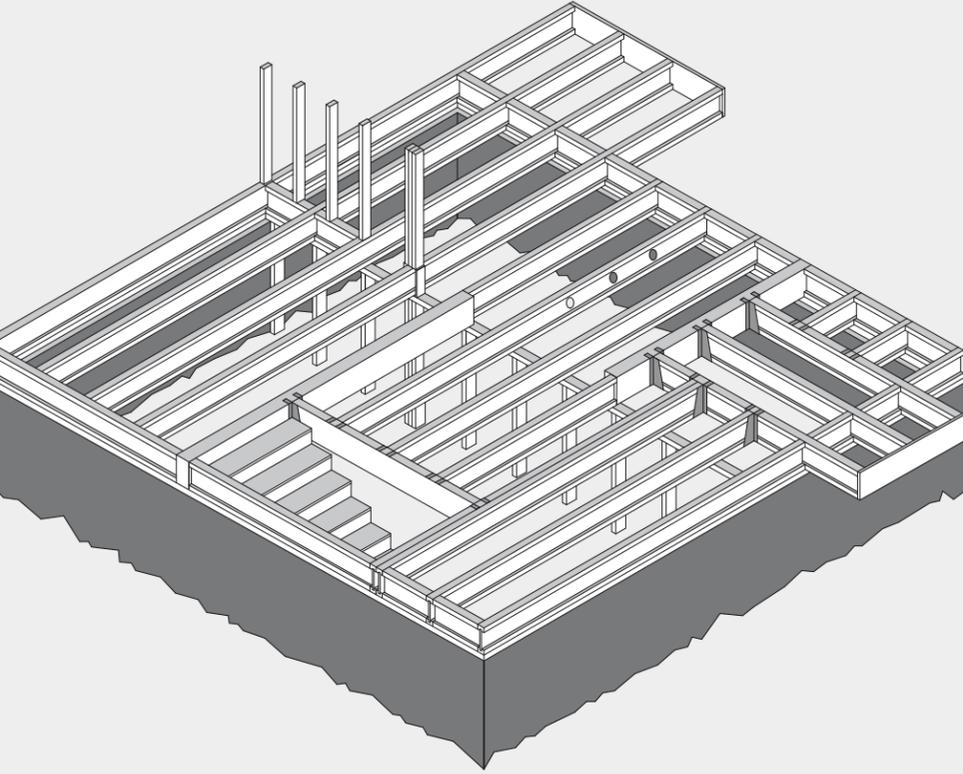


Engineered Wood Products

INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



SAFETY AND CONSTRUCTION PRECAUTIONS

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2-inch nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. *Never* install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.



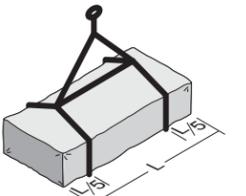
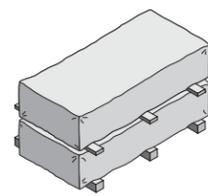
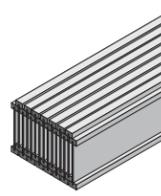
Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unsheathed I-joists. Once sheathed, do not overstress I-joist with concentrated loads from building materials.

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. Never use or try to repair a damaged I-joist.



MAXIMUM FLOOR SPANS

Design Criteria

Loads	Live load = 40 psf and dead load = 15 psf
Deflection limits	L/480 under live load and L/240 under total load
Sheathing	Nailed-glued oriented strand board (OSB) sheathing

Bare Joist

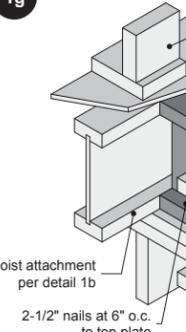
Joist depth	Joist series	Simple span On centre spacing				Multiple spans On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-3"	13'-10"	13'-5"	15'-8"	14'-10"	14'-4"	14'-6"
	NI-40x	16'-2"	15'-3"	14'-8"	14'-10"	16'-9"	15'-10"	15'-3"	15'-5"
	NI-60	16'-4"	15'-4"	14'-10"	14'-11"	16'-11"	16'-0"	15'-5"	15'-6"
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-0"	16'-11"	16'-4"	16'-5"
11-7/8"	NI-20	17'-0"	16'-0"	15'-6"	15'-8"	17'-8"	16'-8"	16'-1"	16'-3"
	NI-40x	18'-2"	17'-1"	16'-6"	16'-7"	19'-1"	17'-9"	17'-2"	17'-3"
	NI-60	18'-5"	17'-3"	16'-8"	16'-9"	19'-4"	17'-11"	17'-4"	17'-5"
	NI-80	19'-9"	18'-3"	17'-7"	17'-7"	20'-10"	19'-3"	18'-4"	18'-6"
14"	NI-20	20'-2"	18'-8"	17'-10"	17'-11"	21'-3"	19'-8"	18'-9"	18'-10"
	NI-40x	20'-1"	18'-8"	17'-10"	18'-0"	21'-2"	19'-8"	18'-9"	18'-11"
	NI-60	20'-6"	18'-11"	18'-2"	18'-3"	21'-7"	19'-11"	19'-1"	19'-2"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	23'-2"	21'-5"	20'-5"	20'-6"
16"	NI-20	22'-5"	20'-8"	19'-9"	19'-10"	23'-7"	21'-10"	20'-10"	20'-11"
	NI-40x	22'-4"	20'-8"	19'-9"	19'-10"	23'-6"	21'-9"	20'-10"	20'-11"
	NI-60	23'-11"	22'-1"	21'-1"	21'-2"	25'-3"	23'-4"	22'-3"	22'-4"
	NI-80	24'-5"	22'-6"	21'-6"	21'-6"	25'-9"	23'-9"	22'-8"	22'-8"

FOR ADDITIONAL
OPTIONS
→ NT306

Notes:

1. The tabulated clear spans are applicable to residential floor construction meeting the above design criteria and are based on a sheathing thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for a joist spacing of 24 inches.
2. The vibration-controlled span is determined using Clause A.5.4.5.2 b) of CSA O86:19.
3. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
4. Minimum bearing length shall be 1-3/4 inch for end bearings and 3-1/2 inches for intermediate bearings.
5. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
6. This table is based on CSA O86:19 and NBC 2020.

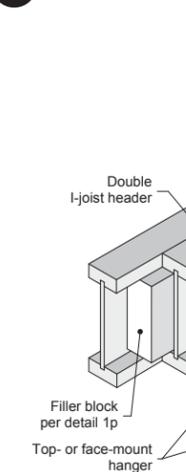
1g



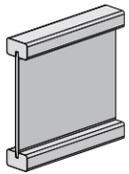
Notes:

1. An occasional blocking panel may be left out for the passage of pipes.
2. For other applications, contact your local distributor.

1h



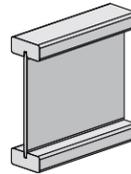
NORDIC I-JOIST SERIES RESIDENTIAL SERIES



NI-20
2x3 S-P-F No. 2
3/8 in. web
Depths
9-1/2 and 11-7/8 in.
33 pieces per unit

NI-40x
2x3 1950f MSR
3/8 in. web
Depths
9-1/2, 11-7/8 and 14 in.
33 pieces per unit

NI-60
2x3 2100f MSR
3/8 in. web
Depths
9-1/2, 11-7/8, 14 and 16 in.
33 pieces per unit



NI-80
2x4 2100f MSR
3/8 in. web
Depths
9-1/2, 11-7/8, 14 and 16 in.
23 pieces per unit

NI-90
2x4 2400f MSR
7/16 in. web
Depths
11-7/8, 14 and 16 in.
23 pieces per unit

WEB STIFFENERS

2

**Concentrated Load
(Load Stiffener)**

**End Bearing
(Bearing Stiffener)**

Flange width 2-1/2" or 3-1/2"

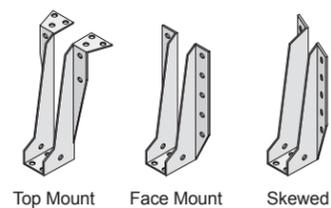
Approx. 2" 1/8"-1/4" Gap Four 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

Approx. 2" No gap

Flange width (in.)	Web stiffener size each side of web (in.)
2-1/2	1 x 2-5/16 Minimum width
3-1/2	1-1/2 x 2-5/16 Minimum width

I-JOIST HANGERS

1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
2. All nailing must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, flange width and load resistance.
4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.



Top Mount Face Mount Skewed

- Only on the load side
- On both sides

Flange width (in.)
2-1/2
3-1/2

- (a) Minimum grade for backer blocks for solid sawn lumber and CAN/CSA-O325 Standard.
- (b) For face-mount hangers use 1-1/2-inch-thick flanges.

Notes:

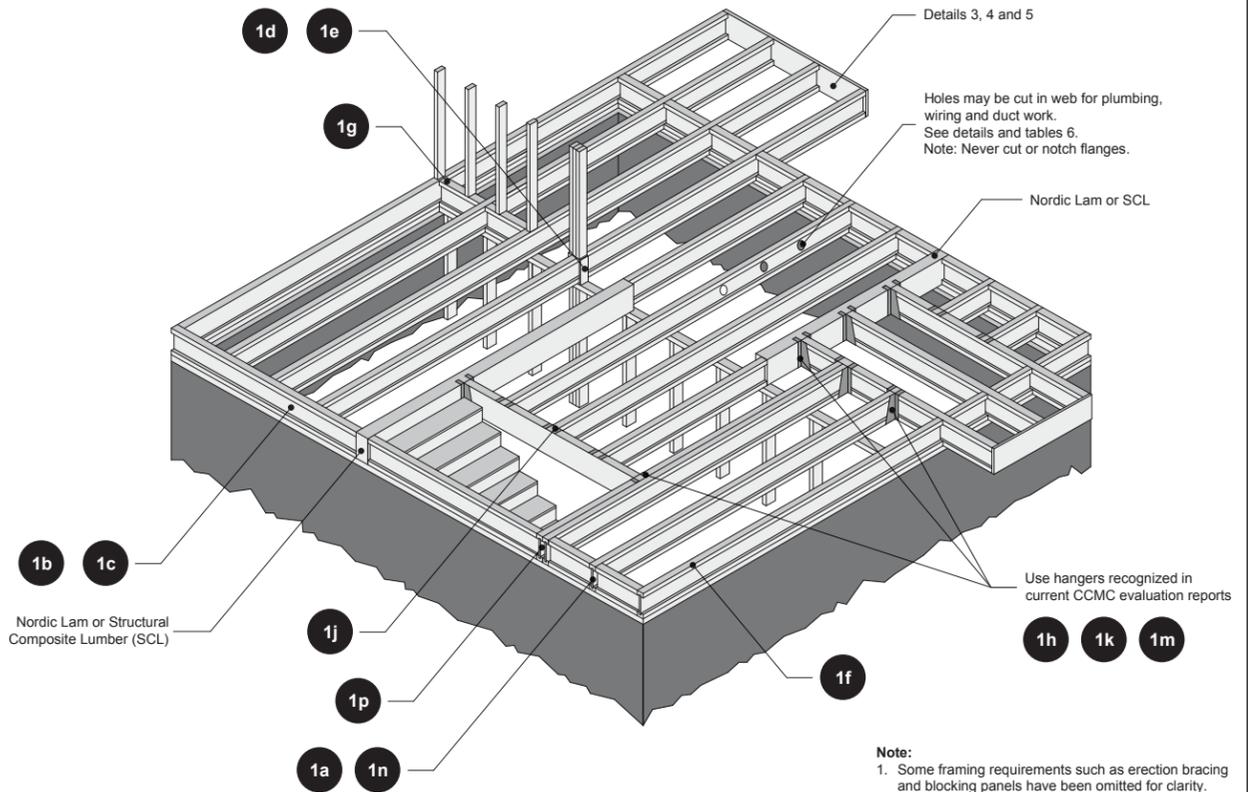
1. Unless hanger sides laterally brace the top flange of the I-joist.
2. For hanger resistance, see manufacturer's literature.
3. Verify double I-joist resistance.
4. Backer blocks must be long enough to span the hanger.
5. For other options, see details.

INSTALLING NORDIC I-JOISTS

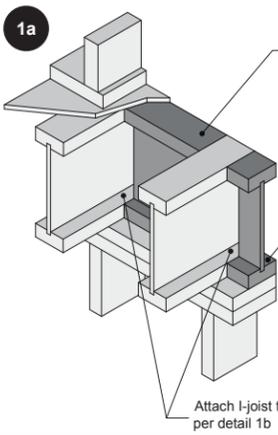
TYPICAL FLOOR FRAMING AND CONSTRUCTION DETAILS

1. Installation of Nordic I-joists shall be as shown in details 1.
2. Except for cutting to length, I-joist flanges should never be cut, drilled or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. Concentrated loads should only be applied to the top surface of the top flange. Concentrated loads should not be suspended from the bottom flange with the exception of light loads, such as ceiling fans or light fixtures.
5. I-joists must be protected from the weather prior to installation.
6. I-joists must not be used in applications where they will be permanently exposed to weather, or will reach a moisture content of 15 percent or greater, such as in swimming pool or hot tub areas. They must not be installed where they will remain in direct contact with concrete or masonry.
7. End bearing length must be at least 1-3/4 inch. For multiple-span joists, intermediate bearing length must be at least 3-1/2 inches.
8. Ends of floor joists shall be restrained to prevent rollover. Use rim board or I-joist blocking panels.
9. I-joists installed beneath bearing walls perpendicular to the joists shall have full-depth blocking panels, rim board, or squash blocks (cripple blocks) to transfer gravity loads from above the floor system to the wall or foundation below.
10. For I-joists installed directly beneath bearing walls parallel to the joists or used as rim board or blocking panels, the maximum vertical load using a single I-joist is 3,300 plf, and 6,600 plf if double I-joists are used.
11. Continuous lateral support of the I-joist's compression flange is required to prevent rotation and buckling. In simple span uses, lateral support of the top flange is normally supplied by the floor sheathing. In multiple-span or cantilever applications, bracing of the I-joist's bottom flange is also required at interior supports of multiple-span joists, and at the end support next to the cantilever extension. The ends of all cantilever extensions must be laterally braced as shown in details 3, 4, or 5.
12. Nails installed in flange face or edge shall be spaced in accordance with the applicable building code requirements or approved building plans, but should not be closer than those specified on page 3.3 of the Nordic Joist Technical Guide (NS-GT3).
13. Details 1 show only I-joist-specific fastener requirements. For other fastener requirements, see the applicable building code.
14. For proper temporary bracing of wood I-joists and placement of temporary construction loads, see [APA Technical Note: Temporary Construction Loads over I-Joist Roofs and Floors, Form J735](#).

1



All nails shown in the details are assumed to be common nails unless otherwise noted. Refer to Nordic Joist Construction Details (NS-DC3) for diameters. Individual components not shown to scale for clarity.

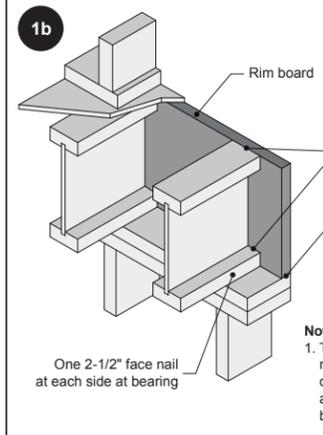


1a

Nordic I-joist blocking panel

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for floor sheathing)

Attach I-joist to top plate per detail 1b



1b

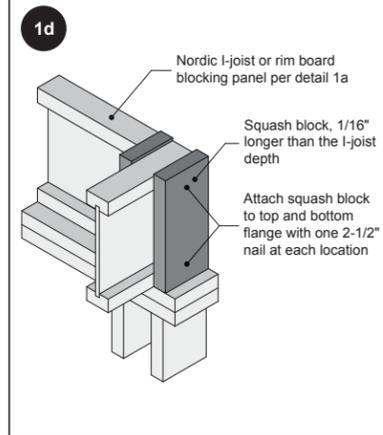
Rim board

One 2-1/2" nail at top and bottom flange

Attach rim board to top plate using 2-1/2" toe-nails at 6" o.c.

One 2-1/2" face nail at each side at bearing

Note:
1. To avoid splitting flange, start nails at least 1-1/2 inch from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.



1d

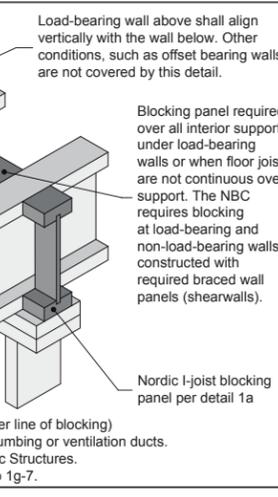
Nordic I-joist or rim board blocking panel per detail 1a

Squash block, 1/16" longer than the I-joist depth

Attach squash block to top and bottom flange with one 2-1/2" nail at each location

1e

Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above. Stagger nails to avoid splitting.

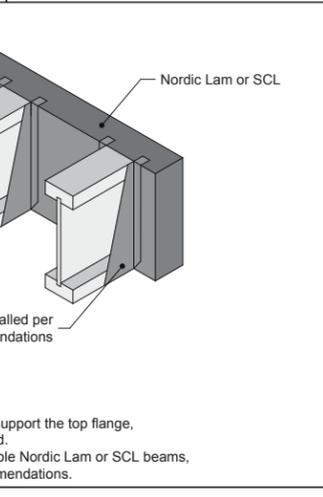


1j

Nordic Lam or SCL

Top- or face-mount hanger installed per manufacturer's recommendations

Notes:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.
2. For nailing schedules for multiple Nordic Lam or SCL beams, see the manufacturer's recommendations.

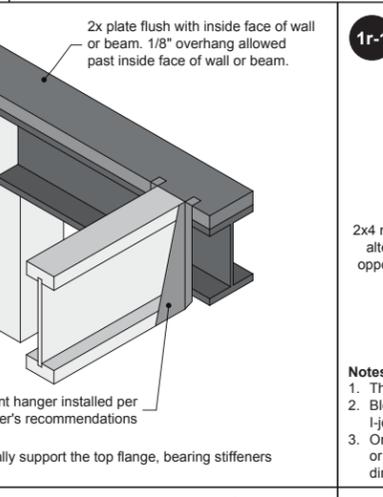


1k

2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

Top-mount hanger installed per manufacturer's recommendations

Note:
1. Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



1r-1

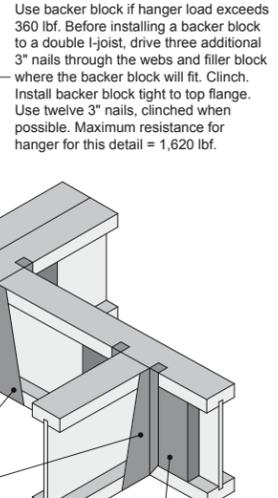
Blocking panel

Two 2-1/2" nails from joist web to lumber piece

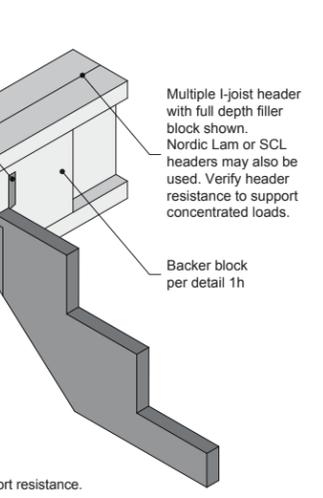
2x4 minimum, alternate on opposite side

Two 2-1/2" nails from blocking panel web to lumber piece

Notes:
1. This detail may be used to reduce floor vibration.
2. Blocking panels may be of any I-joist series. Nails attaching lumber piece to I-joist web should be driven from the web side and clinched on the lumber side.
3. One occasional blocking panel may be left out for the passage of plumbing or ventilation ducts. Otherwise, a hole of not more than 2/3 of the lesser dimension of the blocking depth or length may be drilled in the blocking panel.



Use backer block if hanger load exceeds 360 lbf. Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer block tight to top flange. Use twelve 3" nails, clinched when possible. Maximum resistance for hanger for this detail = 1,620 lbf.



1m

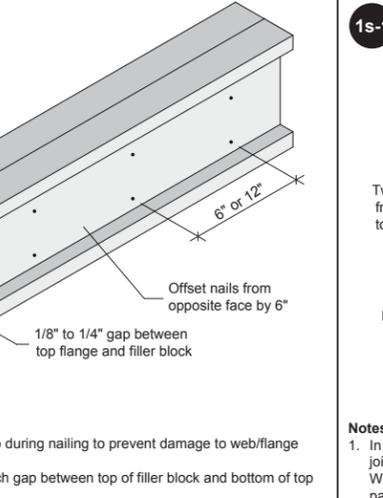
Install hanger per manufacturer's recommendations

Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify header resistance to support concentrated loads.

Backer block per detail 1h

Filler block per detail 1p

Note:
1. See detail 1h for maximum support resistance.



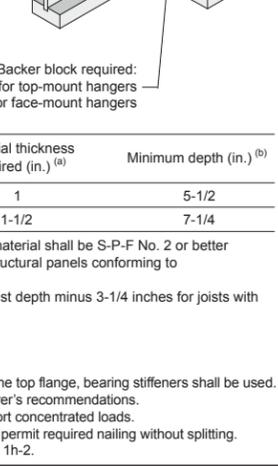
1p

Filler block

Offset nails from opposite face by 6"

1/8" to 1/4" gap between top flange and filler block

Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8-inch to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. For flange width of 2-1/2 inches, nail joists together with two rows of 3-inch nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist (total of four nails per foot). For flange width of 3-1/2 inches, use two rows of 3-inch nails at 6 inches o.c. on each side of the double I-joist (total of eight nails per foot).
5. The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 lbf/ft.



1n

Do not bevel-cut I-joist beyond inside face of wall

Attach I-joist per detail 1b

Note:
1. Blocking required at bearing for lateral support, not shown for clarity.

Filler Block Requirements for Double I-joist Construction

Flange width (in.)	Net depth (in.)	Filler block size (in.)	Example
2-1/2	9-1/2	2-1/8 to 2-1/4 x 6	2x6 + 5/8" or 3/4" sheathing
	11-7/8	2-1/8 to 2-1/4 x 8	2x8 + 5/8" or 3/4" sheathing
	14	2-1/8 to 2-1/4 x 10	2x10 + 5/8" or 3/4" sheathing
3-1/2	16	2-1/8 to 2-1/4 x 12	2x12 + 5/8" or 3/4" sheathing
	9-1/2	3 x 6	2 x 2x6
	11-7/8	3 x 8	2 x 2x8
14	3 x 10	2 x 2x10	
	3 x 12	2 x 2x12	

Note:
1. The height of the filler block may be different from that specified in the table, as long as it allows nailing and respects the required gap.

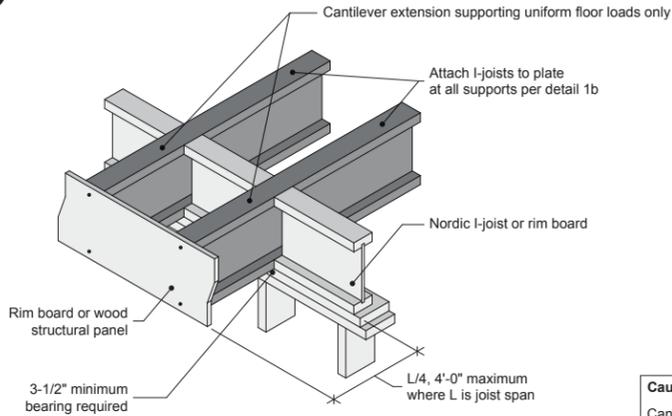
This document supersedes all previous versions. For the latest version, consult nordic.ca or contact Nordic Structures.

FOR ALL construction details

→DC3

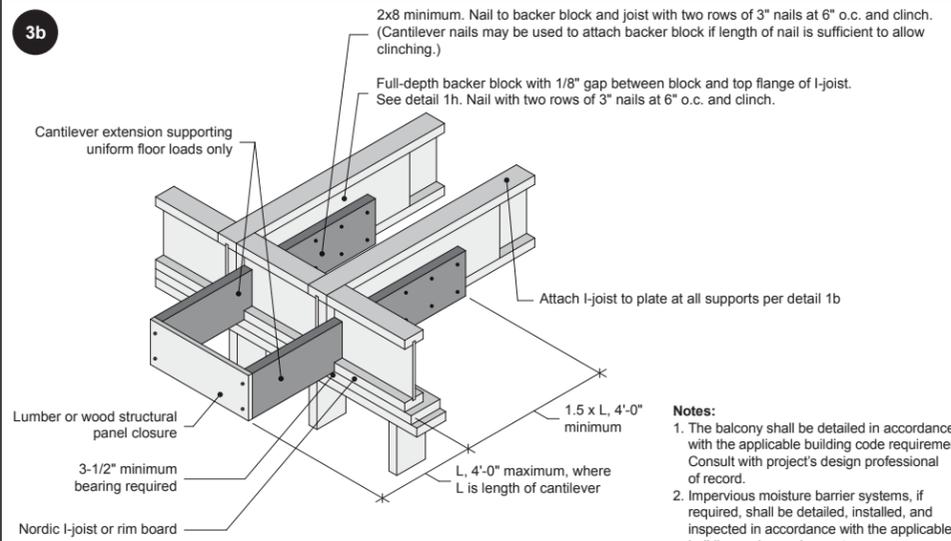
CANTILEVER - BALCONIES

3a



Caution
Cantilevers formed this way are limited to interior balconies.

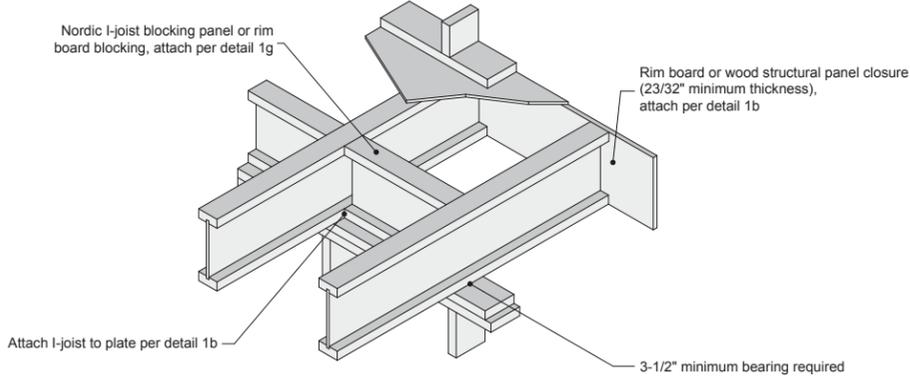
3b



Notes:
1. The balcony shall be detailed in accordance with the applicable building code requirements. Consult with project's design professional of record.
2. Impervious moisture barrier systems, if required, shall be detailed, installed, and inspected in accordance with the applicable building code requirements.

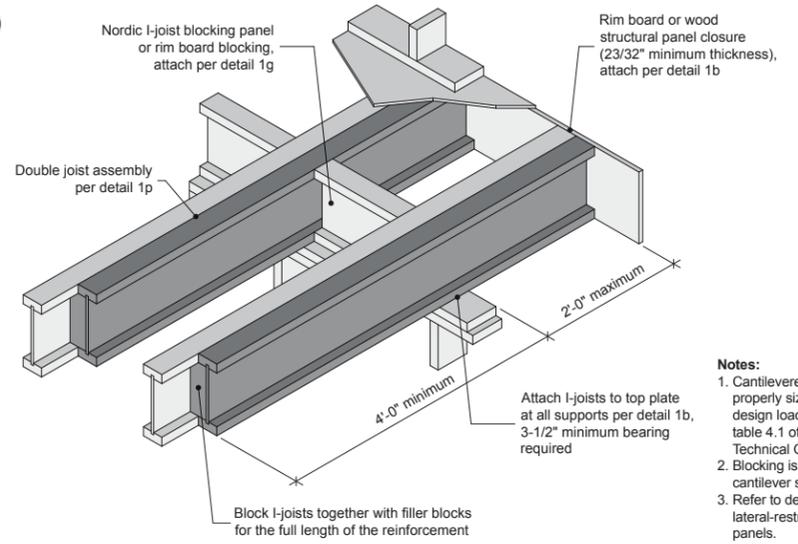
CANTILEVER - VERTICAL BUILDING OFFSET

4a



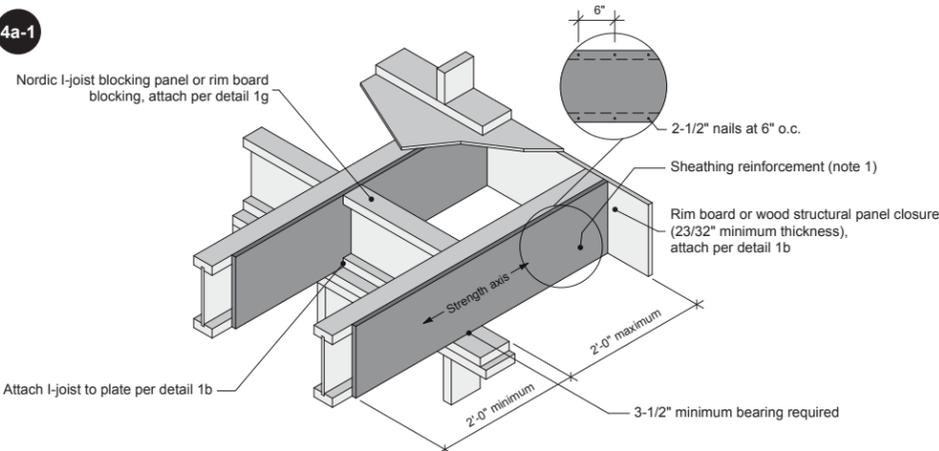
Notes:
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

4b



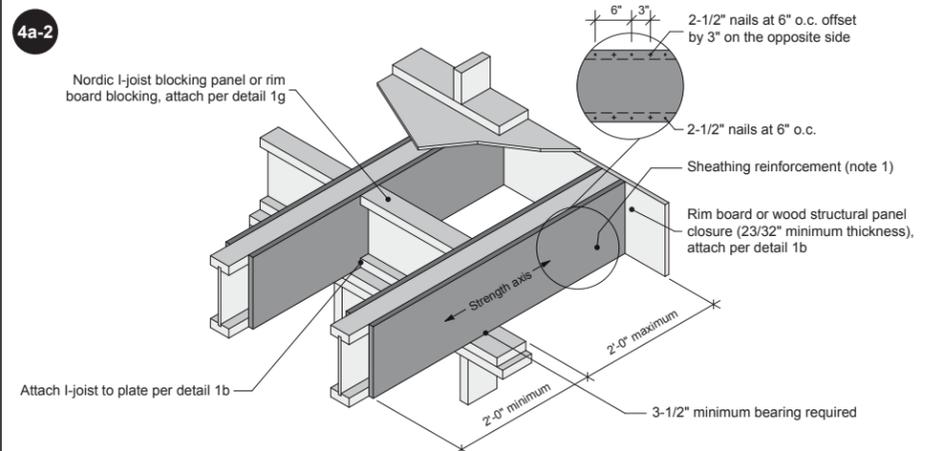
Notes:
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

4a-1



Notes:
1. Wood structural panel with a minimum thickness of 23/32 inch (for OSB, panel mark 48/24) required on one side of joist. Depth shall match the full height of the joist. Nail with 2-1/2-inch nails at 6 inches o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b.
2. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking is required along the cantilever support.
4. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

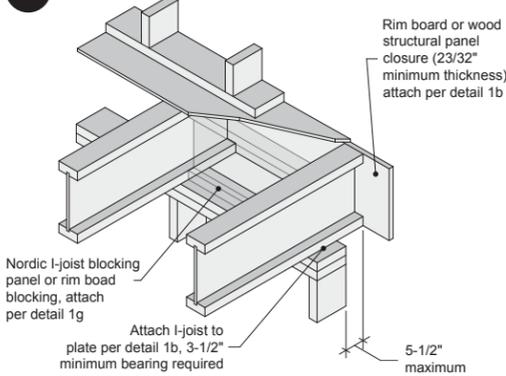
4a-2



Notes:
1. Wood structural panel with a minimum thickness of 23/32 inch (for OSB, panel mark 48/24) required on both sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2-inch nails at 6 inches o.c., top and bottom flange, offset on opposite side. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b.
2. Cantilevered joists must be properly sized to support all design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking is required along the cantilever support.
4. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

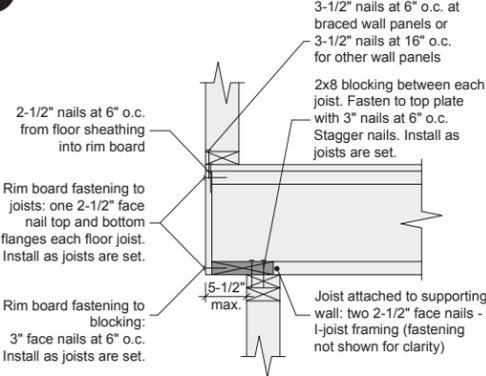
SHORT CANTILEVER - VERTICAL BUILDING OFFSET

5a



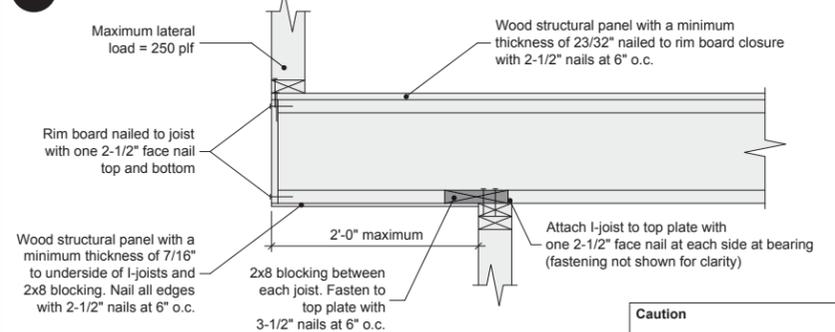
Notes:
1. Cantilevered joists must be properly sized to support all design loads. Refer to table 5.1 of the Nordic Joist Technical Guide (NS-GT3).
2. Blocking is required along the cantilever support.
3. Refer to detail 6c for holes in lateral-restraint-only blocking panels.

5c



Notes:
1. Additional lateral resistance may be required in high wind and/or seismic load areas. In such cases, specific design detailing shall be provided by the building designer.
2. Cantilevered joists must be properly sized and spaced, and may require reinforcements to support vertical wall loads. Note that this detail can only be used when no I-joist reinforcement is required.

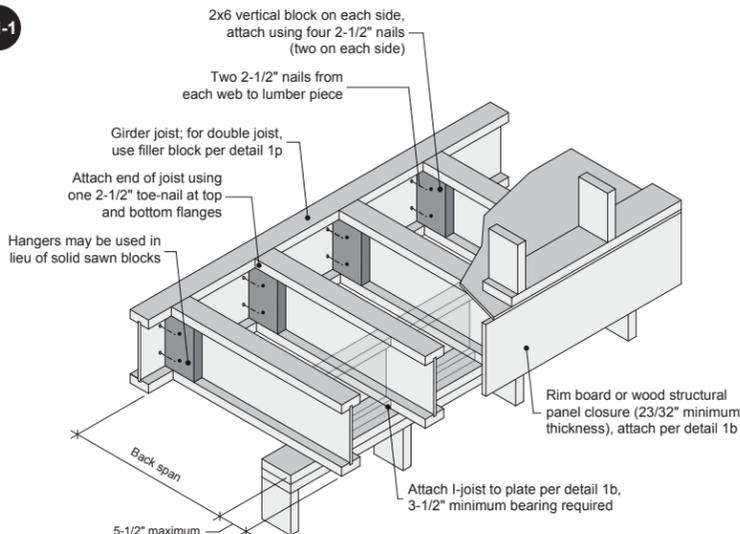
4c



Caution
Cantilevers formed this way must be carefully detailed to prevent moisture intrusion into the structure and potential decay of untreated I-joist extensions.

Notes:
1. The above detail is applicable only to single family residential construction, and when the cantilever is loaded by uniform floor loads only (i.e. wall is not load-bearing).
2. Cantilevered joists must be properly sized to support design loads. Refer to table 4.1 of the Nordic Joist Technical Guide (NS-GT3).
3. Blocking over bearing wall must be provided at all areas of wall bracing (at end of walls and at least every 25'-0\"/>

5d-1



Notes:
1. Verify girder joist resistance if the back span exceeds the joist spacing. Limit the differential deflection between adjacent I-joists.
2. Cantilevered joists must be properly sized to support all design loads.
3. Blocking is required along the cantilever support.
4. Maximum resistance for pair of 2x6 blocks for this detail is 650 lbf (total of four nails). For higher resistances, use hangers in lieu of solid sawn blocks.

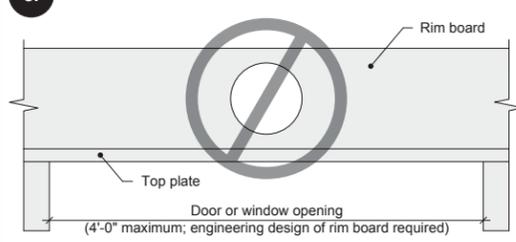
5a-1

5a-2

5b

For short cantilevers with reinforcements, details 4 apply except for the length of the overhang, or refer to NS-DC3 / NS-GT3.

8f



Note:
1. Do not cut holes in rim board installed over openings, such as doors or windows, where the rim board is not fully supported, except that holes of 1-1/2 inch or less in size are permitted provided they are positioned at the mid-depth and in the middle one-third of the span.

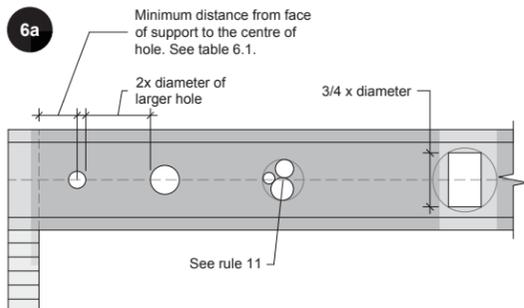
8g

WEB HOLES AND OPENINGS

WEB HOLES IN I-JOISTS

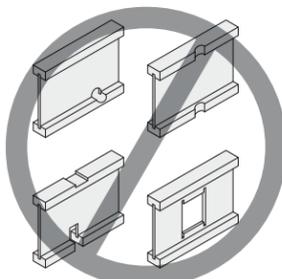
Rules for Cutting Holes in I-joists

- The distance between the inside edge of the support and the centreline of any hole shall be in compliance with the requirements of table 6.1.
- I-joist top and bottom flanges must never be cut, notched or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole allowed at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole - or twice the length of the longest side of the longest rectangular hole - and each hole must be sized and located in compliance with the requirements of table 6.1.
- Holes measuring 1-1/2 inch or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above. For more than three holes per span, space holes at minimum 15 inches on centre or contact Nordic Structures.
- All holes shall be cut in accordance with the restrictions listed above and as illustrated in detail 6a.
- Limit three maximum-size holes per span.
- A group of round holes at approximately the same location shall be permitted if it meets the requirements for a single round hole circumscribed around them.



6a

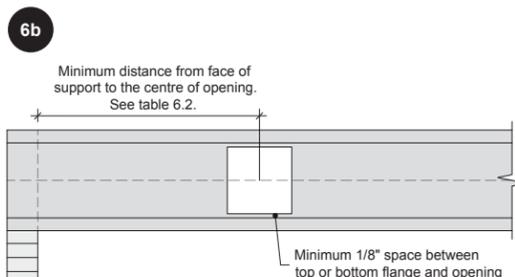
- Notes:**
- Never drill, cut or notch the flange, or over-cut the web.
 - Holes in web should be cut with a sharp saw.
 - For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.



DUCT CHASE OPENINGS

Rules for Cutting Duct Chase Openings in I-joists

- The distance between the inside edge of the support and the centreline of a duct chase opening shall be in compliance with the requirements of table 6.2.
- I-joist top and bottom flanges must never be cut, notched or otherwise modified.
- The maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the opening and the adjacent I-joist flange.
- All openings shall be cut in accordance with the restrictions listed above and as illustrated in detail 6b.
- Limit one maximum-size duct chase opening per span.



6b

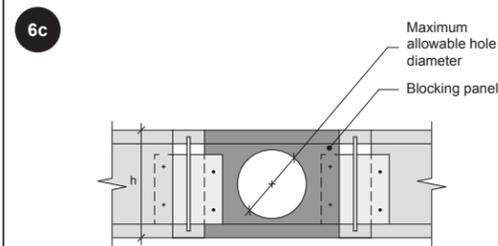
- Notes:**
- Never drill, cut or notch the flange, or over-cut the web.
 - Holes in web should be cut with a sharp saw.
 - Avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch-diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

I-joist depth (in.)	Maximum depth of the opening (in.)
9-1/2	6-1/4
11-7/8	8-5/8
14	10-3/4
16	12-3/4

HOLES IN BLOCKING PANELS

Maximum Allowable Hole Size in Lateral-restraint-only Blocking Panels

- The maximum allowable hole size for a lateral-restraint-only blocking panel is 2/3 of the lesser dimension of the blocking's depth or length. Assuming the blocking panel is longer than its height (or depth), the table aside applies. For other applications, contact Nordic Structures.
- Holes cut into the blocking panels are subject to the following limitations:
 - The top and bottom flanges of an I-joist blocking panel must never be cut, notched or otherwise modified.
 - Field-cut holes must be centred in the blocking horizontally.
 - While round holes are preferred, rectangle holes may be used provided the corners are not over cut. Slightly rounding corners or pre-drilling corners with a 1-inch-diameter bit is recommended.
 - All holes must be cut in a workman-like manner in accordance with the limitations listed above.



I-joist or rim board blocking depth (in.)	Maximum allowable hole diameter (in.) ^(a)
9-1/2	6-1/4
11-7/8	7-3/4
14	9-1/4
16	10-1/2

^(a) Maximum allowable hole diameter in blocking panel, where the blocking panel is longer than its height.

TABLE 6.1 - LOCATION OF WEB HOLES

Simple or multiple span

Minimum distance from inside face of any support to centre of hole (ft.-in.)

Joist depth	Joist series	Round hole diameter (in.)															
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	-	-	-	-	-	-	-	-	-	-
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	-	-	-	-	-	-	-	-	-	-
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	-	-	-	-	-	-	-	-	-	-
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	-	-	-	-	-	-	-	-	-	-
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	-	-	-	-	-	-	-
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	-	-	-	-	-	-	-
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	-	-	-	-	-	-	-
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	-	-	-	-	-	-	-
14"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"	-	-	-	-
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	-	-	-	-	-
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"	-	-	-	-
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"	-	-	-	-
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"	-
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"	-
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"	11'-9"	13'-9"	15'-4"	-

- Notes:**
- Tabulated values are applicable to residential floor construction meeting the adjacent design criteria.
 - The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

Design Criteria

Joist spacing	Up to 24 inches
Loads	Live load = 40 psf and dead load = 15 psf
Deflection limits	L/480 under live load and L/240 under total load

TABLE 6.2 - LOCATION OF DUCT CHASE OPENINGS

Simple span

Minimum distance from inside face of any support to centre of opening (ft.-in.)

Joist depth	Joist series	Duct chase length (in.)												
		8	10	12	14	16	18	20	22	24				
9-1/2"	NI-20	5'-6"	5'-10"	6'-2"	-	-	-	-	-	-	-	-	-	-
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	-	-	-	-	-	-
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	-	-	-	-	-	-
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	-	-	-	-
11-7/8"	NI-20	7'-3"	7'-7"	7'-11"	-	-	-	-	-	-	-	-	-	-
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	-	-	-	-	-	-
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-8"	-	-	-	-	-	-
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"	-	-	-	-
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	-	-	-	-	-	-
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	-	-	-	-	-	-
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	-	-	-	-
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"	-	-	-	-
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	-	-	-	-	-	-
	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"	-	-	-	-
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"	-	-	-	-

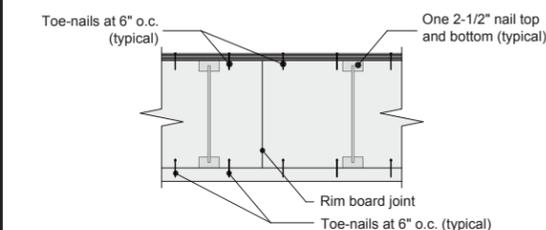
Design Criteria

Joist spacing	Up to 24 inches
Loads	Live load = 40 psf and dead load = 15 psf
Deflection limits	L/480 under live load and L/240 under total load

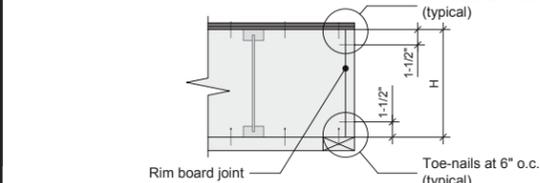
- Note:**
- Tabulated values are applicable to residential floor construction meeting the above design criteria.

RIM BOARDS

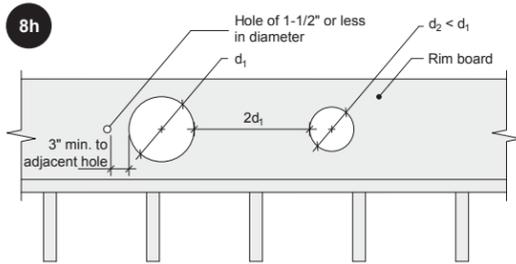
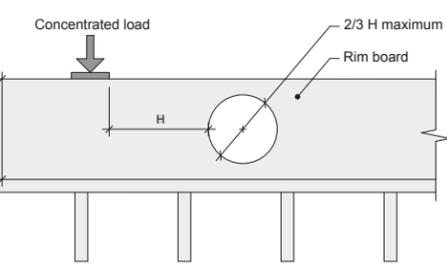
Rim Board Joint Between Floor Joists



Rim Board Joint at Corner



- Notes:**
- Floor sheathing to rim board - Use 2-1/2-inch common nails at 6 inches o.c. *Caution: The horizontal load resistance is not necessarily increased with a decreased nail spacing. Under no circumstances should the nail spacing be less than 3 inches. The 3-1/2-inch common nails used to connect the bottom plate of a wall to the rim board through the sheathing do not reduce the horizontal load resistance of the rim board provided that the 2-1/2-inch nail spacing (sheathing-rim board) is 6 inches o.c. and the 3-1/2-inch nail spacing (bottom plate-sheathing-rim board) is in accordance with the prescriptive requirements of the applicable code. APA recommends a minimum 3/8-inch panel edge distance be maintained when nailing. Calculations show that the tongue does not need to be removed for floor sheathing 7/8-inch thick or less when used in conjunction with rim boards of 1-1/8 inch. Some local code jurisdictions, however, may require removal of the tongue at the edge of floor framing when nailing it to rim board.*
 - Rim board to I-joist - Use two 2-1/2-inch common nails, one each into the top and bottom flanges.



INSTALLING THE NAILED-GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
- Snap a chalk line across the I-joists four feet from the wall for panel edge alignment and as a boundary for spreading glue.
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
- Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
- After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
- Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or a 2-1/2-inch common nail to assure accurate and consistent spacing.)
- Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2-inch ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2-inch ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

Fasteners for Sheathing and Subflooring

Maximum joist spacing	Minimum panel thickness	Fastener size and type			Maximum spacing of fasteners	
		Common wire or spiral nails	Ring thread nails or screws	Staples	Edges	Intermediate supports
16"	5/8"	2"	1-3/4"	2"	6"	12"
19.2"	5/8"	2"	1-3/4"	2"	6"	12"
24"	3/4"	2"	1-3/4"	2"	6"	12"

- Notes:**
- Fasteners of sheathing and subflooring shall conform to the above table.
 - Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
 - Flooring screws shall not be less than 1/8-inch in diameter.
 - Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
 - Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

Reference: NRC-CNRC, National Building Code of Canada, Table 9.23.3.5.

IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.