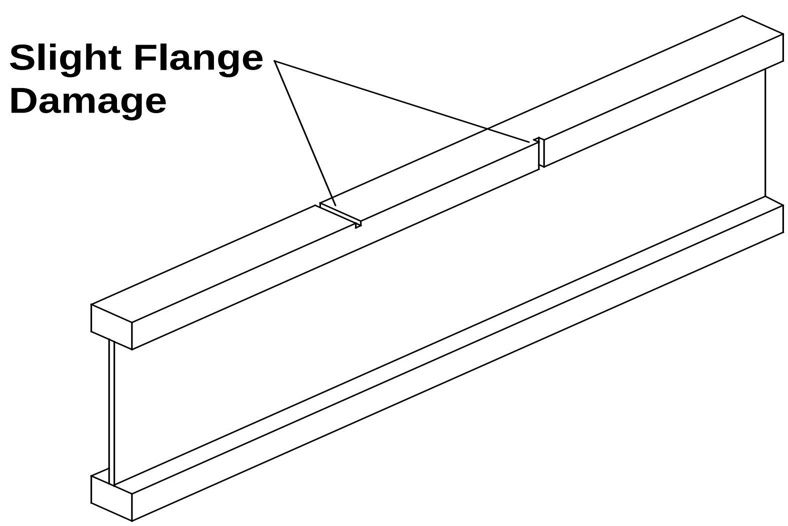
Minor Cuts / Crushing of Boise I-Joist Flanges

Saw cuts are unfortunately a common occurrence in wood construction. Cutting or drilling of BCI/AJS joist flanges is not allowed for any condition except for birdsmouth cuts for roof joists. However, relatively small cuts or crushing (e.g.: from being banded for shipment) in the flanges does not significantly reduce the allowable design values of Boise I-joists. Thus, the following table shall be referenced for allowable depth cuts, holes or crushing for corresponding BCI/AJS series joists. If the intrusion is less than or equal to depth shown, no repair or reinforcement is required. As shown below, the table refers to slight damage both on the top and into the side of the flanges.

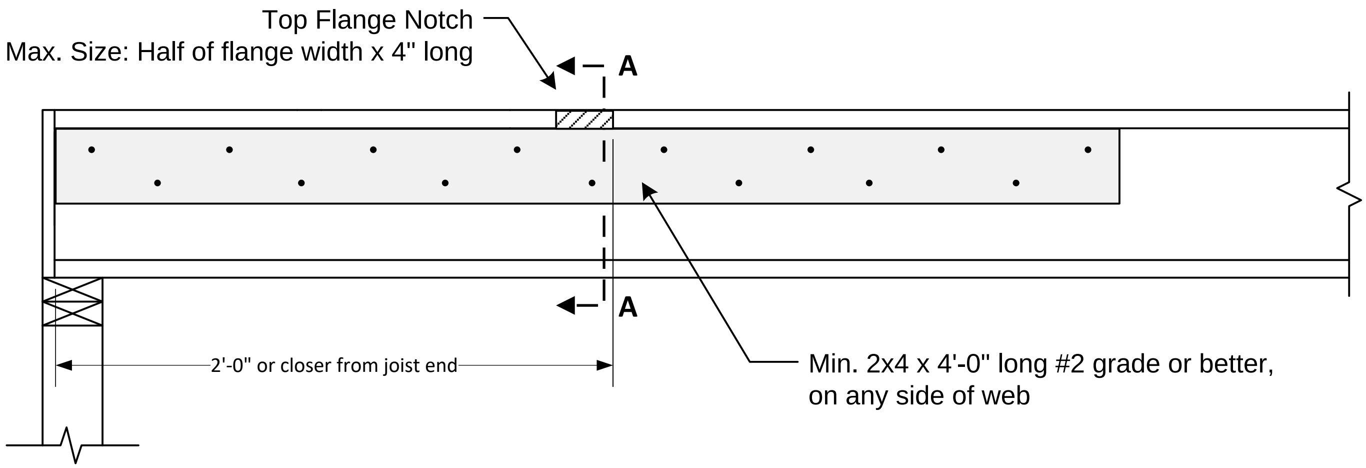
Boise I-Joist Series	Max. Allowed Depth
BCI 40, 450, 5000	1/8"
AJS 140, 20; BCI 60, 600, 6000, 6500	3/16"
AJS 25; BCI 90	1/4"

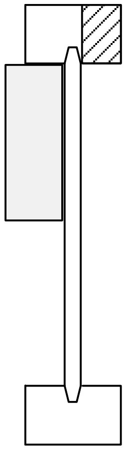


Maximum number of cuts per joist: 2
Minimum distance between cuts: 36"

If a cut or crushing exceeds the limits shown above, an engineering analysis is required.

BCI® & AJS® Joist – Half Notched Top Flange Near Bearing Repair



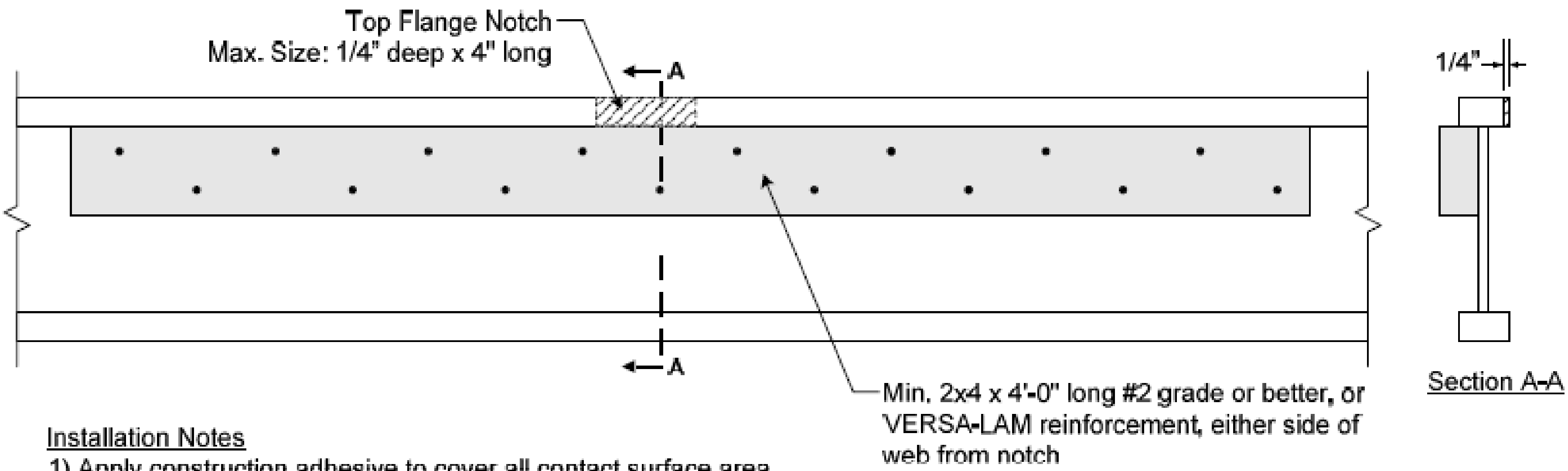


Section A-A

Installation Notes

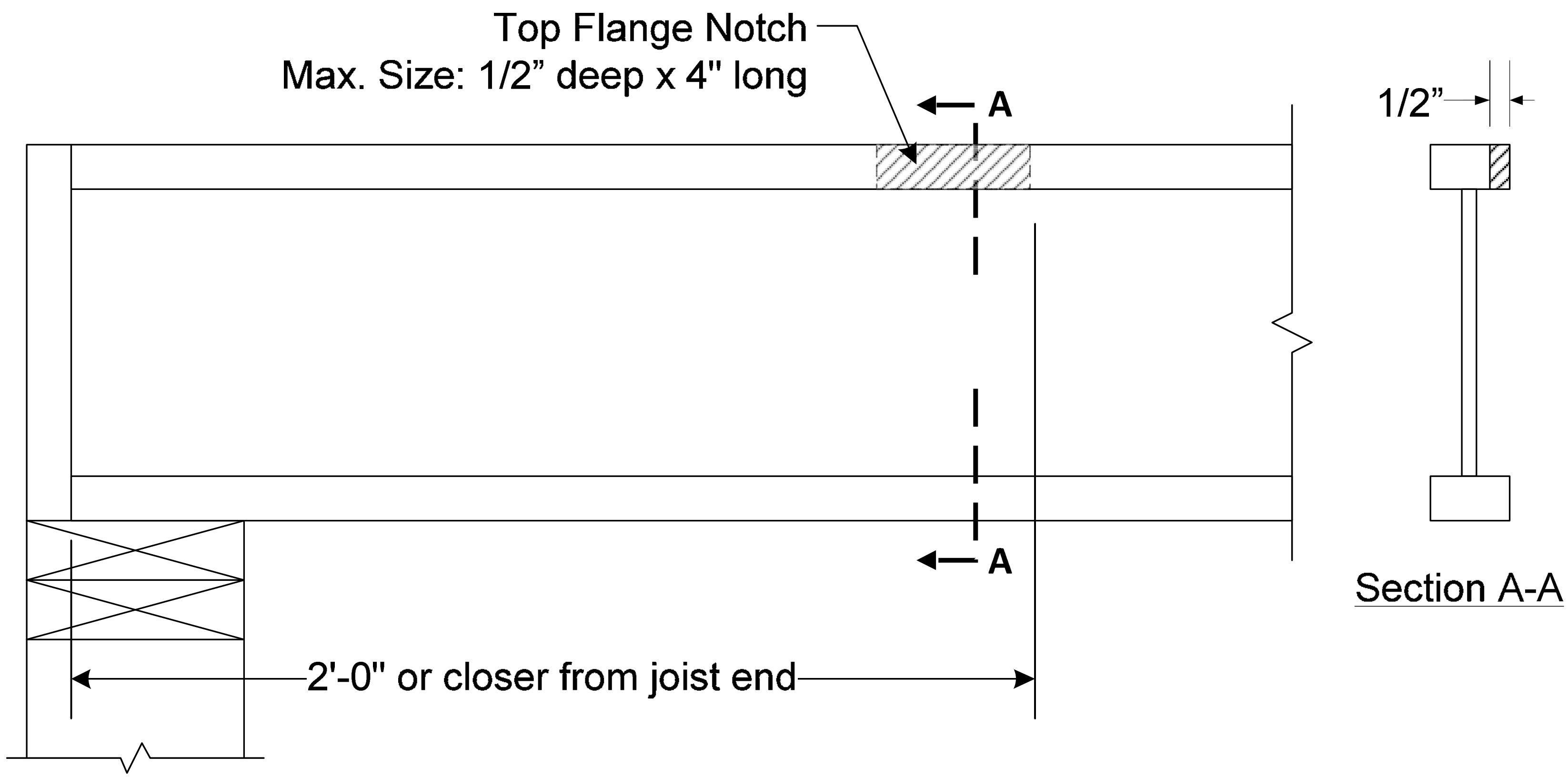
1) Apply construction adhesive to cover all contact surfaces area.
2) Install reinforcement tight to underside of top flange.
3) Nail reinforcement with Min. 2 rows 10d box nails @ 6" o.c., clinched or 2 rows #8 wood screws @ 6" o.c.
4) Repair valid only for uniformly loaded joists in residential structures.

BCI® & AJS® Joist Small Notch in Top Flange Repair



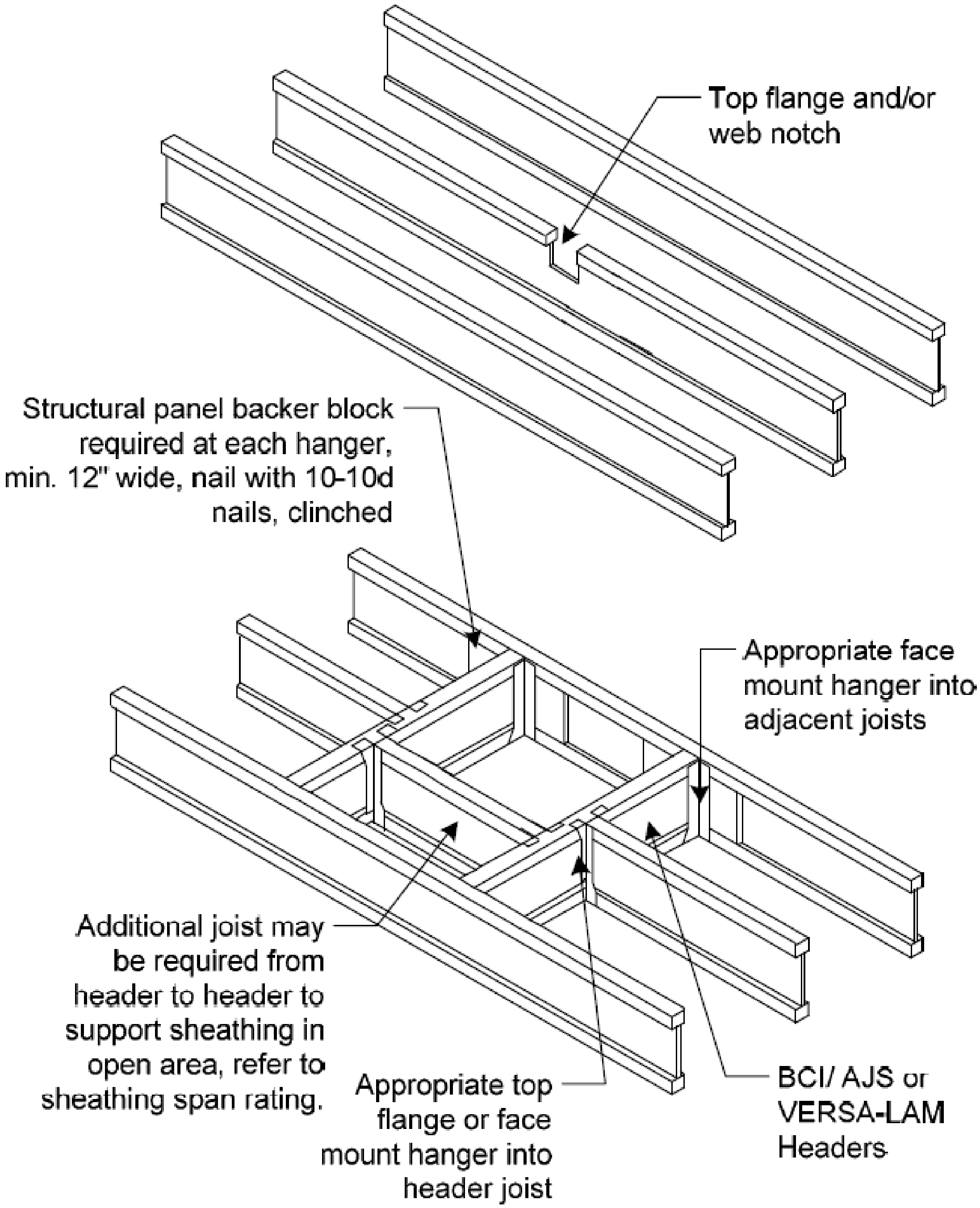
Installation Notes
1) Apply construction adhesive to cover all contact surface area.
2) Install reinforcement tight to underside of top flange.
3) Nail reinforcement with min. 2 rows 10d nails @ 6" o.c., clinched, or 2 rows #8 wood screws @ 6" o.c.
4) Repair valid for uniformly loaded joists only.

BCI® & AJS® Joist – 1/2” Deep Notch Top Flange Near Bearing



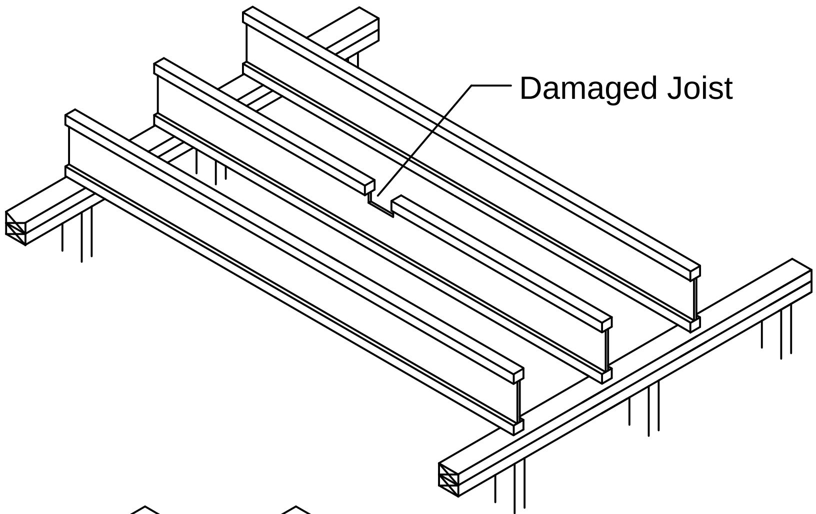
No reinforcement or repair required for the notched flange condition shown above.
Allowance valid for uniformly loaded joists only.

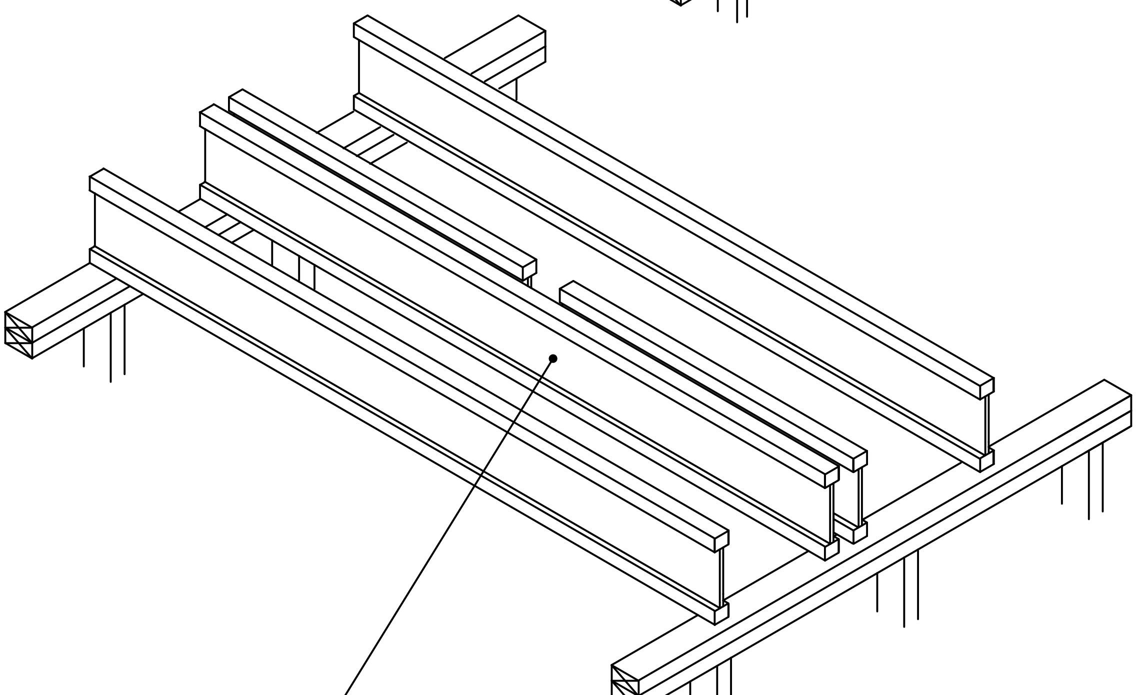
Headout Detail for Damaged BCI® or AJS® Joist



Note: Adjacent joists must be adequate to support additional load from damaged joist, analyze with BCCalc software.

New BCI® / AJS® Joist Installed for Damaged Joist

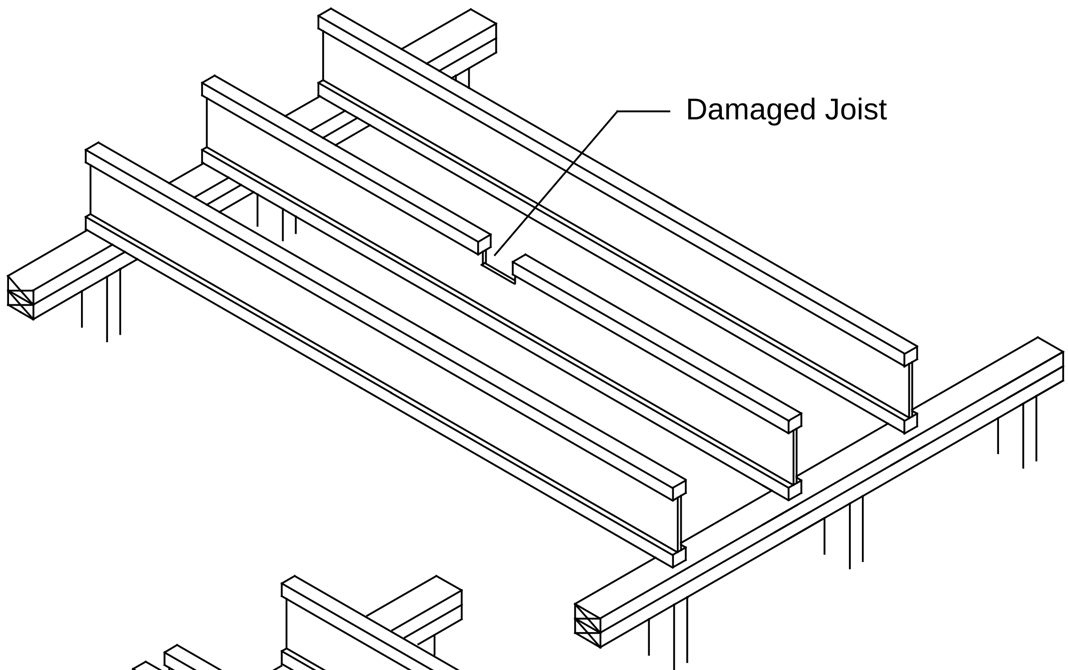


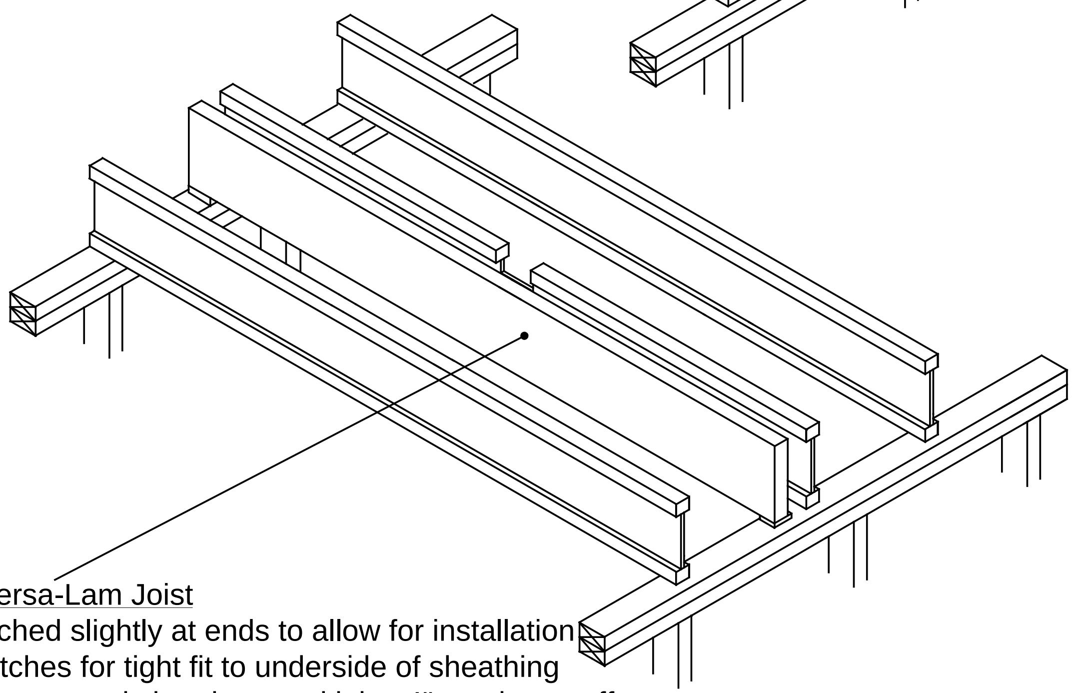


Additional BCI/AJS Joist

- Same depth and series as damaged joist.
- Install adjacent to existing damaged joist: 4" maximum offset.
- Install full span length, flush to top of joists (provide adequate bearing).
- Glue all contact surfaces with construction adhesive to minimize floor squeaks.
- Provide blocking between joists at bearings (not shown for clarity) or connect existing rimboard to new joist.
- Nail floor sheathing to new joist with floor diaphragm fastening schedule.

Versa-Lam® Installed for Damaged AJS® / BCI® Joist

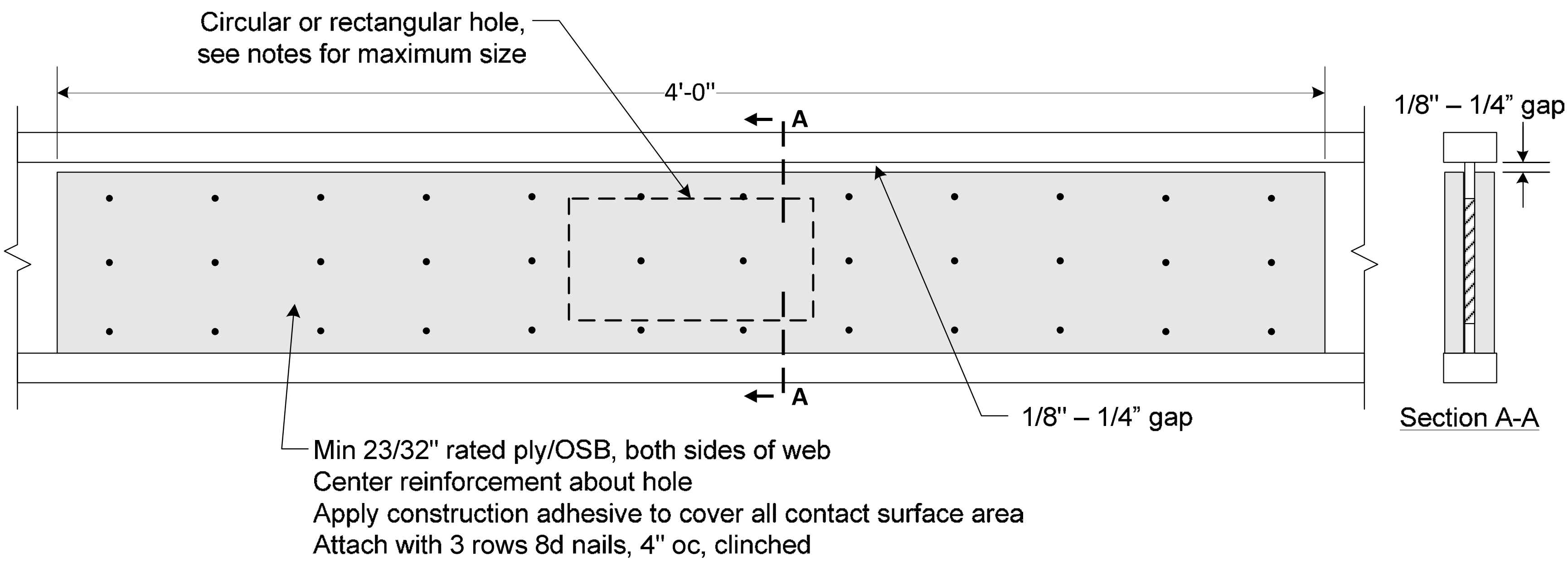




1 ½" or 1 ¾" Versa-Lam Joist

- May be notched slightly at ends to allow for installation
- Shim up notches for tight fit to underside of sheathing
- Install adjacent to existing damaged joist: 4" maximum offset
- Provide blocking between joists at bearings (not shown for clarity)
- Nail floor sheathing to Versa-Lam with floor diaphragm fastening schedule

AJS® & BCI® Joist Web Restoration Detail



Repair Detail Limitations

- Repair valid for uniformly loaded joists only.
- Holes to be repaired shall be no closer than 2'-0" from any end bearing support (repair OK for holes at intermediate supports): contact Boise Cascade EWP Engineering for repairs involving holes closer than 2'-0" to an end bearing support.
- Maximum Hole Sizes: For circular holes, the maximum diameter allowed per web depth. For rectangular holes:
  9 1/2" Joists: 6" x 16"; 11 7/8" Joists: 8" x 16"
  14" Joists: 10" x 16"; 16" Joists: 12" x 18"
- 18" & Deeper Joists: Contact Boise Cascade EWP Engineering for possible repairs.

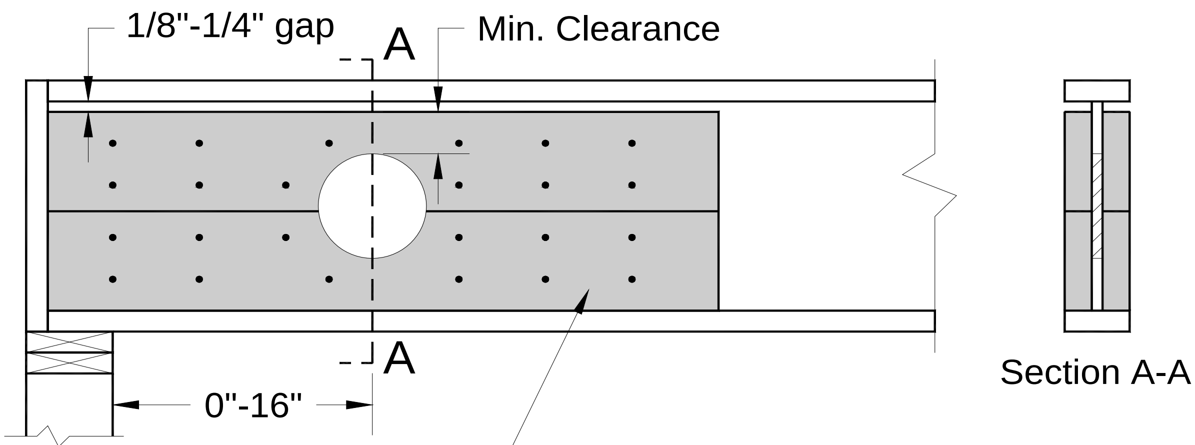
BCI® & AJS® Joist – Hole Close to End Bearing: Repair Detail

Minimum Clearance
(between either panel and hole edge)

Joist Depth	Min. Clearance
9 ½”	1”
11 7/8”	1 ¾”
14” & 16”	2 ¼”

Allowable Hole Size

Joist Depth	Hole Diameter
9 ½”-11 7/8”	4 ½”
14”	5 ½”
16”	6 ½”



Min. 23/32" x 36" rated Ply/OSB, both sides of web
Cut to fit around hole, face grain horizontal
Center splice about centerline of hole
Apply construction adhesive to cover all contact surface area
Attach with 4 rows of 8d nails, 6" o.c., clinched, 2 rows in each panel

Reinforcement as specified above restores original allowable shear/reaction value.
Repair valid only for end bearing conditions.

BCI® & AJS® Joist – Hole Close to Intermediate Bearing: Repair Detail

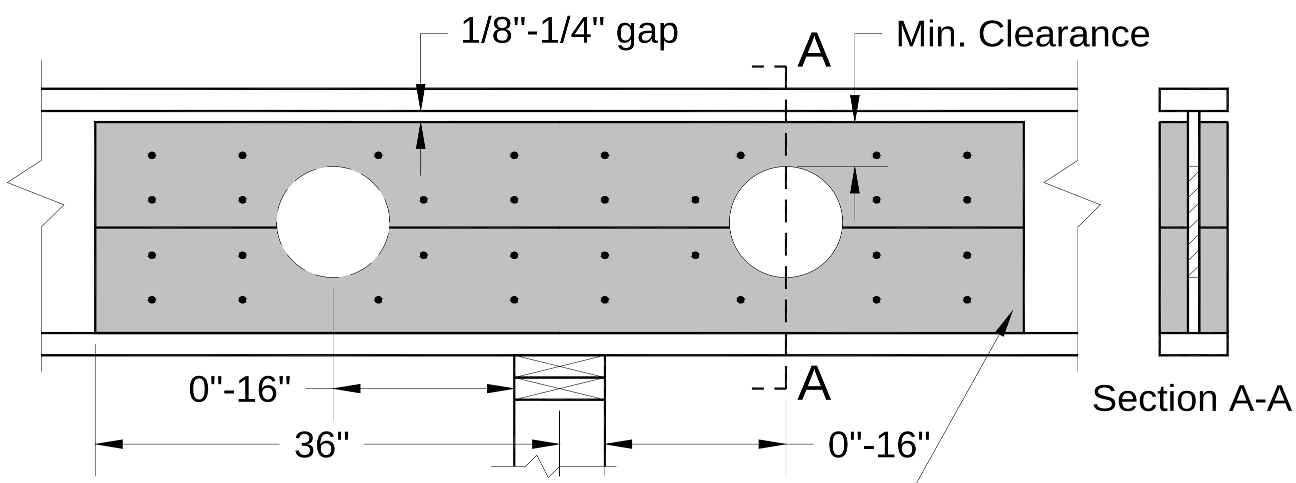
NOTE: - Hole could be on one side or on both sides of the bearing support.

Minimum Clearance
(between either panel and hole edge)

Joist Depth	Min. Clearance
9 ½”	1”
11 7/8”	1 ¾”
14” & 16”	2 ¼”

Allowable Hole Size

Joist Depth	Hole Diameter
9 ½”-11 7/8”	4 ½”
14”	5 ½”
16”	6 ½”



Min. $^{23}/_{32}$" x 72" rated Ply/OSB, both sides of web
Cut to fit around hole, face grain horizontal
Center splice about centerline of interior bearing support
Apply construction adhesive to cover all contact surface area
Attach with 4 rows of 8d nails, 6" o.c., clinched, 2 rows in each panel

Reinforcement as specified above restores original allowable shear/reaction value.
Repair valid only for intermediate bearing conditions.