



Open-Web Trusses



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



Download your free copy
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

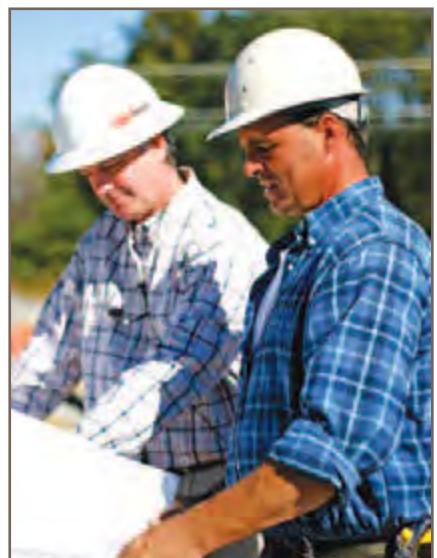
This guide provides specifiers with technical information about the RedBuilt™ open-web truss product line. However, complex or custom applications can often make specifying the right products in the right places a challenge—especially when you have factors such as span, wind or load-carrying capacity 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 www.RedBuilt.com to download literature for products such as Red-I™ joists and RedLam™ LVL.



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

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.

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, well as other RedBuilt™ products, are now available with FSC credits. 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.



The mark of
responsible forest
management

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.

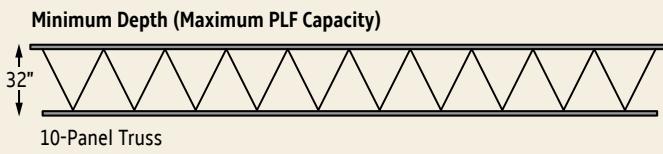
HOW TO SPECIFY TRUSSES FOR MAXIMUM ECONOMY

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:

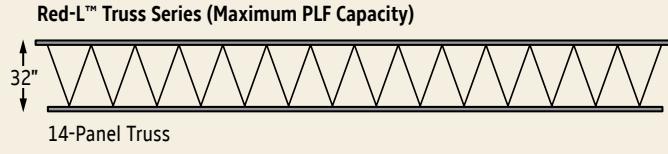
Deeper Can Be More Economical

Example:

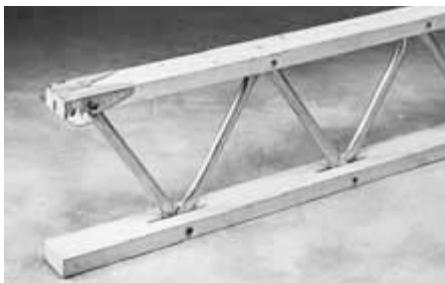


Consider An Alternative Truss Series

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

Top Chords:

- Red-L™ trusses: $1\frac{1}{2}'' \times 3\frac{1}{2}''$ MSR lumber*
- Red-W™ trusses: $1\frac{1}{2}'' \times 4\frac{3}{4}''$ MSR lumber

Bottom Chords:

- Red-L™ trusses: $1\frac{1}{2}'' \times 3\frac{1}{2}''$ MSR lumber*
- Red-W™ trusses: $1\frac{1}{2}'' \times 4\frac{3}{4}''$ MSR lumber

Webs:

$1''$ and $1\frac{1}{8}''$ diameter tubular steel members varying in gauge and diameter according to requirements. Minimum yield of 45,000 psi.

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

Top and Bottom Chords:

Double $1\frac{1}{2}'' \times 2.3''$ RedLam™ LVL

Webs:

$1'', 1\frac{1}{4}'',$ and $1\frac{1}{2}''$ diameter tubular steel members varying in gauge and diameter according to requirements. Minimum yield of 45,000 psi.

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

Top and Bottom Chords:

- Red-M™ trusses: Double $1\frac{1}{2}'' \times 3\frac{1}{2}''$ MSR lumber*
- Red-H™ trusses: Double $1\frac{1}{2}'' \times 5\frac{1}{2}''$ MSR lumber*

Webs:

Up to $2''$ diameter tubular steel members varying in gauge and diameter according to requirements. Minimum yield of 45,000 psi.

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"

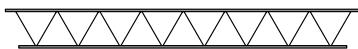
Any depth between minimum and maximum is available.

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

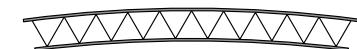
* RedLam™ LVL chords may be available for Red-L™, Red-M™, and Red-H™ truss series. Consult your technical representative for availability and limitations.

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

Truss Profiles



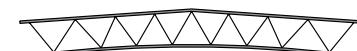
1 Parallel Chord



6 Barrel



2 Tapered



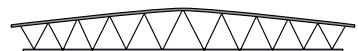
7 Pitched Top Chord/Radius Bottom Chord



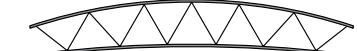
3 Pitched



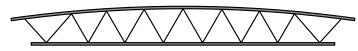
8 Scissor



4 Radius Pitched



9 Compound Barrel



5 Bow String



10 Lenticular

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 $\frac{1}{2}:12$ for Red-L™ and Red-W™ truss series, and $\frac{3}{8}:12$ 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												
14'	291	341	329	393	376	421	370	427	338	388	328	352	324	357
	200	370	237	429	300	460	343	460	422		392		389	
16'	266	306	301	351	284	390	343	396	335	380	329	353	304	350
	154	332	190	382	217	415	258	423	298	414	381		381	385
18'	220	250	200	289	228	330	270	353	301	365	322	362	302	344
	108	273	139	313	173	359	206	377	239	381	265	392		374
20'	184	212	171	245	184	277	207	305	226	332	268	327	290	318
	83	229	108	266	134	299	159	323	194	341	214	349	239	353
22'	158	171	142	204	160	228	177	260	200	289	220	303	260	309
	65	192	84	217	108	252	130	283	150	314	181	307	200	321
24'	133	152	133	178	143	201	157	221	172	247	185	269	202	287
	52	167	67	189	87	215	101	241	121	267	139	291	164	294
26'	105	131	113	151	129	173	136	190	151	214	166	235	177	250
	42	135	55	160	69	188	84	210	99	233	118	255	136	270
28'	85	108	109	132	118	149	125	163	136	181	151	199	163	219
	34	108	44	141	56	158	68	181	84	196	98	220	115	240
30'	90	92	114	108	130	121	145	127	158	140	173	152	191	
	90	37	121	46	140	56	155	68	175	81	192	94	209	
32'	75	76	100	95	113	107	128	118	142	127	155	139	169	
	75	31	101	39	124	48	140	58	155	68	170	79	184	
34'	59		84	81	101	99	114	105	126	120	138	127	151	
	59		84	33	110	41	124	49	136	57	150	66	164	
36'	55		72		87	83	98	97	108	107	119	114	128	
	55		72		93	35	102	42	115	49	128	57	140	
38'	47		62		78	75	86	85	97	92	106	97	116	
	47		62		80	30	94	36	104	42	114	49	126	
40'	40		52		69		79	79	87	81	96	94	102	
	41		52		69		86	31	95	37	102	43	114	
42'	35		46		59		70		79	79	87	85	95	
	35		47		60		70		86	32	92	37	103	
44'	31		39		52		65		71		80	77	85	
	31		39		52		65		74		82	33	94	
46'			36		45		57		66		73		79	
			36		45		57		69		79		86	
48'					40		51		61		67		73	
					41		51		62		70		79	
50'					36		45		55		59		65	
					36		45		55		66		73	
52'							39		49		57		62	
							39		49		59		63	
54'							36		44		51		55	
							36		44		51		58	
56'									37		47		54	
									37		47		56	
58'									36		43		49	
									36		43		49	
60'											39		46	
											39		46	

• 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 (1/12 slope, minimum) in roof applications.
 - Span indicates distance from inside face to inside face of bearing.
 - Top chord no-notch bearing clips with 1 3/4" 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

Span	Depth													
	28"		30"		32"		34"		36"		38"		40"	
	100% TL 100% LL	115% TL 125% TL												
14'	307	354	296	338	291	333	275	315	262	304	264	305	244	280
	375		371		357		343		329		328		304	
16'	311	351	311	336	283	310	266	307	261	298	257	292	240	277
	368		347		335		322		307		305		301	
18'	278	308	276	315	276	303	261	289	258	280	252	280	235	268
	340		345		304		315		303		287		304	
20'	271	311	284	312	259	290	257	279	259	260	234	264	236	256
	249		267		323		315		305		284		275	
22'	260	305	263	287	238	279	236	259	241	258	224	256	224	238
	207		228		316		301		282		278		259	
24'	219	288	253	291	243	287	222	272	227	261	218	234	213	246
	182		298		302		210		281		284		271	
26'	195	270	237	272	237	272	228	266	222	256	222	255	212	232
	154		275		164		178		195		214		266	
28'	177	233	214	253	220	253	220	253	218	251	198	231	208	232
	130		248		139		158		169		184		193	
30'	164	208	172	219	200	237	206	236	204	236	206	219	205	218
	108		226		122		238		132		241		174	
32'	151	184	158	197	170	212	180	207	193	222	193	211	193	203
	90		199		100		214		114		225		151	
34'	137	162	147	174	157	187	165	199	181	208	182	200	182	190
	76		176		87		186		97		204		130	
36'	123	138	132	150	140	156	151	171	161	180	172	187	172	179
	66		151		76		163		84		174		114	
38'	113	116	115	134	127	144	136	152	144	163	152	162	163	171
	57		135		64		147		72		157		91	
40'	99	113	109	122	117	130	125	139	129	146	140	153	148	162
	49		122		56		132		64		141		79	
42'	92	102	99	108	107	117	114	125	121	133	128	141	133	147
	43		112		49		120		55		128		77	
44'	78	92	90	98	96	107	101	114	109	121	116	129	121	131
	38		100		43		109		48		117		67	
46'	76	84	82	92	86	98	93	105	99	112	105	118	112	124
	34		93		38		100		43		106		54	
48'	70	79	73	84	81	90	86	96	91	102	96	108	103	113
	30		86		34		92		38		105		54	
50'		72	69	78	71	83	80	89	85	94	90	100	95	105
	79		30		85		34		38		96		48	
52'		66		72	70	77	74	82	74	87	83	88	88	97
	73			78	31	84	34	89	38	95	43	100	47	106
54'		62		65		67	69	76	73	81	75	86	82	90
	68			73		78	31	83	35	88	38	93	42	94
56'		60		62		68		69	68	76	72	81	76	82
	65			65		74		78	31	84	35	88	38	93
58'		55		57		60		68		68	67	77	71	82
	58			62		68		75		79	32	80	35	88
60'		50		55		60		64		67		72	66	75
	50			61		65		68		72		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 100% LL	115% TL 125% LL																										
14'	387	444	415	475	429	486	455	502	428	481	394	459	388	447	377	416	371	405	341	370	342	381	330	349	329	347	304	342
	244	469	322	487	384	506	429	512	513		486		485		458		446		398		414		372		371		371	
16'	316	365	373	422	408	439	418	448	403	447	395	443	381	438	369	442	348	401	335	386	333	359	311	331	300	329	301	331
18'	255	309	313	351	344	389	369	394	377	402	377	403	371	401	352	404	334	404	312	385	315	363	303	344	288	320	273	331
20'	221	249	258	290	294	327	329	352	340	361	329	365	328	367	340	372	340	361	304	362	303	332	283	328	288	332	277	305
22'	178	208	210	241	243	273	274	307	302	322	309	330	310	332	310	333	303	333	300	338	293	335	288	322	276	307	258	297
24'	82	226	106	265	130	297	161	313	188	326	216	330	241	337	264	341	284	339	287	338	335	331	314	302				
26'	156	180	177	203	206	234	229	261	254	288	278	300	285	303	285	305	285	306	285	304	285	307	276	296	271	285	265	269
28'	125	153	147	176	171	201	191	225	212	249	231	265	250	273	262	281	263	282	263	282	263	281	261	274	262	264	249	253
30'	52	166	68	192	86	219	106	240	122	265	141	274	161	279	173	285	199	282	214	284	235	282	253	274	265		256	
32'	105	132	125	153	146	174	162	194	181	215	199	237	217	249	234	261	242	261	245	260	244	257	245	251	245	243	233	240
34'	84	115	113	133	152	141	170	157	188	172	206	188	223	204	241	220	240	229	242	229	239	229	231	229	226	216	218	
36'	35	116	46	144	59	165	72	185	86	204	98	224	111	238	127	243	142	240	158	243	174	239	193	231	207	226	213	219
38'	59	78	74	92	90	103	102	114	112	125	120	136	130	147	142	159	152	169	162	181	171	180	179	174	166	169		
40'	50	69	89	33	101	39	112	46	123	54	133	62	144	69	151	77	166	86	175	95	170	105	164	113	164			
42'	45	59	75	84	82	93	89	102	96	112	103	119	116	129	124	139	132	148	139	157	148	153	148	155				
44'	39	52	67	77	73	84	83	93	91	100	97	110	105	118	113	127	121	135	128	143	135	144	140	143				
46'	35	46	57	70	78	76	86	83	93	89	99	96	108	104	116	110	123	117	131	124	137	131	136					
48'	41	51	64	67		74	76	83	82	91	89	99	95	106	101	113	108	120	114	127	120	134						
50'	36	47	59	71	79		85	33	93	38	101	43	108	48	116	54	123	60	131	65	138	72	135					
52'			42	51	59	67	73	70	79	76	83	82	92	38	100	43	106	48	113	53	120	58	127	65	129			
54'			37	44	55	60		68		73	69	78	75	84	80	89	85	95	90	99	95	106						
56'			41	47	57		64		68		70	79	72	86	79	91	84	96	88	101								
58'			37	42	53	60		65		68		75	69	80	74	85	78	90	82	95								
60'			42		50		55		63		71		74		81		86	32	86	36	89	40	95					

• 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 (1/12 slope, minimum) in roof applications.
 - Span indicates distance from inside face to inside face of bearing.
 - Top chord no-notch bearing clips with 2 3/4" 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

Load Tables

Span	Depth																											
	16"		18"		20"		22"		24"		26"		28"		30"		32"		34"		36"		38"		40"		42"	
	100% LL	125% TL																										
16'	398	460	465	526	491	539	490	546	467	538	453	514	455	471	433	491	375	461	364	398	346	415	345	395	312	359	317	362
	255	300	324	541	398	554	474	567		570		564		520		503		499		454		454		430		387		393
18'	325	374	379	434	432	469	454	481	483	497	434	492	409	466	414	454	359	425	390	423	338	415	315	378	311	354	312	358
	187	407	239	453	297	491	354	509	419	507		525		511		493		461		460		429		394		387		413
20'	260	321	320	367	359	410	391	423	416	448	427	449	389	455	374	446	377	434	379	397	356	378	333	384	331	362	287	360
	137	323	176	396	219	418	268	460	316	463	368	457	381	479		463		472		432		446		417		413		391
22'	214	268	244	307	276	314	334	384	367	401	376	409	385	411	378	422	377	417	344	398	330	384	328	364	307	354	306	354
	105	285	132	305	165	342	206	386	249	404	289	428	327	420	370	435		423		433		435		411		384		385
24'	196	226	220	249	250	288	278	320	309	356	338	374	356	377	361	379	341	388	346	383	317	370	343	374	299	338	291	335
	83	246	105	276	130	310	160	339	193	365	227	375	262	378	298	386	327	399	338	391		398		407		371		363
26'	163	192	190	220	215	247	240	276	264	303	288	331	312	348	330	349	332	366	328	352	315	350	304	356	294	345	293	332
	65	207	84	237	104	267	127	297	153	330	180	350	212	349	239	363	266	358	275	370	307	361		358		363		363
28'	131	165	165	190	184	214	207	238	225	262	248	286	269	310	289	324	309	327	311	326	313	335	303	327	302	333	282	329
	52	168	68	207	84	232	103	258	123	282	145	310	172	325	196	325	222	338	246	334	254	344	282	347		339		337
30'	106	136	138	166	161	187	179	207	197	227	217	249	235	270	252	290	271	303	287	305	291	304	293	310	296	306	282	310
	42	135	55	179	69	203	85	223	101	248	119	271	138	291	163	304	184	315	207	309	226	312	240	313	260	311	280	316
32'	84	113	115	145	143	164	159	182	174	201	187	219	206	238	223	256	236	273	255	281	271	286	282	286	274	295	279	291
	35	113	46	147	57	178	70	193	84	216	99	236	116	258	132	276	152	287	172	287	192	290	203	293	223	294	239	292
34'	73	95	96	123	120	145	140	162	152	172	167	194	180	211	195	227	209	243	221	254	240	269	254	268	266	272	270	273
	29	95	38	123	48	157	59	176	71	193	84	211	98	229	112	246	126	262	143	269	162	270	176	273	190	274	204	275
36'	62	80	80	104	102	129	124	144	137	157	148	173	160	186	176	202	189	217	199	232	214	245	226	255	237	254	251	257
	25	80	32	104	41	132	50	157	60	172	70	188	82	201	95	220	107	236	122	250	137	255	148	256	162	259	179	258
38'	53	69	69	89	87	112	106	129	124	143	132	151	145	166	155	178	168	190	179	208	192	220	200	234	215	243	226	245
	21	67	27	89	35	112	43	139	51	154	60	166	70	183	81	198	93	210	104	224	116	238	131	242	141	244	153	242
40'	45	59	59	76	74	96	91	117	110	129	119	141	129	152	139	164	151	176	160	188	173	200	184	211	194	223	204	232
	18	59	23	76	30	96	37	119	44	140	52	151	60	164	70	177	80	189	90	199	101	215	113	228	125	231	135	230
42'	39	51	51	66	63	84	79	103	95	116	110	126	120	138	126	149	139	156	147	169	157	177	165	192	176	201	185	213
	16	51	20	66	26	84	32	103	38	125	45	137	52	149	61	160	69	172	77	184	87	195	96	206	108	218	117	216
44'	45	45	58	56	73	69	89	83	105	98	115	105	126	118	135	123	145	135	154	144	165	148	174	160	184	169	193	
	45	18	58	23	73	27	89	33	109	39	125	46	137	53	147	60	158	68	168	75	179	85	188	94	199	104	208	
46'	39	39	51	49	64	60	79	73	95	86	106	100	114	108	123	116	133	124	142	130	151	135	160	147	169	155	178	
	39	16	51	20	64	24	79	29	95	34	114	40	124	46	135	53	143	59	154	67	164	74	174	81	184	91	193	
48'	35	45	43	57	53	70	63	84	76	98	89	106	99	114	105	121	113	130	121	139	128	147	135	155	140	163		
	35	45	17	57	21	70	26	83	30	100	36	115	41	124	47	133	53	142	59	151	66	160	72	169	79	177		
50'	31	40	39	50	47	62	57	74	68	88	78	98	91	105	98	113	105	120	110	128	118	135	123	143	130	151		
	31	40	15	50	19	60	23	74	27	88	32	104	36	114	42	123	47	131	53	139	58	147	65	154	71	162		
52'	27	35	35	45	42	55	51	67	60	78	70	90	81	93	91	104	97	111	103	118	109	125	115	132	120	139		
	27	35	45	17	55	20	62	24	78	28	93	32	106	37	113	42	121	47	128	52	136	58	144	63	151			
54'	24	32	32	40	15	49	18	58	22	70	25	82	29	95	33	105	37	112	42	119	47	124	52	133	57	140		
	22	29	29	36	44	16	53	19	64	23	74	26	86	30	98	34	104	38	111	42	117	47	123	51	130			
56'	22	29	29	36	44	16	53	19	64	23	74	26	86	30	98	34	104	38	111	42	117	47	123	51	130			
	20	26	32	40	48	18	57	20	67	24	77	27	89	31	97	34	103	38	109	42	116	46	122					
60'		23	29	36	44	16	50	19	61	21	70	24	81	28	91	31	97	35	102	38	108	42	114					
62'	16	21	27	33	40	47	17	55	19	62	22	73	25	83	28	90	32	96	35	101	38	106						

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

	Depth																													
	20"		22"		24"		26"		28"		30"		32"		34"		36"		38"		40"		42"		44"		46"			
Span	100% LL 125% TL																													
	100% LL	125% TL																												
24'	292	327	330	368	365	404	403	437	408	439	409	443	406	446	383	448	391	446	379	444	358	443	358	425	371	404	356	392		
	184	348	228	391	274	432	314	435	357	440	399	439	446	450	450	450	450	455	451	455	458	439								
26'	251	278	280	313	314	345	345	383	372	404	386	405	388	408	388	406	394	417	391	419	356	415	347	409	351	416	342	403		
	147	295	182	328	219	365	252	401	292	402	328	407	375	406	412	418	423	421	425	426	430									
28'	215	237	244	271	268	300	299	330	321	360	350	376	370	379	365	383	367	384	365	386	373	391	338	390	337	390	304	384		
	119	255	148	286	178	316	210	351	241	372	272	374	306	381	331	382	386	387	387	392	394	390								
30'	186	206	207	231	235	260	261	288	285	312	307	341	331	350	333	355	352	355	349	360	338	352	343	364	326	367	319	366		
	99	223	121	246	146	276	173	303	200	332	229	349	256	350	288	354	310	358	339	357	358	367								
32'	166	185	185	206	203	229	227	253	246	276	271	295	291	319	310	330	329	335	328	332	326	340	322	340	323	331	306	347		
	82	195	101	220	122	242	144	267	167	293	191	317	215	327	241	327	267	332	285	337	311	337								
34'	148	164	164	180	183	202	200	223	218	245	235	263	253	282	274	307	295	314	302	316	310	317	310	319	317	320	314	321		
	68	173	85	196	102	216	122	237	142	258	162	278	184	302	204	311	227	313	245	316	268	317	292	320	313	321	320			
36'	133	146	148	161	160	178	175	199	196	216	211	233	225	252	243	272	261	290	274	297	287	298	300	302	299	302	295	304		
	58	155	72	173	86	192	103	211	120	229	137	244	156	270	175	285	194	296	213	297	232	298	246	301	272	301	291	302		
38'	118	131	133	147	146	161	162	176	175	190	188	210	204	226	220	242	233	257	244	276	259	281	275	284	278	283	280	287		
	49	141	61	155	74	175	88	191	103	206	119	218	134	239	151	256	168	277	185	280	203	279	218	285	233	285	253	282		
40'	105	119	118	133	131	147	144	159	158	173	167	193	183	199	196	215	209	235	226	249	234	264	250	267	266	269	265	271		
	42	127	52	141	64	157	76	170	89	189	103	205	116	219	130	234	145	249	161	260	177	261	190	270	205	264	219	266		
42'	91	110	109	121	121	135	132	145	143	158	155	171	166	189	180	202	194	202	200	226	215	239	226	251	239	256	249	257		
	36	115	45	129	55	142	66	155	77	170	90	179	102	200	114	211	127	226	141	234	154	251	167	254	182	254	195	255		
44'	79	99	99	110	110	122	122	135	130	144	141	158	153	170	162	179	174	190	185	206	198	218	208	227	216	238	228	242		
	32	103	39	116	48	128	58	142	67	153	78	169	89	181	100	193	112	205	123	219	136	225	147	242	161	241	173	243		
46'	69	90	86	101	101	110	122	121	133	129	140	140	153	148	161	161	171	170	188	180	199	189	210	198	220	208	231			
	28	90	34	107	42	120	50	129	59	142	68	153	78	165	89	176	99	188	110	199	121	209	131	223	142	233	155	228		
48'	61	80	76	93	93	102	102	111	111	122	121	132	127	141	136	153	146	163	157	173	166	183	176	192	183	202	191	211		
	24	80	30	98	37	107	44	118	52	132	61	141	69	153	78	160	87	171	97	184	107	193	117	204	126	212	137	218		
50'	54	70	66	86	82	95	94	104	102	112	111	123	119	130	129	139	137	150	144	159	154	169	160	177	168	187	180	197		
	22	70	27	88	33	101	39	111	46	118	54	129	61	138	69	144	78	161	86	167	95	181	105	188	114	196	124	208		
52'	48	63	60	78	73	89	87	96	95	104	102	111	111	120	118	132	125	138	135	141	140	158	149	164	156	174	165	182		
	19	63	24	78	29	92	35	99	41	109	48	118	55	130	62	134	69	147	77	157	85	163	94	174	103	185	111	194		
54'	43	56	52	70	65	82	78	89	88	96	95	103	101	115	109	119	118	130	125	138	132	145	138	152	148	161	153	167		
	17	56	21	70	26	86	31	96	37	104	43	113	49	118	56	130	62	136	70	143	77	152	84	161	92	171	100	177		
56'	39	51	48	63	58	76	66	83	82	90	89	98	96	103	102	114	109	117	116	129	121	136	129	141	135	148	143	158		
	15	51	19	63	23	76	28	87	33	93	39	105	44	113	50	120	56	125	63	135	70	144	76	151	84	158	90	165		
58'	46	43	57	53	69	75	75	85	83	91	90	98	95	106	102	113	108	118	114	126	121	131	126	139	133	146				
	46	17	57	21	68	25	82	30	90	35	97	40	104	45	109	51	118	57	123	63	125	69	141	75	147	82	156			
60'	41	39	52	66	57	73	68	79	77	85	83	90	90	99	95	102	101	111	107	118	113	125	119	129	124	138				
	41	16	52	19	63	23	75	27	80	32	90	36	99	41	101	46	113	51	116	57	125	63	132	69	138	75	146			
62'	37	47	43	57	52	68	61	75	71	80	78	85	83	92	89	97	94	106	100	110	106	116	111	122	117	127				
	37	47	17	57	21	68	24	79	29	84	33	91	37	99	42	105	47	109	52	115	57	123	62	129	68	137				
64'	34	43	40	52	47	62	56	67	65	75	74	81	79	88	83	92	89	99	94	105	98	110	104	116	110	122				
	34	43	16	52	19	62	22	73	26	80	30	85	34	91	38	97	43	103	47	111	52	116	57	122	62	126				
66'	31	39	47	57	51	65																								

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"		48"		51"		54"		57"		60"		63"			
	100% LL	125% TL																												
30'	327	365	381	426	415	487	417	478	413	495	414	490	418	486	395	488	401	408	403	434	356	410	349	417	331	382	329	375		
	186	387	242	449	304	501	373	491		488	515		512	513		402	502		484	445		444			331	415		421		
32'	290	321	336	375	378	428	432	471	425	457	434	475	379	477	384	459	380	462	403	414	379	431	337	388	334	381	325	361		
	157	341	203	397	259	493	313	473	370	475	429	484		474	484		492	461		459	418			334	422		404			
34'	256	285	297	333	342	380	372	419	415	447	389	435	405	452	360	454	370	440	362	441	380	390	358	404	321	371	315	378		
	132	303	172	343	217	402	265	447	314	442	366	455	458		458			459	467		442	425			409			400		
36'	228	252	267	297	305	336	339	380	376	421	384	428	381	424	386	431	369	434	352	418	349	416	359	380	339	384	308	364		
	112	267	147	313	186	360	228	403	271	424	317	429	361	433		435	439		436	434		431			408			383		
38'	206	228	240	266	274	306	307	340	341	381	373	401	377	394	337	409	370	410	372	415	351	396	350	385	341	339	310	364		
	96	243	126	283	158	320	196	361	235	399	274	397	317	407		409			415	416		416			399			384		
40'	186	207	217	238	245	273	276	311	307	339	335	378	366	379	364	384	360	389	352	390	359	384	328	378	311	370	301	360		
	83	222	109	254	138	292	170	329	204	364	239	375	276	382	313	389	349	393		394			393			396			384	
42'	169	187	196	216	224	250	250	278	282	313	308	341	334	361	351	368	347	371	350	373	339	374	333	369	314	356	300	356		
	72	196	95	228	121	265	149	298	178	322	208	358	240	364	271	369	309	373	341	375		377			381			378		
44'	151	169	178	195	204	225	226	258	257	285	283	313	308	339	330	346	332	356	335	358	338	358	326	359	309	353	298	344		
	62	182	83	209	105	240	129	273	156	303	184	333	211	351	241	352	275	355	303	358	334	360		358			358			360
46'	137	157	164	183	188	208	211	232	235	262	251	287	283	310	304	337	323	328	320	340	322	341	322	344	317	346	297	343		
	55	166	73	191	93	220	115	246	139	278	163	304	188	327	215	337	241	339	270	341	298	342		344			348			343
48'	121	144	151	168	173	192	194	216	215	237	238	261	260	283	283	313	300	315	314	327	316	328	313	329	303	329	296	329		
	48	153	64	177	82	201	102	225	123	250	144	276	167	305	192	313	213	323	235	326	268	327	294	327			331			325
50'	107	132	139	155	158	176	178	196	200	220	218	244	239	266	259	282	279	305	295	312	300	313	300	316	307	318	290	315		
	43	140	57	163	73	185	91	211	109	230	129	249	150	280	171	302	193	311	213	310	238	314	265	316	289	317		311		
52'	95	123	126	142	146	163	165	183	185	198	203	225	221	246	240	267	258	279	276	297	292	301	290	302	289	305	291	300		
	38	124	51	151	65	170	81	191	98	216	116	236	134	259	153	283	174	297	193	300	212	299	238	303	261	305	268	297		
54'	85	112	114	130	136	152	153	166	170	187	187	210	206	218	222	246	238	264	256	281	273	290	287	292	280	293	277	290		
	34	112	45	141	58	158	72	180	88	200	104	218	120	241	139	261	156	282	174	288	193	288	212	291	236	293	254	286		
56'	76	100	102	124	126	137	139	159	160	174	175	193	190	209	207	229	223	249	240	261	254	277	266	281	279	282	276	278		
	30	99	41	131	52	148	65	168	79	184	94	204	110	224	126	242	142	261	160	270	176	278	193	278	211	281	236	275		
58'	68	90	91	116	117	129	133	148	139	164	162	179	179	198	189	213	208	231	223	245	240	263	252	268	264	271	260	268		
	27	90	37	120	47	139	59	156	71	172	85	191	99	208	114	228	129	243	144	261	160	270	177	270	193	272	212	263		
60'	62	82	83	108	105	121	124	138	137	153	151	168	167	185	178	201	190	211	208	231	222	248	237	259	249	261	260	259		
	25	82	33	109	42	131	53	143	65	162	77	176	90	191	104	211	118	229	132	244	147	255	162	257	177	259	193	255		
62'	56	74	71	99	97	117	117	130	129	144	142	157	156	173	168	185	181	198	193	217	208	230	221	243	234	252	243	248		
	22	74	30	99	39	121	48	137	59	150	70	166	82	181	94	194	108	210	121	229	134	245	148	248	163	252	175	246		
64'	51	66	68	90	84	108	108	122	121	135	132	148	146	161	159	175	171	189	179	202	195	215	207	230	219	243	231	240		
	20	68	27	90	35	115	44	128	54	139	64	151	75	168	86	185	98	196	110	213	123	227	135	243	148	241	163	240		
66'	47	62	62	82	80	102	97	114	115	127	127	137	136	151	150	164	160	174	170	187	184	201	196	214	206	229	216	232		
	19	62	25	82	32	105	40	121	49	131	58	148	68	158	79	172	90	184	102	200	113	215	124	227	138	232	150	228		
68'	43	57	57	75	72	97	91	106	108	117	118	131	129	143	140	152	152	164	162	179	173	191	184	202	195	213	204	225		
	17	57	23	75	29	96	37	114	45	125	53	136	63	149	72	164	82	174	93	189	104	204	115	214	125	226	139	222		
70'	39	52	52	69	63	86	84	103	95	112	112	124	122	136	131	148	143	157	151	168	161	181	173	190	183	202	193	213		
	16	52	21	69	27	89	34	107	41	119	49	130	58	143	67	153	76	163	86	175	96	192	106	202	117	216	128	215		

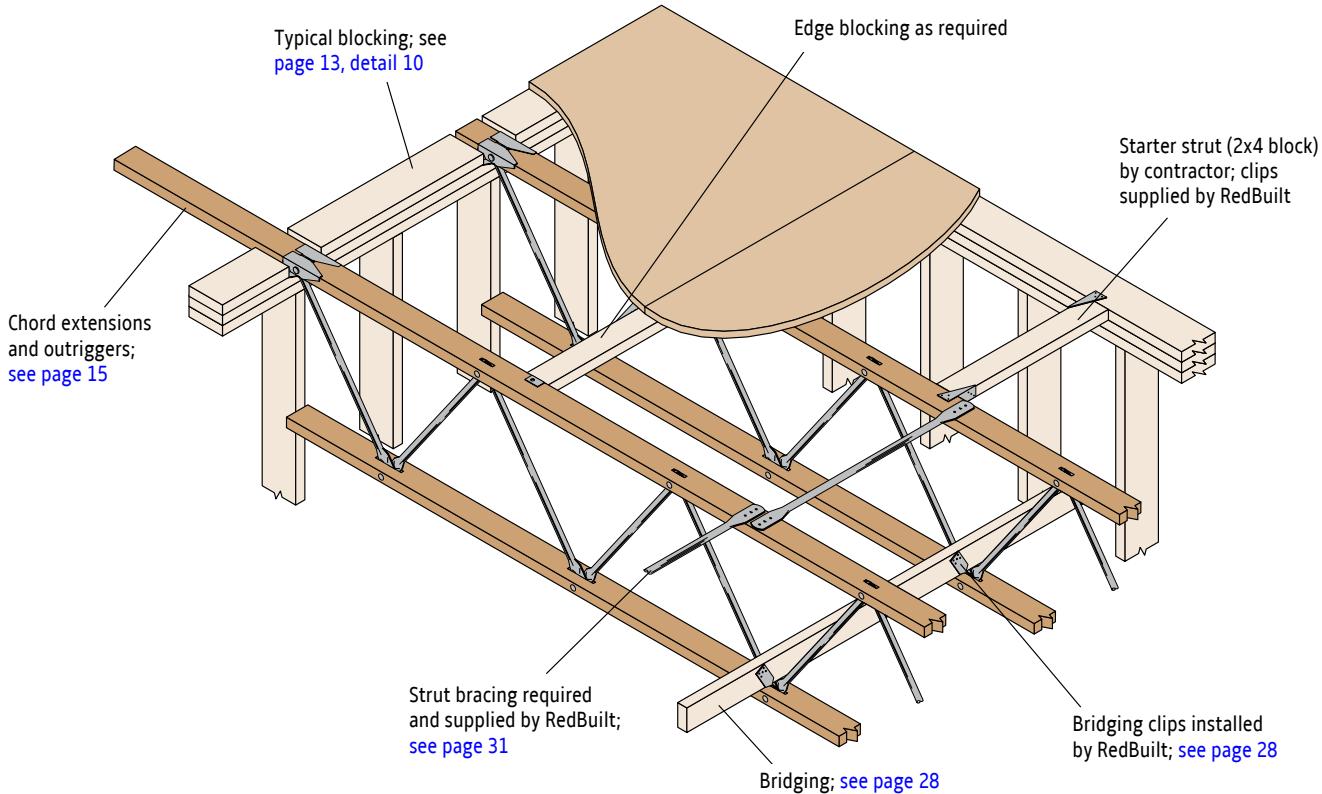
General Notes continued from page 10

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

RED-L™ AND RED-W™ TRUSS DETAILS

Single Chord Trusses

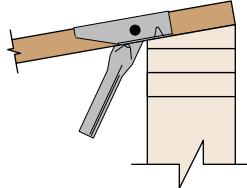


1 Beveled Plate Requirements

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

Beveled plates serve two functions:

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



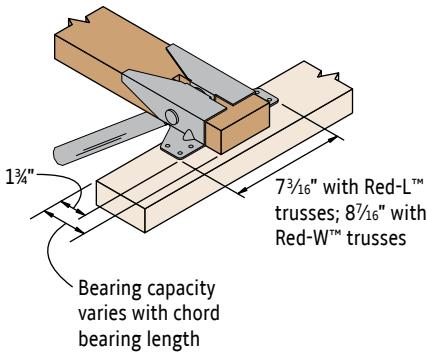
A beveled plate, to suit roof slope, is required at all common bearings and cantilevered bearings.

Slopes Requiring a Beveled Plate

Bearing Condition	No-Notch, U-Clip		
	2x8	2x6	2x4
Low end	> $\frac{1}{4}$:12	> $\frac{3}{8}$:12	> $\frac{1}{2}$:12
High end	> $\frac{3}{8}$:12	> $\frac{3}{8}$:12	> $\frac{1}{2}$:12
Cantilever	Beveled plate required at all slopes		
Common			

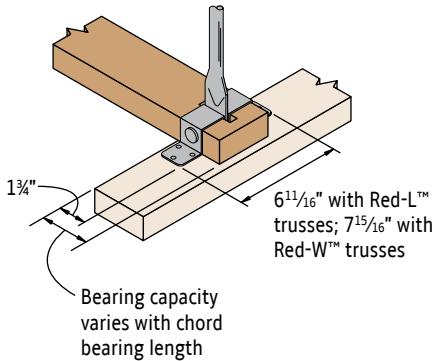
• See detail 4 for flush mount bearing clip requirements.

2 Top Bearing No-Notch Clip



Pre-notched plate not required

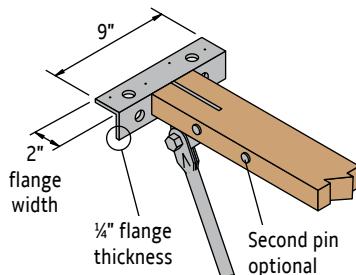
3 Bottom Bearing U-Clip



See page 22 for bearing reaction capacities

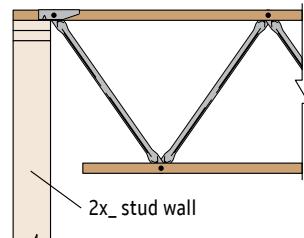
4 Top Bearing Flush-Mount Clip (Heavy Duty)

Specify for high axial load applications

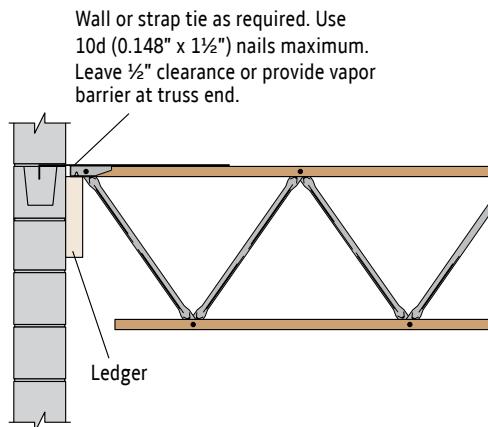


Maximum slope is $\frac{1}{2}$:12. Contact your RedBuilt technical representative for truss depths less than 21". See pages 24–26 for additional information on Wind or Seismic Connections.

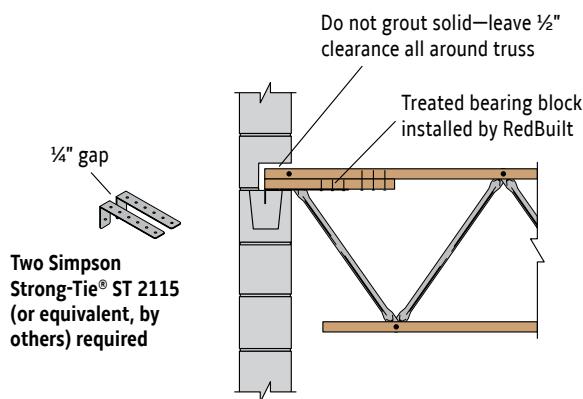
5 Top Chord Bearing No-Notch Clip



6 Top Chord Bearing on Ledger No-Notch Clip

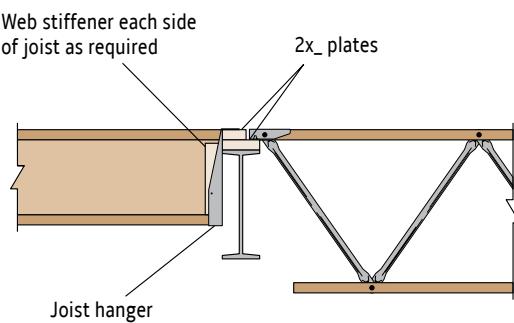


7 Bearing Block at Masonry Wall



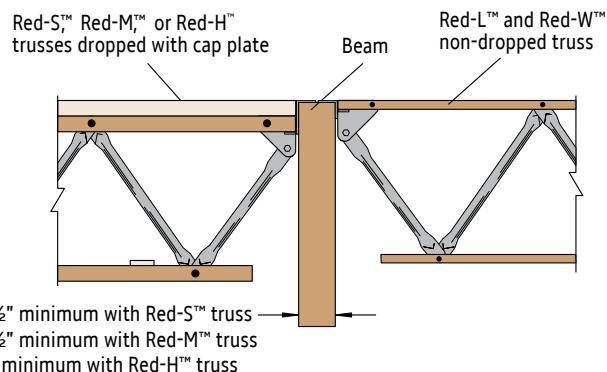
Blocking not shown for clarity

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



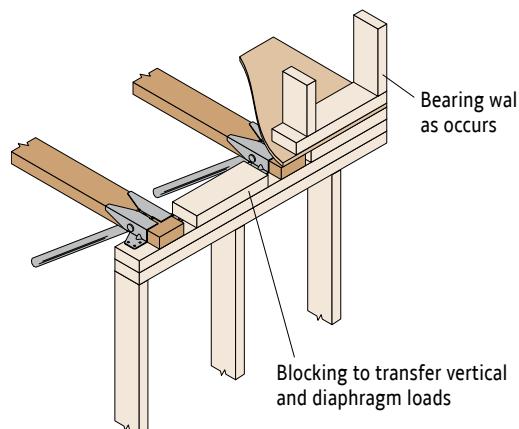
Option: Bearing clips may also be welded directly to steel beam

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



See page 25 for axial tension or compression capacity information

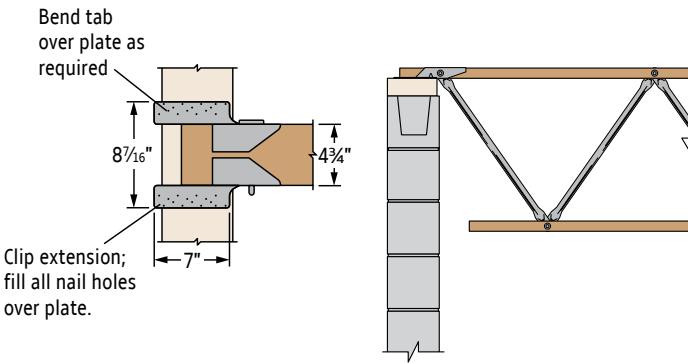
10 Typical Top Chord Bearing and Blocking No-Notch Clip



RED-L™ AND RED-W™ TRUSS DETAILS

Single Chord Trusses

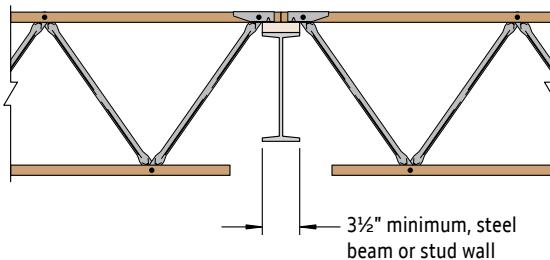
11 Red-W™ Truss Top Chord Bearing Lateral No-Notch Clip



[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

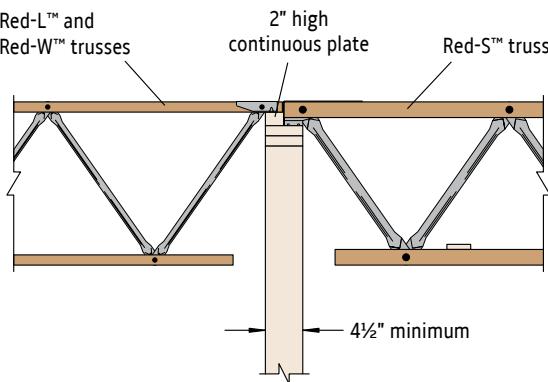
12 Top Chord Bearing on Steel Beam No-Notch Clip



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

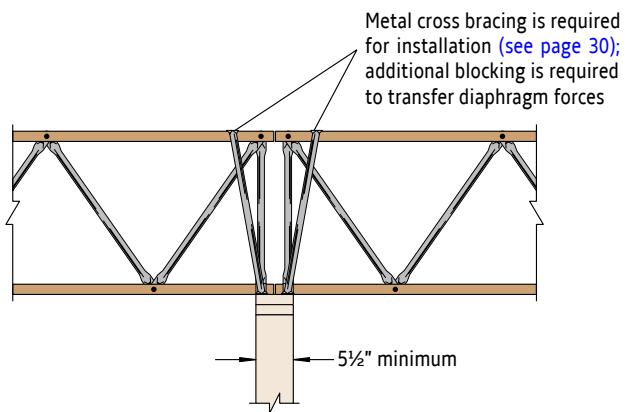
13 Top Chord Bearing Truss Butting with Red-S™ Truss



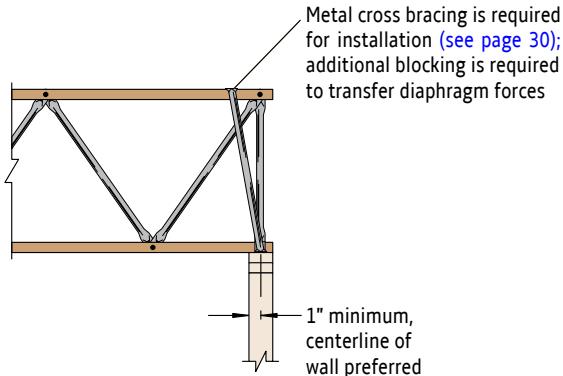
2,860 lbs reaction capacity at 100% duration of load for Red-L™ and Red-W™ trusses; higher reactions require more bearing length

14 Bottom Chord Bearing with Butting Trusses U-Clip

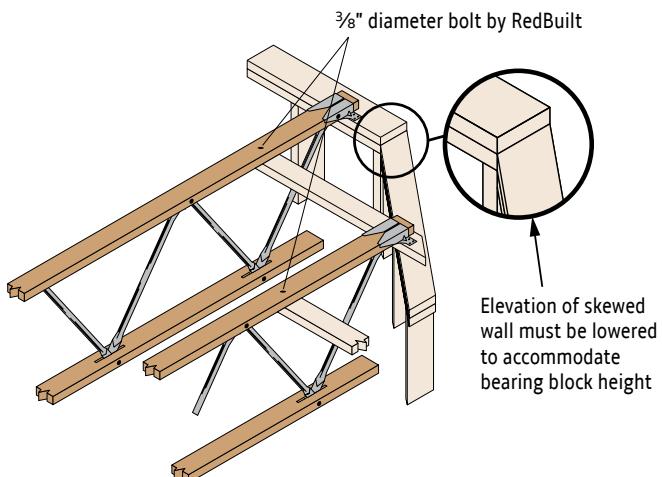
14 Bottom Chord Bearing with Butting Trusses U-Clip



15 Bottom Chord Bearing with Cross Bracing U-Clip

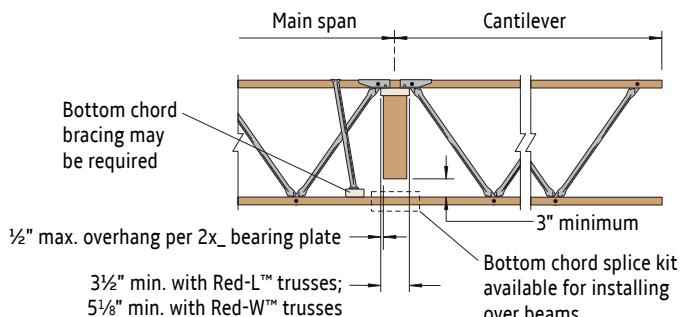


16 Top Chord Bearing at Skewed Wall No-Notch Clip



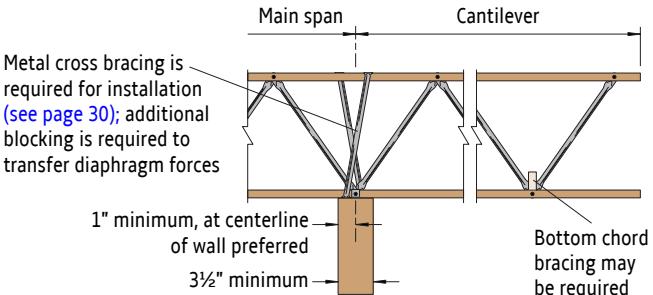
17 Top Chord Bearing Cantilever

No-Notch Clip

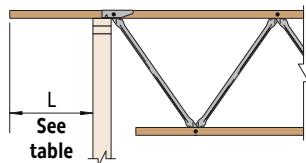


18 Bottom Chord Bearing Cantilever

U-Clip



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"		425	460	455	500	515
14"				455	500	515
16"					465	470
18"						330

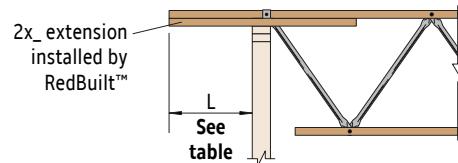
- Values are limited by the published backspan capacity (plf).
- Members evaluated for 300 lb. point load.

Design criteria for details 19 and 20:

$$\begin{aligned} F_v &= 175 \text{ psi} \\ F_b &= 2,100 \text{ psi} \\ E &= 1.8 \times 10^6 \text{ psi} \end{aligned}$$

Deflection:

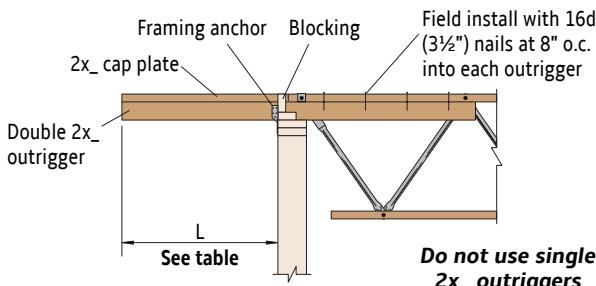
- $2L/360$ at LL for floors (live load = $0.80 \times$ total load)
- $2L/240$ at TL for roofs



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"		265	265	300	360	360
24"		205	205	230	280	280
26"				160	180	220
28"					145	175
30"						145
32"						115

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

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 = $0.80 \times$ total load)

- $2L/240$ at TL for roofs

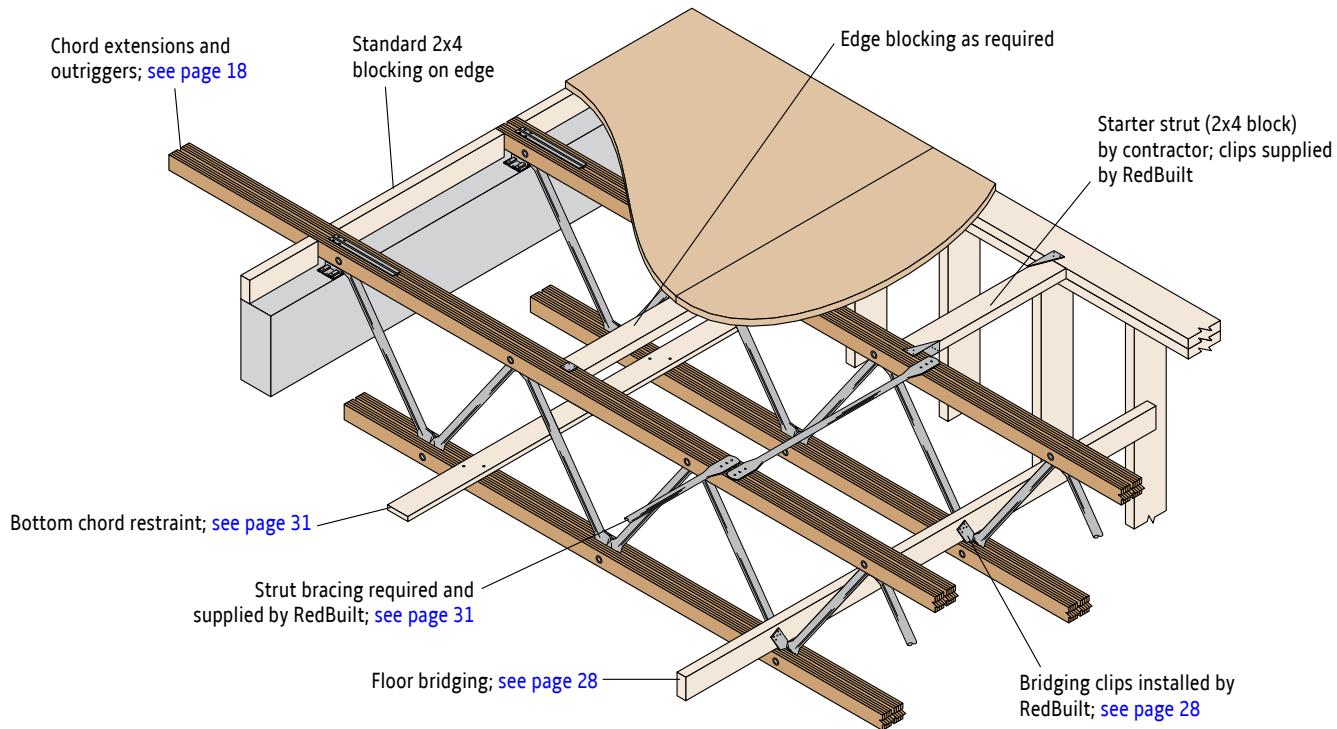
$$\bullet \text{Outrigger deflection} = \frac{WL^4}{8EI}$$

(1) Multiply by $C_F=1.2$

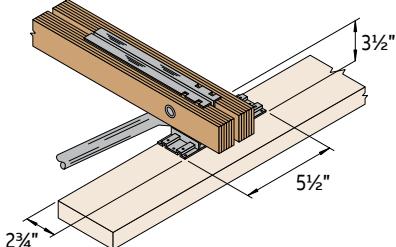
Outrigger Length L	Allowable Uniform Load Capacity (plf)					
	Double 2x4 Outrigger			Double 2x6 Outrigger		
	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)	Floor (100%)	Snow Roof (115%)	Non-Snow Roof (125%)
24"	375	425	460	375	425	460
30"	345	395	430	375	425	460
36"	240	275	300	375	425	460
42"	175	200	210	375	425	460
48"		140	140	330	380	415
54"				260	300	325
60"				210	245	265
66"				175	200	210
72"				135	160	160
78"				105	125	125
84"				85	100	100
90"				70	80	80
96"				55	70	70

- Values are limited by the published backspan capacity (plf).

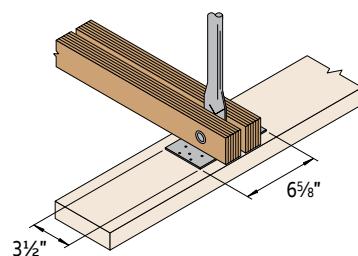
- Members evaluated for 300 lb. point load.



22 Top Chord Bearing S-Clip

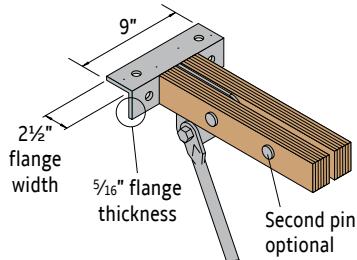


23 Bottom Chord Bearing Angle Clip



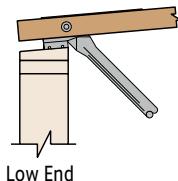
24 Top Bearing Flush-Mount Clip (Heavy Duty)

Specify for high axial load applications

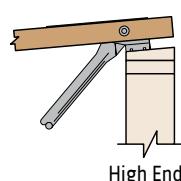


Maximum slope is 1/2:12. Contact your RedBuilt technical representative for truss depths less than 22". See pages 24-26 for additional information on Wind or Seismic Connections.

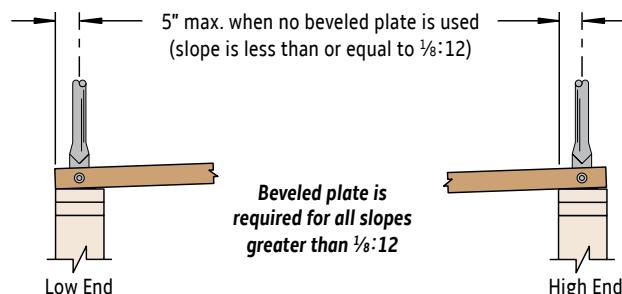
25 Beveled Plate Requirements—Top Chord Bearing



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



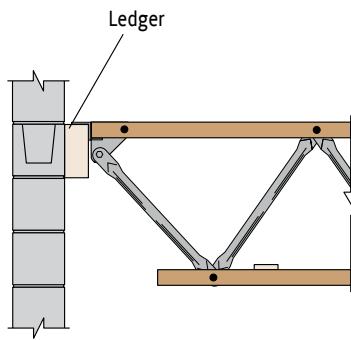
26 Beveled Plate Requirements—Bottom Chord Bearing



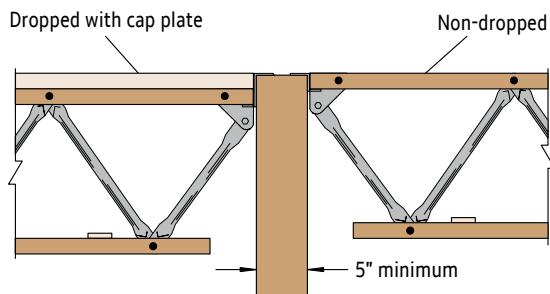
Beveled plate is required for all slopes when trusses are cantilevered

See page 22 for bearing reaction capacities

27 Top Chord Bearing on Ledger Flush-Mount Bearing Clip



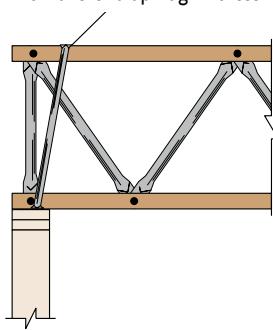
29 Top Chord Bearing Flush-Mount Bearing Clip (Dropped and Non-Dropped)



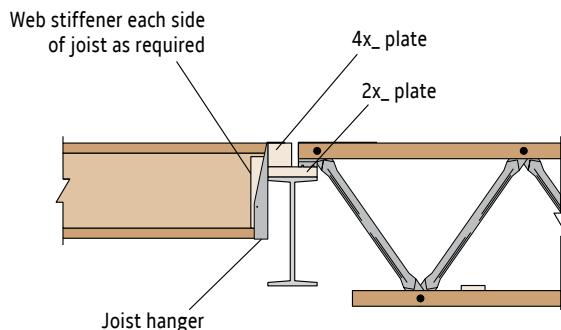
See page 25 for axial tension or compression capacity information

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

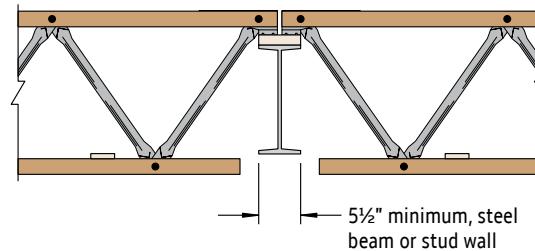


28 Red-I™ Joist Butting with Red-S™ Truss S-Clip



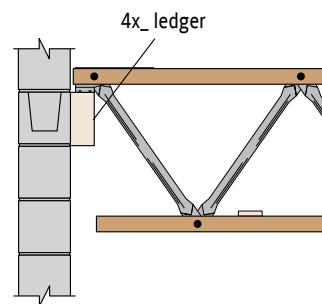
Option: Bearing clips may also be welded directly to steel beam

30 Top Chord Bearing with Butting Trusses S-Clip



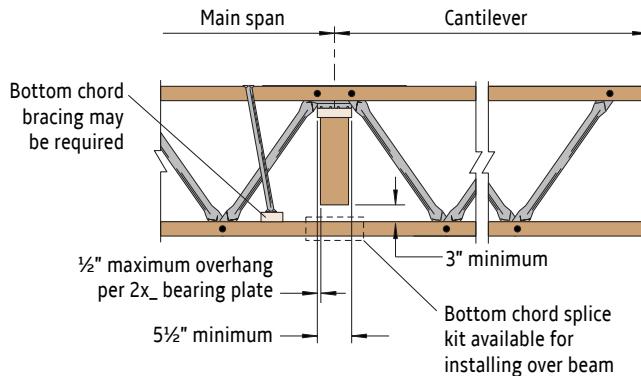
Option: Bearing clips may also be welded directly to steel beam

32 Top Chord Bearing on Ledger S-Clip



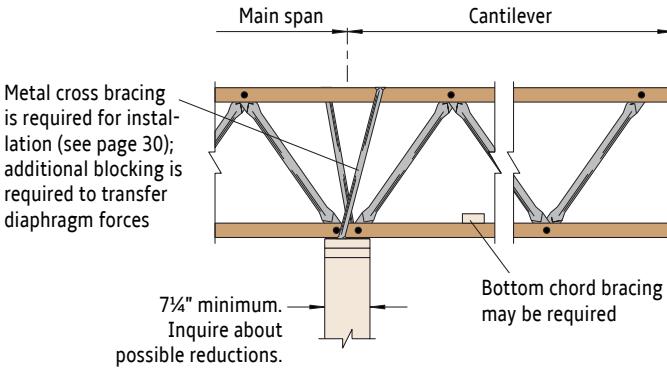
RED-S™ TRUSS DETAILS

33 Top Chord Bearing Cantilever



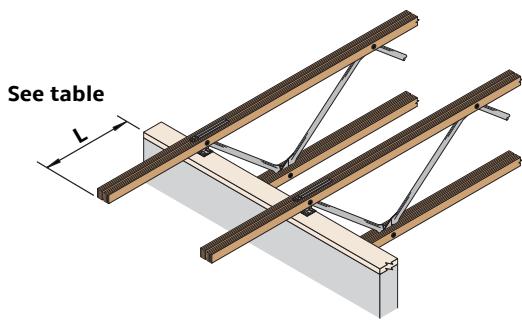
To check cantilever capacity, contact your RedBuilt technical representative

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"	110	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:

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

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

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

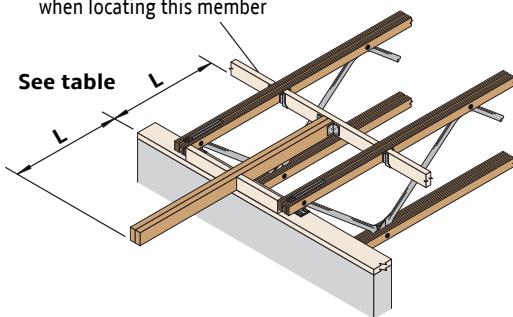
(1) For 12' depth;
for other depths, multiply by $\left[\frac{12}{d}\right]^{10.136}$

Deflection:

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

36 Double 2x Outrigger

Sheathing layout should be considered when locating this member



Outriggers deeper than 2x4s require that spacer blocks be placed under the truss bearings

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"		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		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:

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

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

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

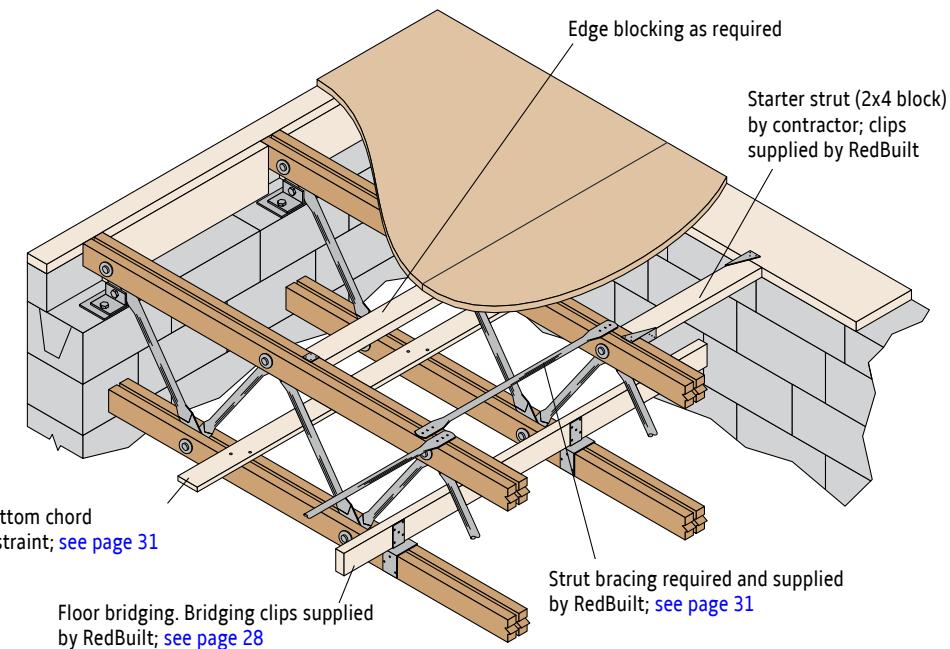
Outrigger deflection:

• $2L/360$ at LL for floors

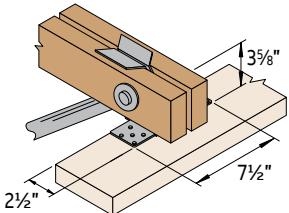
(live load = $0.80 \times$ total load)

• $2L/240$ at TL for roofs

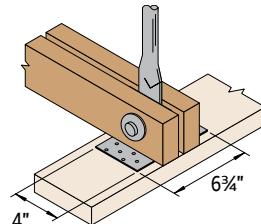
$$\text{Outrigger deflection} = \frac{7WL^4}{24EI} + \frac{48^2WL}{EI}$$



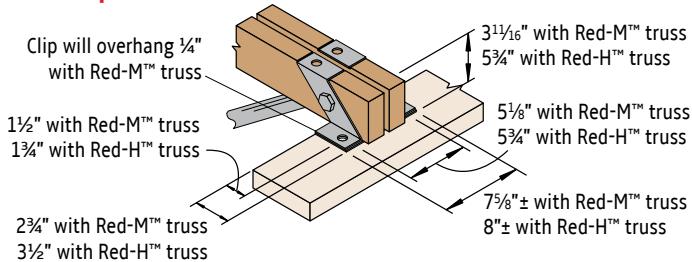
37 Red-M™ Truss Top Chord Bearing S-Clip



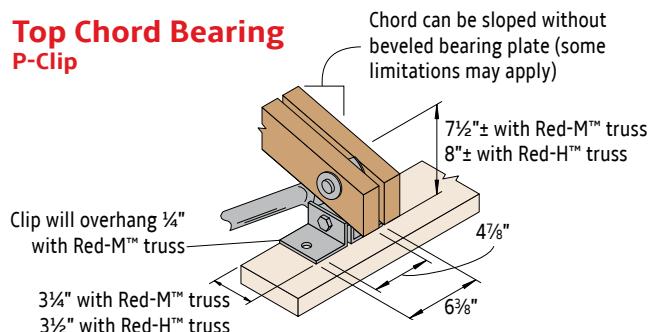
38 Red-M™ Truss Bottom Chord Bearing Angle Clip



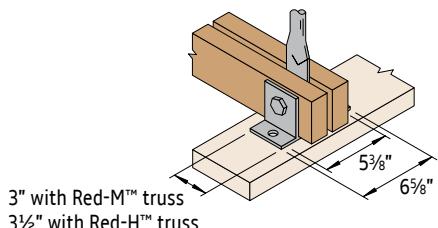
39 Top Chord Bearing Z-Clip



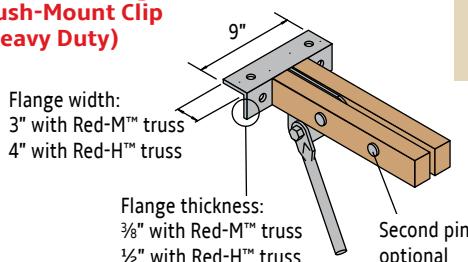
40 Top Chord Bearing P-Clip



41 Bottom Chord Bearing T-Clip



42 Top Bearing Flush-Mount Clip (Heavy Duty)

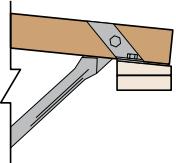


Maximum slope is 1/2 : 12. Contact your RedBuilt technical representative for truss depths less than 31". See pages 24-26 for additional information on Wind or Seismic Connections.

See page 22 for bearing reaction capacities

RED-M™ AND RED-H™ TRUSS DETAILS

43 Beveled Plate Requirements



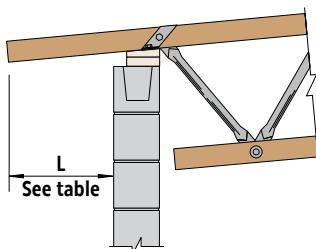
Beveled plates serve two functions:

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	>1/8:12	N.A.	See detail 42
	2x6	>3/16:12	>1/8:12	
	2x4	>1/4:12	>1/4:12	
High End	>1/4:12	>1/4:12	N.A.	
Cantilevers	All slopes			N.A.

44 Typical Top Chord Extension



The following criteria were used to develop the values:

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

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

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

Deflection:

$$2L/360 \text{ at LL for floors (live load} = 0.80 \times \text{total load)}$$

$$2L/240 \text{ at TL for roofs}$$

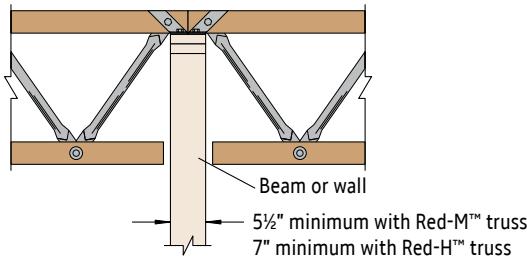
Allowable Uniform Load Capacity (plf)

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"		170	170	220	255	275
48"			115	195	225	245
54"				175	200	215
60"				155	180	195
66"				145	165	180
72"				125	150	150

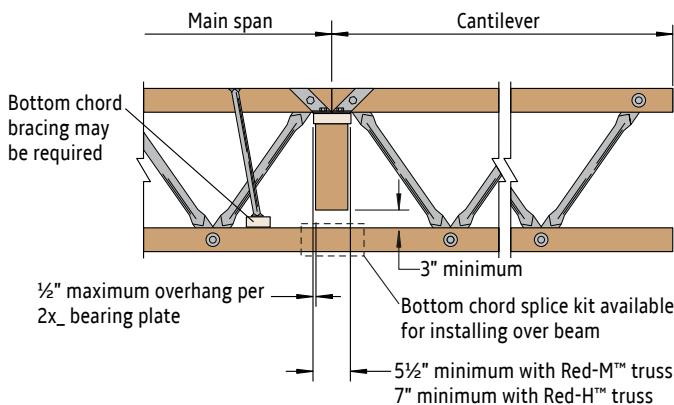
• Values are limited by the published backspan capacity (plf).

• Members evaluated for 300 lb. point load.

45 Top Chord Bearing with Butting Trusses Z-Clip

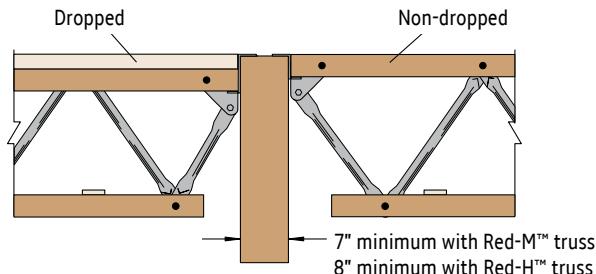


47 Top Chord Bearing Cantilever Z-Clip



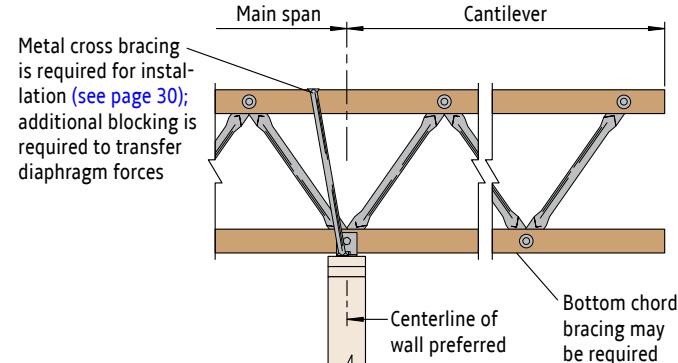
Contact your RedBuilt technical representative if cantilever exceeds $\frac{1}{3}$ of the truss span

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

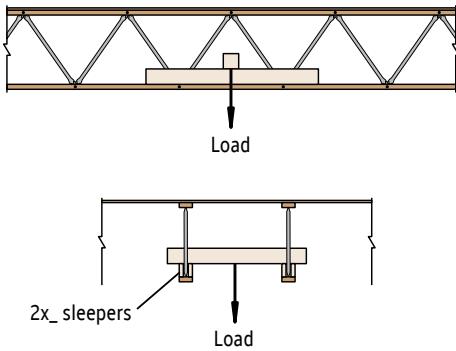


See page 25 for axial tension or compression capacity information

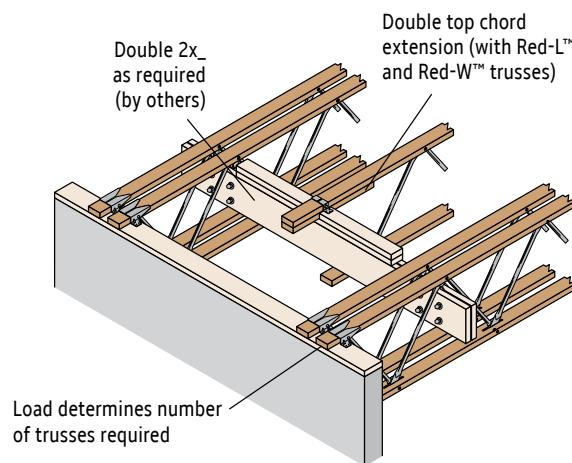
48 Bottom Chord Bearing Cantilever T-Clip



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

49 Concentrated Loads**Concentrated and Non-Uniform Loads**

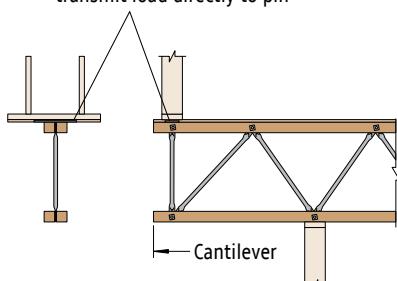
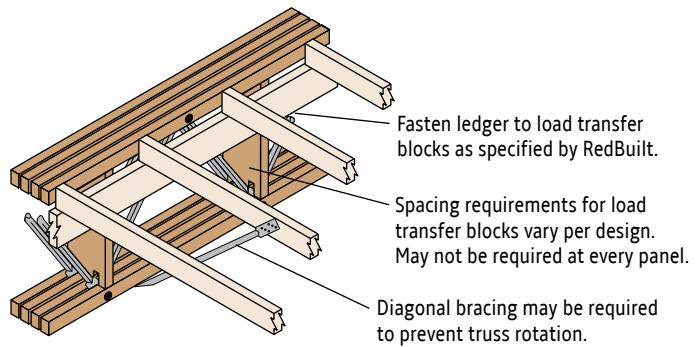
For the most efficient use of RedBuilt™ products carrying concentrated loads or non-uniform loads, and/or used in conditions other than simple spans, consult your RedBuilt technical representative for precise sizing. As a general rule, extra members should be added to the system to carry concentrated 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.

51 Header Detail

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

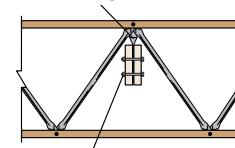
52 Loads on Cantilever

Inverted bearing clip may be required to transmit load directly to pin

**50 Side-Loaded Double Truss Assembly**

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

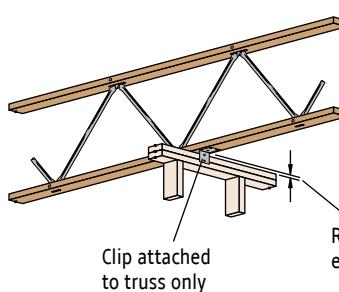
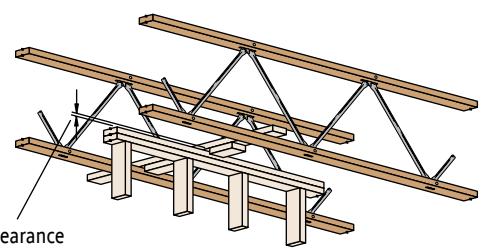
Truss Series	Maximum Load Per Transfer Block
Red-L™, Red-W™	700 lbs
Red-S™, Red-M™	1,200 lbs
Red-H™	1,300 lbs

Header hanger by RedBuilt

Use $\frac{5}{8}$ " bolts for single chord trusses,
 $\frac{3}{4}$ " 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™	2,300 lbs	2	2,900 lbs	4
Red-S™	4,000 lbs	4		
Red-M™	5,500 lbs	4		
Red-H™	7,900 lbs	4		

- 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.

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 Length ⁽²⁾ (min.)	Reaction Capacity (lbs)		
					Duration of Load		
					100%	115%	125%
Red-L™	6" No-Notch	2	T	1 $\frac{3}{4}$ "	2,860	3,290	3,290
	6" No-Notch	2	T	2 $\frac{1}{2}$ "	3,025	3,480	3,780
	6" No-Notch	2	T	3 $\frac{1}{2}$ "	3,150	3,620	3,925
	U-Clip	3	B	2 $\frac{3}{4}$ "	4,400 ⁽³⁾	4,845 ⁽³⁾	4,845 ⁽³⁾
Red-W™	6" No-Notch	2	T	1 $\frac{3}{4}$ "	2,860	3,290	3,290
	6" No-Notch	2	T	2 $\frac{5}{8}$ "	3,500	4,025	4,300
	U-Clip	3	B	2 $\frac{3}{4}$ "	4,850	5,580	5,880
Red-S™	S-Clip	22	T	2 $\frac{3}{4}$ "	5,390	5,390	5,390
	Angle Clip	23	B	3 $\frac{1}{2}$ "	5,325	6,125	6,655
Red-M™	S-Clip	37	T	2 $\frac{1}{2}$ "	3,990 ⁽³⁾	4,330 ⁽³⁾	4,330 ⁽³⁾
	Z-Clip ⁽¹⁾	39	T	2 $\frac{3}{4}$ "	7,390	7,390	7,390
	P-Clip	40	T	3 $\frac{1}{4}$ "	8,310	8,310	8,310
	Angle Clip	38	B	4"	6,085	7,000 ⁽³⁾	7,610 ⁽³⁾
	T-Clip	41	B	3"	6,500	6,500	6,500
Red-H™	Z-Clip ⁽¹⁾	39	T	3 $\frac{1}{2}$ "	9,200	9,200	9,200
	P-Clip	40	T	3 $\frac{1}{2}$ "	9,100	9,200	9,200
	T-Clip	41	B	3 $\frac{1}{2}$ "	9,260 ⁽³⁾	10,650 ⁽³⁾	11,575 ⁽³⁾

(1) Increased bearing length is required when truss slope meets or exceeds 1/4:12.

(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 $F_{c,L} = 405$ 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	1 $\frac{3}{4}$ "	3,125	3,745	4,015	5,210	3,125
Red-S™	24	T	2 $\frac{3}{16}$ "	3,995	4,835	5,220	7,310	3,995
Red-M™	42	T	2 $\frac{5}{8}$ "	5,240	6,230	6,415	11,505	4,870
Red-H™	42	T	3 $\frac{1}{2}$ "	6,620	8,115	8,775	12,055	6,620

• A maximum overhang of 1/4" 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 ⁽²⁾ (min.)	Fastener Quantity	Capacities (lbs) at 160%					
						10d x 1 $\frac{1}{2}$ " (Common)	10d x 3" (Common)	16d x 2 $\frac{1}{2}$ " (Common)	16d x 3 $\frac{1}{2}$ " (Common)	SD9 x 1 $\frac{1}{2}$ " ⁽³⁾	5/8" x 2" Lag
Red-L™	No-Notch ⁽¹⁾	2	Top	1 $\frac{3}{4}$ "	6	315	655	595	835	1,120	
	Flush-Mount	4	Top	1 $\frac{3}{4}$ "	2						1,570
	U-Clip	3	Bottom	2 $\frac{3}{4}$ "	6	315	655	595	835	1,170	
Red-W™	No-Notch ⁽¹⁾	2	Top	1 $\frac{3}{4}$ "	6	310	650	585	835	1,020	
	Flush-Mount	4	Top	1 $\frac{3}{4}$ "	2						1,570
	U-Clip	3	Bottom	2 $\frac{3}{4}$ "	6	310	650	585	835	1,170	
Red-S™	S-Clip ⁽¹⁾	22	Top	2 $\frac{3}{4}$ "	10	480	610	610	610	610	
	Flush-Mount	24	Top	2 $\frac{3}{16}$ "	2						1,570
	Angle Clip	23	Bottom	3 $\frac{1}{2}$ "	10	515	990	975	990	990	
Red-M™	S-Clip	37	Top	2 $\frac{1}{2}$ "	10	430	430	430	430	430	
	Z-Clip	39	Top	2 $\frac{3}{4}$ "	2						1,200
	P-Clip	40	Top	4 $\frac{1}{2}$ "	2						1,200
	Flush-Mount	42	Top	2 $\frac{5}{8}$ "	2						1,570
	Angle Clip	38	Bottom	4" Overhang 5 $\frac{1}{4}$ " End	12	625	1,090	1,090	1,090	1,090	
	T-Clip	41	Bottom	3" Overhang 4 $\frac{1}{4}$ " End	2						1,200
Red-H™	Z-Clip	39	Top	3 $\frac{1}{2}$ "	2						1,200
	P-Clip	40	Top	4 $\frac{1}{4}$ "	2						1,200
	Flush-Mount	42	Top	3 $\frac{1}{2}$ "	2						1,570
	T-Clip	41	Bottom	3 $\frac{1}{2}$ " Overhang 5 $\frac{1}{2}$ " End	2						1,200

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

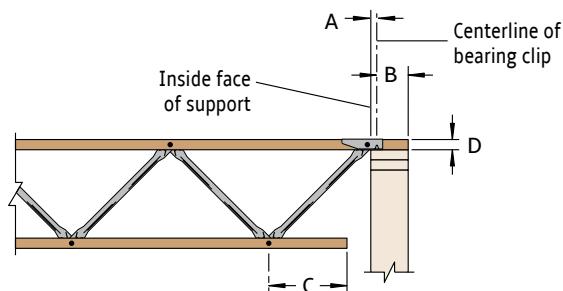
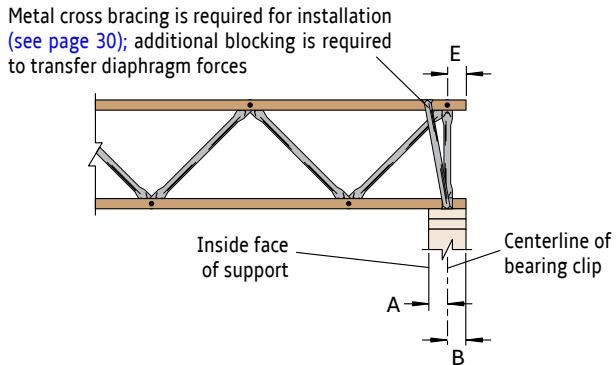
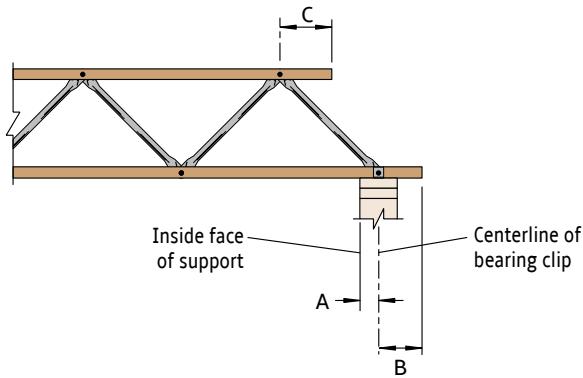
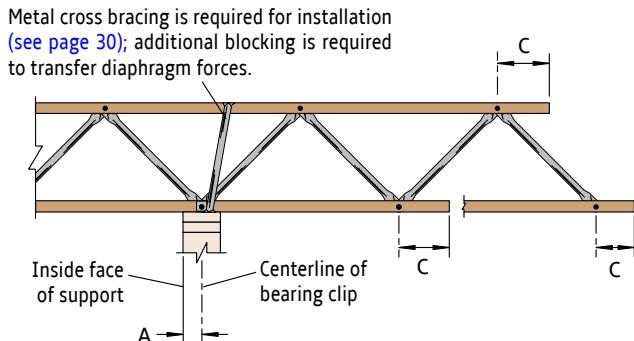
- Capacity is based on load duration factor = 160%.

(2) Sloped applications may require longer bearing lengths.

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

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

- 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****56 Bottom Chord Bearing without Vertical Web****57 Bottom Chord Cantilever**

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

Dimensions for Detailing

Truss Series	Bearing Clip	Top Chord Bearing ⁽¹⁾				D	Bottom Chord Bearing ⁽¹⁾				E		
		A	B	C			A	B	C				
				Minimum ⁽²⁾⁽³⁾	Minimum Required at Maximum Load				Minimum ⁽²⁾⁽³⁾	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 ⁽⁴⁾	3 1/2"	12"	Varies ⁽⁴⁾	—	—	—	—	—		
	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 ⁽⁴⁾	4 3/8"	15"	Varies ⁽⁴⁾	—	—	—	—	—		
	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® 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 ⁽¹⁾	9	10d x 1½"	1,820	9	10d x 1½"	1,820	9	10d x 1½"	1,055
		PAI23 ⁽¹⁾	14	10d x 1½"	2,835	12	10d x 1½"	2,360	14	10d x 1½"	1,805
		PAI28 ⁽¹⁾	16	10d x 1½"	3,370	12	10d x 1½"	2,360	16	10d x 1½"	2,705
		PAI35 ⁽¹⁾	18	10d x 1½"	3,370	12	10d x 1½"	2,360	18	10d x 1½"	2,815
		MPAI32	16	10d x 1½"	2,355	-	-	-	16	10d x 1½"	2,355
		MPAI44	24	10d x 1½"	2,865	-	-	-	24	10d x 1½"	2,865
SDC C-F	4x	PAI18 ⁽¹⁾	9	10d x 1½"	1,820	9	10d x 1½"	1,820	9	10d x 1½"	1,055
		PAI23 ⁽¹⁾	14	10d x 1½"	2,830	10	10d x 1½"	1,980	14	10d x 1½"	1,805
		PAI28 ⁽¹⁾	20	10d x 1½"	2,830	10	10d x 1½"	1,980	16	10d x 1½"	2,705
		PAI35 ⁽¹⁾	26	10d x 1½"	2,830	10	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 2015-2016, p.139.

• 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 ⁽¹⁾⁽²⁾	42	N16	5,080
MST48 ⁽¹⁾⁽²⁾	46	N16	5,310
MSTI48 ⁽¹⁾	48	N10	5,080
MSTI60 ⁽¹⁾	60	N10	5,080
MSTI72 ⁽¹⁾	64	N10	5,080
LSTI49	32	N10	3,100
LSTI73	48	N10	4,215
LSTA36 ⁽¹⁾	24	10d	1,640
MSTA36 ⁽¹⁾	26	10d	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 2015-2016, pages 186-188.

Bolted Wall Ties

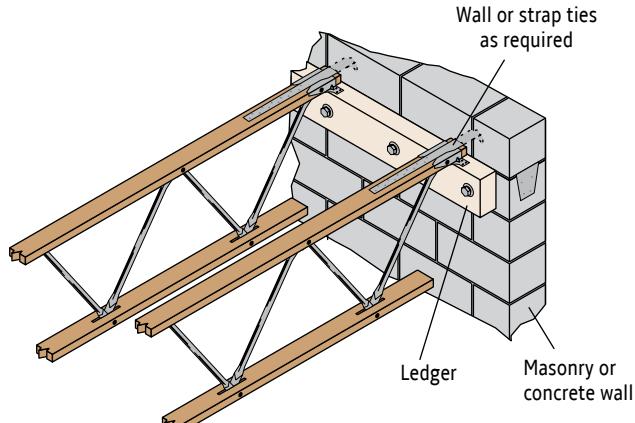
Simpson Tie	Required Fasteners	Allowable Tension Load (lbs) at 160%		
		N10 Nails	N16 Nails	SD #10 Screws
LTT19	8	1,310		
LTT20B ⁽¹⁾	10	1,355		
LTTI31	18	1,350		
HTT4 ⁽¹⁾	18	3,610	4,235	4,455
HTT5 ⁽¹⁾	26	4,350	5,090	4,555
HTT5KT ⁽¹⁾	26			5,445
HTT5-¾ ⁽¹⁾	26	4,065	5,090	4,830

(1) LSL cap plate required for strap nailing.

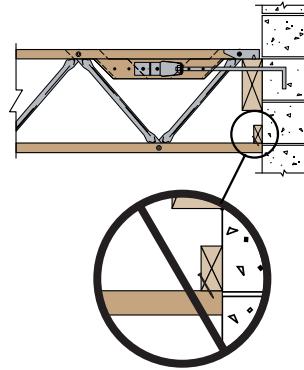
• Information adapted from Simpson Strong-Tie® catalog Wood Construction Connectors 2015-2016, p.49.

• 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

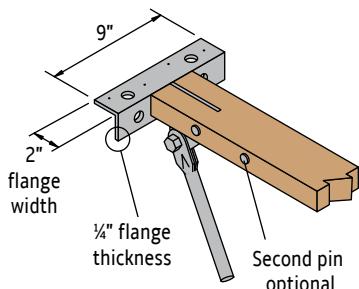


Also see detail 6 on page 13 for more information.

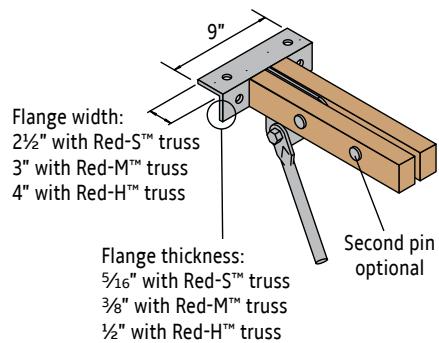


DO NOT attach bottom chord to wall when using any top chord bearing truss

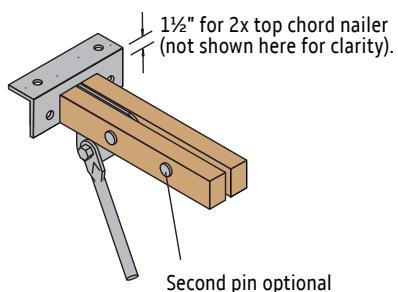
62 Single Chord Flush-Mount Bearing Clip



63 Double Chord Flush-Mount Bearing Clip



64 Double Chord Flush-Mount Bearing Clip with Nailer



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

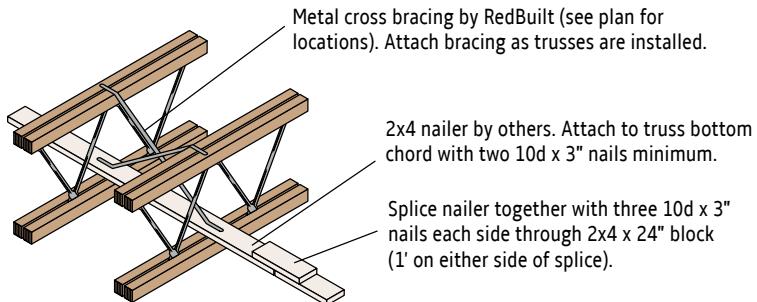
(1) With or without top chord nailer.

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

WIND BRACING

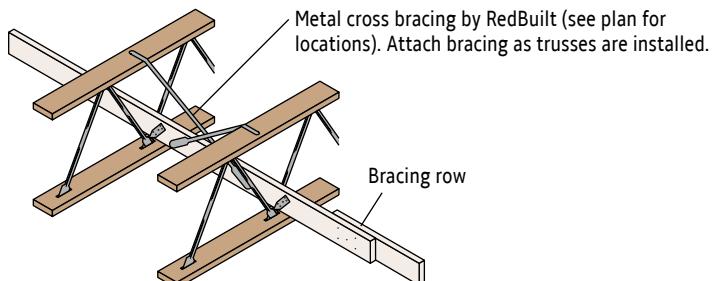
Truss bottom chord bracing may be required by building code provisions for wind uplift design when roof trusses do not have directly applied ceilings. Project engineer shall specify wind load; contact your RedBuilt representative for specific wind bracing stability requirements.

60 Cross Bracing with 2x4 Nailer



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

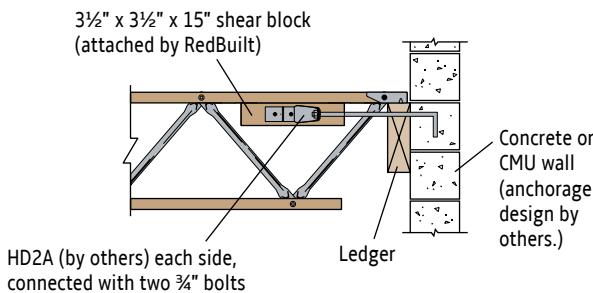
61 Cross Bracing with Bridging Row



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

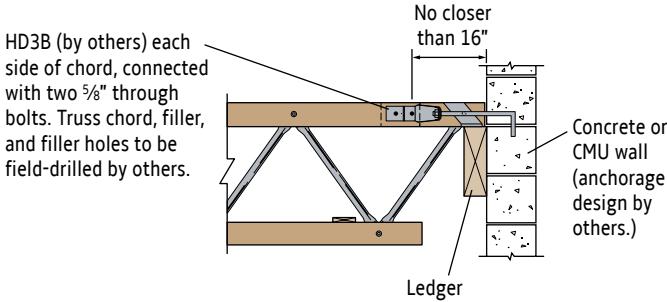
WIND OR SEISMIC CONNECTIONS

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



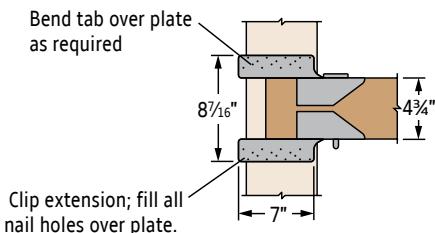
Maximum truss assembly tension capacity is 3,500 lbs at 160%. Truss geometry, especially at shallow depths, may limit capacity. Contact your RedBuilt technical representative for more information.

67 Red-M™ Truss with Wall Tie

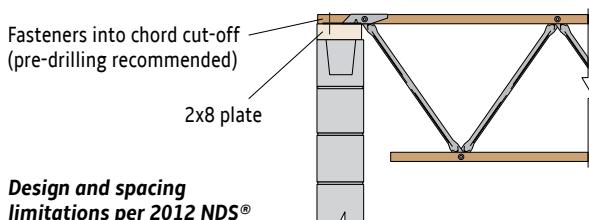


Maximum truss assembly tension capacity is 3,840 lbs with MSR chords and 6,840 lbs with RedLam™ LVL chords at 160%. Truss geometry may limit capacity. Contact your RedBuilt technical representative for more information.

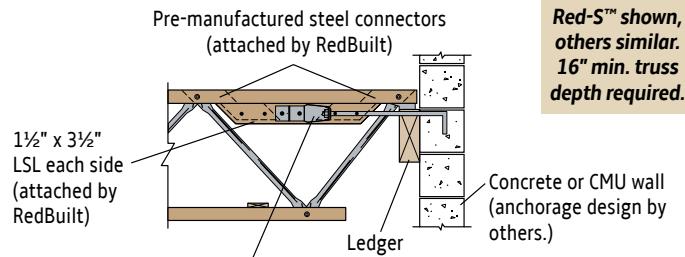
69 Red-W™ Truss Top Chord Bearing Lateral No-Notch Clip



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



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

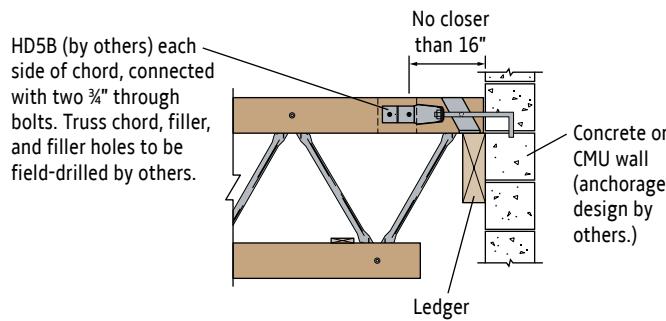


Red-S™ shown, others similar. 16" min. truss depth required.

- Red-S™: HD5B (by others) each side, connected with two 3/4" bolts.
- Red-L™ or Red-W™: HD2A (by others) each side, connected with two 3/4" bolts.

Maximum truss assembly tension capacity is 4,450 lbs for Red-L™ and Red-W™ trusses; and 6,875 lbs for Red-S™ trusses at 160%. Truss geometry may limit capacity. Contact your RedBuilt technical representative for more information.

68 Red-H™ Truss with Wall Tie

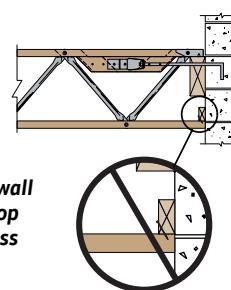


Maximum truss assembly tension capacity is 4,600 lbs with MSR chords and 8,200 lbs with RedLam™ LVL chords at 160%. Truss geometry may limit capacity. Contact your RedBuilt technical representative for more information.

Lateral No-Notch Clip Allowable Loads (lbs)

Bearing Plate	Thickness (min.)	Nail Size (min.)	Red-W™ Trusses		
			Lateral Load (160%)		
			Seismic Load	Wind Load	
3 1/2"	1 1/2"	0.148" x 1 1/2"	1,970	1,970	1,410
3 1/2"	2 1/2"	0.162" x 2 1/2"	2,320	2,320	1,410
5 1/2"	1 1/2"	0.148" x 1 1/2"	2,905	2,905	2,090
5 1/2"	2 1/2"	0.162" x 2 1/2"	2,905	2,905	2,090
7 1/4"	1 1/2"	0.148" x 1 1/2"	2,905	2,905	2,625
7 1/4"	2 1/2"	0.162" x 2 1/2"	2,905	2,905	2,625

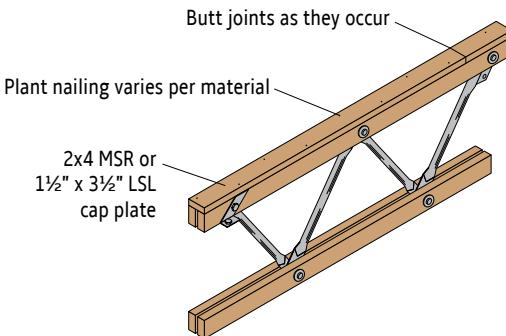
- Values are based on bearing plate width SG = 0.50. For SG = 0.42, multiply table values by 0.86.
- For other uplift loads, interpolation is permitted.



70 RedBuilt™ Open-Web Truss with Cap Plate

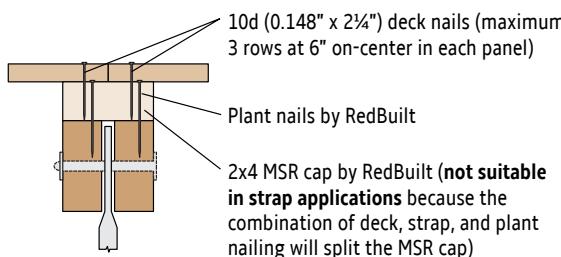
Cap plates provide the following functions:

- 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.



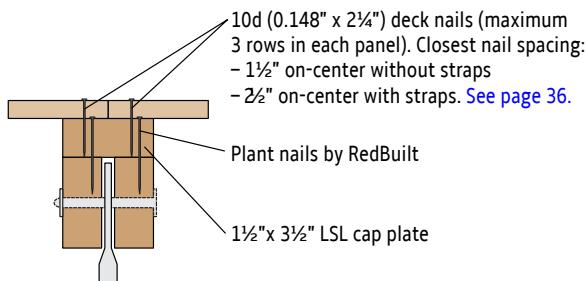
When uplift on cap plate-to-truss connection exceeds 104 plf, contact your RedBuilt representative

Sawn Lumber Cap Plate

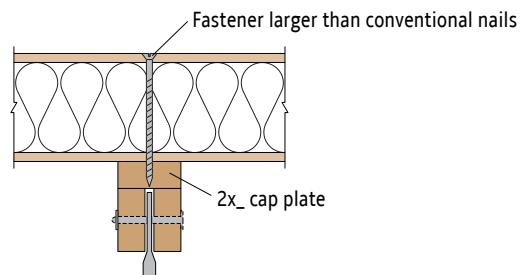


For diaphragm nails, use 2½" maximum length deck nails to eliminate nail-spacing limitations with truss chords

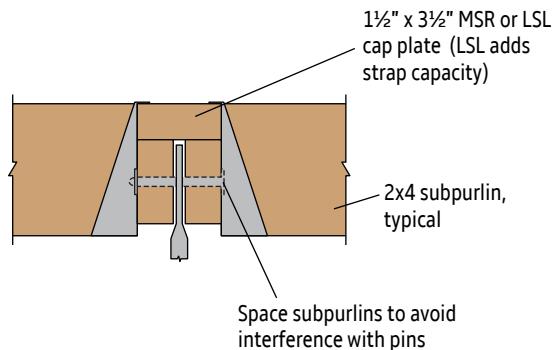
LSL Cap Plate (suitable for straps; see page 25)



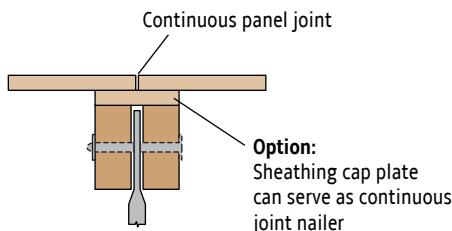
71 Double Chord Open-Web Truss with SIP or Tectum Panels



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

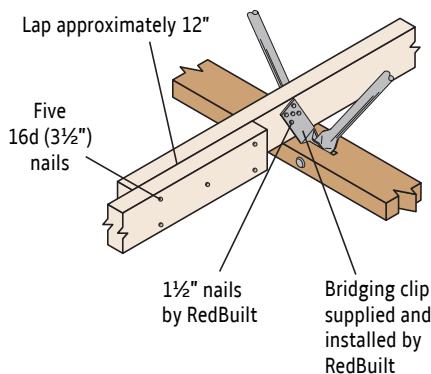
Bridging is used to make each truss act with those next to it (load sharing) and minimize or equalize deflections from non-uniform loads. Bridging should not be confused with bracing, which has a different purpose.

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 ⁽¹⁾⁽²⁾	≤ 16'	1
	> 16' to 35'	2
	> 35' to 55'	3
	> 55'	4
Floor Truss Bridging ⁽²⁾ Without a Directly Applied Ceiling	≤ 10'	1
	> 10' to 24'	2
	> 24' to 32'	3
	> 32'	4
Floor Truss Bridging ⁽²⁾ 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

Truss Spacing	Size of Continuous Bridging Member
12"-16" o.c.	2x4 ⁽¹⁾⁽²⁾
19.2"-32" o.c.	2x6 ⁽¹⁾⁽²⁾
48" o.c.	2x6 ⁽¹⁾⁽³⁾ , 2x8 ⁽⁴⁾

(1) Minimum 1650 F_b grade MSR for roof applications.

(2) If minimum 2100 F_b grade is specified, 2x4 bridging may be used, up to 24" on-center.

(3) Roof only.

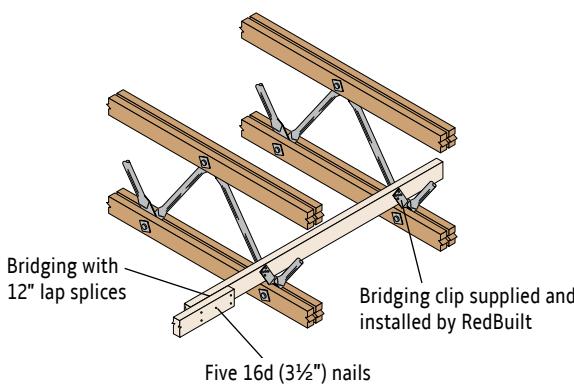
(4) Douglas fir-larch or southern pine, minimum grade #2.

Red-S™, Red-M™ and Red-H™ Trusses

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

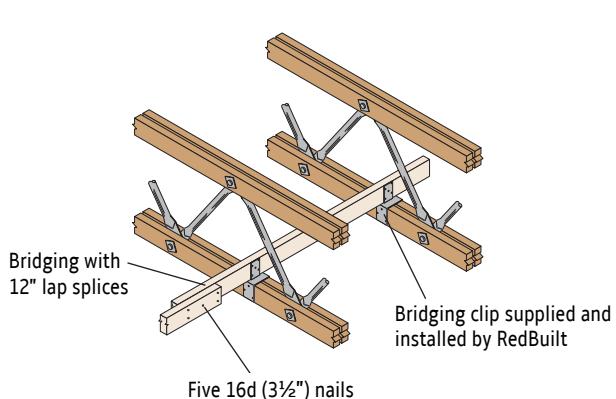
Floor: Bridging required at 12' on-center maximum. See Sawn Lumber Bridging table above for bridging sizes.

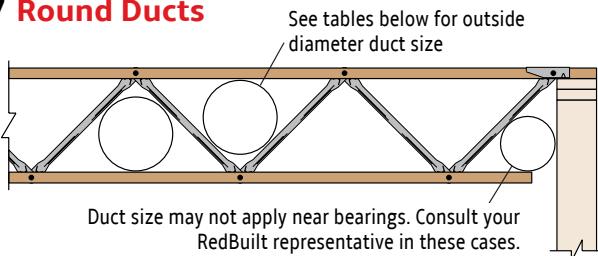
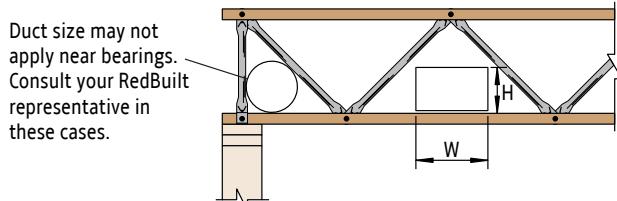
74 Red-S™ Trusses



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"
Rectangular Width					
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-S™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
Rectangular Width					
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"

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.

Red-M™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
Rectangular Width					
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-H™ Trusses

Truss Depth	Round Duct Size	Rectangular Duct Height			
		4"	6"	8"	10"
Rectangular Width					
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"

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.**

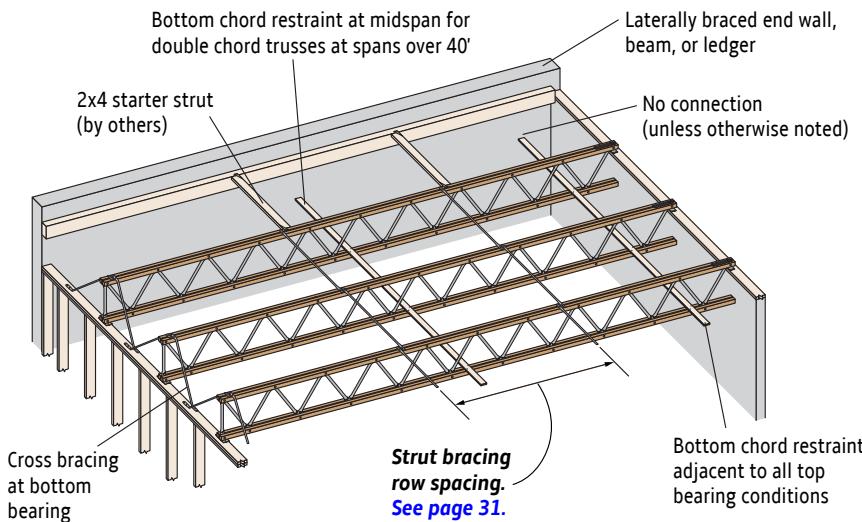
All trusses are laterally unstable until properly braced. The longer the span, the more care is required. Adequate restraint is necessary at all stages of construction.

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 www.RedBuilt.com).

Typical Application

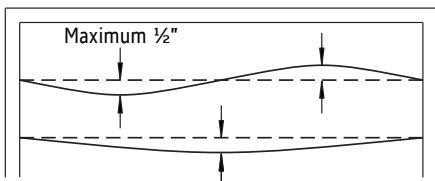


General Notes

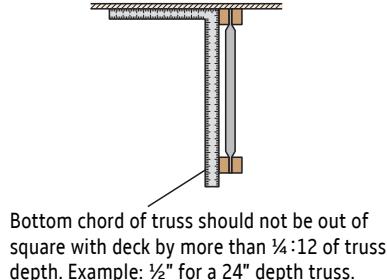
- Bottom chord restraints are 1x4 (minimum) nailers and are attached to the top of the bottom chord with two 8d (2½") nails for double chord trusses only. Materials are to be provided by the installer.
- Bridging, when specified, may be used instead of bottom chord restraint.

Permitted Installation Tolerances

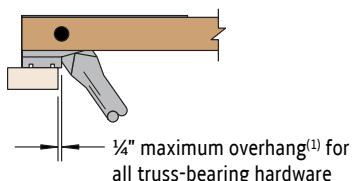
Truss Chord Alignment Tolerance



Vertical Alignment Tolerance

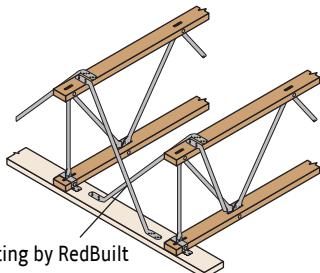


Overhang Tolerance at Bearing (Red-S™ bearing shown)

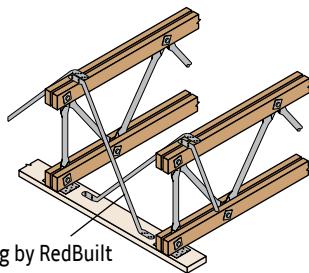


(1) $\frac{1}{2}$ " maximum overhang for Red-M™ series trusses with Z-Clip or P-Clip bearing hardware

Cross Bracing



Cross bracing by RedBuilt

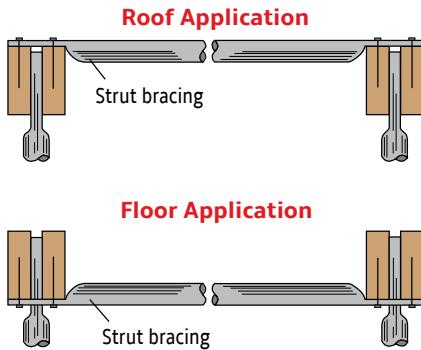


Cross bracing by RedBuilt

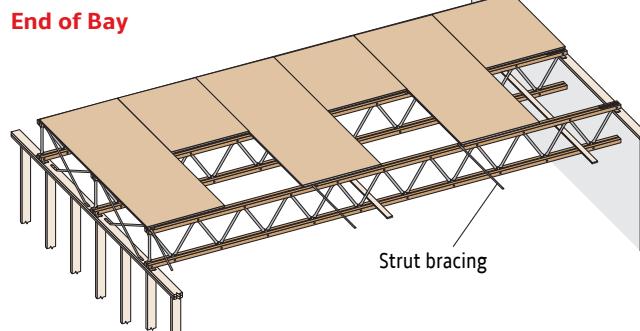
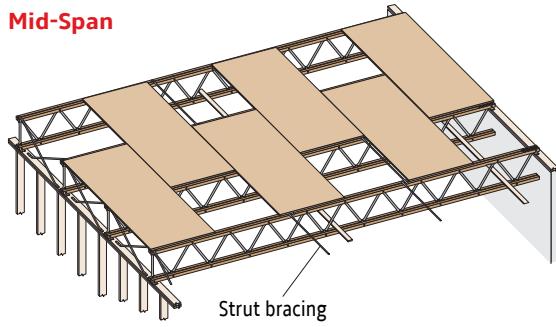
Cross bracing is provided for all open-web trusses at bottom chord bearing conditions. Install cross bracing as each truss is set. Maximum lateral load is 500 lbs per truss.

Strut Bracing

Strut bracing is a required accessory with all open-web truss applications and is provided 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.



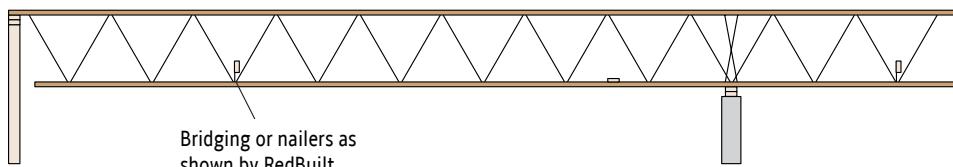
Starting Bracing—No Laterally Braced End Wall or Beam



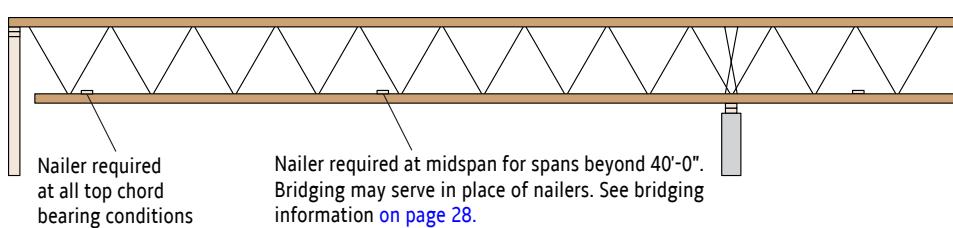
General Notes

- Strut bracing is required and 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 (2 1/2") 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.

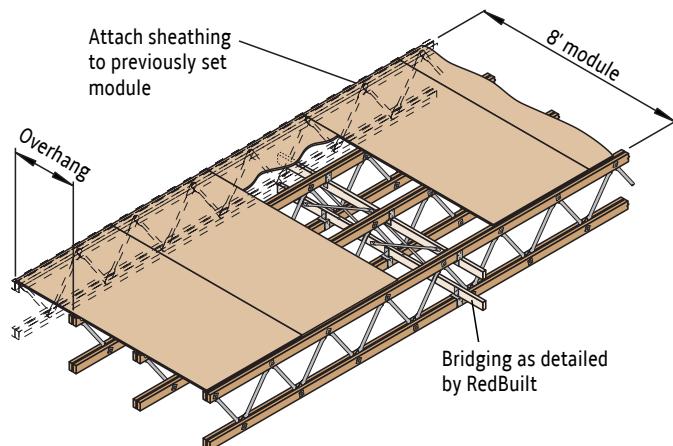
1. There must be a responsible architect and/or engineer of record throughout the design and construction period of the project.
2. The responsible architect or engineer must include the following statement in the job specifications:
"The trusses shall be installed in rigid modules at least 8 feet in 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.

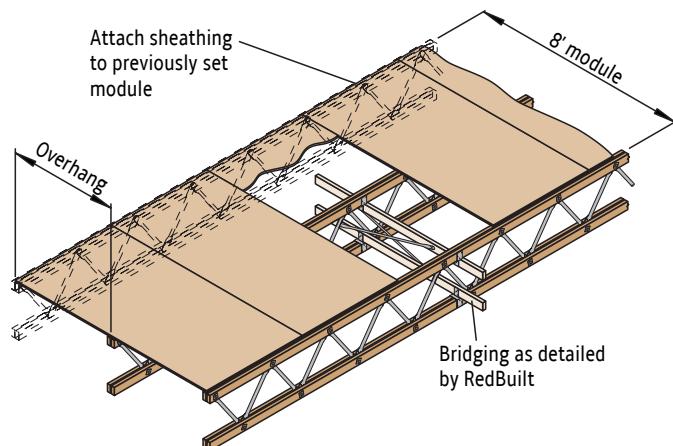


Modules with Sheathing Overhang

Trusses at 32" On-center

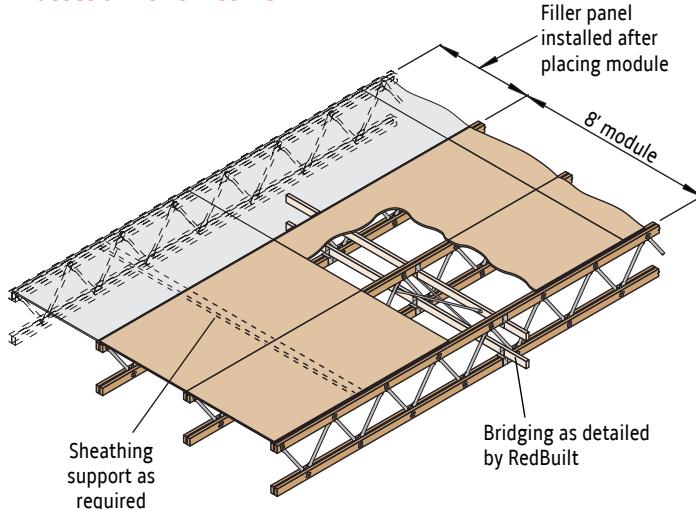


Trusses at 48" On-center



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
1⅛" plywood	3.4 psf
½" OSB	1.7 psf
⅝" OSB	2.0 psf
¾" OSB	2.5 psf
⅞" OSB	2.9 psf
1⅛" 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 (⅜" 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 www.RedBuilt.com)

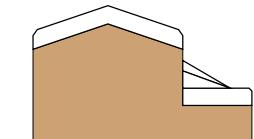
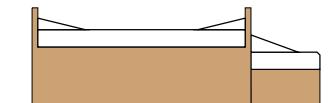
Approximate Weights of RedBuilt™ Products

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

Structural Composite Lumber	Density (pcf)
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.

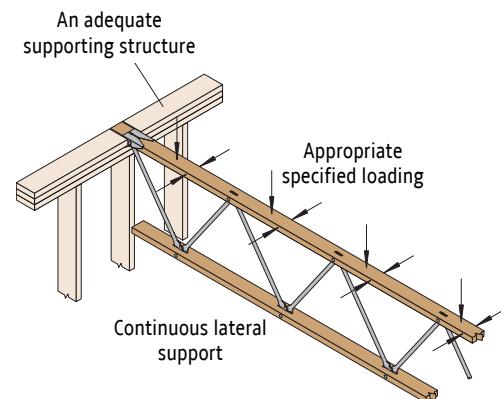
Product Application Assumptions

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.

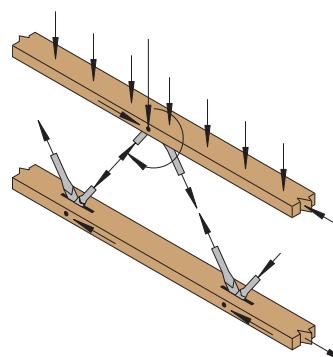
The magnitude, direction, and location of all design loads are as specified by the building designer. The review of this loading by our personnel is only for purposes of designing our product.

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.

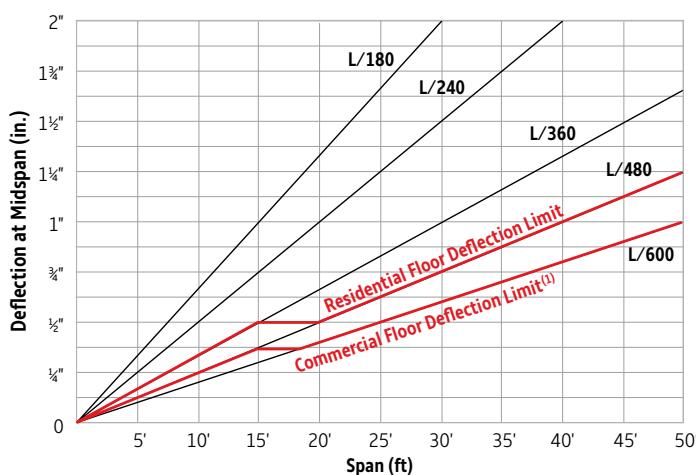
The graph below shows that RedBuilt's recommended deflection limit for residential and commercial floors is more restrictive than the minimum required by typical building codes. The floor load tables [shown on pages 6-11](#) were developed based on the **Commercial FLOOR DEFLECTION LIMIT** shown in the graph below.

Floors:

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

Roofs:

- Sloped Roofs— $\frac{1}{4}$ " 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 (EI) 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™	$15.93 \times 10^6 d^2$	$16.54 \times 10^6 d^2$	$17.03 \times 10^6 d^2$

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.

CAMBER CRITERIA

Recommended Camber for Floor and Roof

Loading Condition	Application	Recommended Camber	Minimum Recommended Camber
Snow Roof	Sloped Roofs ($\frac{1}{4}:12$ min.)	$DL\Delta + \frac{1}{2} LL\Delta$	$DL\Delta + \frac{1}{4} LL\Delta$
Non-Snow Roof	All Roofs	$1\frac{1}{2} DL\Delta$	$1\frac{1}{4} DL\Delta$
Floor	All Floors	$1\frac{1}{2} DL\Delta$	$DL\Delta$

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

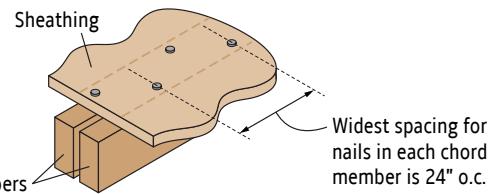
Nail Type	Nail Size	RedLam™ LVL		Sawn Lumber	
		Face	Edge	Face	Edge
			Truss Chord		Rim Board, Header, Beam
8d ⁽¹⁾	0.113" x 2½"	2"	4"	3"	4" 2"
	0.131" x 2½"	2"	6"	3"	6" 2"
10d	0.128" x 3"	2"	6"	3"	6" 2"
	0.148" x 3"	3"	6"	4" ⁽²⁾	6" 2½"
12d	0.128" x 3¾"	2"	6"	3"	6" 2"
	0.148" x 3¾"	3"	6"	4" ⁽²⁾	6" 2½"
16d	0.135" x 3½"	3"	6"	4"	6" 2½"
	0.148" x 3¾"	3"	6"	4" ⁽²⁾	6" 2½"
	0.162" x 3½"	4"	8"	8" ⁽³⁾	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.

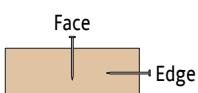
(2) Minimum spacing must be 5" for four rows of nails.

(3) Spacing may be reduced to 5" where nail penetration does not exceed 1⅛".

- 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).

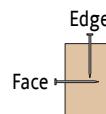


Do not use nails smaller than 8d (2½") or larger than 16d (3½")



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 www.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.

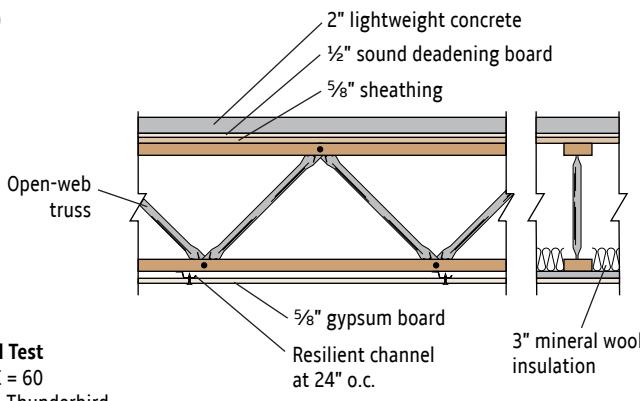
STC Ratings

- | | |
|----|---|
| 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.

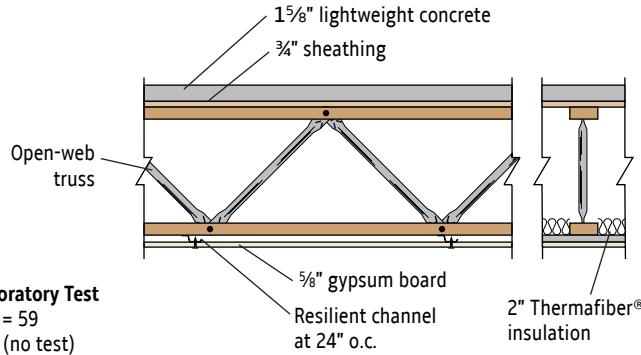
79



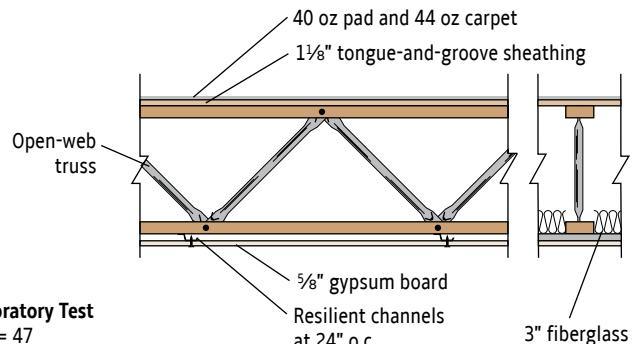
Field Test

FSTC = 60
WCR-Thunderbird

80

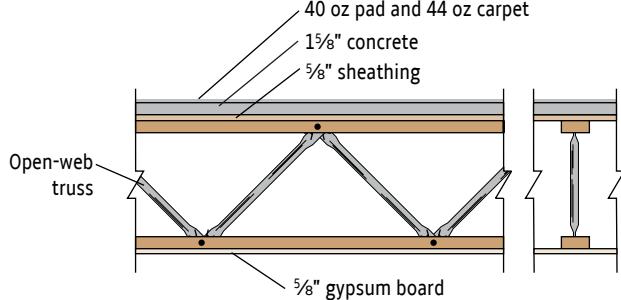


81



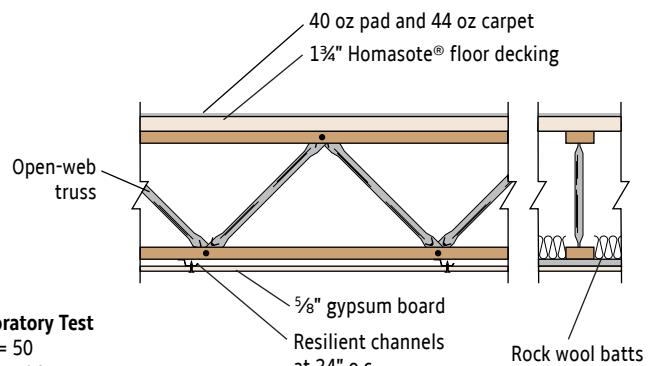
Laboratory Test
STC = 47
INR = +18
KAL 224-35-65

82



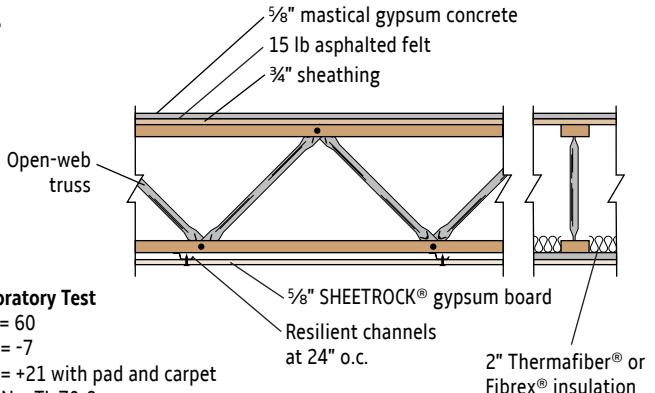
Laboratory Test
STC = 46
INR = +11
KAL 224-38-65

83



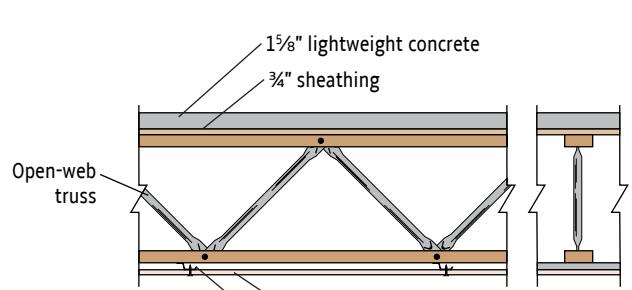
Laboratory Test
STC = 50
INR = +14
KAL 858-5-70

84



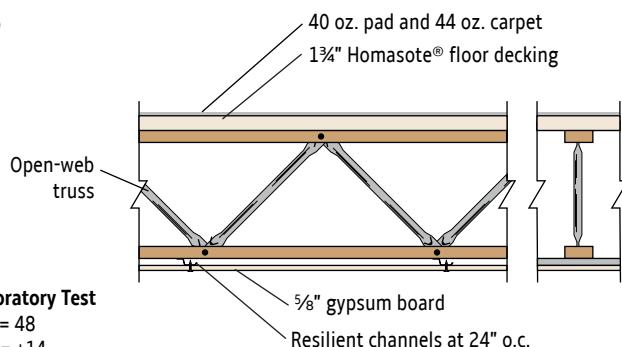
Laboratory Test
STC = 60
INR = -7
INR = +21 with pad and carpet
RAL No. TL 70-9

85



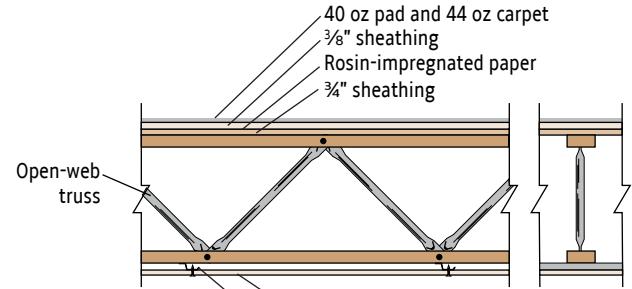
Laboratory Test
STC = 58
INR = +29 with pad and carpet
RAL No. TL 70-44

86



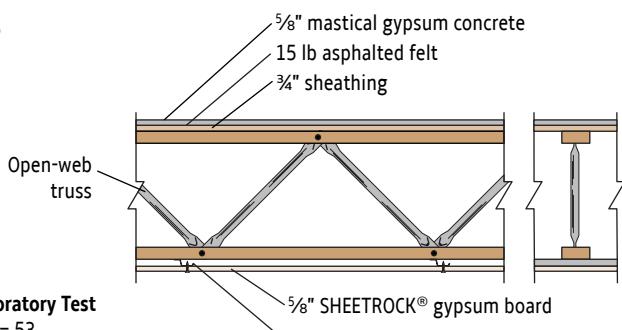
Laboratory Test
STC = 48
INR = +14
IIC = 65
KAL 858-4-70

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.

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 www.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 www.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:

- RedBuilt offers FSC credits for our open-web truss products as well as other products we manufacture or distribute. Consult your local RedBuilt technical representative for availability.
- 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 www.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: $\pm \frac{1}{8}$ "

For trusses greater than 30 ft: $\pm \frac{1}{4}$ "

Depth: $\pm \frac{1}{8}$ "

CAMBER

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

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 to be provided by RedBuilt to keep the trusses straight and plumb as required, and to ensure adequate lateral support for the individual trusses and the entire system until the sheathing material has been applied.

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 alternatives 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

www.redbuilt.com

200 E. Mallard Drive, Boise, ID 83706

P.O. Box 60, Boise, ID 83707

REPRESENTATIVE INFORMATION

