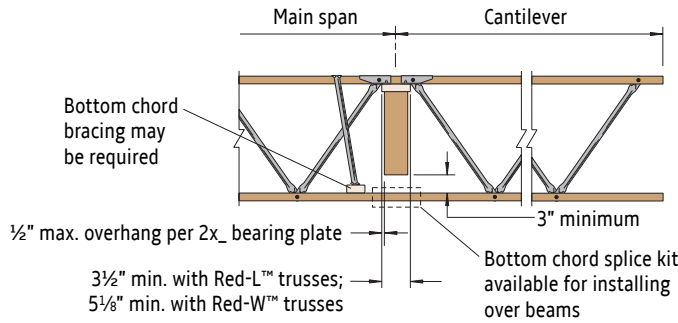
## 15 Bottom Chord Bearing with Cross Bracing U-Clip



## 16 Top Chord Bearing at Skewed Wall No-Notch Clip

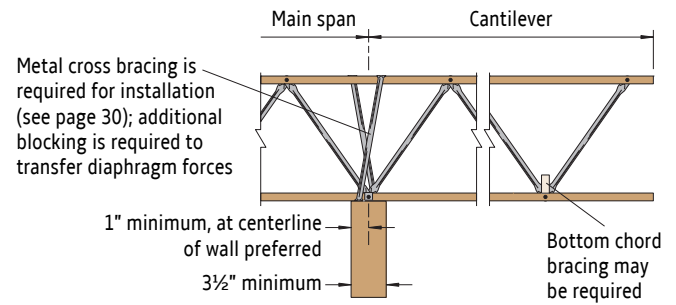


## 17 Top Chord Bearing Cantilever No-Notch Clip



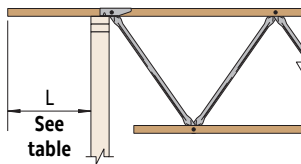
Contact your RedBuilt technical representative if cantilever exceeds 1/3 of main span

## 18 Bottom Chord Bearing Cantilever U-Clip



Contact your RedBuilt technical representative if cantilever exceeds 1/3 of main span

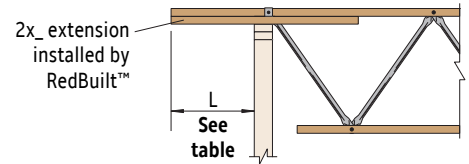
## 19 Top Chord Extension



Length L	Allowable Uniform Load Capacity (plf)					
	Red-L™ Trusses			Red-W™ Trusses		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
10"	375	425	460	455	500	515
12"	375	425	460	455	500	515
14"				455	500	515
16"				390	465	470
18"				275	330	330

- Values are limited by the published backspan capacity (plf).
- Members evaluated for 300 lb. point load.

## 20 Double Top Chord Extension



Length L	Allowable Uniform Load Capacity (plf)					
	Red-L™ Trusses			Red-W™ Trusses		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
18"	375	425	460	455	500	515
20"	295	355	355	400	480	480
22"	220	265	265	300	360	360
24"	170	205	205	230	280	280
26"	135	160	160	180	220	220
28"				145	175	175
30"				120	145	145
32"				100	115	115

- Values are limited by the published backspan capacity (plf).
- Members evaluated for 300 lb. point load.

Design criteria for details 19 and 20:

$$F_v = 175 \text{ psi}$$

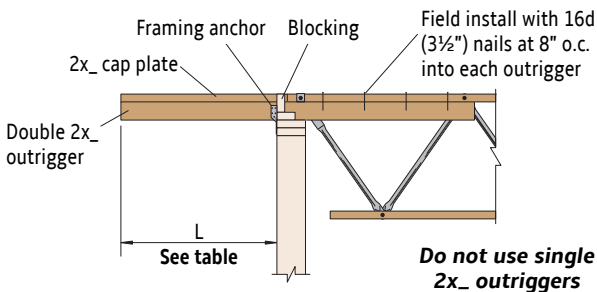
$$F_b = 2,100 \text{ psi}$$

$$E = 1.8 \times 10^6 \text{ psi}$$

Deflection:

- 2L/360 at LL for floors (live load = 0.80 x total load)
- 2L/240 at TL for roofs

## 21 Double 2x\_ Outrigger



The following minimum criteria were used to develop the values:

2x4 and 2x6:

$$F_v = 175 \text{ psi}$$

$$F_b = 2,100 \text{ psi}$$

$$E = 1.8 \times 10^6 \text{ psi}$$

2x8:

$$F_v = 175 \text{ psi}$$

$$F_b = 900 \text{ psi}^{(1)}$$

$$E = 1.6 \times 10^6 \text{ psi}$$

Outrigger deflection:

- 2L/360 at LL for floors (live load = 0.80 x total load)
- 2L/240 at TL for roofs
- Outrigger deflection =  $\frac{WL^4}{8EI}$

(1) Multiply by  $C_F = 1.2$

Outrigger Length L	Allowable Uniform Load Capacity (plf)								
	Double 2x4 Outrigger			Double 2x6 Outrigger			Double 2x8 Outrigger		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
24"	375	425	460	375	425	460	375	425	460
30"	345	395	430	375	425	460	375	425	460
36"	240	275	300	375	425	460	375	425	460
42"	175	200	210	375	425	460	375	425	460
48"	115	140	140	330	380	415	295	340	370
54"				260	300	325	235	270	290
60"				210	245	265	190	220	235
66"				175	200	210	155	180	195
72"				135	160	160	130	150	165
78"				105	125	125	110	130	140
84"				85	100	100	95	110	120
90"				70	80	80	85	95	105
96"				55	70	70	75	85	90

- Values are limited by the published backspan capacity (plf).
- Members evaluated for 300 lb. point load.

Chord extensions and outriggers; see page 18

Standard 2x4 blocking on edge

Edge blocking as required

Starter strut (2x4 block) by contractor; clips supplied by RedBuilt

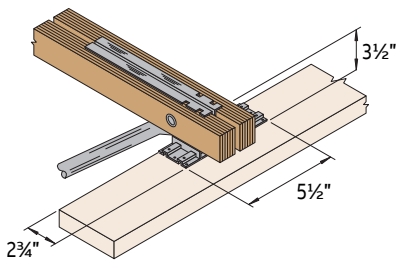
Bottom chord restraint; see page 31

Installation bracing required, strut bracing supplied by RedBuilt; see page 31

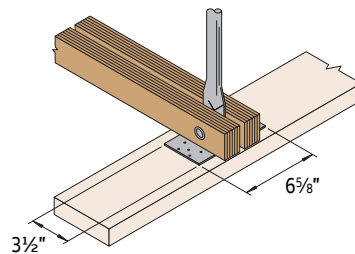
Floor bridging; see page 28

Bridging clips installed by RedBuilt; see page 28

## 22 Top Chord Bearing S-Clip

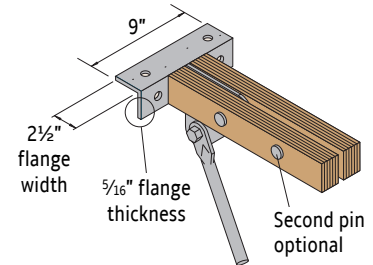


## 23 Bottom Chord Bearing Angle Clip



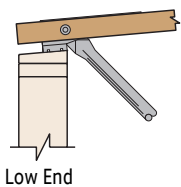
## 24 Top Bearing Flush-Mount Clip (Heavy Duty)

**Specify for high axial load applications**

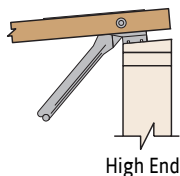


**Maximum slope is 1/2:12. Contact your RedBuilt technical representative for truss depths less than 22". See pages 24–26 for additional information on Wind or Seismic Connections.**

## 25 Beveled Plate Requirements—Top Chord Bearing

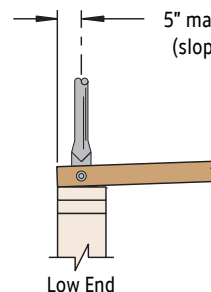


**Beveled plate is required for all slopes greater than 1/4:12**

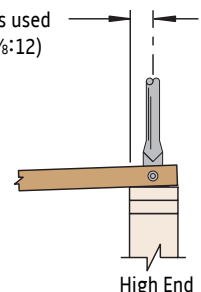


## 26 Beveled Plate Requirements—Bottom Chord Bearing

5" max. when no beveled plate is used (slope is less than or equal to 1/8:12)



**Beveled plate is required for all slopes greater than 1/8:12**



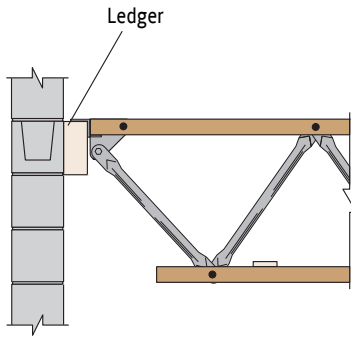
**Beveled plate is required for all slopes when trusses are cantilevered**

**Beveled plate is required for all slopes when trusses are cantilevered**

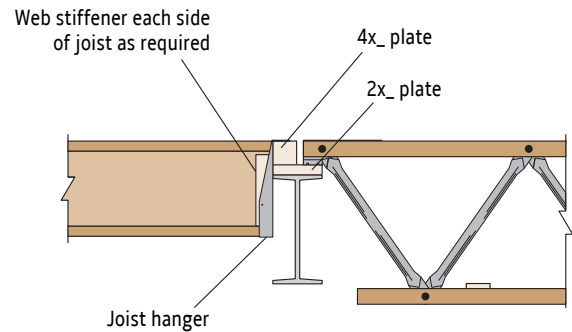
See page 22 for bearing reaction capacities



## 27 Top Chord Bearing on Ledger Flush-Mount Bearing Clip

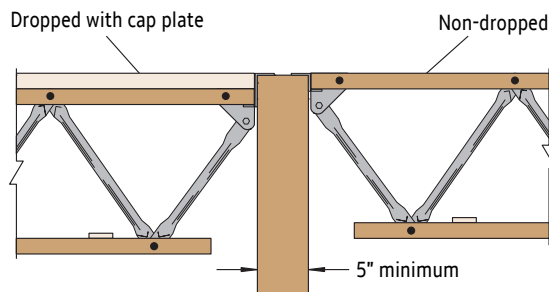


## 28 Red-I™ Joist Butting with Red-S™ Truss S-Clip



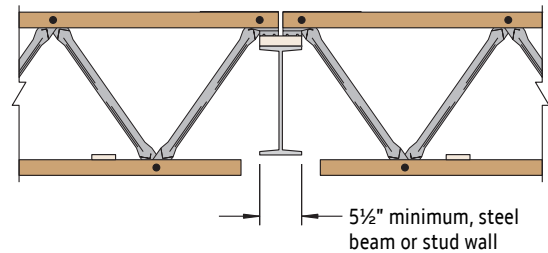
*Option: Bearing clips may also be welded directly to steel beam*

## 29 Top Chord Bearing Flush-Mount Bearing Clip (Dropped and Non-Dropped)



*See page 25 for axial tension or compression capacity information*

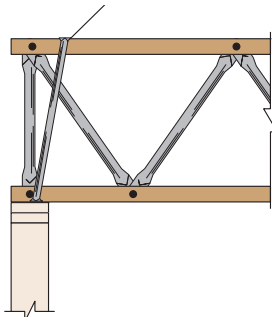
## 30 Top Chord Bearing with Butting Trusses S-Clip



*Option: Bearing clips may also be welded directly to steel beam*

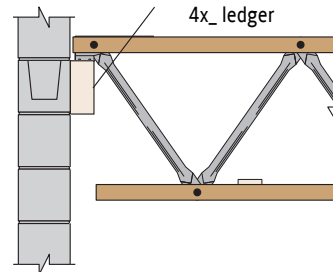
## 31 Bottom Chord Bearing with Cross Bracing Angle Clip

Metal cross bracing is required for installation (see page 30); additional blocking is required to transfer diaphragm forces

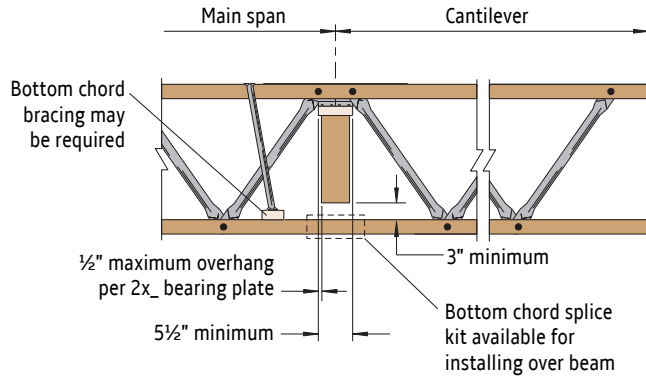


## 32 Top Chord Bearing on Ledger S-Clip

Leave 1/2" clearance or provide vapor barrier at truss end.

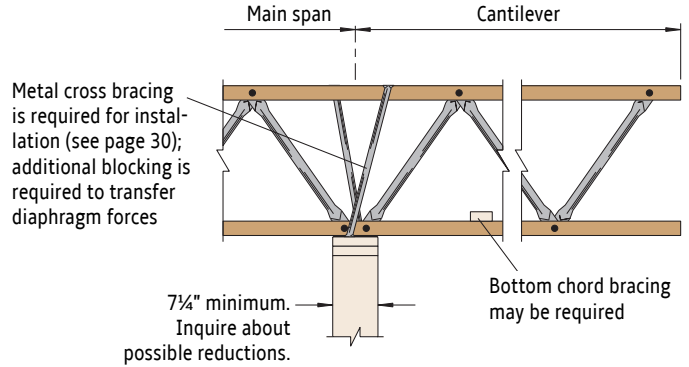


## 33 Top Chord Bearing Cantilever



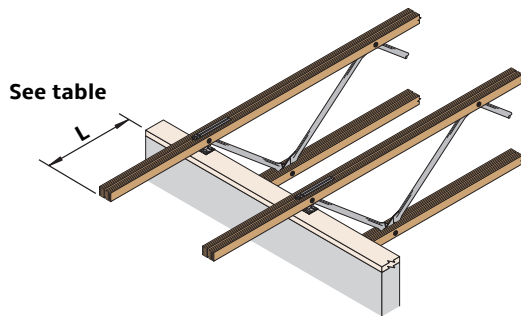
To check cantilever capacity, contact your RedBuilt technical representative

## 34 Bottom Chord Bearing Cantilever



To check cantilever capacity, contact your RedBuilt technical representative

## 35 Top Chord Extension



Length L	Chord Extension Capacity (plf)		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
18"	290	330	360
20"	245	295	295
22"	195	235	235
24"	160	190	190
30"	90	110	110

- Values are limited by the published backspan capacity (plf).
- Members evaluated for 300 lb. point load.

The following criteria were used to develop the values:

$$F_v = 285 \text{ psi}$$

$$F_b = 3,000 \text{ psi}^{(1)}$$

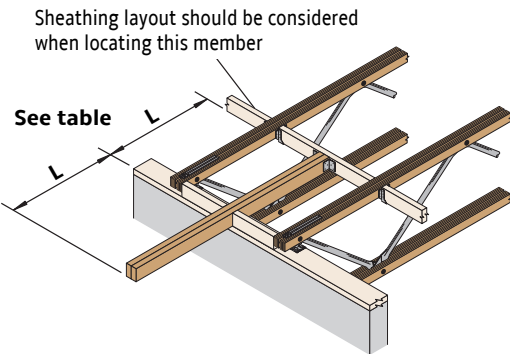
$$E = 2.0 \times 10^6 \text{ psi}$$

(1) Multiply by size factor = 1.18

Deflection:

- 2L/360 at LL for floors (live load = 0.80 x total load)
- 2L/240 at TL for roofs

## 36 Double 2x Outrigger



Outrigger Length L	Allowable Uniform Load Capacity (plf)								
	Double 2x4 Outrigger			Double 2x6 Outrigger			Double 2x8 Outrigger		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
24"	255	305	305	490	545	570	490	545	570
30"	160	190	190	490	545	570	490	545	570
36"	100	120	120	390	470	470	455	520	555
42"	65	80	80	260	315	315	385	445	475
48"	45	55	55	180	215	215	295	340	370
54"				130	155	155	235	270	290
60"				95	115	115	190	220	235
66"				70	85	85	145	175	175
72"				55	65	65	115	135	135
78"				45	55	55	90	110	110
84"				35	45	45	75	85	85
90"				30	35	35	60	70	70
96"				30	30	30	60	60	60

- Values are limited by the published backspan capacity (plf).
- All calculations assume a single 2x header of equal depth to the outriggers, with the trusses at 48" on-center.
- For single 2x outriggers, use half of allowable load shown for double outriggers.
- Members evaluated for 300 lb. point load.

The following criteria were used to develop the values:

2x4 and 2x6:

$$F_v = 175 \text{ psi}$$

$$F_b = 2,100 \text{ psi}$$

$$E = 1.8 \times 10^6 \text{ psi}$$

(1) Multiply by  $C_F = 1.2$

2x8:

$$F_v = 175 \text{ psi}$$

$$F_b = 900 \text{ psi}^{(1)}$$

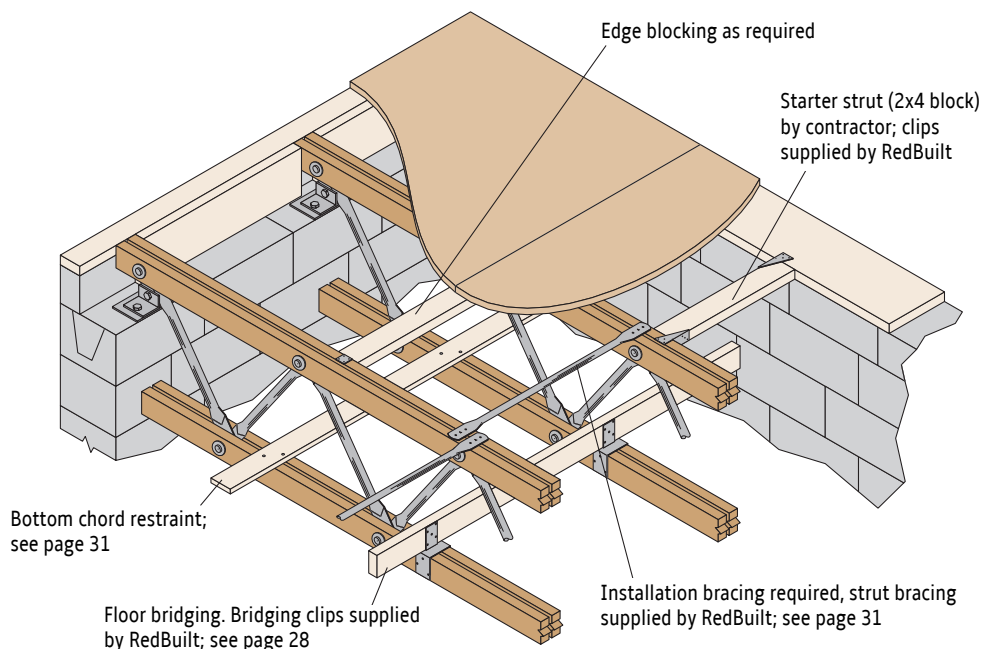
$$E = 1.6 \times 10^6 \text{ psi}$$

Outrigger deflection:

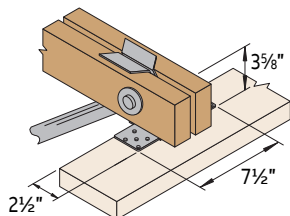
- 2L/360 at LL for floors (live load = 0.80 x total load)

- 2L/240 at TL for roofs

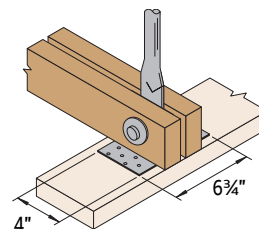
$$\text{Outrigger deflection} = \frac{7WL^4}{24EI} + \frac{48^2WL}{EI}$$



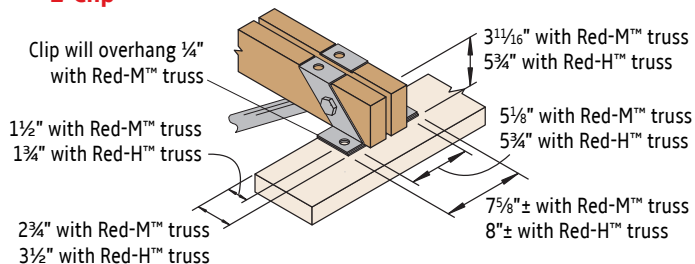
## 37 Red-M™ Truss Top Chord Bearing S-Clip



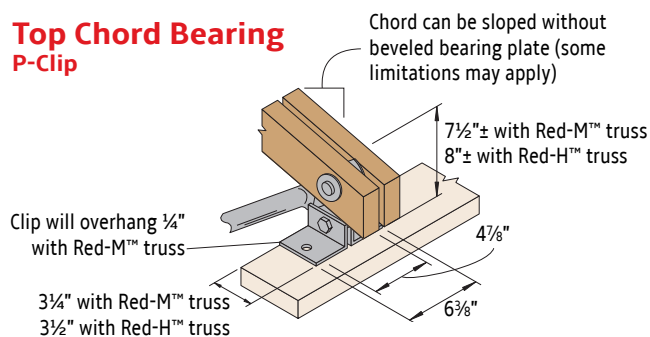
## 38 Red-M™ Truss Bottom Chord Bearing Angle Clip



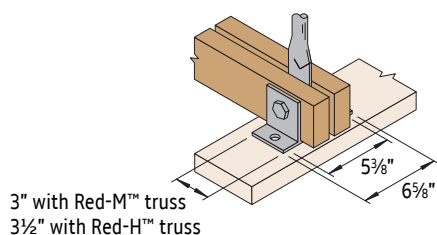
## 39 Top Chord Bearing Z-Clip



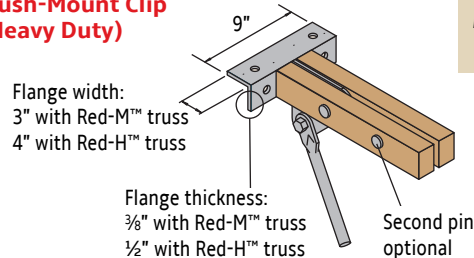
## 40 Top Chord Bearing P-Clip



## 41 Bottom Chord Bearing T-Clip



## 42 Top Bearing Flush-Mount Clip (Heavy Duty)



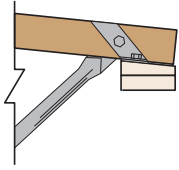
Specify for high axial load applications

Maximum slope is 1/2:12. Contact your RedBuilt technical representative for truss depths less than 31". See pages 24–26 for additional information on Wind or Seismic Connections.

See page 22 for bearing reaction capacities

# RED-M™ AND RED-H™ TRUSS DETAILS

## 43 Beveled Plate Requirements



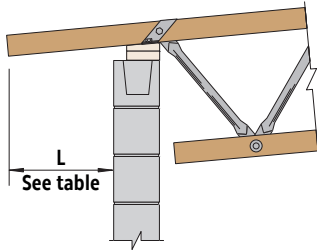
Beveled plates serve two functions:

1. Provide proper bearing for bearing clips.
2. Avoid interference between top chords and bearing plate.

## Slopes Requiring a Beveled Plate

Bearing Condition		S-Clip Z-Clip	Angle Clip T-Clip	P-Clip	Flush Mount
Low End	2x8	$>\frac{1}{8}:12$	$>\frac{1}{4}:12$	N.A.	See detail 42
	2x6	$>\frac{3}{16}:12$	$>\frac{1}{4}:12$	N.A.	
	2x4	$>\frac{1}{4}:12$	$>\frac{1}{4}:12$	N.A.	
High End		$>\frac{1}{4}:12$	$>\frac{1}{4}:12$	N.A.	
Cantilevers		All slopes			N.A.

## 44 Typical Top Chord Extension



The following criteria were used to develop the values:

$F_v = 175$  psi

$F_b = 2,100$  psi

$E = 1.8 \times 10^6$  psi

Deflection:

2L/360 at LL for floors (live load = 0.80 x total load)

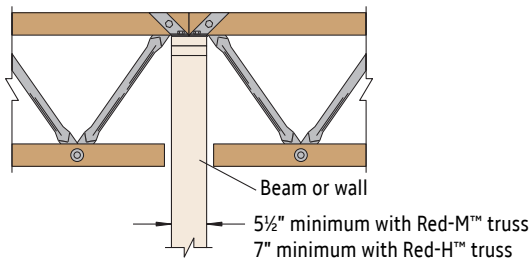
2L/240 at TL for roofs

## Allowable Uniform Load Capacity (plf)

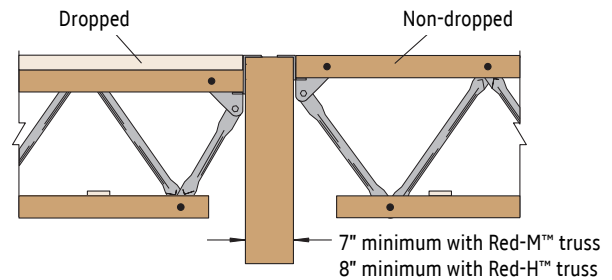
Length	Red-M™			Red-H™		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
24"	290	330	360	375	430	465
30"	235	270	295	305	350	380
36"	200	230	250	255	295	320
42"	140	170	170	220	255	275
48"	95	115	115	195	225	245
54"				175	200	215
60"				155	180	195
66"				145	165	180
72"				125	150	150

- Values are limited by the published backspan capacity (plf).
- Members evaluated for 300 lb. point load.

## 45 Top Chord Bearing with Butting Trusses Z-Clip

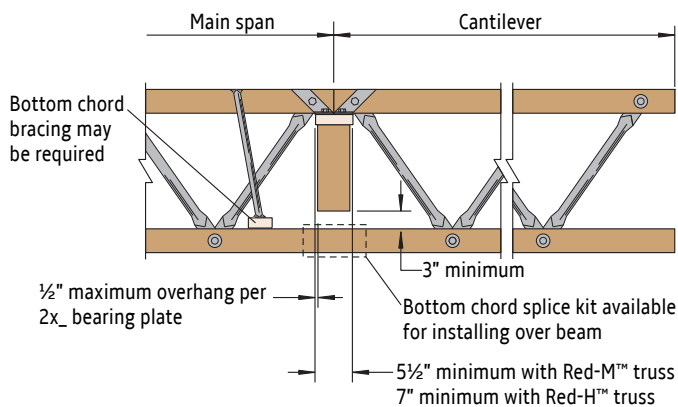


## 46 Top Chord Bearing Flush-Mount Bearing Clip (Dropped and Non-Dropped)



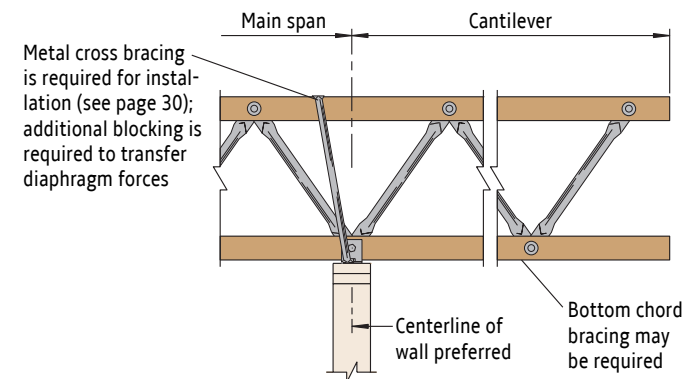
See page 25 for axial tension or compression capacity information

## 47 Top Chord Bearing Cantilever Z-Clip



Contact your RedBuilt technical representative if cantilever exceeds  $\frac{1}{3}$  of the truss span

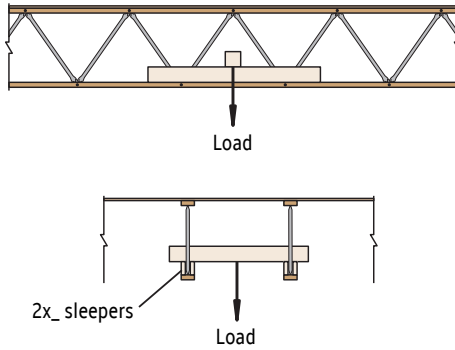
## 48 Bottom Chord Bearing Cantilever T-Clip



Contact your RedBuilt technical representative if cantilever exceeds  $\frac{1}{3}$  of the truss span



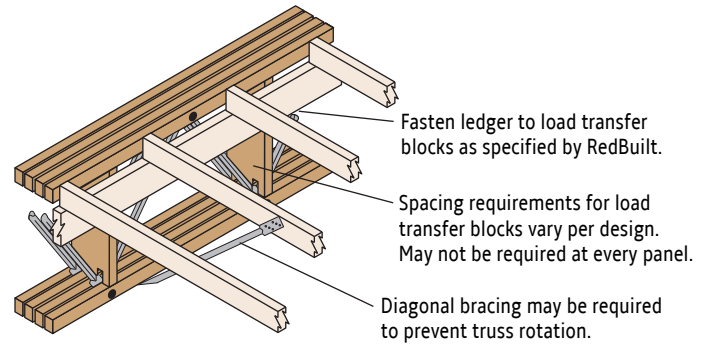
## 49 Concentrated Loads



## Concentrated and Non-Uniform Loads

For the most efficient use of RedBuilt™ products carrying concentrated loads or non-uniform loads, and/or used in conditions other than simple spans, consult your RedBuilt technical representative for precise sizing. As a general rule, extra members should be added to the system to carry concentrated loads such as bearing partitions, air-conditioners, and other mechanical equipment. Handling concentrated loads in this manner usually provides the most economical system and also helps ensure more uniform deflection.

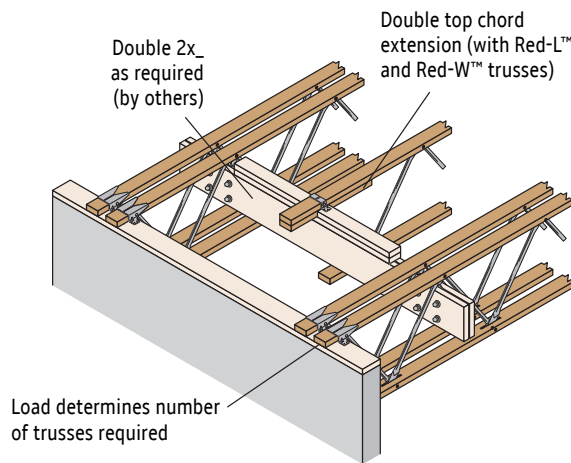
## 50 Side-Loaded Double Truss Assembly



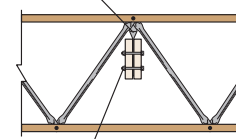
**Load transfer blocks are required only when the load is imposed from the side**

Truss Series	Maximum Load Per Transfer Block
Red-L™, Red-W™	700 lbs
Red-S™, Red-M™	1,200 lbs
Red-H™	1,300 lbs

## 51 Header Detail



Header hanger by RedBuilt



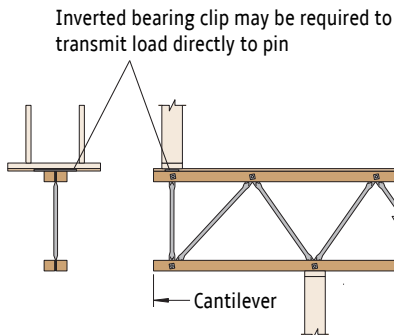
Use 5/8" bolts for single chord trusses, 3/4" bolts for double chord trusses

Truss Series	Maximum Allowable Header Clip Load Per Truss			
	Single Truss		Double Truss	
	Reaction	Header Bolts Required	Reaction	Header Bolts Required
Red-L™ and Red-W™	2,190 lbs	2	2,740 lbs	4
Red-S™	4,170 lbs	4		
Red-M™	3,540 lbs	4		
Red-H™	9,640 lbs	4		

**Truss depth, design load, and web angle may limit header size. Check feasibility with your local RedBuilt technical representative.**

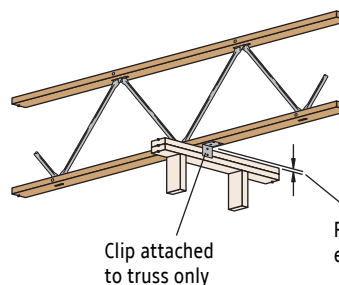
- Table values do not consider header or header connection designs.
- Table values are based on large truss pins. Contact your local RedBuilt technical representative to ensure that the truss application works with the corresponding header reaction.

## 52 Loads on Cantilever

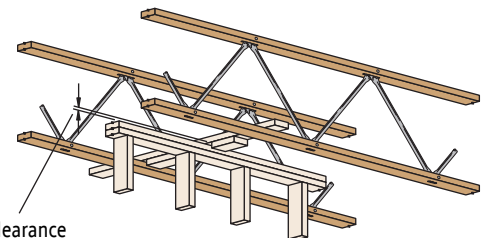


## 53 Non-Bearing Partitions

### Perpendicular to Truss



### Parallel to Truss



# OPEN-WEB TRUSS BEARING CLIP CAPACITIES

## Single- and Double-Chord Bearing Clip Capacities

Truss Series	Clip Type	Detail Number	Bearing (Top or Bottom)	Bearing <sup>(2)</sup> Length (min.)	Reaction Capacity (lbs)		
					Duration of Load		
					100%	115%	125%
Red-L™	6" No-Notch	2	T	1¾"	2,860	3,290	3,290
	6" No-Notch	2	T	2½"	3,025	3,480	3,780
	6" No-Notch	2	T	3½"	3,150	3,620	3,925
	U-Clip	3	B	2¾"	4,400 <sup>(3)</sup>	4,845 <sup>(3)</sup>	4,845 <sup>(3)</sup>
Red-W™	6" No-Notch	2	T	1¾"	2,860	3,290	3,290
	6" No-Notch	2	T	2⅝"	3,500	4,025	4,300
	U-Clip	3	B	2¾"	4,850	5,580	5,880
Red-S™	S-Clip	22	T	2¾"	5,390	5,390	5,390
	Angle Clip	23	B	3½"	5,325	6,125	6,655
Red-M™	S-Clip	37	T	2½"	3,990 <sup>(3)</sup>	4,330 <sup>(3)</sup>	4,330 <sup>(3)</sup>
	Z-Clip <sup>(1)</sup>	39	T	2¾"	7,390	7,390	7,390
	P-Clip	40	T	3¼"	8,310	8,310	8,310
	Angle Clip	38	B	4"	6,085	7,000 <sup>(3)</sup>	7,610 <sup>(3)</sup>
	T-Clip	41	B	3"	6,500	6,500	6,500
Red-H™	Z-Clip <sup>(1)</sup>	39	T	3½"	9,200	9,200	9,200
	P-Clip	40	T	3½"	9,100	9,200	9,200
	T-Clip	41	B	3½"	9,260 <sup>(3)</sup>	10,650 <sup>(3)</sup>	11,575 <sup>(3)</sup>

(1) Increased bearing length is required when truss slope meets or exceeds ¼:12.

(2) Sloped applications may require longer bearing lengths.

(3) Use a Douglas fir bearing plate (or equivalent).

- Values are based on bearing plate material (with  $F_{db} = 405$  psi,  $SG = 0.42$ ) unless noted with (3).

## Single- and Double-Chord Flush-Mount Bearing Clip Capacities

Truss Series	Detail Number	Bearing (Top or Bottom)	Bearing Length (min.)	Reaction Capacity (lbs)				
				Allowable Bearing Plate Stress				
				405 psi	555 psi	600 psi	Steel (max.)	45° Skew (max.)
Red-L™ and Red-W™	4	T	1¾"	3,125	3,745	4,015	5,210	3,125
Red-S™	24	T	2¾"	3,995	4,835	5,220	7,310	3,995
Red-M™	42	T	2⅝"	5,240	6,230	6,415	11,505	4,870
Red-H™	42	T	3½"	6,620	8,115	8,775	12,055	6,620

- A maximum overhang of ¾" is allowed for all flush-mount bearing clips for published design loads.

## Single- and Double-Chord Bearing Clip—Wind Uplift Capacities

Truss Series	Clip Type	Detail Number	Bearing Location	Bearing Length <sup>(2)</sup> (min.)	Fastener Quantity	Capacities (lbs) at 160%						
						10d x 1½" (Common)	10d x 3" (Common)	16d x 2½" (Common)	16d x 3½" (Common)	SD9 x 1½" <sup>(3)</sup>	⅝" x 2" Lag	⅝" x 4" Lag
Red-L™	No-Notch <sup>(1)</sup>	2	Top	1¾"	6	315	655	595	835	1,120		
	Flush-Mount	4	Top	1¾"	2						1,570	3,000
	U-Clip	3	Bottom	2¾"	6	315	655	595	835	1,170		
Red-W™	No-Notch <sup>(1)</sup>	2	Top	1¾"	6	310	650	585	835	1,020		
	Flush-Mount	4	Top	1¾"	2						1,570	3,000
	U-Clip	3	Bottom	2¾"	6	310	650	585	835	1,170		
Red-S™	S-Clip <sup>(1)</sup>	22	Top	2¾"	10	480	610	610	610	610		
	Flush-Mount	24	Top	2¾"	2						1,570	3,000
	Angle Clip	23	Bottom	3½"	10	515	990	975	990	990		
Red-M™	S-Clip	37	Top	2½"	10	430	430	430	430	430		
	Z-Clip	39	Top	2¾"	2						1,200	2,090
	P-Clip	40	Top	4½"	2						1,200	2,310
	Flush-Mount	42	Top	2⅝"	2						1,570	3,000
	Angle Clip	38	Bottom	4" Overhang 5¼" End	12	625	1,090	1,090	1,090	1,090		
	T-Clip	41	Bottom	3" Overhang 4¾" End	2						1,200	2,310
Red-H™	Z-Clip	39	Top	3½"	2						1,200	2,310
	P-Clip	40	Top	4¾"	2						1,200	2,310
	Flush-Mount	42	Top	3½"	2						1,570	3,000
	T-Clip	41	Bottom	3½" Overhang 5½" End	2						1,200	2,310

(1) Increased uplift capacities are available with clip modifications. Please contact your RedBuilt™ representative.

(2) Sloped applications may require longer bearing lengths.

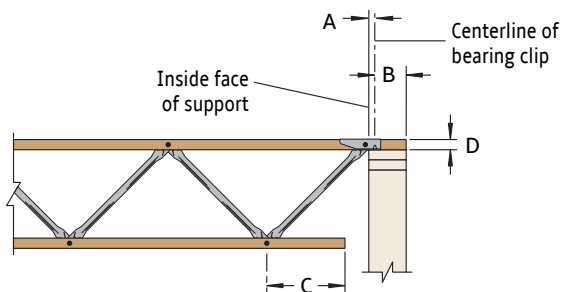
(3) SD9112 Strong-Drive® wood screw by Simpson Strong-Tie.

- Capacity is based on load duration factor = 160%.

- Capacity is based on spruce-pine-fir bearing plate material ( $SG = 0.42$ ).

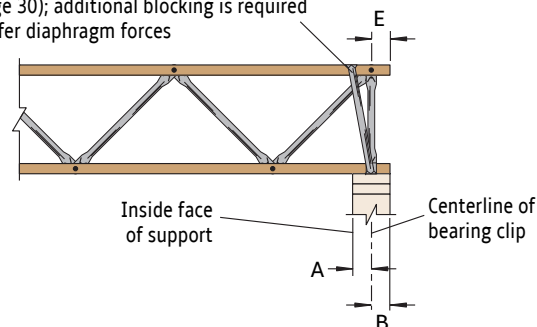
- Please contact your RedBuilt representative for other bearing plate material or for capacity at other load durations.

## 54 Top Chord Bearing

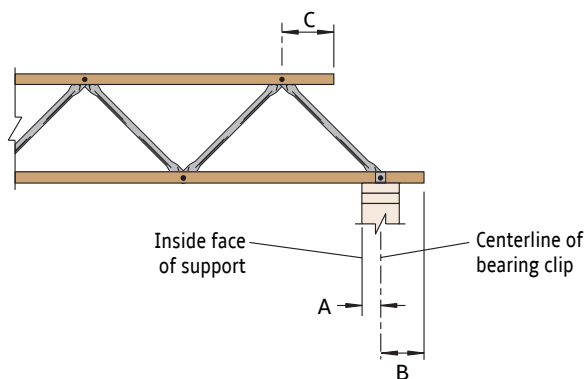


## 55 Bottom Chord Bearing

Metal cross bracing is required for installation (see page 30); additional blocking is required to transfer diaphragm forces.

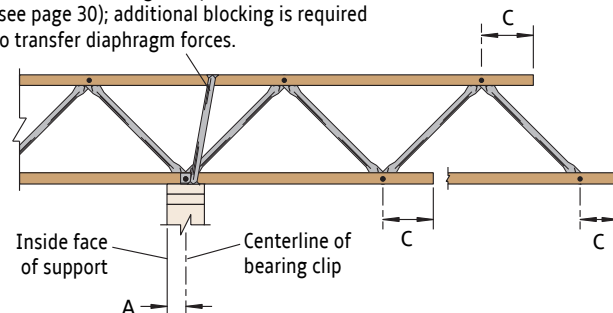


## 56 Bottom Chord Bearing without Vertical Web



## 57 Bottom Chord Cantilever

Metal cross bracing is required for installation (see page 30); additional blocking is required to transfer diaphragm forces.



When possible, locate bottom chord bearing clip at centerline of support

## Dimensions for Detailing

Truss Series	Bearing Clip	Top Chord Bearing <sup>(1)</sup>					Bottom Chord Bearing <sup>(1)</sup>				
		A	B	C		D	A	B	C		E
				Minimum <sup>(2)(3)</sup>	Minimum Required at Maximum Load				Minimum <sup>(2)(3)</sup>	Minimum Required at Maximum Load	
Red-L™ and Red-W™	No-Notch Clip	7/8"	7/8"	2 3/16"	9"	1 1/2"	7/8"	7/8"	2 3/16"	9"	2 1/4"
	U-Clip	1"	1 3/4"	2 3/16"	9"	1 1/2"	1"	1 3/4"	2 3/16"	9"	1 1/4"
Red-S™	S-Clip	1 3/8"	1 3/8"	2 5/8"	9"	3 1/2"	-	-	-	-	-
	Angle Clip	-	-	-	-	-	1 3/4"	1 3/4"	2 5/8"	9"	1 3/4"
Red-M™	S-Clip	1 3/16"	1 15/16"	3 1/2"	12"	3 5/8"	1 3/16"	1 15/16"	3 1/2"	12"	3 1/2"
	Angle Clip	-	-	-	-	-	2"	3 1/4"	3 1/2"	12"	2"
	P-Clip	1 3/4"	Varies <sup>(4)</sup>	3 1/2"	12"	Varies <sup>(4)</sup>	-	-	-	-	-
	Z-Clip	1 3/8"	1 5/8"	3 1/2"	12"	3 11/16"	1 3/8"	1 5/8"	3 1/2"	12"	3 1/2"
	T-Clip	-	-	-	-	-	1 1/2"	3"	3 1/2"	12"	2"
Red-H™	P-Clip	1 3/4"	Varies <sup>(4)</sup>	4 3/8"	15"	Varies <sup>(4)</sup>	-	-	-	-	-
	Z-Clip	1 3/4"	2 7/16"	4 3/8"	15"	5 3/4"	1 3/4"	2 7/16"	4 3/8"	15"	4 3/8"
	T-Clip	-	-	-	-	-	1 3/4"	3 3/4"	4 3/8"	15"	2 5/8"

(1) Minimum support width equals A + B (2 x A at bottom chord cantilever).

(2) Actual pin to end distance is based on forces in truss chord. Minimum cut-off may not be acceptable.

(3) Based on 2012 NDS<sup>®</sup> minimum end distance of 3.5D.

(4) P-Clip geometry is dependent on the starter web angle and top chord slope.

Legend
A = Face of support to centerline of bearing clip
B = Centerline of bearing clip to end of chord
C = Pin to end of chord
D = Bearing clip height
E = Pin to end of chord with vertical web

# WIND OR SEISMIC CONNECTIONS

## Wall and Strap Ties for Open-Web Trusses

Listed below is a small sample of the various nail-based straps and ties offered by Simpson Strong-Tie® Company Inc. Please consult their catalog or the USP Structural Connectors® catalog for additional options.

### Strap Tension Tie Nailing and Allowable Tension Loads

Design Category	Maximum Ledger Size	Model No.	Non-Cracked Concrete			Cracked Concrete			CMU Wall		
			Nail Qty.	Nail Size	Tension (lbs)	Nail Qty.	Nail Size	Tension (lbs)	Nail Qty.	Nail Size	Tension (lbs)
Wind and SDC A-B	4x	PAI18 <sup>(1)</sup>	9	10d x 1½"	1,820	9	10d x 1½"	1,820	9	10d x 1½"	1,055
		PAI23 <sup>(1)</sup>	14	10d x 1½"	2,835	14	10d x 1½"	2,360	14	10d x 1½"	1,805
		PAI28 <sup>(1)</sup>	16	10d x 1½"	3,370	16	10d x 1½"	2,360	16	10d x 1½"	2,705
		PAI35 <sup>(1)</sup>	18	10d x 1½"	3,370	18	10d x 1½"	2,360	18	10d x 1½"	2,815
		MPAI32	16	10d x 1½"	2,335	–	–	–	16	10d x 1½"	2,355
		MPAI44	24	10d x 1½"	2,865	–	–	–	24	10d x 1½"	2,865
SDC C-F	4x	PAI18 <sup>(1)</sup>	9	10d x 1½"	1,820	9	10d x 1½"	1,820	9	10d x 1½"	1,055
		PAI23 <sup>(1)</sup>	14	10d x 1½"	2,830	14	10d x 1½"	1,980	14	10d x 1½"	1,805
		PAI28 <sup>(1)</sup>	20	10d x 1½"	2,830	16	10d x 1½"	1,980	16	10d x 1½"	2,705
		PAI35 <sup>(1)</sup>	20	10d x 1½"	2,830	18	10d x 1½"	1,980	18	10d x 1½"	2,815
		MPAI32	–	–	–	–	–	–	16	10d x 1½"	2,355
		MPAI44	–	–	–	–	–	–	24	10d x 1½"	2,865

(1) LSL cap plate required for strap nailing.

- Table information adapted from Simpson Strong-Tie® catalog *Wood Construction Connectors* 2017–2018, page 89.
- For applicable notes and additional information, see the Simpson Strong-Tie catalog.

### Strap Ties

Simpson Tie	Required Nails	Nail Size	Allowable Load (lbs) at 160%
MST37 <sup>(1)(2)</sup>	42	16d x 2½"	5,080
MST48 <sup>(1)(2)</sup>	50	16d x 2½"	5,310
MSTI48 <sup>(1)</sup>	48	10d x 1½"	5,065
MSTI60 <sup>(1)</sup>	60	10d x 1½"	5,080
MSTI72 <sup>(1)</sup>	72	10d x 1½"	5,080
LSTI49	32	10d x 1½"	2,975
LSTI73	48	10d x 1½"	4,205
LSTA36 <sup>(1)</sup>	24	10d x 3"	1,640
MSTA36 <sup>(1)</sup>	26	10d x 3"	2,050

(1) LSL cap plate required for strap nailing.

(2) Not suitable for Red-S™ trusses.

- Values consider full strap nailing.
- Table information adapted from Simpson Strong-Tie® catalog *Wood Construction Connectors* 2017–2018, pages 301–304.

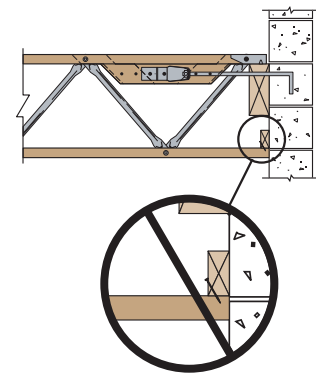
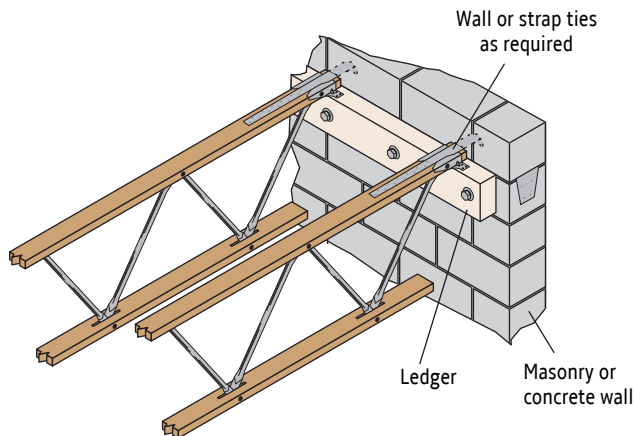
### Bolted Wall Ties

Simpson Tie	Required Fasteners	Allowable Tension Load (lbs) at 160%		
		10d x 1½" Nails	16d x 2½" Nails	SD #10 x 1½" Screws
LTT19	8	1,310		
LTT20B <sup>(1)</sup>	10	1,355		
LTTI31	18	1,350		
HTT4 <sup>(1)</sup>	18	3,610	4,235	4,455
HTT5 <sup>(1)</sup>	26	4,350	5,090	4,555
HTT5KT <sup>(1)</sup>	26			5,445
HTT5-¾ <sup>(1)</sup>	26	4,065	5,090	4,830

(1) LSL cap plate required for strap nailing.

- Information adapted from Simpson Strong-Tie® catalog *Wood Construction Connectors* 2017–2018, pages 80–81.
- For applicable notes and additional information, see the Simpson Strong-Tie catalog.

## 58 Wall and Strap Ties for Red-L™, Red-W™, Red-S™, Red-M™, and Red-H™ Trusses

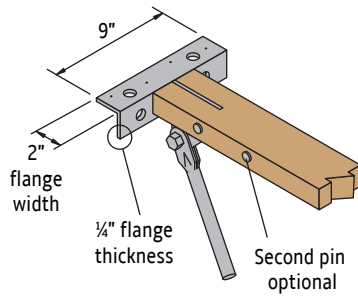


**DO NOT** attach bottom chord to wall when using any top chord bearing truss

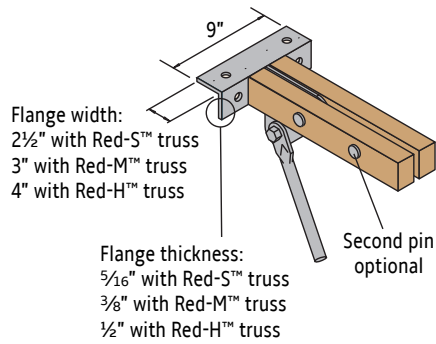
Also see detail 6 on page 13 for more information.



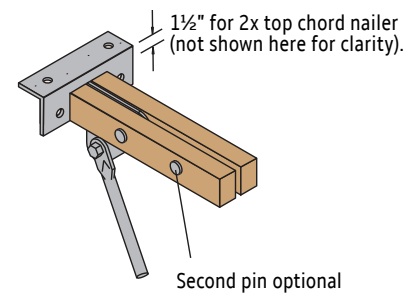
## 62 Single Chord Flush-Mount Bearing Clip



## 63 Double Chord Flush-Mount Bearing Clip



## 64 Double Chord Flush-Mount Bearing Clip with Nailers



### Axial Tension or Compression Capacity

Truss Series	Capacity at 133% or 160% (lbs)	
	1 Pin	2 Pin
Red-L™	2,705	4,450
Red-W™	3,700	6,115
Red-S™(1)	4,320	8,125
Red-M™(1)	5,115	10,235
Red-H™(1)	6,325	12,220

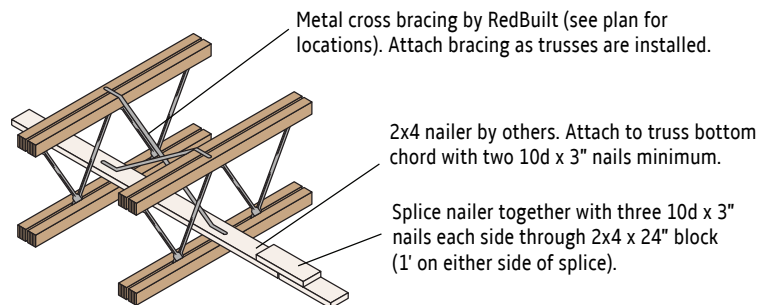
(1) With or without top chord nailer.

- Design professional of record shall provide attachment for clip to bearing.

## WIND BRACING

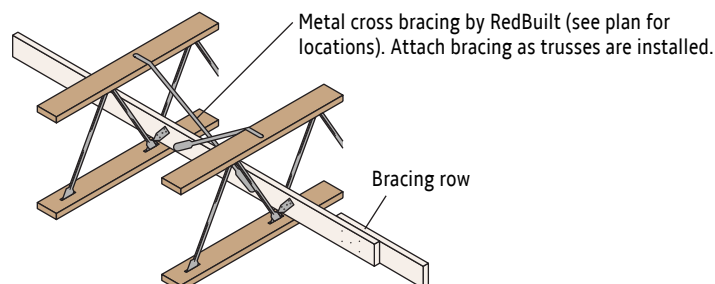
Truss bottom chord bracing may be required by building code provisions for wind uplift design when roof trusses do not have directly applied ceilings. Project engineer shall specify wind load; contact your RedBuilt representative for specific wind bracing stability requirements.

### 60 Cross Bracing with 2x4 Nailer



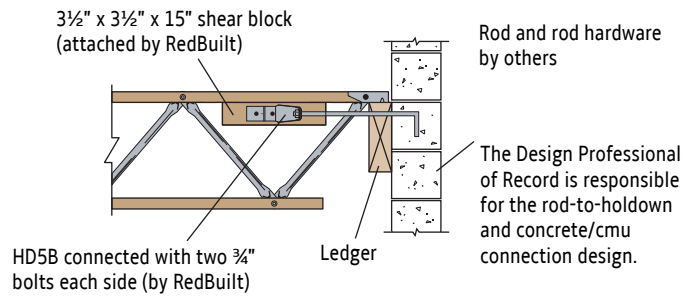
For wind bracing on Red-S™, Red-M™ and Red-H™ trusses. Cross bracing may not actually cross.

### 61 Cross Bracing with Bridging Row



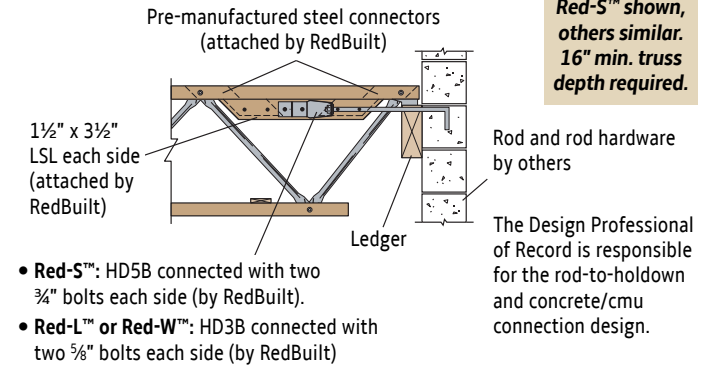
For wind bracing on Red-L™ and Red-W™ trusses. Cross bracing may not actually cross.

## 65 Red-L™ and Red-W™ Trusses with Shear Block



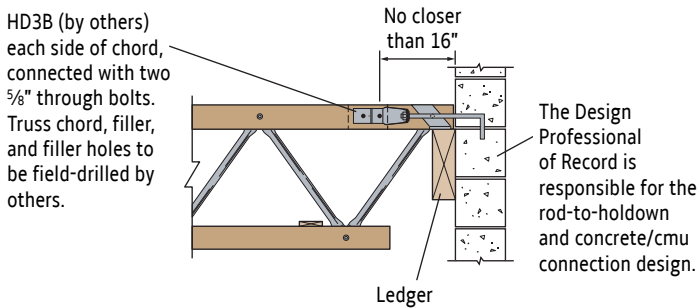
Maximum truss assembly tension capacity is 3,500 lbs at 160%. Truss geometry, especially at shallow depths, may limit capacity. Contact your RedBuilt technical representative for more information.

## 66 Red-L™, Red-W™, and Red-S™ Trusses with Steel Connector



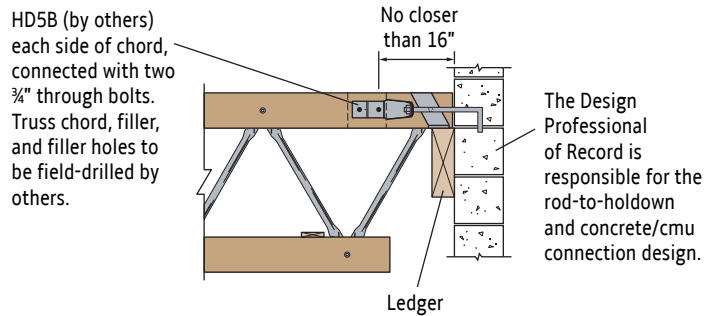
Maximum truss assembly tension capacity is 4,770 lbs for Red-L™ and Red-W™ trusses; and 7,120 lbs for Red-S™ trusses at 160%. Truss geometry may limit capacity. Contact your RedBuilt technical representative for more information.

## 67 Red-M™ Truss with Wall Tie



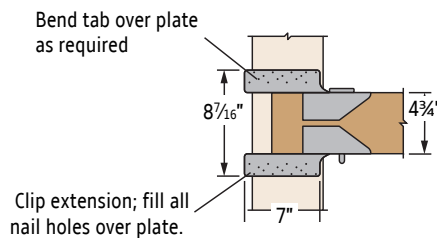
Maximum truss assembly tension capacity is 4,320 lbs with MSR chords and 4,770 lbs with RedLam™ LVL chords at 160%. Truss geometry may limit capacity. Contact your RedBuilt technical representative for more information.

## 68 Red-H™ Truss with Wall Tie

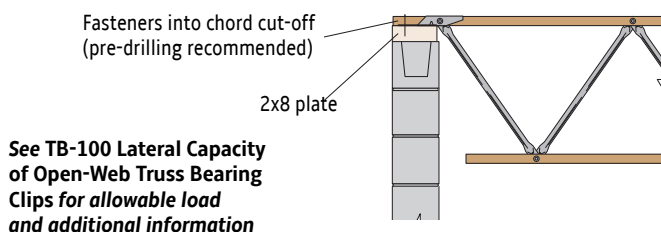


Maximum truss assembly tension capacity is 5,180 lbs with MSR chords and 7,120 lbs with RedLam™ LVL chords at 160%. Truss geometry may limit capacity. Contact your RedBuilt technical representative for more information.

## 69 Red-W™ Truss Top Chord Bearing Lateral No-Notch Clip



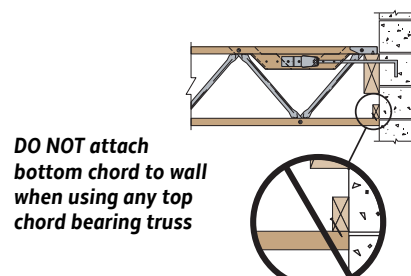
## 69A Red-L™ and Red-W™ Truss Standard No-Notch Clip (Alternate)



## Lateral No-Notch Clip Allowable Loads (lbs)

Bearing Plate	Thickness (min.)	Nail Size (min.)	Red-W™ Trusses		
			Lateral Load (160%)		
			Seismic Load	Wind Load	
				Net Uplift = 0 PSF	Net Uplift = 5 PSF
3½"	1½"	0.148" x 1½"	1,970	1,970	1,410
3½"	2½"	0.162" x 2½"	2,320	2,320	1,410
5½"	1½"	0.148" x 1½"	2,905	2,905	2,090
5½"	2½"	0.162" x 2½"	2,905	2,905	2,090
7½"	1½"	0.148" x 1½"	2,905	2,905	2,625
7½"	2½"	0.162" x 2½"	2,905	2,905	2,625

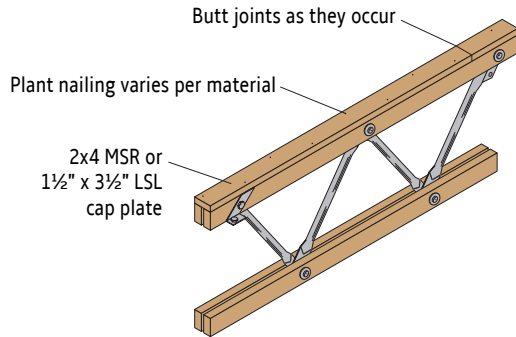
• Values are based on bearing plate width SG = 0.50. For SG = 0.42, multiply table values by 0.86.  
• For other uplift loads, interpolation is permitted.



## 70 RedBuilt™ Open-Web Truss with Cap Plate

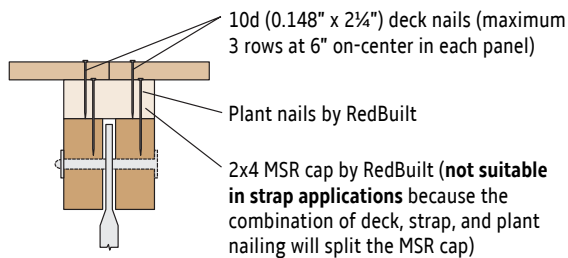
Cap plates provide the following functions:

- Transfer seismic/wind strap loads (LSL cap plate only).
- Enhance diaphragm nailing capabilities.
- Provide diaphragm shear transfer at continuous panel joints (required at all high shear diaphragms).
- Eliminate interference between subpurlins and truss pins in panelized roof systems.
- Required to provide adequate attachment base for structural insulated panels (SIPs) or Tectum deck applications.



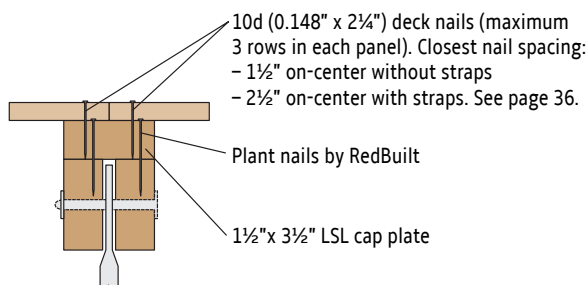
**When uplift on cap plate-to-truss connection exceeds 104 plf, contact your RedBuilt representative**

### Sawn Lumber Cap Plate

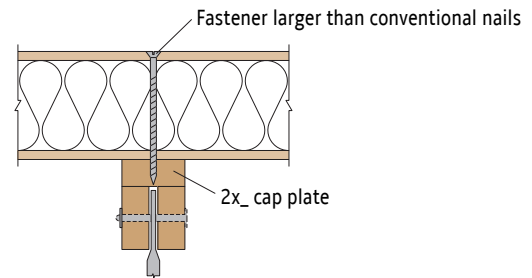


**For diaphragm nails, use 2 1/4" maximum length deck nails to eliminate nail-spacing limitations with truss chords**

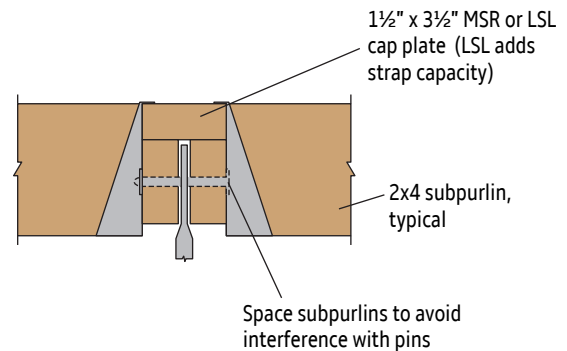
### LSL Cap Plate (suitable for straps; see page 24)



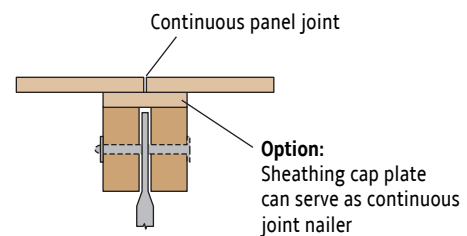
## 71 Double Chord Open-Web Truss with SIP or Tectum Panels



## 72 Typical Double Chord Open-Web Truss with 2x\_ Subpurlin



## 73 Double Chord Open-Web Truss with Continuous Panel Joint



**Nail spacing is limited by truss chords. See page 36.**

# BRIDGING

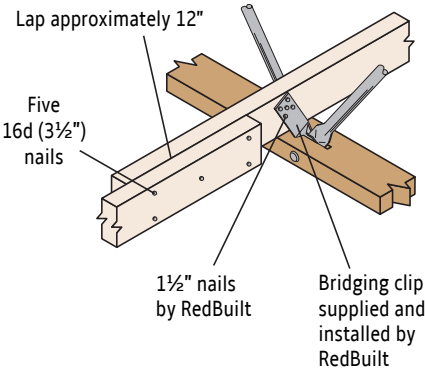
Bridging is used to make each truss act with those next to it (load sharing) and minimize or equalize deflections from non-uniform loads. Bridging should not be confused with bracing, which has a different purpose.

**Roof Systems** usually do not require bridging because differential deflections, vibrations, etc. are typically not a problem with roof systems. However, **bridging is required for load sharing with Red-L™ and Red-W™ trusses** because they have single-member chords and are commonly used in relatively long spans with wide on-center spacing.

**Floor Systems** perform better under typical loads—particularly with regard to deflection and vibration—if they have an effective bridging system.

## Red-L™ and Red-W™ Trusses

Bridging is required for all floor and roof applications.



2x\_ bridging is designed to transfer a 500 lb load. Field bend bridging clip approximately 30 degrees before nailing to bridging row.

Bridging must be attached to a minimum of three trusses

## Bridging Rows

Truss Bridging	Span	No. of Rows
Roof Truss Bridging <sup>(1)(2)</sup>	≤ 16'	1
	> 16' to 35'	2
	> 35' to 55'	3
	> 55'	4
Floor Truss Bridging <sup>(2)</sup> Without a Directly Applied Ceiling	≤ 10'	1
	> 10' to 24'	2
	> 24' to 32'	3
	> 32'	4
Floor Truss Bridging <sup>(2)</sup> With a Directly Applied Ceiling	≤ 22'	1
	> 22' to 32'	2
	> 32' to 42'	3
	> 42'	4

- (1) Additional bracing may be required when trusses are to be installed out of plumb greater than ¼:12. Contact your RedBuilt representative.  
(2) Bridging is required in cantilevers when the length of cantilever exceeds three times the truss depth.

## Sawn Lumber Bridging Floor or Roof

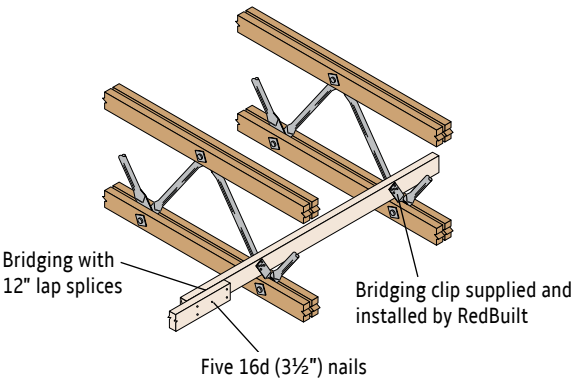
Maximum On-Center Truss Spacing	Minimum Size of Continuous Bridging Member		
	Doug Fir #2	MSR 1650f-1.3E	MSR 2100f-1.8E
16"	2x4	2x4	2x4
19.2"	2x6	2x4	2x4
24"	2x6	2x6	2x4
32"	2x6	2x6	2x6
48" (Floor / Roof)	2x8 / 2x8	NA / 2x6	2x8 / 2x6

## Red-S™, Red-M™ and Red-H™ Trusses

**Roof:** Bridging not required, except for long-span modular-installation applications. See page 32.

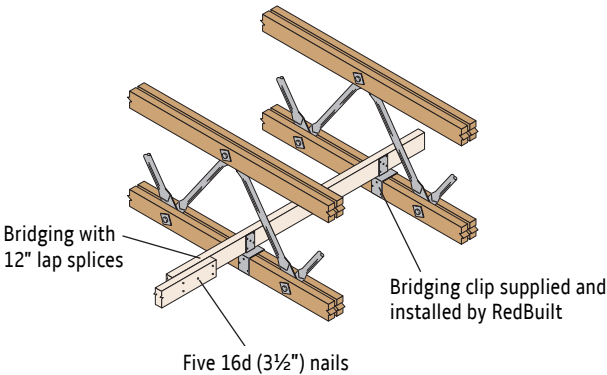
**Floor:** Bridging required at 12' on-center maximum. See **Sawn Lumber Bridging** table above for bridging sizes.

### 74 Red-S™ Trusses

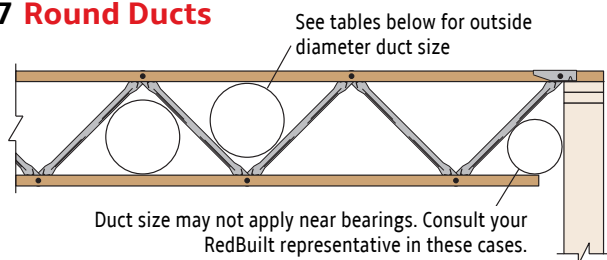


Field bend the bridging clip approximately 30 degrees before nailing to the bridging row

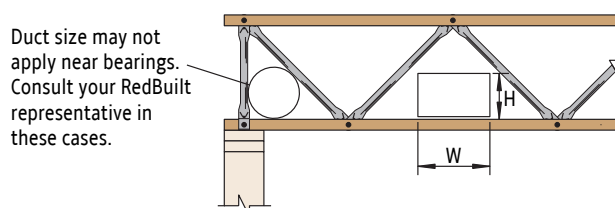
### 75 Red-M™ and Red-H™ Trusses



## 77 Round Ducts



## 78 Rectangular Ducts



## Red-L™ and Red-W™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
14"	8"	9"	7"	4"	—
16"	8"	10"	8"	5"	3"
18"	9"	11"	9"	7"	5"
20"	10"	12"	10"	8"	6"
22"	10"	12"	10"	9"	7"
24"	10"	12"	11"	9"	8"
26"	11"	13"	11"	10"	8"
28"	12"	14"	12"	11"	9"
30"	13"	15"	14"	12"	11"
32"	14"	17"	15"	14"	12"
34"	15"	18"	17"	15"	14"
36"	16"	19"	18"	17"	15"
38"	17"	21"	19"	18"	17"
40"	18"	22"	21"	19"	18"

## Red-M™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
20"	7"	8"	6"	5"	3"
22"	8"	8"	7"	5"	4"
24"	8"	8"	7"	6"	5"
26"	8"	9"	8"	6"	5"
28"	9"	9"	8"	7"	6"
30"	9"	10"	9"	8"	7"
32"	10"	11"	10"	9"	8"
34"	11"	12"	11"	10"	9"
36"	12"	13"	12"	11"	10"
38"	13"	14"	13"	12"	11"
40"	13"	16"	14"	13"	12"
42"	14"	17"	16"	14"	13"
44"	15"	18"	17"	16"	14"
46"	16"	19"	18"	17"	16"
48"	17"	20"	19"	18"	17"
50"	18"	21"	20"	19"	18"
52"	18"	22"	21"	20"	19"

## Red-S™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
16"	7"	7"	5"	3"	2"
18"	7"	8"	6"	4"	3"
20"	8"	8"	7"	5"	4"
22"	8"	9"	7"	6"	5"
24"	9"	10"	9"	7"	6"
26"	10"	12"	10"	9"	7"
28"	11"	13"	12"	10"	9"
30"	12"	14"	13"	12"	10"
32"	13"	16"	14"	13"	12"
34"	14"	17"	16"	14"	13"
36"	15"	18"	17"	16"	14"
38"	16"	20"	18"	17"	16"
40"	17"	21"	20"	18"	17"
42"	18"	23"	21"	20"	18"
44"	19"	24"	23"	21"	20"
46"	20"	25"	24"	23"	21"
48"	21"	27"	25"	24"	23"

## Red-H™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
24"	7"	7"	6"	5"	4"
26"	7"	8"	7"	5"	4"
28"	8"	8"	7"	6"	5"
30"	9"	9"	8"	7"	6"
32"	9"	10"	9"	8"	7"
34"	10"	11"	10"	9"	8"
36"	11"	12"	11"	10"	9"
38"	12"	14"	12"	11"	10"
40"	13"	15"	14"	12"	11"
42"	14"	16"	15"	14"	12"
44"	14"	17"	16"	15"	14"
46"	15"	18"	17"	16"	15"
48"	16"	19"	18"	17"	16"
50"	17"	20"	19"	18"	17"
52"	18"	21"	20"	19"	18"
54"	18"	22"	21"	20"	19"
56"	19"	23"	22"	21"	20"
58"	20"	24"	23"	22"	21"
60"	21"	25"	24"	23"	22"
62"	22"	26"	25"	24"	23"
64"	23"	27"	26"	25"	24"
66"	23"	29"	27"	26"	25"
68"	24"	30"	29"	27"	26"
70"	25"	31"	30"	29"	27"
72"	26"	32"	31"	30"	29"

## General Notes

- Widths shown are the **minimum allowable openings based on heaviest loads (shortest panels)**. Check with your RedBuilt representative for more precise sizing, including larger openings.
- Tables are applicable **only for uniform loads**.

*For trusses designed for office floor conditions requiring concentrated loads, or for any other non-uniform loads, contact your RedBuilt representative.*



# INSTALLATION BRACING

Open-web trusses require installation bracing to prevent lateral buckling of the chord members until they are stabilized by connection to the sheathing and by permanent bracing of the completed structure (as designed). Installation bracing includes strut bracing rows, cross bracing at bottom chord bearing conditions, bottom chord restraint, and braced end wall or diaphragm restraint adequate to support the strut bracing rows. The criteria used for this installation bracing assume **either** of the following conditions:

- The truss carries its own weight plus the weight of applied sheathing and two 250-pound workers concentrated at  $\frac{1}{3}$  points of the span;

**OR**

- An unloaded truss with a 30 mph wind

Bracing for construction loads equivalent to or beyond these loads is the responsibility of the installer. **Bracing must be installed as each truss is put in position.**

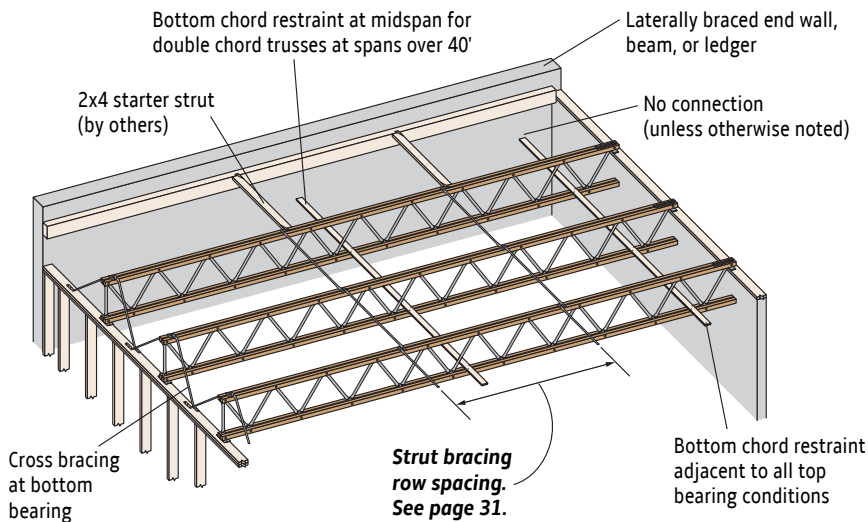
**All trusses are laterally unstable** until properly braced. The longer the span, the more care is required. Adequate restraint is necessary at all stages of construction.

**Complete stability** is not achieved until all bracing and decking is completely installed and properly fastened.

**Installation bracing and procedures**, as well as the safety of the workers, are the responsibility of the installer.

For more information, see RedBuilt's *Open-Web Truss Installation Guide* (available online at [redbuilt.com](http://redbuilt.com)).

## Typical Application

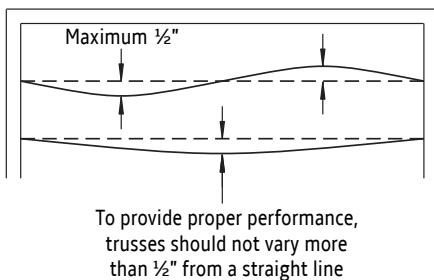


## General Notes

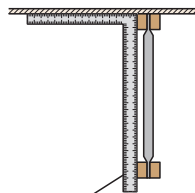
- Bottom chord restraints are 1x4 (minimum) nailers and are attached to the top of the bottom chord with two 8d (2½") nails for double chord trusses only. Materials are to be provided by the installer.
- Bridging, when specified, may be used instead of bottom chord restraint.

## Permitted Installation Tolerances

### Truss Chord Alignment Tolerance

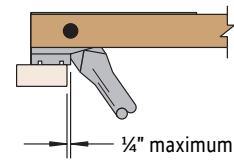


### Vertical Alignment Tolerance



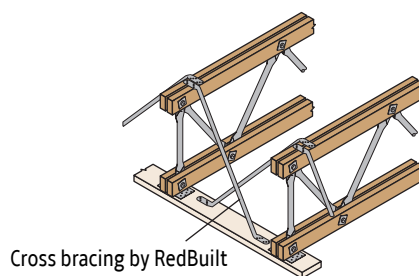
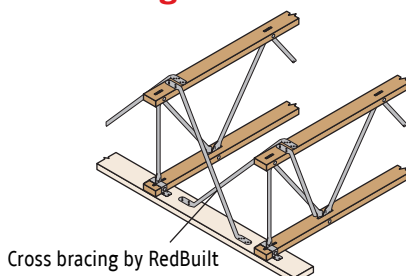
Bottom chord of truss should not be out of square with deck by more than  $\frac{1}{4}$ " of truss depth. Example:  $\frac{1}{2}$ " for a 24" depth truss.

### Overhang Tolerance at Bearing (Red-S™ bearing shown)



(1) ½" maximum overhang for Red-M™ series trusses with Z-Clip or P-Clip bearing hardware

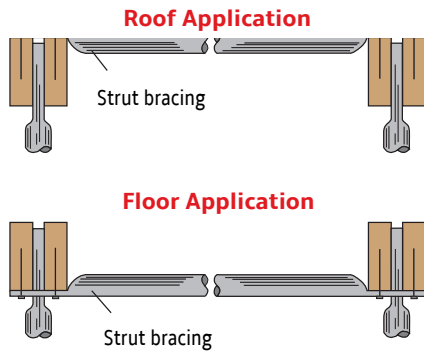
## Cross Bracing



**Cross bracing is provided for all open-web trusses at bottom chord bearing conditions. Install cross bracing as each truss is set. Maximum lateral load is 500 lbs per truss.**

## Strut Bracing

Installation bracing is required for all open-web truss applications. RedBuilt's recommended method for bracing is to use the strut bracing supplied by RedBuilt. Strut bracing rows should be spaced equally, per the on-center spacing noted in the **Required Spacing** table below. On roof systems, strut bracing is attached to the top of upper chord members. On floor systems it is attached to the bottom of the upper chord members to avoid interference with the direct attachment of sheathing. See detail below.



## Maximum Number of Erected Trusses Before Sheathing is Required

Truss Series	Span				
	<30'	<40'	<50'	<60'	<70'
Red-L™	40	27	21	17	14
Red-W™	40	27	21	17	14
Red-S™	29	20	15	12	10
Red-M™	20	14	11	8	7
Red-H™	14	9	7	6	5

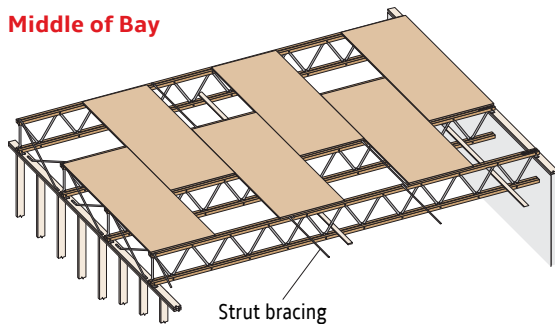
• Per bay of trusses.

## Required Spacing

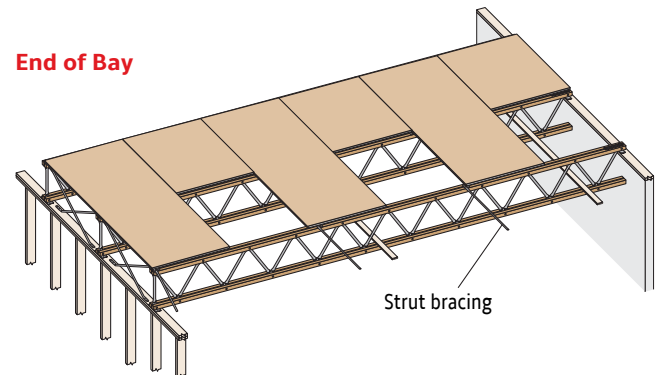
Truss Series	Strut Bracing Row Spacing
Red-S™	10' o.c.
Red-L™, Red-M™, and Red-H™	12' o.c.
Red-W™	14' o.c.

## Starting Bracing—No Laterally Braced End Wall or Beam

**Middle of Bay**



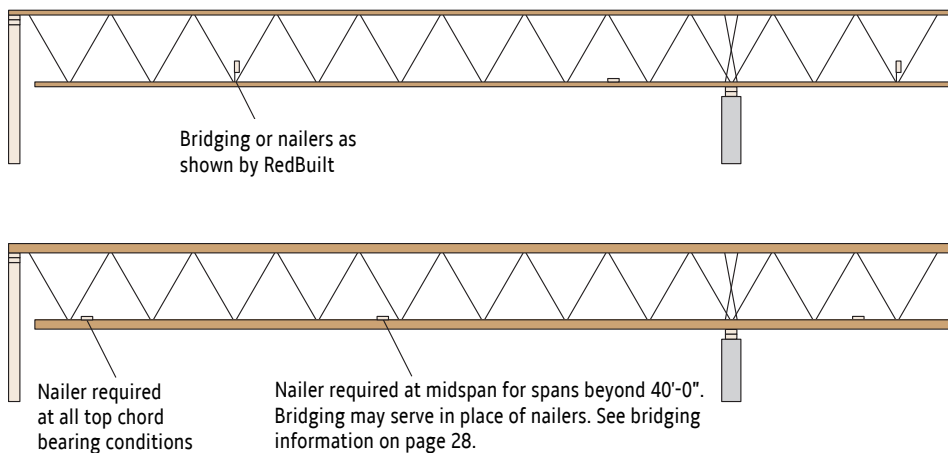
**End of Bay**



## General Notes

- Installation bracing is required, strut bracing is supplied by RedBuilt. See spacing and sheathing requirements above.
- Sheath and nail per project architect, engineer, or local building code. See page 36 for allowable nailing into truss chords.

## Bottom Chord Restraint for Red-S™, Red-M™, and Red-H™ Trusses



**Attach 1x4 minimum nailer to top of bottom chord with two 8d (2½") nails in each chord member**

## General Notes

- Bottom chord restraint is required to stabilize the bottom chord and is typically provided by the installer.
- Bracing may be required at cantilevers as determined by RedBuilt.

# LONG SPAN INSTALLATION

## Long Spans (Over 70 Feet)

RedBuilt™ open-web trusses with spans over 70 feet are available only if all of the following additional requirements are satisfied. Review each of these requirements with your RedBuilt representative prior to sizing and detailing our products in any application involving spans beyond 70 feet.

1. There must be a responsible architect and/or engineer of record throughout the design and construction period of the project.
2. The responsible architect or engineer must include the following statement in the job specifications:  
***"The trusses shall be installed in rigid modules at least 8 feet in width, accurately assembled in a jig with final sheathing permanently and totally attached while on the ground. Specified bridging shall be installed in each module as detailed."***
3. Only structural panel sheathing will be permitted.
4. The purchaser-contractor must sign an addendum to our standard purchase agreement that contains the above requirements.
5. Prior to execution of the purchase agreement, the specifications and details of the job must be submitted to and reviewed by RedBuilt engineering along with a description of the installation procedures proposed to be used. Review will be solely with respect to the above requirements.

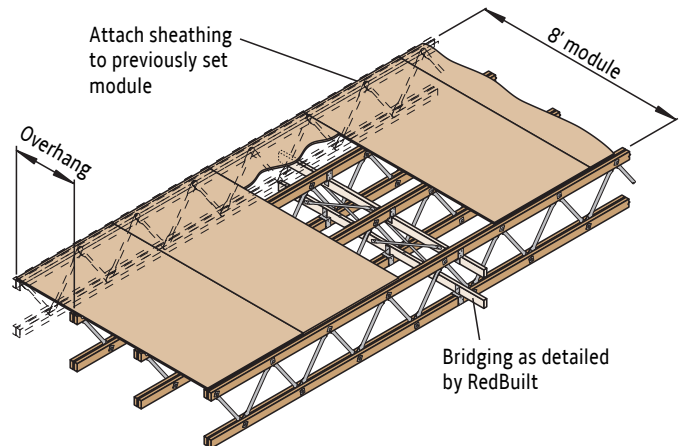
The sketches shown at right show possible rigid modules that would satisfy the condition specified in requirement 2 above.



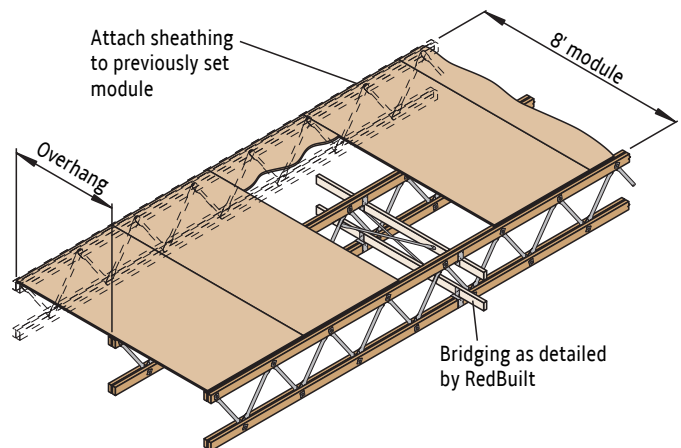
Installation Info.

## Modules with Sheathing Overhang

### Trusses at 32" On-center

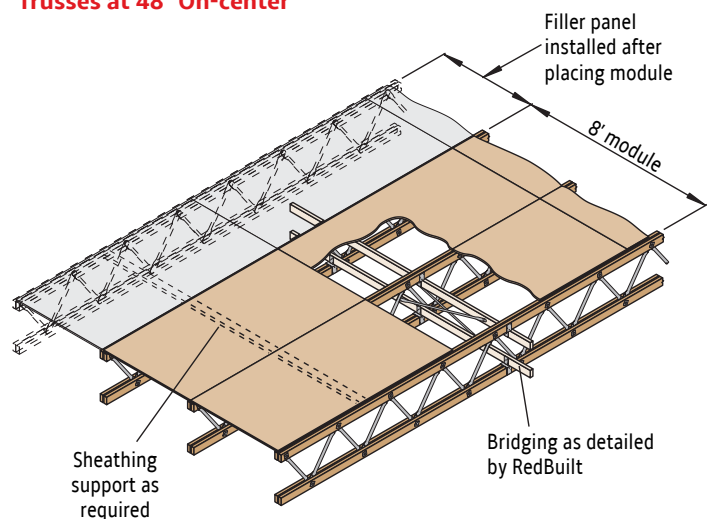


### Trusses at 48" On-center



## Module with Sheathing Filler Panel

### Trusses at 48" On-center



***A cap may be required over double chord open-web trusses where high shear loads are encountered***

Refer to local building codes for live load design requirements.

## Composition Roofing

2-15 and 1-90 lb	1.7 psf
3-15 and 1-90 lb	2.2 psf
3-ply and gravel	5.6 psf
4-ply and gravel	6.0 psf
5-ply and gravel	6.5 psf
Insulated Roof Membrane Assembly (IRMA)	
2" thick	13.0 psf
Single-ply roofs (insulation not included)	
Ballasted system	13.0 psf
Mechanically fastened	2.0 psf
Fully adhered	2.0 psf

## Douglas Fir Sheathing\*

(Based on 36 pcf for plywood, 40 pcf for OSB)

½" plywood	1.5 psf
⅝" plywood	1.8 psf
¾" plywood	2.3 psf
1½" plywood	3.4 psf
½" OSB	1.7 psf
⅝" OSB	2.0 psf
¾" OSB	2.5 psf
7⁄8" OSB	2.9 psf
1½" OSB	3.7 psf

\* For southern pine weights, increase Douglas fir weights by 10%.

## Miscellaneous Roofing Materials

Corrugated galvanized steel	
16 ga.	2.9 psf
20 ga.	1.8 psf
22 ga.	1.5 psf
24 ga.	1.3 psf
Asphalt shingles	2.5 psf
Wood shingles	3.0 psf
Clay tile	9.0 to 14.0 psf
Slate (¾" thick)	15.0 psf

## Rigid Insulation (1" thick)

Hemlock	1.2 psf
Cork	0.7 psf
Gold bond	1.5 psf
Polystyrene foam	0.2 psf
Foamglass	0.8 psf
Rigid fiberglass	1.5 psf

## Roll or Batt Insulation (1" thick)

Rock wool	0.2 psf
Glass wool	0.1 psf

## Floors

Hardwood (nominal 1")	4.0 psf
Concrete (1" thick)	
Regular	12.0 psf
Lightweight	8.0 to 10.0 psf
Gypsum concrete (¾" thick)	6.5 psf
Sheet vinyl	0.5 psf
Carpet and pad	1.0 psf
¾" ceramic or quarry tile	10.0 psf

## Ceilings

Acoustical fiber tile	1.0 psf
½" gypsum board	2.2 psf
⅝" gypsum board	2.8 psf
Plaster (1" thick)	8.0 psf
Metal suspension system (including tile)	1.8 psf

To calculate total dead load, use a minimum of 1.5 psf for "miscellaneous" with all dead loads

## Weights of Douglas Fir Framing Members

Nominal Size (in.)	Joist Spacing		
	12"	16"	24"
2x4	1.4 psf	1.1 psf	0.7 psf
2x6	2.2 psf	1.7 psf	1.1 psf
2x8	2.9 psf	2.2 psf	1.5 psf
2x10	3.7 psf	2.8 psf	1.9 psf
2x12	4.4 psf	3.3 psf	2.2 psf
3x6	3.6 plf		
4x6	5.0 plf		
4x8	6.8 plf		
4x10	8.6 plf		
4x12	10.4 plf		

• For southern pine weights, increase Douglas fir weights by 10%

## Weights of Sprinkler Lines

Size of Pipe	Schedule 40, Standard Pipe		Schedule 10, Thin Wall Pipe	
	Dry (plf)	Wet (plf)	Dry (plf)	Wet (plf)
1"	1.7	2.1	1.4	1.8
1¼"	2.3	3.0	1.8	2.5
1½"	2.7	3.6	2.1	3.1
2"	3.7	5.2	2.7	4.2
2½"	5.8	7.9	3.6	5.9
3"	7.6	10.8	4.3	8.0
3½"	9.2	13.5	5.0	9.8
4"	10.9	16.4	5.6	11.8
5"	14.8	23.5	7.8	17.3
6"	19.2	31.7	9.3	23.1
8"	28.6	50.8	16.9	40.1
10"	40.5	74.6		

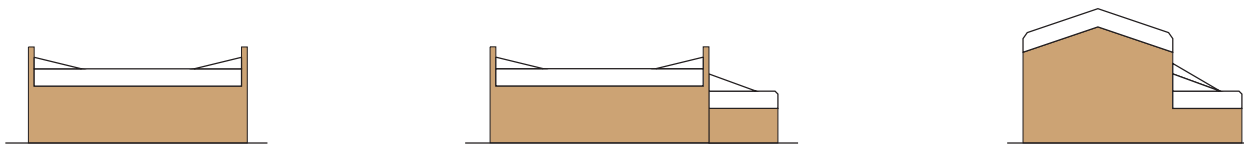
• For additional information on sprinkler systems, see RedBuilt's *Sprinkler System Installation Guide* (available online at [redbuilt.com](http://redbuilt.com))

## Approximate Weights of RedBuilt™ Products

Trusses	Series	PLF Weight
	Red-L™	3.75-4.25
	Red-W™	4.50-5.25
	Red-S™	4.75-5.75
	Red-M™	8.00-9.00
Joists	Red-H™	10.00-12.00
	Red-I45™	2.2-3.5
	Red-I65™	3.0-5.8
	Red-I90™	4.2-6.6
	Red-I90H™	4.6-7.1
Structural Composite Lumber	Red-I90HS™	6.0-9.1
	2.0E RedLam™ LVL	42

• PLF Unit Weight = (density) x (width) x (depth)

# SNOWDRIFT LOADING



Wind direction, site exposure, and roof type and shape are some of the factors that can dramatically influence the accumulation of snow on a roof structure. ASCE 7 (*Minimum Design Loads for Buildings and Other Structures*) and the applicable building code, as well as other local state and regional codes, provide guidelines for calculating snowdrift loadings on all types of building construction.

Drifts usually occur at locations of discontinuity in a roof, such as at parapet walls, valleys, or where a high roof meets a low roof. Closer on-center spacing or additional support may be required at these locations.

The examples above illustrate potential snowdrift conditions. The project design professional is responsible for determining any additional loads due to snow drifting.

## TECHNICAL SUPPORT AND ANALYSIS

### Technical Support Organization and Functions

RedBuilt has four strategically located Design Centers staffed by professional engineers and designers. Their role is to provide technical support and service to our RedBuilt representatives, the professional design community, and the manufacturing plants. Design Center personnel have access to extensive test data, production standards, building code product acceptance criteria, and the most current computer design software.

The Design Centers work closely with our RedBuilt representatives and can provide the following services:

- Review and analysis of potential applications submitted by our RedBuilt representatives
- Drawings showing placement, bearing conditions, dimensions, and installation suggestions
- Custom design of the product
- Assistance in resolving field problems should they arise

This design guide contains technical data and design information frequently required by the design professional when using our products. Because of the variety of possible conditions, the design professional is strongly encouraged to request support from RedBuilt Design Centers through one of our representatives.

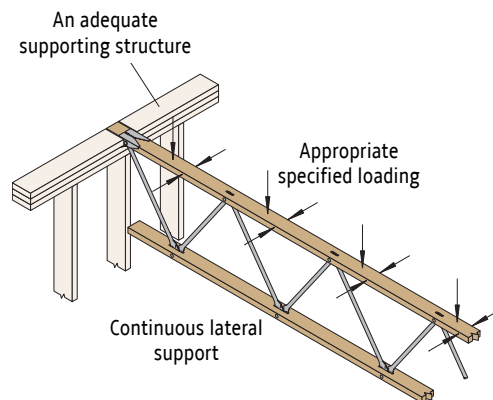
### Product Application Assumptions

Our warranty is subject to an adequate supporting structure for our products. The design of the entire structure is not the role of RedBuilt, nor can we assume accountability for the full function of the roof or floor system. We can only be responsible for the internal design integrity of our own products, which are structural components of roof and floor systems that are necessarily designed by others.

Our warranty is also subject to continuous lateral support to the compression chord of our products unless specific design provisions account for other lateral support conditions. Continuous lateral support is provided by 8d (2½") nails at 24" on-center (minimum) for Red-L™ and Red-W™ trusses; and by 8d (2½") nails at 12" on-center (minimum), staggered, to each of the double chord members for Red-S™, Red-M™, and Red-H™ trusses; all connected to an adequate diaphragm or total lateral strength system.

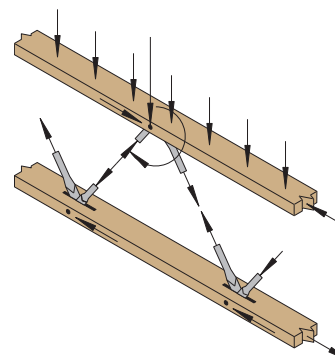
The magnitude, direction, and location of all design loads are as specified by the building designer. The review of this loading by our personnel is only for purposes of designing our product.

Other application assumptions are referenced on the terms and conditions of our purchase agreement contract.



### Analysis Procedure

RedBuilt™ open-web trusses are analyzed as pin-connected trusses with continuity in the top chord member, which receives the superimposed loading. Allowable truss-member forces are designated in the product acceptance criteria or derived from material stresses therein. Chord members are analyzed considering both net section at panel points and gross sections between the panels. Allowable web member forces consider gross and net sections, pin bearing and buckling. Pin-connection details consider allowable bearing in the wood for both parallel and perpendicular-to-grain direction. Reaction detail analysis includes allowable bearing, induced moments where applicable, and detail stresses. Stress and deflection are calculated by the displacement method. All of the above is substantiated through continual testing.





## RedBuilt Recommended Deflection Criteria

Full-scale tests have shown repeatedly that RedBuilt™ products have deflection characteristics that are consistently predictable by calculation, with minimal set after load withdrawal.

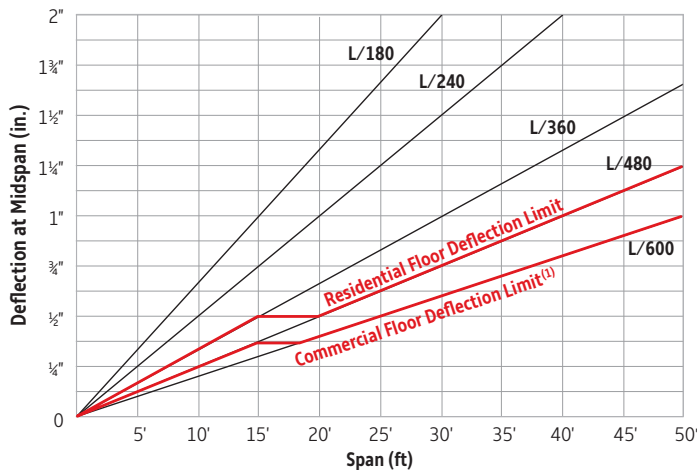
The graph below shows that RedBuilt's recommended deflection limit for residential and commercial floors is more restrictive than the minimum required by typical building codes. The floor load tables shown on pages 6–11 were developed based on the **Commercial Floor Deflection Limit** shown in the graph below.

### Floors:

- Maximum deflection at live load limited as indicated below
- Movable partition loads need not be considered

### Roofs:

- Sloped Roofs—¼" to 12" per foot, maximum deflection L/180 at total load
- Plaster Ceilings—Also check L/360 at live load



(1) For live load applications greater than 50 psf, check the L/600 deflection limit using a 50 psf live load, and check the code-prescribed deflection limit using the full live load.

Deflection criteria will vary by application. In a roof system, excessive deflection would be unsightly and could cause ceiling cracks and/or drainage problems. Floor systems, however, have entirely different—and usually much more restrictive—deflection requirements due to an occupant's perception of floor performance and feel.

The fundamental frequency of a floor system can be a good predictor of performance. Contact RedBuilt to discuss floor system performance for applications that are sensitive to vibration.

## Deflection Calculations

Deflections for open-web trusses can be closely approximated by standard beam formulas, assuming that the chord members act as the resistance to deflection with the modulus of elasticity (E) of the chords adjusted to allow for the deflection of the webs. Thus, the product of the moment of inertia (I) and the effective modulus of elasticity (E) is as shown in the **Truss Rigidity Properties** table below.

For uniformly loaded simple spans, the mid-span deflection (in inches) becomes:

$$\Delta = \frac{22.5wL^4}{EI}$$

### Where:

w = Uniform load in plf

L = Span in feet

d = The average pin-to-pin depth of the truss in inches, which is the average depth of the truss minus the following:

Red-L™ and Red-W™ trusses.....	1.5 inches
Red-S™ trusses.....	2.3 inches
Red-M™ trusses.....	3.5 inches
Red-H™ trusses.....	5.5 inches

## Truss Rigidity Properties

Truss Series	EI Truss Only (Roof)	EI Nailed Floor	EI Glue-Nailed Floor
Red-L™	$5.26 \times 10^6 d^2$	$5.69 \times 10^6 d^2$	$6.03 \times 10^6 d^2$
Red-W™	$6.78 \times 10^6 d^2$	$7.20 \times 10^6 d^2$	$7.54 \times 10^6 d^2$
Red-S™	$6.94 \times 10^6 d^2$	$7.41 \times 10^6 d^2$	$7.79 \times 10^6 d^2$
Red-M™	$10.06 \times 10^6 d^2$	$10.60 \times 10^6 d^2$	$11.02 \times 10^6 d^2$
Red-H™	$15.93 \times 10^6 d^2$	$16.54 \times 10^6 d^2$	$17.03 \times 10^6 d^2$

# CAMBER CRITERIA

The manufacture of RedBuilt™ open-web trusses includes the ability to provide a specified camber for appearance. Camber must be considered on an individual job basis, although certain policies derived from successful experiences are indicated. If camber is not specified in the order, our policy and considerations of other related job information will be used by our design department toward its selection.

Although excessive camber in any product may cause problems in framing, it is recommended that these policies be followed closely to avoid the serious problems caused by inadequate camber. In the case of flat roofs, the camber policy will be strictly adhered to unless it is shown that an adequate drainage system is provided to avoid ponding water and the resulting overloads.

Camber selection in structural members should include consideration for matching requirements of adjacent members of different length, as well as cantilevers meeting at a common elevation. In addition, consideration should be given to concentrated loads, non-load bearing walls, and special drainage problems. A RedBuilt representative is available to assist you in developing the camber requirements.

## Recommended Camber for Floor and Roof

Loading Condition	Application	Recommended Camber	Minimum Recommended Camber
Snow Roof	Sloped Roofs (¼:12 min.)	DL Δ + ½ LL Δ	DL Δ + ¼ LL Δ
	Flat Roofs	TL	DL Δ + ½ LL Δ
Non-Snow Roof	All Roofs	1½ DL Δ	1¼ DL Δ
Floor	All Floors	1½ DL Δ	DL Δ

DL Δ = Dead load deflection

LL Δ = Live load deflection

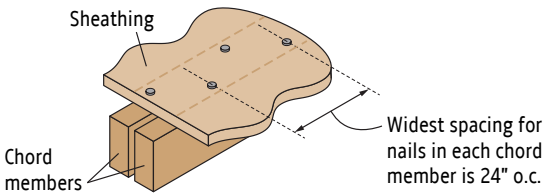
**Note:** Movable partition loads are not to be considered in this policy.

NAILING INFORMATION

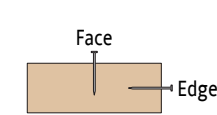
Minimum Nail Spacing

Nail Type	Nail Size	RedLam™ LVL			Sawn Lumber	
		Face	Edge		Face	Edge
			Truss Chord	Rim Board, Header, Beam		
8d <sup>(1)</sup>	0.113" x 2½"	2"	4"	3"	4"	2"
	0.131" x 2½"	2"	6"	3"	6"	2"
10d	0.128" x 3"	2"	6"	3"	6"	2"
	0.148" x 3"	3"	6"	4" <sup>(2)</sup>	6"	2½"
12d	0.128" x 3¼"	2"	6"	3"	6"	2"
	0.148" x 3¼"	3"	6"	4" <sup>(2)</sup>	6"	2½"
16d	0.135" x 3½"	3"	6"	4"	6"	2½"
	0.148" x 3½"	3"	6"	4" <sup>(2)</sup>	6"	2½"
	0.162" x 3½"	4"	8"	8" <sup>(3)</sup>	8"	4"

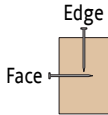
- (1) 14 gauge staples may be a direct substitute for 8d nails if a minimum penetration of 1" into the flange is maintained.
- (2) Minimum spacing must be 5" for four rows of nails.
- (3) Spacing may be reduced to 5" where nail penetration does not exceed 1⅜".
- If more than one row of nails is used, offset rows at least ½" and stagger. Maintain ⅜" minimum edge distance.
  - Nailing pattern to be per plans and specifications, and nail spacing should comply with criteria listed on this page.
  - For member stability, nail sheathing to the full length of the member (24" on-center, maximum).



Do not use nails smaller than 8d (2½") or larger than 16d (3½")



Flatwise orientation  
(typical with Red-L™ and Red-W™ trusses and plywood edge blocking)



Edgewise orientation  
(typical with Red-S™, Red-M™, and Red-H™ trusses and rim board, beams, and headers)

Refer to building code for allowable shear for wood diaphragms and the nail spacing requirements shown above.

SOUND DETAILS

Fire Assembly Details

For Fire Assemblies and other construction-related fire information, please refer to resources on our website at redbuilt.com.

Sound Assemblies and Noise Measurement

The ability of a wall or floor/ceiling system to reduce airborne sound transmission is measured using ASTM E90, and reported using the ASTM E413 Sound Transmission Class (STC) rating system. The ratings listed below—originally developed by the Acoustical and Insulation Materials Association and now considered a standard throughout the industry—are a practical reference for a range of STC numbers. In general, the higher the number, the better the acoustical performance. It is important to note that this table is valid only for a given level of background noise and should be used only for generalized comparisons.

Floor/ceiling systems can also be rated for impact noise transmitted through an assembly. Ratings are determined using the ASTM E492 Impact Insulation Class (IIC) system, and like STC ratings, a high IIC rating indicates significantly reduced impact noise.

STC Ratings

- 25 Normal speech can be understood quite clearly
- 30 Loud speech can be understood fairly well
- 35 Loud speech audible but not intelligible
- 42 Loud speech audible as a murmur
- 45 Must strain to hear loud speech
- 48 Some loud speech barely audible
- 50 Loud speech not audible

Testing

The acoustical assemblies provided below and on page 37 have been tested and rated by recognized acoustical laboratories, and the ratings shown are well within the acceptable range for multi-family buildings. However, in order to achieve these ratings, precautions should be taken to prevent flanking noise and sound leaks, and to ensure that actual construction conforms to the assembly shown.

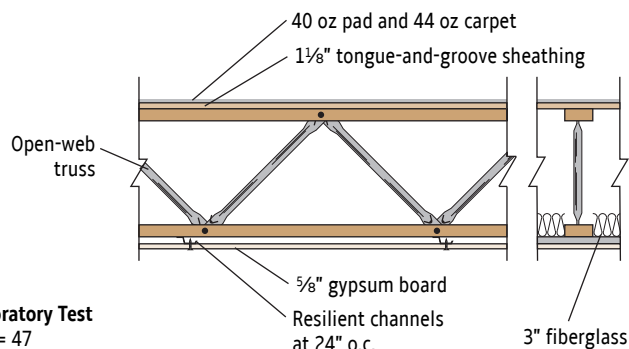
79

Field Test  
FSTC = 60  
WCR-Thunderbird

80

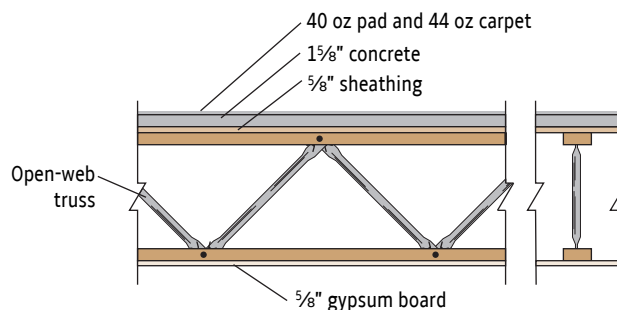
Laboratory Test  
STC = 59  
INR (no test)  
RAL No. TL 70-37

81



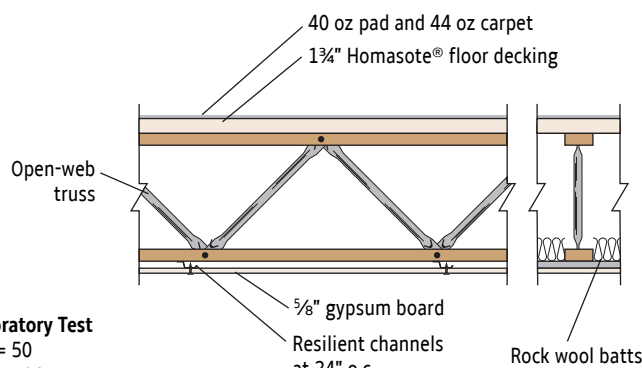
**Laboratory Test**  
STC = 47  
INR = +18  
KAL 224-35-65

82



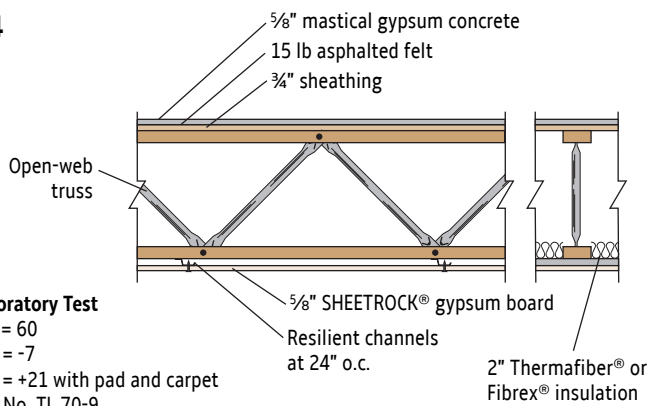
**Laboratory Test**  
STC = 46  
INR = +11  
KAL 224-38-65

83



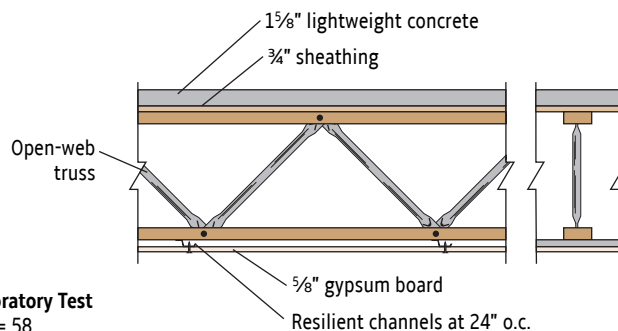
**Laboratory Test**  
STC = 50  
INR = +14  
KAL 858-5-70

84



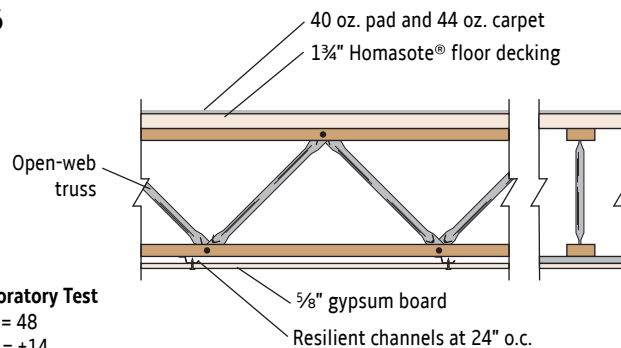
**Laboratory Test**  
STC = 60  
INR = -7  
INR = +21 with pad and carpet  
RAL No. TL 70-9

85



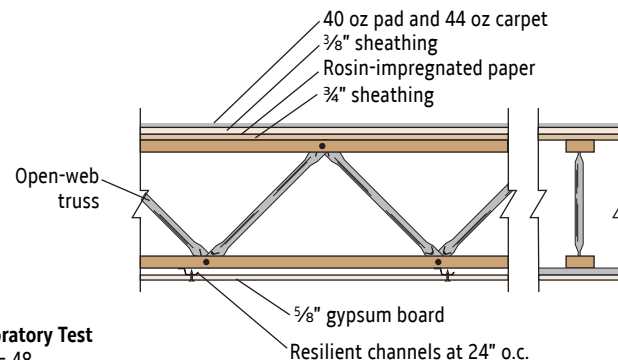
**Laboratory Test**  
STC = 58  
INR = +29 with pad and carpet  
RAL No. TL 70-44

86



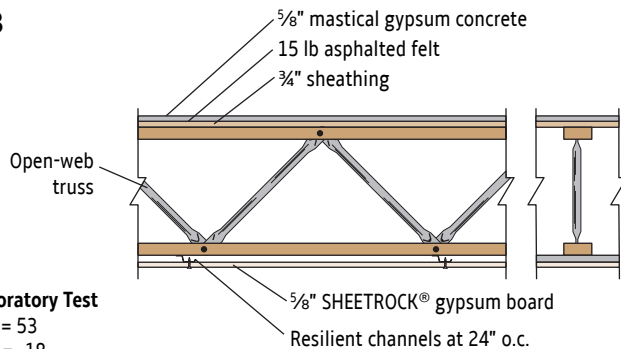
**Laboratory Test**  
STC = 48  
INR = +14  
IIC = 65  
KAL 858-4-70

87



**Laboratory Test**  
STC = 48  
INR = +11 with pad and carpet  
RAL No. TL 70-48

88



**Laboratory Test**  
STC = 53  
INR = -18  
INR = +18 with pad and carpet  
RAL No. IN 70-1 & IN 70-2

Fibrex® is a registered trademark of Fibrex® Insulations Inc. SHEETROCK® is a registered trademark of USG Corporation. Homasote® is a registered trademark of Homasote Company. Thermafiber® is a registered trademark of Thermafiber, Inc.

### **Q1: How do I develop the most cost effective solution when using open-web trusses?**

**A1:** The open-web truss load tables show the maximum load-carrying capacity of a given truss, but not necessarily the most cost-effective truss type or depth for the application. You can also use the **Specifying Economical Trusses** section on page 4 of this guide or you can contact your local RedBuilt representative at 1-866-859-6757 for assistance in finding the most economical solution for your application.

### **Q2: Can RedBuilt™ open-web trusses be used as drag struts?**

**A2:** Yes. RedBuilt can design the chords of open-web trusses for specific axial loads. These loads must be provided by the design professional.

### **Q3: What is MSR lumber?**

**A3:** Machine stress rated (MSR) lumber refers to sawn lumber that is mechanically evaluated for strength and stiffness, and then visually graded. Sawn lumber that is rated as MSR is regarded as high-quality material, and MSR is the only grade of sawn lumber used by RedBuilt in open-web truss chord components.

### **Q4: Are your open-web trusses covered by a warranty?**

**A4:** Yes. RedBuilt warrants that its products will be free from manufacturing errors or defects in workmanship and material. In addition, provided that the product is correctly installed and used, the company warrants the adequacy of its design for the normal and expected life of the building. A copy of the warranty can be found on the back cover of this guide or on our website at [www.RedBuilt.com](http://www.RedBuilt.com).

### **Q5: Does RedBuilt provide any sprinkler system or fire-rated assembly details?**

**A5:** Yes. RedBuilt provides a number of sprinkler system suspension and fire assembly details in AutoCAD® format, which can be downloaded from our website at [redbuilt.com](http://redbuilt.com) on the **AutoCAD Details** page.

### **Q6: What type of certification and quality assurance do open-web trusses have?**

**A6:** RedBuilt™ open-web trusses are manufactured in accordance with rigorous standards, and they are monitored by a third-party quality control agency (PFS Corporation). These standards are modeled after ISO 9000.

### **Q7: How can I contact a RedBuilt representative?**

**A7:** You can find your local RedBuilt representative by calling 1-866-859-6757 or visiting our website at [redbuilt.com](http://redbuilt.com).

### **Q8: Can I modify or repair RedBuilt™ open-web trusses?**

**A8:** On rare occasions, repairs or modifications can be made to RedBuilt™ open-web products—but only if the materials and instructions are provided by RedBuilt. Contact your local RedBuilt representative for more information or call 1-866-859-6757.

### **Q9: Can I treat open-web products with fire-retardant or preservative?**

**A9:** RedBuilt does not recommend or warrant the use of field-applied treatments. The use of these products may reduce the design load-carrying capacity of the members. Instead, RedBuilt requires that dry-use conditions be maintained.

### **Q10: Why are some RedBuilt™ open-web trusses painted red on one end?**

**A10:** Many truss applications require the use of non-symmetrical trusses. Typically this is due to non-uniform design loading patterns. Non-symmetrical trusses are marked with red paint on one end, and the layout drawings provided by RedBuilt will specify where the red end is to be installed.

### **Q11: Do RedBuilt™ open-web trusses meet the requirements set forth in the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) standard?**

**A11:** LEED–NC (new construction) is a commonly used building rating system designed to accelerate the development of green building practice. While products such as RedBuilt™ open-web trusses are not LEED certified on an individual basis, they may contribute to point totals for a "whole building" certification. For example, the following items may be viewed as contributors toward points in the LEED rating system:

- The **Low Emitting Materials** section (EQ 4.4) recognizes composite wood that is free from urea-formaldehyde resins. RedBuilt does not use urea-formaldehyde resins in any of its engineered lumber products. Material Safety Data Sheets (MSDS) are available at [redbuilt.com](http://redbuilt.com).
- RedBuilt™ products may qualify for **Regional Materials (MR 5.1 and 5.2)** for projects located within a 500 mile radius of Portland, OR.
- Tubular steel webs and bearing clips used in RedBuilt open-web trusses may qualify for **Recycled Content (RC 4.1 and 4.2)**. For more information consult your RedBuilt technical representative.

## 1.0 General

### 1.1 Scope

This work includes the complete furnishings and installation of all RedBuilt™ open-web trusses, as shown on the drawings herein specified and necessary to complete the work.

### 1.2 Code Approvals

These products shall be designed and manufactured to the standards set forth in the International Code Council Report No. ESR-1774.

### 1.3 Related Work Specified Elsewhere

- A. Carpentry and millwork
- B. Glu-laminated members

### 1.4 Design

A. Products: RedBuilt™ products shall be designed to fit the dimensions and loads indicated on the plans.

B. Design Calculations: When requested, a complete set of design calculations shall be prepared by RedBuilt.

### 1.5 Submittals

A. Drawings: Drawings showing layout and detail necessary for determining fit and placement in the building shall be provided by RedBuilt.

B. Production: Fabrication and/or cutting shall not proceed until the architect and/or engineer have approved the submittal package.

## 2.0 Products

### 2.1 Materials

Materials shall comply with ICC-ES Report No. ESR-1774. Chord members, web members, connecting pins and bearing hardware/attachments shall be of material and size as required by design.

### 2.2 Fabrication

The trusses shall be manufactured by RedBuilt in a plant listed in the report referred to above and under the supervision of an approved third-party inspection agency.

### 2.3 Tolerances

Length, bearing-to-bearing:

For trusses up to 30 ft:  $\pm 1/8"$

For trusses greater than 30 ft:  $\pm 1/4"$

Depth:  $\pm 1/8"$

#### CAMBER

Span	Individual Truss Tolerance Variation from Design	Variation Between Any Two Trusses of the Same Type
0 to 30'	$\pm 1/8"$	$1/4"$
>30' to 60'	$\pm 3/8"$	$1/4"$
>60' to 120'	$\pm 1/2"$	$1/2"$

### 2.4 Identification

Each of the trusses shall be identified by a stamp indicating the truss series, ICC-ES report number, manufacturer's name, plant number, date of fabrication, and the independent inspection agency's logo.

### 2.5 Hardware

Not applicable.

## 3.0 Execution

### 3.1 Installation

RedBuilt™ open-web trusses, if stored prior to installation, shall be stored in a vertical position and protected from the weather. They shall be handled with care so they are not damaged. The open-web trusses shall be installed in accordance with the plans and any RedBuilt drawings and installation suggestions. Temporary construction loads that cause stresses beyond design limits are not permitted. Installation bracing is required to keep trusses straight and plumb, and to ensure adequate lateral support for the individual trusses and the entire system until the sheathing material has been applied. RedBuilt's recommended method for bracing is to use the strut bracing supplied by RedBuilt.

### 3.2 Installation Review

Prior to enclosing the trusses, the Contractor shall give notification to the RedBuilt representative to provide an opportunity for review of the installation.

### 3.3 Performance Standards

Not applicable.

### 3.4 Fire Rating/Sound Rating

Fire and sound ratings are to be established in accordance with the assemblies detailed in ICC-ES Report No. ESR-1774, or the *Directory of Listed Products* published by Intertek Testing Services.

### 3.5 Warranty

The products delivered shall be free from manufacturing errors or defects in workmanship and material. The products, when correctly installed and maintained, shall be warranted to perform as designed for the normal and expected life of the building.

## 4.0 Alternates and/or Equals

### 4.1 Base Bid

Due to the customized detailing and engineering characteristics of the roof and/or floor framing assembly, it is a requirement that open-web trusses be used in the base bid.

### 4.2 Alternate Manufacturers

Other manufacturers' bids are to be listed in the alternate section of your proposal. All framing plans, detailing, and calculations for the alternate bids will be reviewed by the owner, architect, and engineer for structural performance, possible conflicts with related trades, and compatibility with the overall building requirements and building code.

### 4.3 Alternate Products

Alternate products will only be permitted if written approval and acceptance is obtained by both architect and owner at least seven days prior to the bid date. Any monetary savings that may be realized by using an alternate product shall be forwarded to the owner.

### 4.4 Acceptable Alternatives

At the discretion of the specifier of record, accepted alternates will be listed on the final addendum prior to the bid date.





## SERVICE AND SUPPORT YOU CAN COUNT ON.

RedBuilt is committed to creating superior structural solutions. How? By offering efficient structural building products supported by a broad range of services.

- Our team of RedBuilt representatives—one of the industry's largest—isn't afraid to get its hands dirty. We can help with technical information, installation questions or code compliance.
- At RedBuilt, our goal is to help you build solid and durable structures. A limited warranty for our products is in effect for the expected life of the building.
- Call us with a problem that you believe may be caused by our products, and our representative will contact you within one business day to evaluate the problem and help solve it—**GUARANTEED**.



### CONTACT US

**1.866.859.6757**

**redbuilt.com**

**200 E. Mallard Drive, Boise, ID 83706**

**P.O. Box 60, Boise, ID 83707**