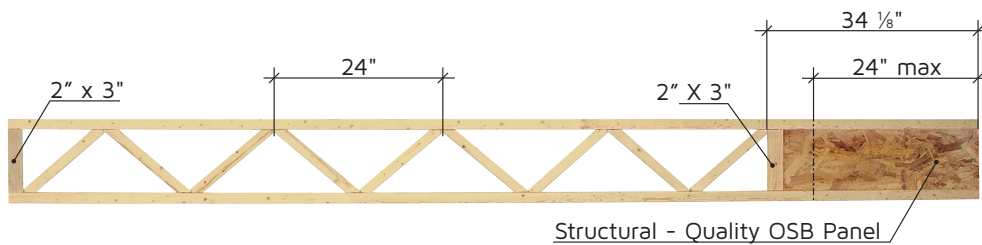


# THE OPEN JOIST

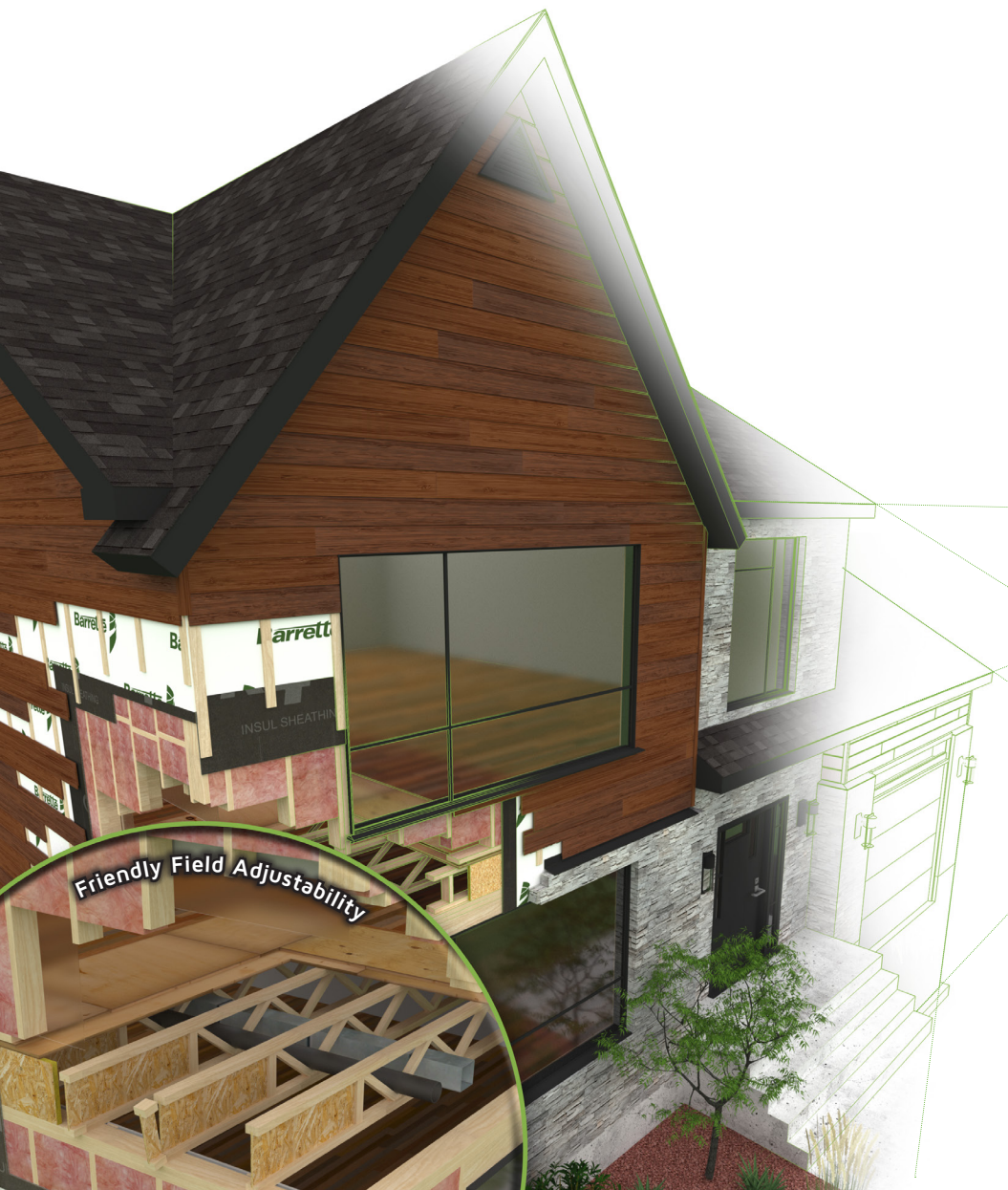


## The Barrette Structural Open Concept Floor System

The strength of triangulation, accuracy of finger-jointed assembly, maximization of dimensional lumber and environmentally-friendly field adjustability, makes open joist **TRIFORCE**® the only trimmable, all-wood, open-webbed, finger-jointed floor joist installed without metal plate connectors.

### Reengineering wood components for your needs

For more than 25 years, our finger joint technology has demonstrated its strength and durability throughout North America. The open joist **TRIFORCE**® has surpassed industry standards by establishing a new level of excellence in the engineering of floor systems, while optimizing the use of lumber in its components. The open joist **TRIFORCE**® provides... **Peace of mind underfoot!**™



Peace of mind underfoot™

[www.openjoisttriforce.com](http://www.openjoisttriforce.com)

Canadian Edition



# Maximum allowable floor spans for residential application

Glued and nailed, LL: 40 psf , DL: 15 psf							
Spacing		12"	16"	19.2"	24"		
Subfloor-CSP		5/8"	5/8"	5/8"	3/4"		
Depth (in)	Series	Chords	Weight (PLF)	Maximum spans o.c.			
9 1/2"	OJ314	2" x 3"	2.70	16'-0"	16'-0"	15'-0"	13'-6"
	OJ418	2" x 4"	3.25	18'-0"	18'-0"	18'-0"	16'-10"
11 7/8"	OJ314	2" x 3"	2.80	16'-0"	16'-0"	16'-0"	15'-4"
	OJ315	2" x 3"	2.80	18'-0"	18'-0"	18'-0"	16'-11"
	OJ415	2" x 4"	3.35	20'-0"	20'-0"	20'-0"	<b>19'-1"</b>
	OJ418	2" x 4"	3.35	22'-0"	22'-0"	22'-0"	<b>20'-2"</b>
14"	OJ314	2" x 3"	2.85	16'-0"	16'-0"	16'-0"	16'-0"
	OJ315	2" x 3"	2.85	20'-0"	20'-0"	20'-0"	18'-7"
	OJ415	2" x 4"	3.45	22'-0"	22'-0"	22'-0"	<b>21'-8"</b>
	OJ418	2" x 4"	3.45	26'-0"	26'-0"	24'-10"	<b>22'-11"</b>
16"	OJ314	2" x 3"	2.95	16'-0"	16'-0"	16'-0"	16'-0"
	OJ315	2" x 3"	2.95	20'-0"	20'-0"	20'-0"	20'-0"
	OJ418	2" x 4"	3.55	26'-0"	26'-0"	26'-0"	<b>25'-5"</b>
	OJ420	2" x 4"	3.55	30'-0"	30'-0"	<b>28'-6"</b>	<b>26'-3"</b>

## Notes:

- Spans apply to simple span application only.
- Minimum end bearing length is 1 1/2", **except for bold spans minimum 1 1/2" at the OSB section with web stiffeners.**
- Maximum spans are measured **centerline to centerline** of bearing and are based on uniformly loaded joists.
- Dead load deflection is limited to L/360 and total load deflection is limited to L/240.
- Live Load is limited to **L/360**.
- The spans shown are in accordance with NBCC and CAN/CSA O86 and take into consideration the performance criterion with continuous strongback installed at mid span.
- Refer to appropriate sections of the Specifier Guide for installation guidelines and construction details.
- The nailing specifications are to be in accordance with the National Building Code of Canada (NBCC) and the adhesives used should comply with CGSB standard CAN-CGSB 71.26-M88.

# Maximum Allowed Unfactored Live Load Chart for residential application

Dead Load: 15 PSF, L/360, Glued and nailed																
Length	9 1/2" Loads PSF				11 7/8" Loads PSF				14" Loads PSF				16" Loads PSF			
	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
8'-0"	266	197	162	127	281	207	171	134	302	223	184	144	342	254	209	165
10'-0"	183	134	110	85	222	163	134	105	239	176	144	113	271	200	165	129
12'-0"	121	89	72	55	163	119	97	75	197	144	118	92	224	165	135	105
14'-0"	80	60	49	----	116	84	67	51	141	103	83	64	162	118	97	75
16'-0"	55	41	----	----	85	61	48	----	105	75	61	46	121	87	71	54
18'-0"	68	51	43	----	69	52	43	----	98	73	58	44	119	86	70	53
20'-0"					71	53	44	----	73	55	45	----	94	67	54	40
22'-0"					64	48	40	----	78	58	48	----	116	84	68	52
24'-0"									72	54	45	----	95	71	59	46
26'-0"									57	43	----	----	76	57	47	----
28'-0"													68	51	42	----
30'-0"													56	42	----	----

## Notes:

- Uniform loads shown are on **centerline to centerline** and considering a minimum end bearing length of 1 1/2", higher loads could be applied using longer end bearing length.
- Minimum end bearing length is 1 1/2", **except for bold spans, minimum 1 1/2" with web stiffeners at the OSB section.**
- Dead load deflection is limited to L/360 and total load deflection is limited to L/240.
- Live Load is limited to **L/360**.
- The loads shown are in accordance with NBCC, part 9 and CAN/CSA O86 and take into consideration the performance criterion as per NBCC section 9.23.4.2(2) with continuous strongback installed at mid span.
- Refer to appropriate sections of the Specifier Guide for installation guidelines and construction details.
- The nailing specifications are to be in accordance with the National Building Code of Canada (NBCC) and the adhesives used should comply with CGSB standard CAN-CGSB 71.26-M88.

# Mid Span Continuous Strongback Recommendations

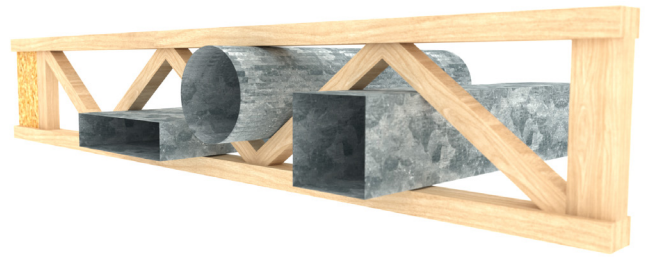
LL = 40 psf DL = 15 psf																
Length	9 1/2"				11 7/8"				14"				16"			
	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"	12"	16"	19.2"	24"
14'-0"	None	None	1-2x4	1-2x4	None	None	None	None	None	None	None	None	None	None	None	None
16'-0"	1-2x4	1-2x6	1-2x6	----	None	1-2x4	1-2x4	1-2x4	None	None	None	None	None	None	None	None
18'-0"	1-2x4	1-2x6	1-2x6	1-2x6	1-2x4	1-2x6	1-2x6	1-2x6	None	1-2x6	1-2x6	1-2x6	None	None	1-2x6	1-2x6
20'-0"	----	----	----	----	2-2x4	1-2x6	2-2x6	2-2x6	1-2x6	1-2x6	2-2x6	1-2x6	None	1-2x6	1-2x6	1-2x6
22'-0"	----	----	----	----	1-2x6	2-2x6	1-2x8	1-2x8	1-2x6	1-2x6	2-2x6	1-2x8	None	1-2x6	1-2x6	1-2x6
24'-0"	----	----	----	----	----	----	----	----	1-2x6	2-2x6	2-2x8	1-2x8	1-2x6	1-2x6	2-2x6	2-2x6
26'-0"	----	----	----	----	----	----	----	----	1-2x8	2-2x8	2-2x8	----	1-2x6	2-2x6	1-2x8	2-2x8
28'-0"	----	----	----	----	----	----	----	----	----	----	----	----	2-2x6	2-2x8	1-2x10	2-2x8
30'-0"	----	----	----	----	----	----	----	----	----	----	----	----	2-2x8	2-2x10	2-2x10	----

## Notes:

- Specified continuous strongbacks installed at mid span shown, take into consideration the performance criterion of the NBCC.
- Refer to appropriate sections of the Specifier Guide for installation guidelines and construction details.
- Live load deflection is limited to L/480.
- This table of continuous strongback for maximum spans can also be used for maximum spans when live load deflection is limited to L/360 **except with 40-36 loading, strongbacks are limited to L/480.**



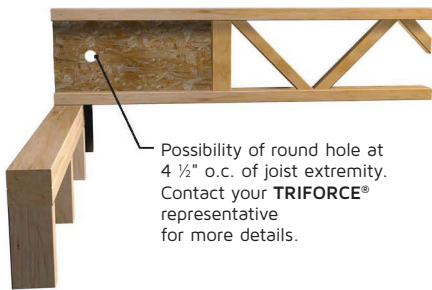
# Mechanical Clearances



Depth	Mechanical Opening Dimension		
	Round	Square	Rectangular
9 1/2"	5"	4" x 6"	3" x 9"
11 7/8"	7 1/4"	5 3/4" x 5 3/4"	3" x 13"
14"	8 1/2"	6 1/2" x 6 1/2"	3" x 14", 6" x 8"
16"	9 1/2"	7 1/2" x 7 1/2"	3" x 15"

## Typical Details

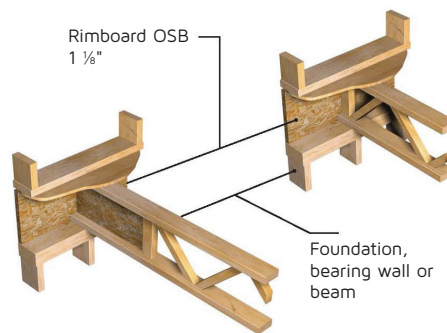
### Detail N1



Possibility of round hole at 4 1/2" o.c. of joist extremity. Contact your TRIFORMER® representative for more details.

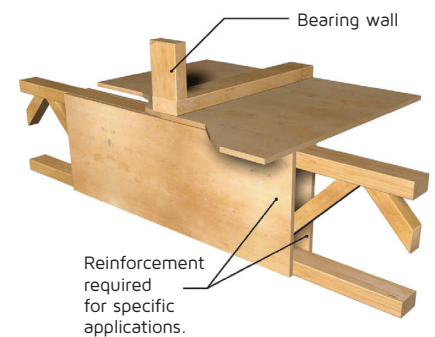
### Detail N2

#### BEARING WALL



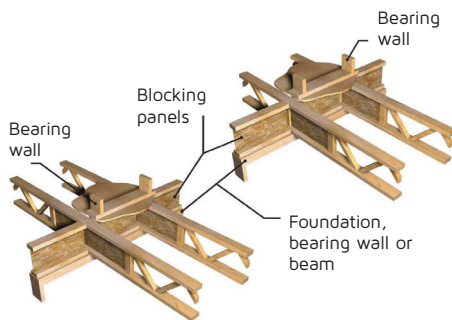
### Detail N11VS

#### REINFORCEMENT UNDER CONCENTRATED LOAD



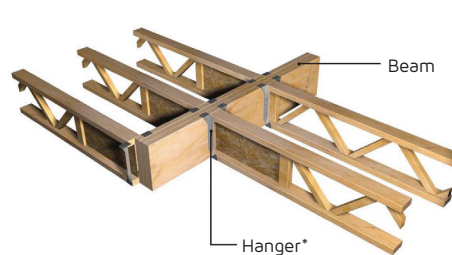
### Detail N3P1

#### END TO END JOIST



### Detail N4P1

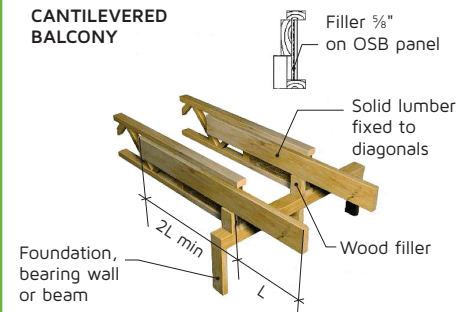
#### JOIST TO BEAM WITH HANGER



\*Top or face mount hangers

### Detail N12

#### CANTILEVERED BALCONY



### Detail N5

#### CONTINUOUS STRONGBACK



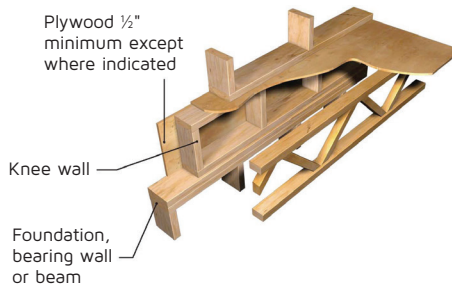
**Option #1**  
Secure strongback with 2 nails\* through the bottom chord and 1 nail\* through the diagonal web.  
\*(gun nails 0.122" x 3 1/4")

**Option #2 (suggested)**  
Secure vertical (2x4) with 2 nails\* to both chords and strongback to vertical with 2 nails\*.  
\*(gun nails 0.122" x 3 1/4")

\* Gun nails can be substituted with 3" screws.

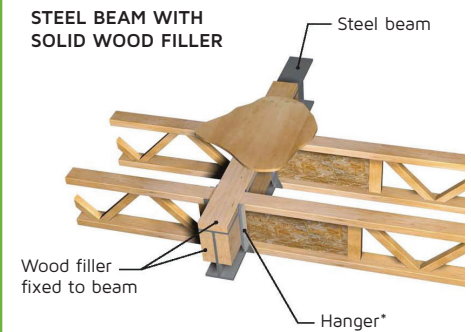
### Detail 6M

#### KNEE WALL



### Detail N15P1

#### STEEL BEAM WITH SOLID WOOD FILLER



\*Top or face mount hangers

# Features and Benefits

FEATURES	BENEFITS
SOLID SAWN KILN-DRIED CHORDS	<ul style="list-style-type: none"> <li>• Wide nailing surface 2.5" and 3.5"</li> <li>• Glued finger joints eliminate potential squeaking</li> <li>• Dimensional stability</li> <li>• Ease of installation</li> </ul>
SOLID SAWN KILN-DRIED WEBS	<ul style="list-style-type: none"> <li>• 2" x 2" webs</li> <li>• Most effective wood usage</li> <li>• Environmentally-friendly</li> </ul>
WEB STOCK OSB END DETAIL	<ul style="list-style-type: none"> <li>• 24" trimmable end</li> <li>• Trimmable one end only</li> <li>• Manufactured in 2-foot increments</li> </ul>
GLUED FINGER JOINTS TRIANGULATION	<ul style="list-style-type: none"> <li>• Long-term performance</li> <li>• Accuracy</li> <li>• No plate corrosion</li> <li>• No potential mechanical, electrical and plumbing damage due to metal connectors</li> <li>• Eliminates potential squeaking</li> </ul>
TRIANGULATED CONFIGURATION	<ul style="list-style-type: none"> <li>• Proven</li> <li>• Light handling</li> <li>• No on-site thinking for holes to allow mechanical, electrical and plumbing installation</li> <li>• Increased floor performance</li> </ul>
QUALITY GUARANTEED	<ul style="list-style-type: none"> <li>• Independent third-party inspection</li> <li>• Individually tested to exceed load capacity</li> <li>• Unrivaled floor performance</li> </ul>

When creating the open joist **TRIFORCE**<sup>®</sup> product, Barrette Structural modeled the manufacturing process on the Environmentally Conscious Manufacturing (ECM) model, which focuses on the most efficient and productive use of raw materials and natural resources, as well as minimizing any adverse impacts on workers or the natural environment. The entire life cycle of the open joist **TRIFORCE**<sup>®</sup> is considered, starting with design, then raw material and natural resources use, right through to end use and disposal.

In order to reach this goal, Barrette Structural has implemented a custom robotic assembly line. In addition, concepts like pollution prevention, energy efficiency, material substitution and maximization of recycled content, are all used as guidelines for the open joist **TRIFORCE**<sup>®</sup> manufacturing process.

This concept has allowed Barrette Structural to create a very efficient building product with little end waste in both manufacture and installation of the open joist **TRIFORCE**<sup>®</sup>.

Barrette Structural takes great pride in the open joist **TRIFORCE**<sup>®</sup> floor joist and values the end result that both our customers and environmental considerations demand to complete all building projects.



Open joist **TRIFORCE**<sup>®</sup> product is now available for certified wood credits  
 FSC SGS-COC-007236  
 SFI SGS-SFI/COC-CA10/55562

