

Building Department Plan Review and Construction Inspections

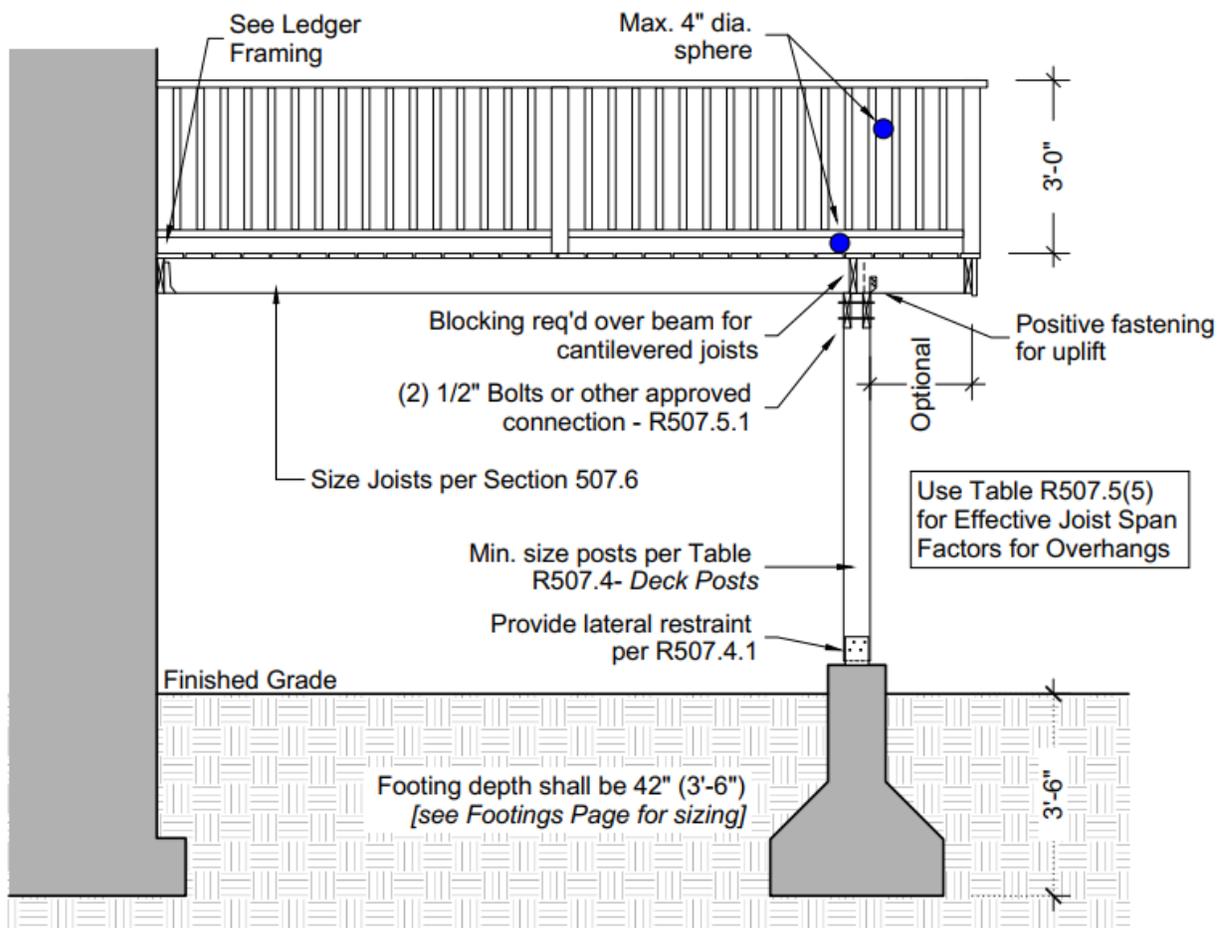
The building department will review your plans for Code conformance prior to issuing a Building Permit in order to avoid unnecessary problems. Please do not make revisions to the plans after they have been approved, unless you submit revised plans for review. Once you have a permit and start construction, there will be a minimum of, but not limited to, (3) inspections that will be required:

1. Footing Inspection (After hole is dug and forms are in place, but prior to any concrete)
2. Rough Framing Inspection
3. Final Inspection

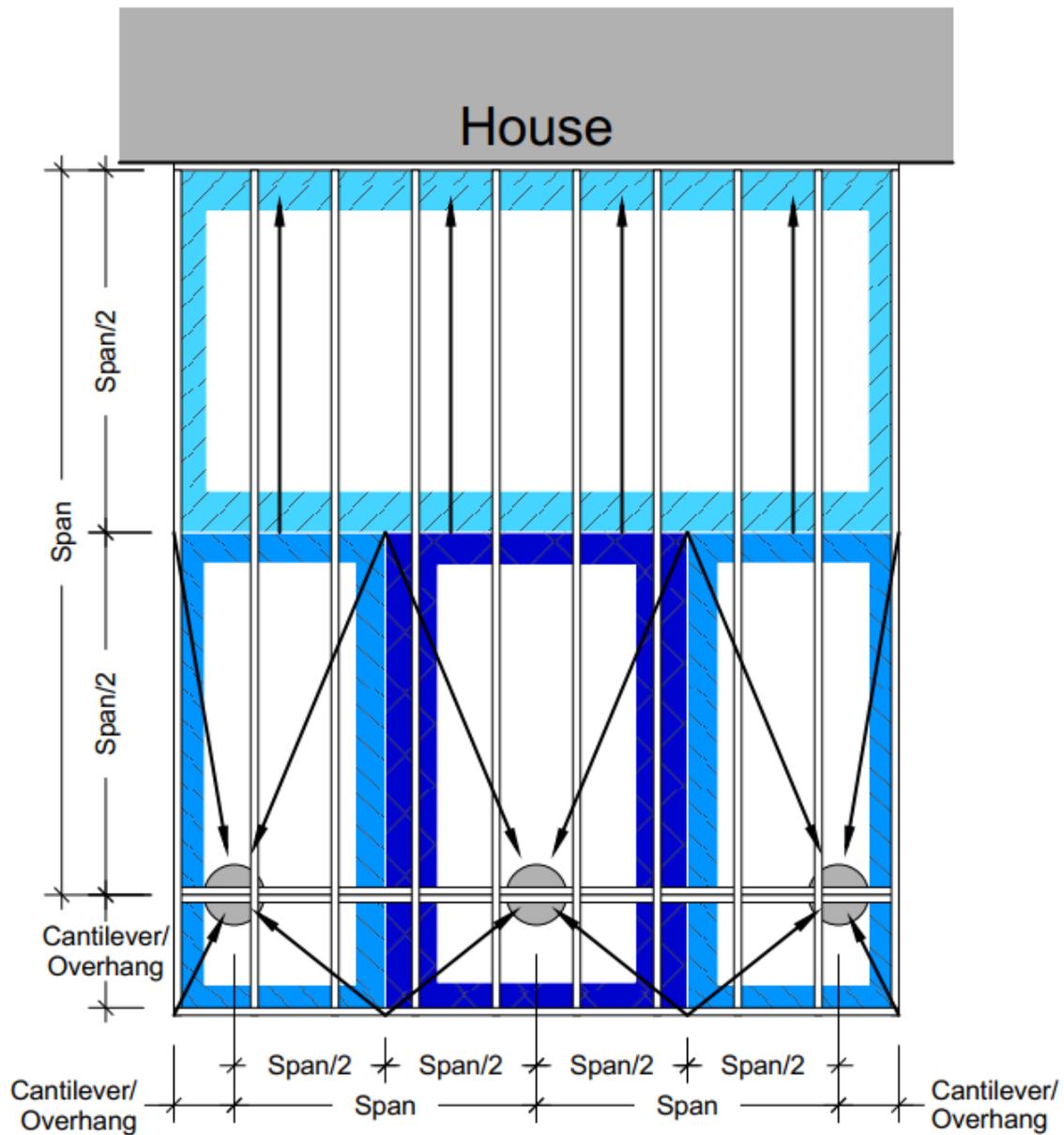
Please Note: The permit holder is responsible for scheduling all inspections. The Building Department does not keep track of how quickly Work is being performed.

Drawings for Review

Section



Plan



Deck Materials

Per Section R507.2.1 *Wood Materials* – lumber shall be No. 2 grade or better and preservative treated, or an approved naturally durable lumber. Wood that is intended to be buried needs to be rated for ground contact.

Field cuts in preservative treated lumber need to be treated per Section R317.1.1.



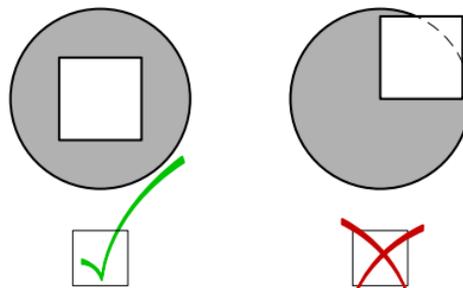
Metal fasteners, brackets or hangers need to be rated for outside use, common materials include hot-dipped or zinc-coated galvanized. Stainless steel is an alternative and is also required for brackets and fasteners intended to be buried.

Footings

If you plan on attaching your deck to your house and/or your deck is larger than 200 Square Feet in area, your footings will need to be frost protected by exceeding the frost depth or being pinned to ledge. The depth of frost protected footings is 42”.

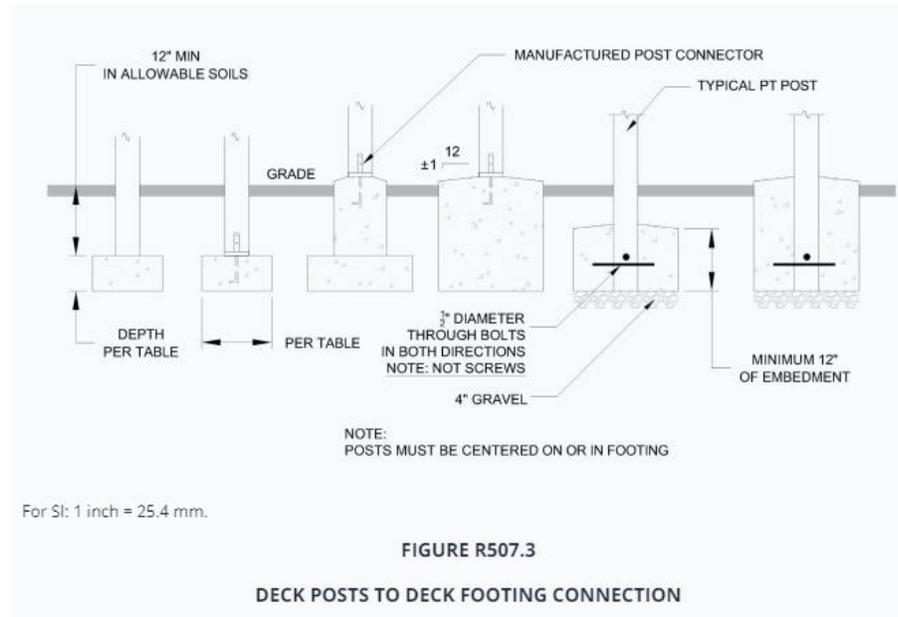
Depending on your design and structural layout you may require multiple footings. However, all footings are not created equal. Depending on the structural design, some footings may feel more weight applied than the others. This needs to translate to the ground in a stable way without settling. Without a soil test, the soil in Norwich is considered to hold 1500 pounds per square foot. This means that the base of your footing needs to be sized to so that the compressive force of the footing is not greater than that of the ground. For larger loads, larger footprints may be necessary.

Footings also need to be placed in such a way as to fully support the wooden posts that rest on them. This will keep footings from wanting to shift due to uneven loading as well as utilize the full area of the wood surface to successfully translate loads to the ground.



Deck Framing - Posts

Posts need to be installed with a means of resisting lateral forces at the top and bottom. At the bottom, they may be incased in concrete or soil, as long as the timber is rated for ground contact. Conversely, the posts may rest atop the footings above grade. In this case you will need to install a manufactured post base.

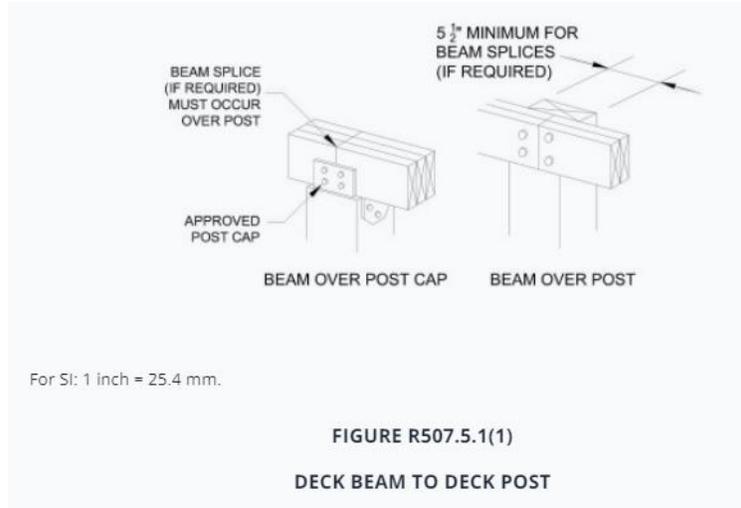


Manufactured Post Base

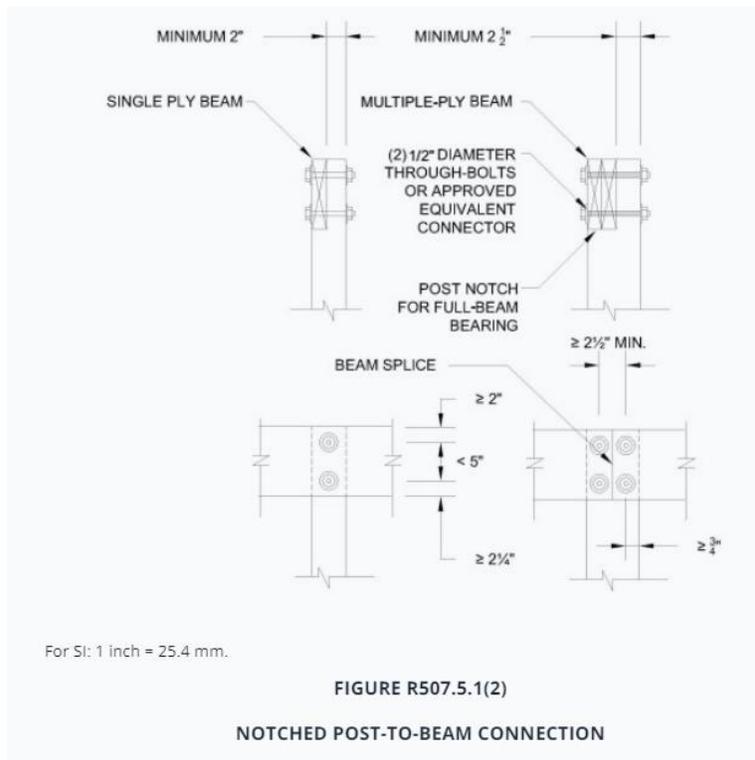
Posts also need to carry beams. There are two ways this can happen.

1. Use a manufactured bracket to make the connection.
2. You can notch the post to achieve full bearing of the beam on the post, while allowing the post to slide up on the side of the beam to bolt the two members together.

Decks Handout - 2023
1&2 Family Residences or Townhouses



Notching the post will require compliance with the following diagram from the 2022 CTIBC.





Single Piece Bracket



Two-part Bracket

Deck Framing – Joists & Beams

Joist and beam spans and spacing shall conform to the span tables in Section R507.5(1).

Joists or beams framed flush will need to be supported by the use of joist/beam hangers.



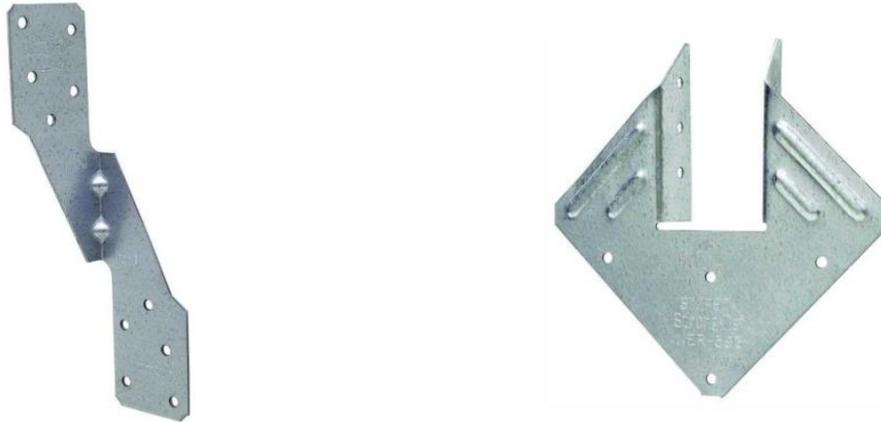
Normal Joist Hanger



Concealed Flange Hanger

Joists stacked atop Beams require solid blocking not less than 60% of the joist depth to keep them from tipping, per section R507.6.2.

Joists are also required to have positive fastening to the beam or beams.

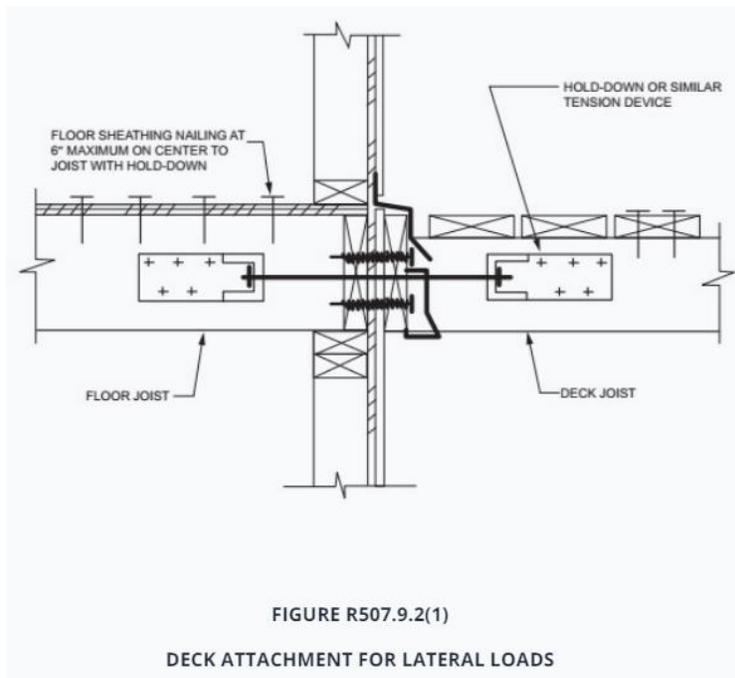


Examples of Positive Fastening

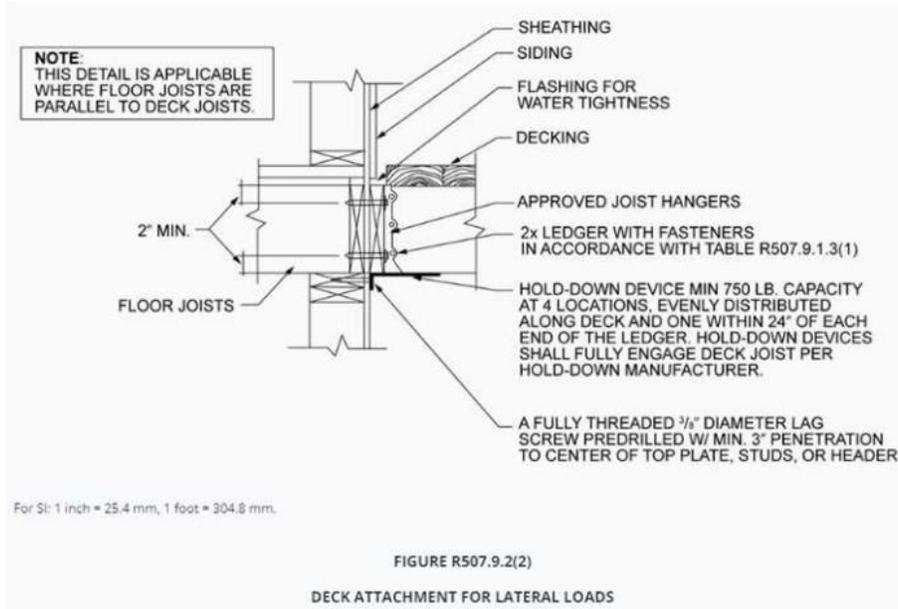
Splicing of beams - Per Figure R507.5.1(1), beam Splices, if needed, are required by the Code to happen over a post or other support. Each ply of the beam must have a minimum of 1 ½" bearing.

Lateral Connection

Decks need additional lateral anchorage to the structure at the ledger board in one of two ways. Either you can use a tension device with a capacity of 1,500lbs within 24" of each end of the deck, or use a tension device with a capacity of 750lbs in four locations per deck. Please see the respective diagrams.



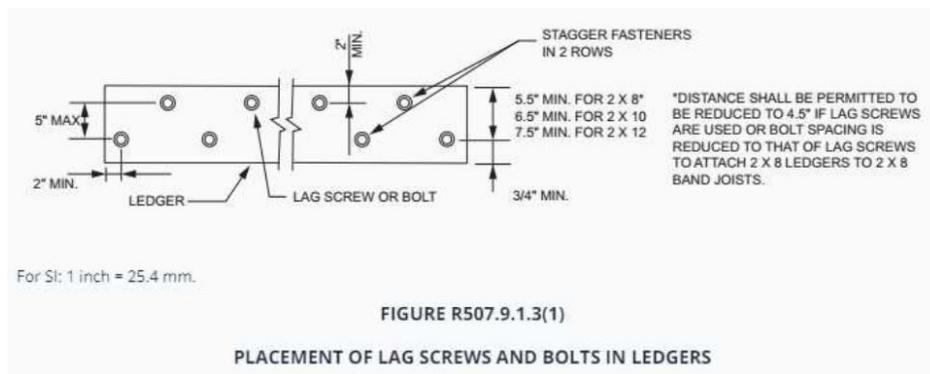
Tension device of 1,500lbs capacity

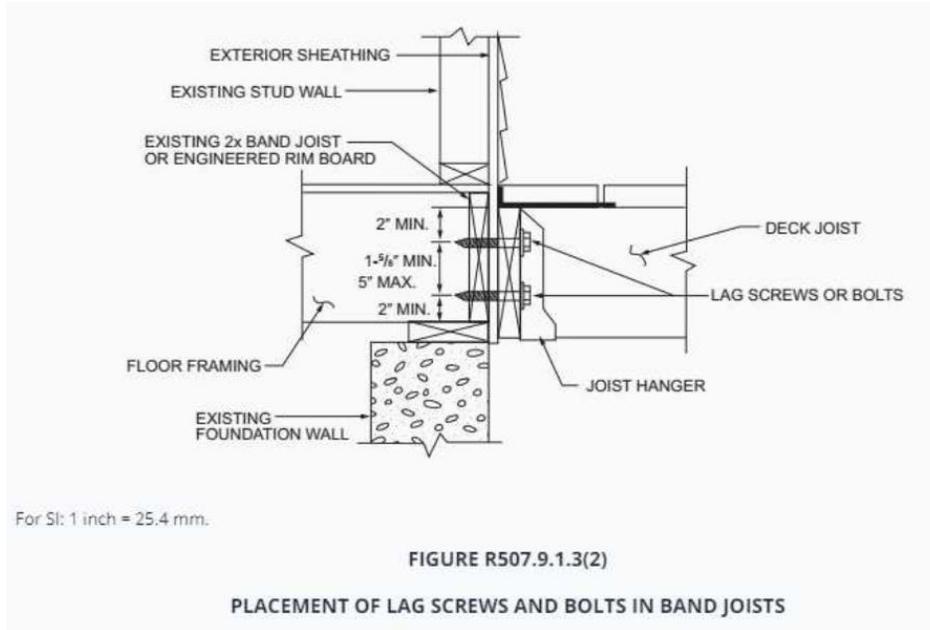


Tension Device of 750lbs Capacity

Ledger Boards

Attachment to the house is done using ledger boards. They are typically the same dimension as the joists you plan to use and are attached to the house using approved bolts or screws. Per the 2022 CTIRC, the prescriptive method is to use either lag screws with washers or through bolts with washers. The ledger boards need to be attached to the interior rim board of your floor framing and flashed into the siding to prevent water getting behind the ledger creating water problems.





Bolts/Screws to be used:



Lag Screws



Other screws

You may use the prescriptive method in the 2022 CTIBC of lag screws to install your ledger (please see the diagrams on the previous page), or you can use other timber screws, however, you will need to provide us with that manufacturer's table of loading conditions. Depending on joist spans and loads, the number of screws, and their spacing, may vary.

Flashing

Ledgers need to be flashed into the siding to keep water from weeping into the siding and creating an environment for rotting to take place. The flashing shall be corrosion-resistant metal, 0.019" (0.48mm) or an *approved* nonmetallic material that is compatible with the substrate of the structure and the decking materials. [R507.2.4]

Deck Boards

Deck boards can be either wood or a composite material. Spacing of joists for composite materials shall be per the Manufacturer's specifications. Wood deck boards need to comply with Section R507.7 and Table R507.7.

Wood deck boards shall be attached to each supporting member with not less than two 8d threaded nails or two No.8 wood screws. [R507.7] Composite deck boards shall be installed per the manufacturer's specifications.

TABLE R507.7
MAXIMUM JOIST SPACING FOR WOOD DECKING

DECKING MATERIAL TYPE AND NOMINAL SIZE	DECKING PERPENDICULAR TO JOIST		DECKING DIAGONAL TO JOIST ^a	
	Single span ^c	Multiple span ^c	Single span ^c	Multiple span ^c
	Maximum on-center joist spacing (inches)			
1 ¹ / ₄ -inch-thick wood ^b	12	16	8	12
2-inch-thick wood	24	24	18	24

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 degree = 0.01745 rad.

a. Maximum angle of 45 degrees from perpendicular for wood deck boards.

b. Other maximum span provided by an accredited lumber grading or inspection agency also allowed.

c. Individual wood deck boards supported by two joists shall be considered single span and three or more joists shall be considered multiple span.

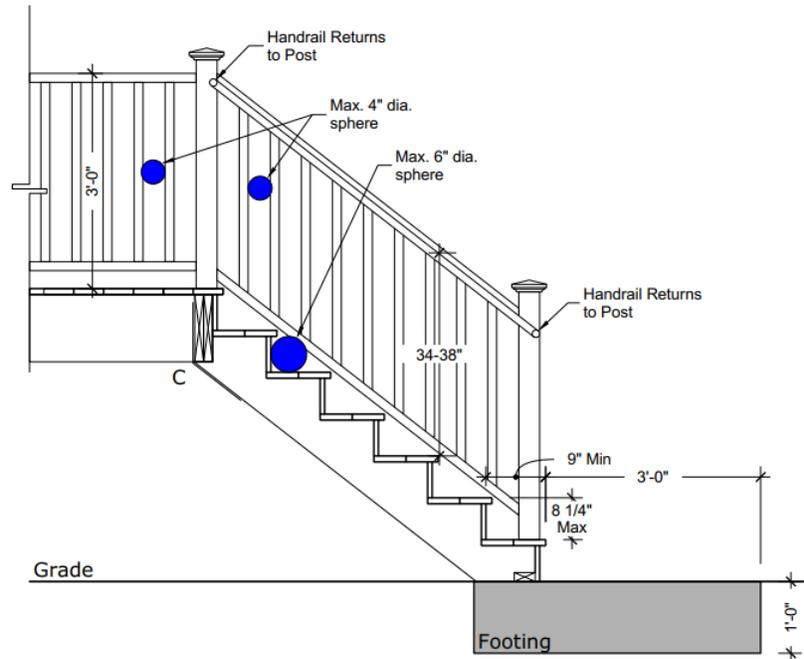
Stairs

Stairs need to have a maximum riser height of 8 ¼" and a minimum tread depth of 9".

Stairs with over (3) risers are required to have a handrail between 34" & 38" in height.

Handrails shall return into a post or other surface above the top and bottom nosing.

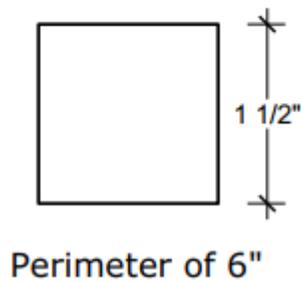
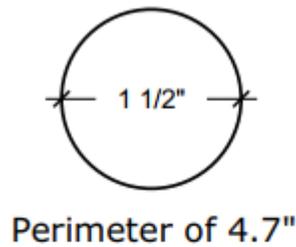
Additionally, if a stair serves as part of an egress route, there needs to be a landing of durable material at the bottom that is no less than 36" in depth. The footing of the stairs can be extended to also be this landing, but will need to be 12" in depth to conform as an acceptable footing.



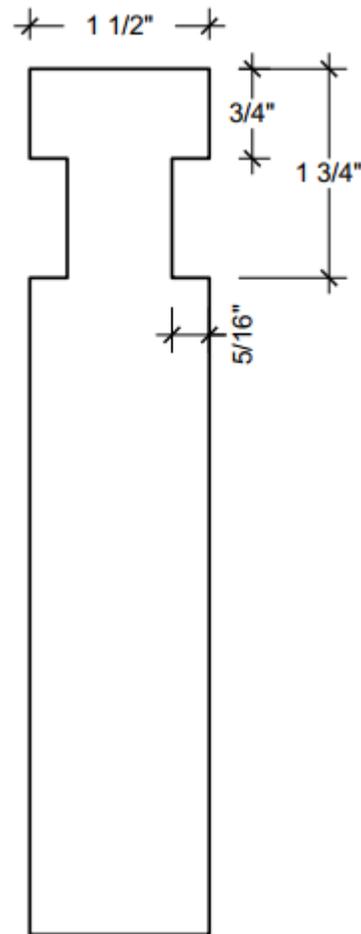
Handrails

Handrails on stairs shall be at a height of 34-38" from a diagonal line that connects the leading edge of each tread and need to be graspable complying with the 2022 CTIRC Section R311.7.8.5 Grip Size (please see the handrail profiles on the next page).

Please note: Many manufacturers produce rails that are intended ONLY for the top rail of a guard and NOT suitable for a graspable handrail. Make sure to review the manufacturer's specifications prior to installation.



Type I Handrail



Type II Handrail

Guards and Fall Protection

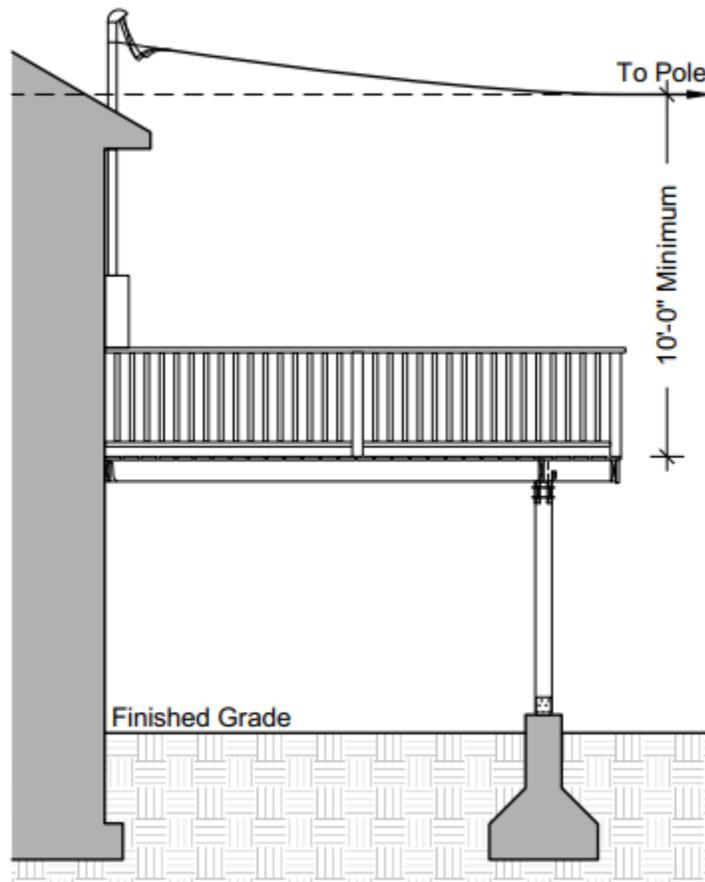
Decks in excess of 30" above grade at any point, and the stairs serving them, shall be provided with fall protection that is 36" (min) in height. This guard shall be 36" (minimum) in height and not allow the passage of a 4" diameter through any portion. Guards required on stairs are allowed to increase that diameter to 6" only in the triangle created by the bottom of the guard, the tread and riser.

Horizontal balusters used shall not be used to create a ladder that children can climb and become endangered.

Clearances to Electrical Service Lines

Special attention needs to be paid to electrical service lines and the amount of space below them to avoid potential accidental contact and electrocution.

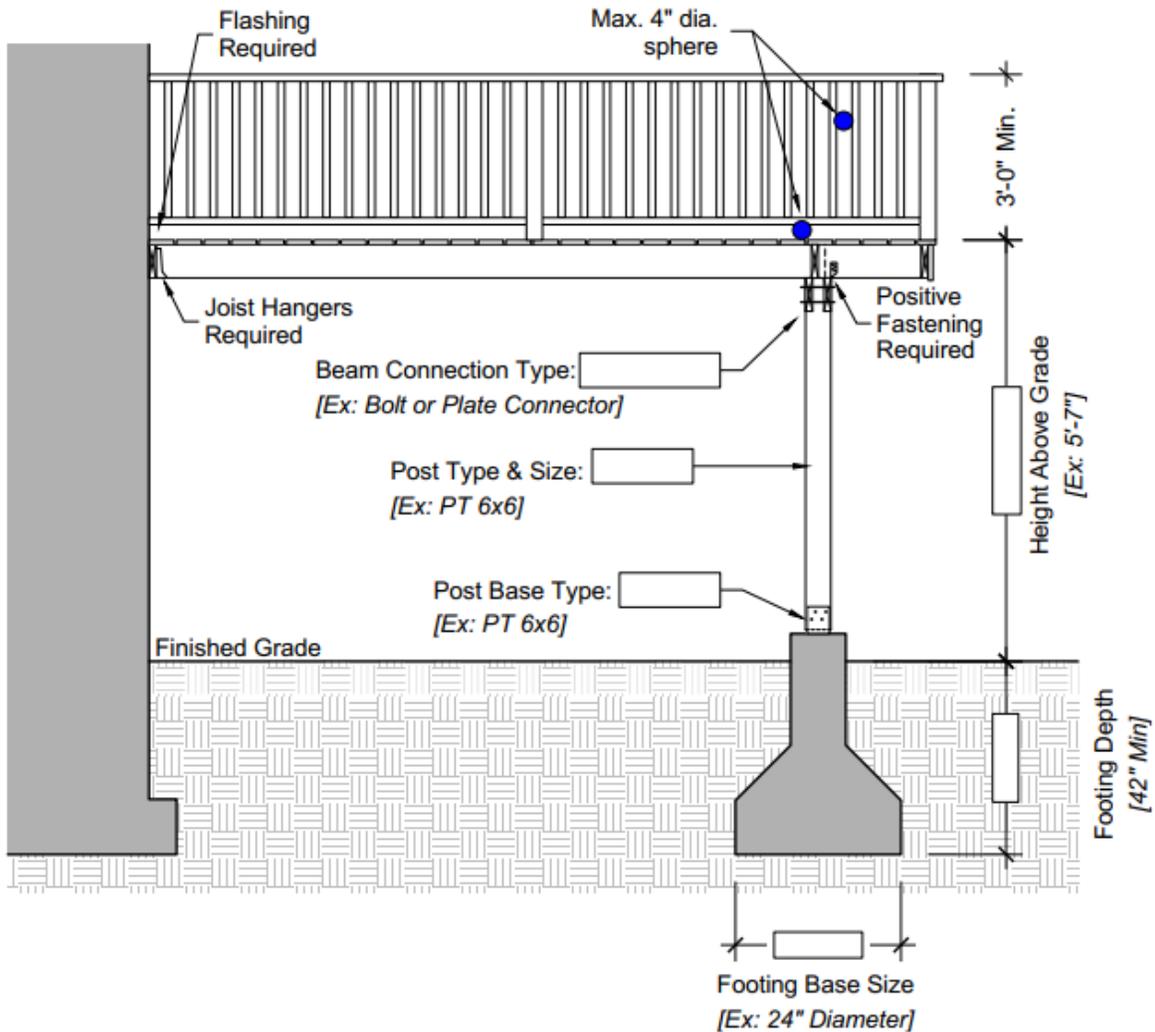
Per the 2020 NFPA 70 portion of the 2022 CT IRC, no point of the electrical service, including the loop at the weather head, shall be within 10'-0" vertically or 36" horizontally from the edges.



Service Cable Clearance Requirements

Design Aids

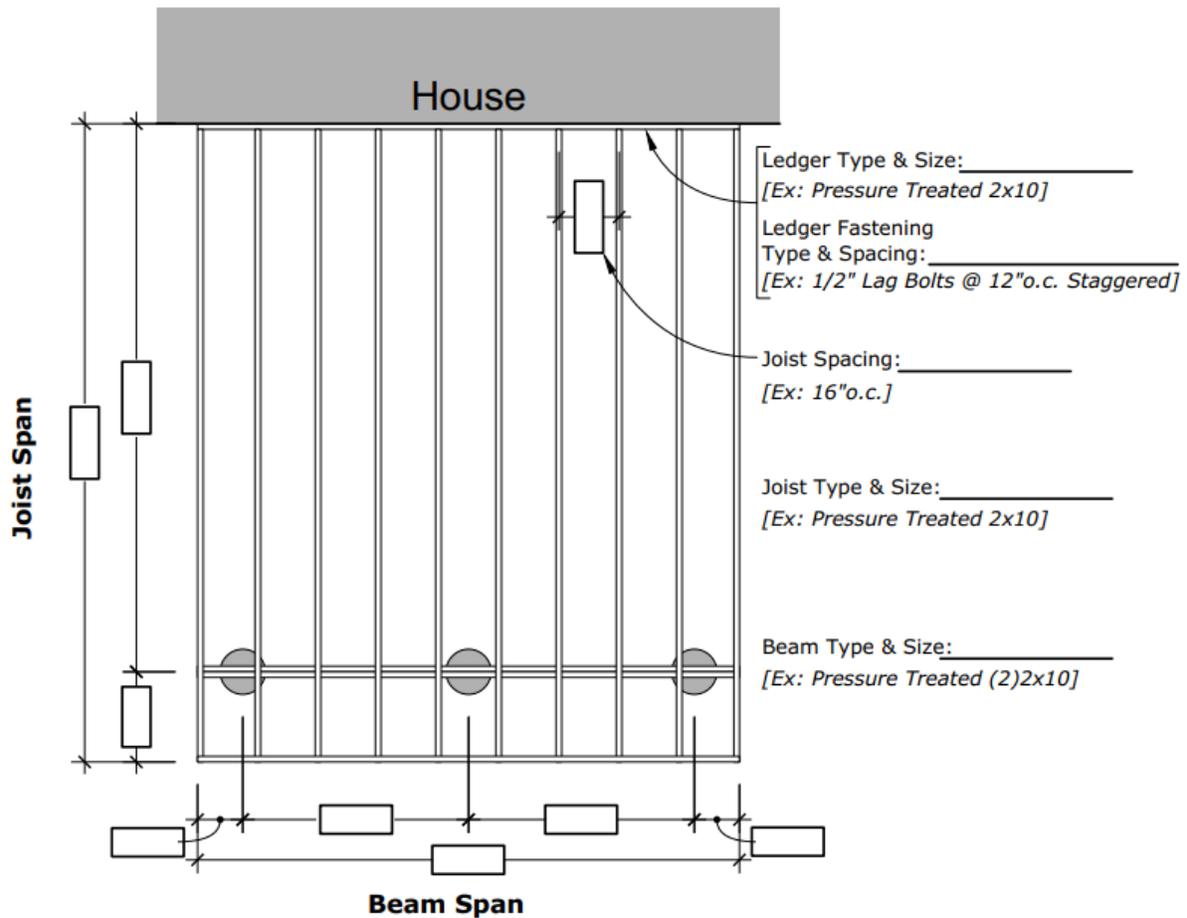
Section/Elevation



Head height under decks over grade level entrances serving habitable space shall be 7'-0"
[R305.1] Head height under decks over egress windows shall be 3'-0" (min.) [R310.2.4].

The above plan is only a design aid and your conditions may vary. Please draw you specific conditions to scale on a sheet of graph paper where each square equals 1'-0".

Plan



The above plan is only a design aid and your conditions may vary. Please draw your specific conditions to scale on a sheet of graph paper where each square equals 1'-0".

General Notes:

- This packet is intended for use to prepare an application for a Building Department plan review. This is only general information and is not intended to address all possible conditions.
- Additional information can be obtained at the Norwich Building Department or at www.norwichct.org
- Based on 2021 International Residential Code (IRC) portion of the 2022 CT State Building Code
- Images of manufactured products are for examples only and should not be construed as a promotion of any one product or brand.