

Reinforcement for NI-20 I-joists

The purpose of this technical note is to provide a reinforcement detail applicable to NI-20 I-joists in order to reach the NI-40x I-joists maximum floor spans applicable to residential construction. This technical note only applies if the following design criteria and reinforcement details are met.

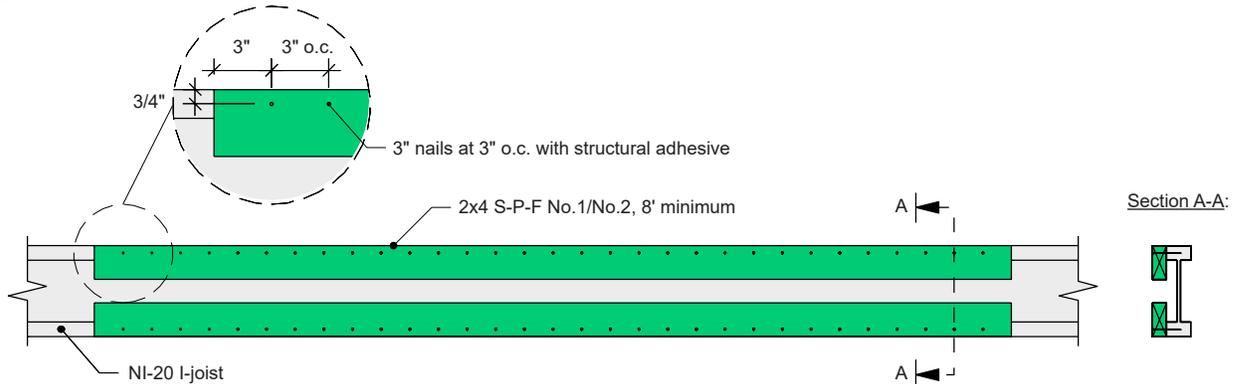
Design criteria:

1. Loads: maximum 40 psf live load and 35 psf dead load
2. Dry service conditions and standard-term duration of load
3. Deflections: $L/480$ under live load and $L/240$ under total load

Joist reinforcement details:

- a. Unload and/or level the floor using temporary intermediate adjustable posts.
- b. Use minimum 8-foot 2x4 S-P-F No.1/No.2 lumber pieces installed on top and bottom flanges according to option A or B, per Figure 1.
- c. For a simple span, center the pieces of lumber on the span, as shown in Figure 2.
- d. For a double span, center the pieces of lumber on each span and on the intermediate support, per Figure 3 (using two lumber pieces at each location).
No reinforcement is required for spans of 8 feet or less.
- e. Nail and glue with one row of 3-inch common nails spaced at 3 inches on centre and structural adhesive. The minimum spacings shall be as follows: edge distance of $3/4$ inch and end distance of 3 inches, per Figure 1.

Option A: Reinforcements on one side



Option B: Reinforcements on both sides

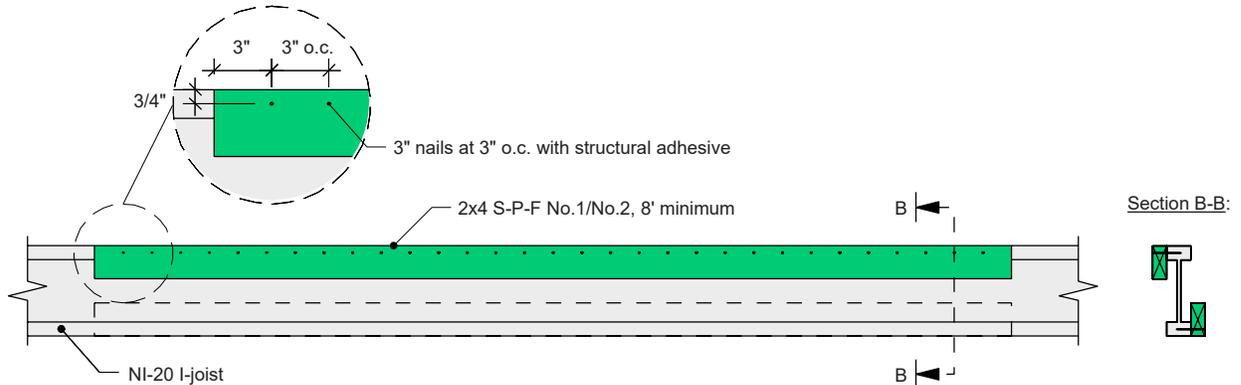
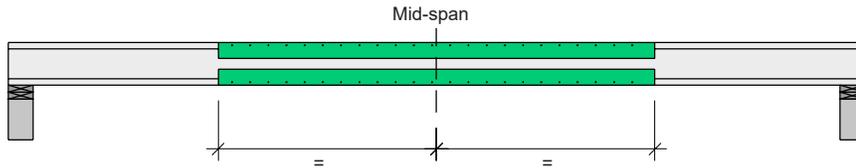


Figure 1. Reinforced NI-20 I-joist details

Option A: Reinforcements on one side



Option B: Reinforcements on both sides

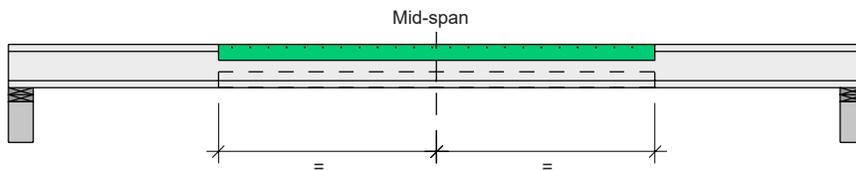
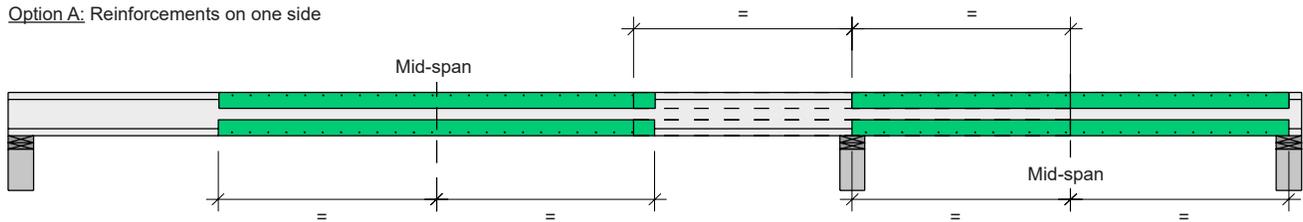


Figure 2. Reinforced NI-20 I-joist in simple span – See Figure 1 for details

Option A: Reinforcements on one side



Option B: Reinforcements on both sides

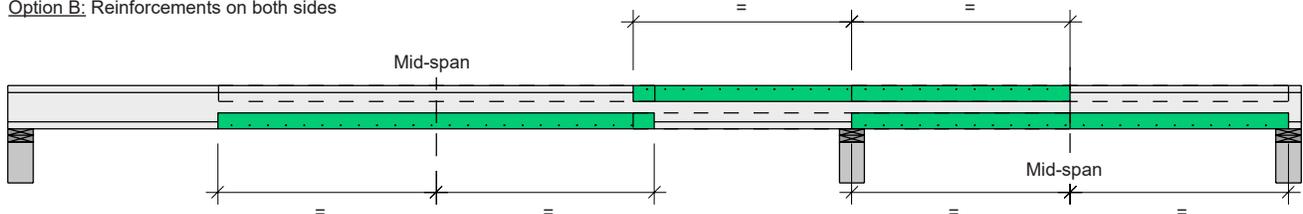


Figure 3. Reinforced NI-20 I-joist in multiple span – See Figure 1 for details