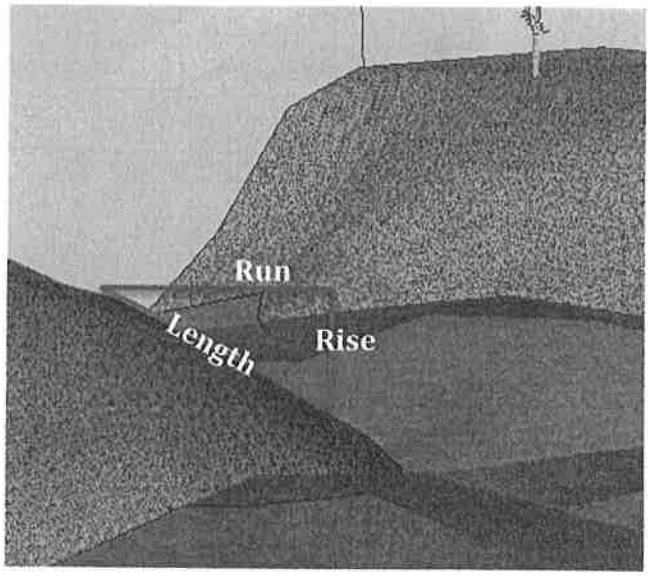
NFCT Removeable Steps

Revised 3/2022

Typically the steps are built out of 3"x8" rough cut cedar, often sourced from Goodridge Lumber in Albany, VT. Treads are a minimum of 3' wide. A 5' wide step is preferred for launching boats, although larger staircases can be more unwieldy to install and remove.

1) Measurements
Calculate ladder **length**, total **rise** and **run** using line level, measuring tape, measuring stick

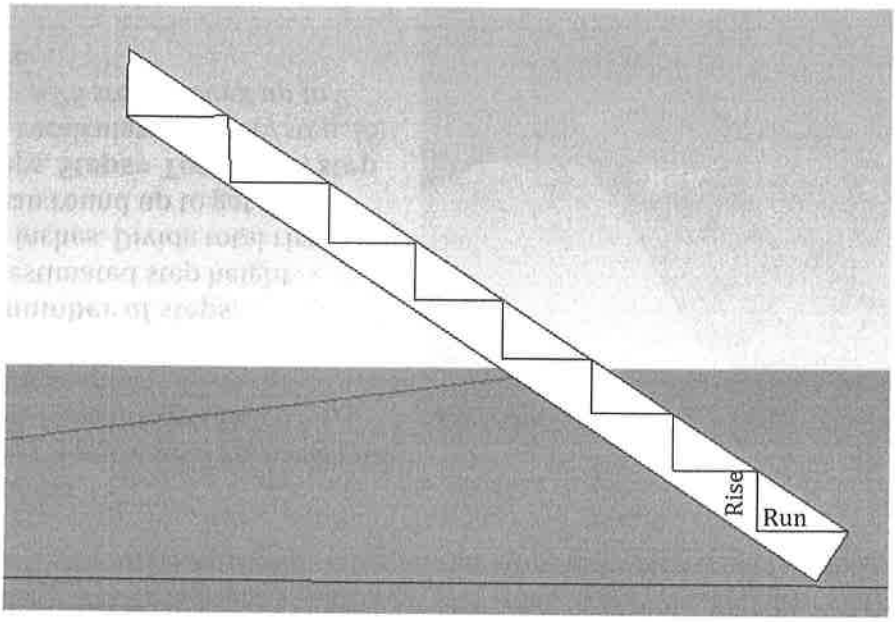


2) **Calculate number of steps:**
Start with an estimated step height (between 6-9 inches. Divide total rise by this height, than round up to get the number of steps. **Steps= Total Rise/step height.** Then, recalculate the rise/step. *IE: Rise:54. 54/8 = 6.75 steps. Round up to 7. 54/7=7.7"/step.*

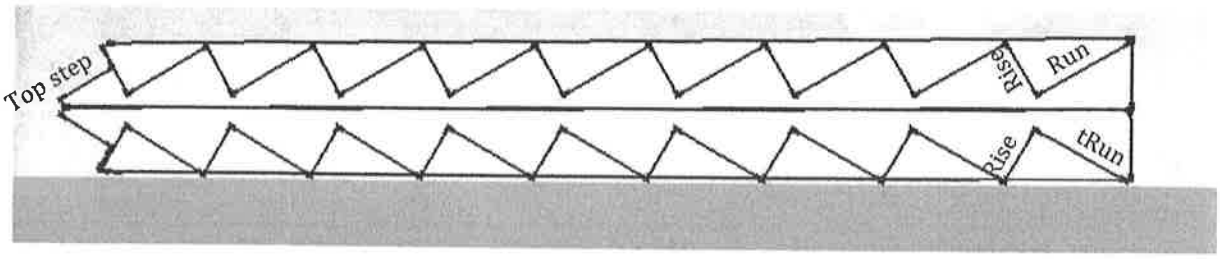
3) Calculate step width:
Width= Run/step
Step width should be between 12 and 18 inches

4) Draw out steps

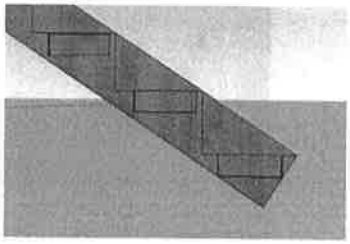
Use carpenter square to draw rise and run per step (ie. 16 inches out, 8 inches up) on the 3x8 stringer, starting from the lower "corner". (The stringer below this settles in the river bottom sediments).



Draw steps on second stringer so they mirror each other exactly.



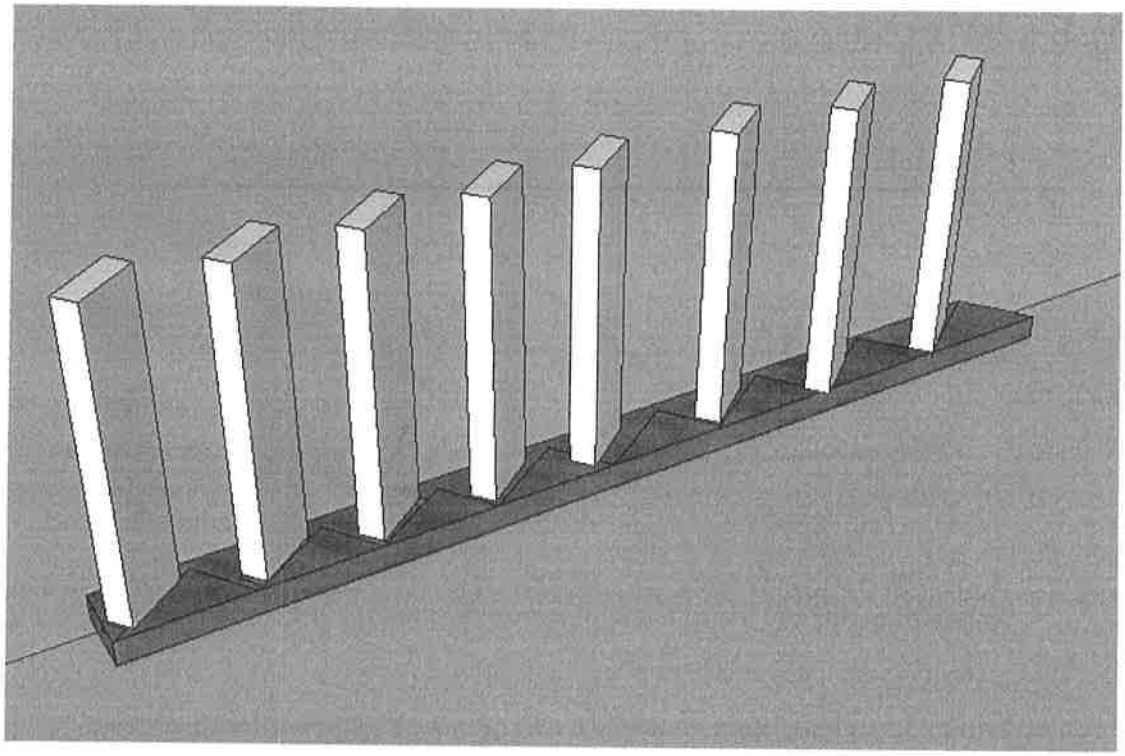
5. Make a block out of wood of the same cut as the treads. Use this to trace the locatons of the notches for everything but the top step. Be consistent with the locations of the notches (i.e. on the line, but one inch in from the edge). Note: rough cut lumber varies – measure each piece of lumber before deciding what block – or blocks – to use for tracing.



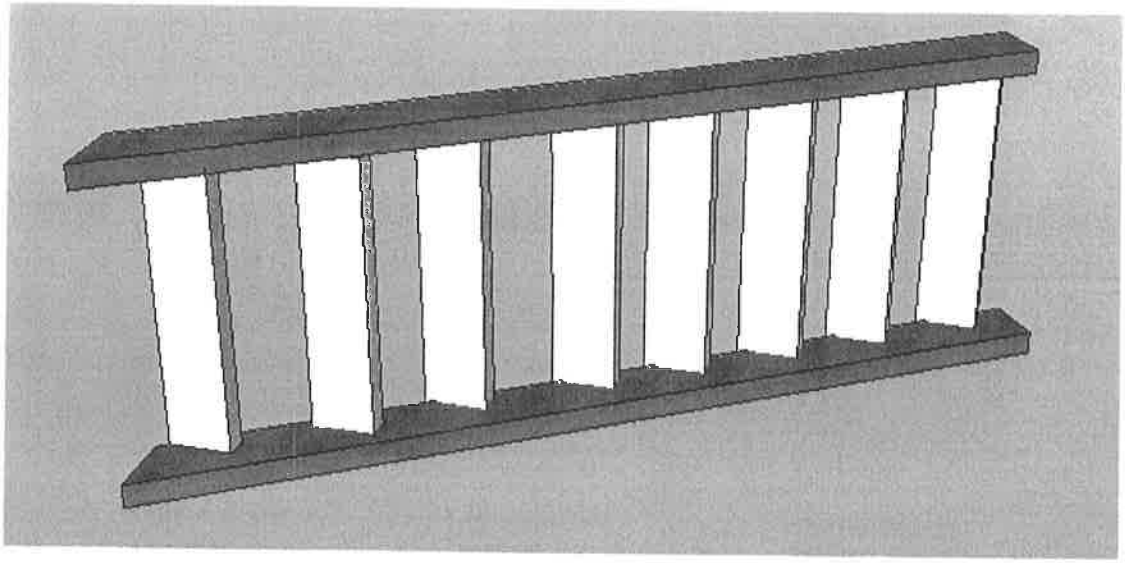
7.. **Cut the treads to length.** These cuts are important. Each tread must be the same length and cut square. Typically we make the treads 3' wide. The top tread needs to be at least 4" wider as it spans both stringers.

8. Predrill two 3/8"holes in each notch for the galvanized lag bolts (3x8"x6").

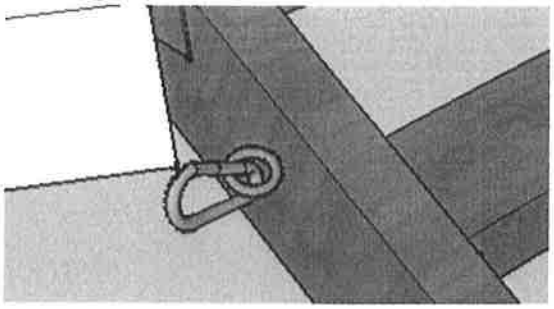
9. Lay a stringer on the ground. Put all the treads in place, ser in the notches.



10. Place the second stringer on top. Working your way from one side to the next, ensure the treads are set in the notches. Affix the lag bolts and washers using an impact drill driver and a mallet. Flip the ladder over and repeat for the other side. The ladder is ready to install!



10. Affix eyebolts at the top and bottom of the stringers, on both sides. For long staircases, an additional set makes sense in the middle.

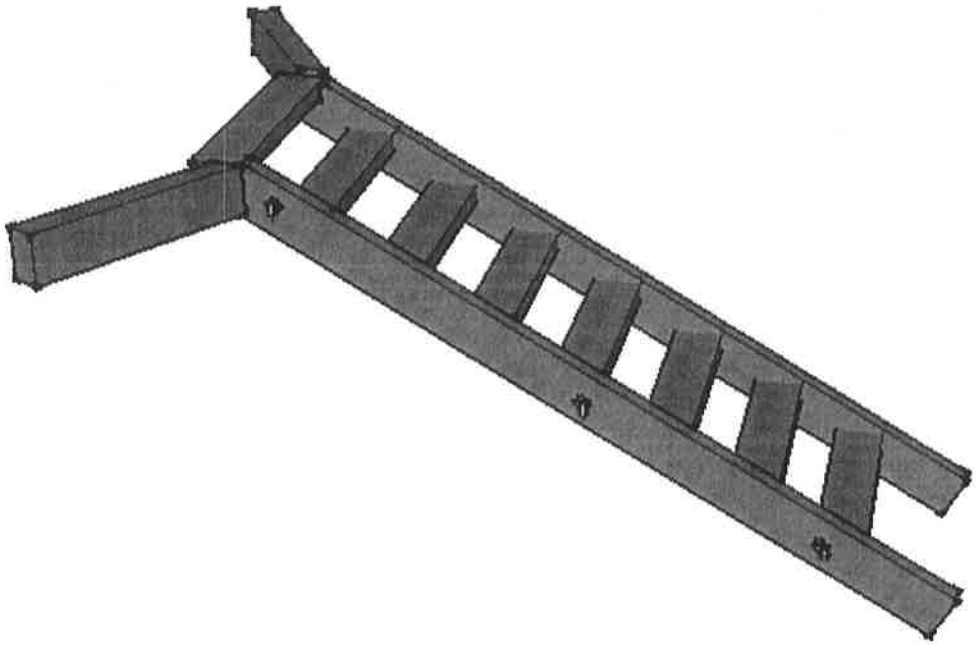


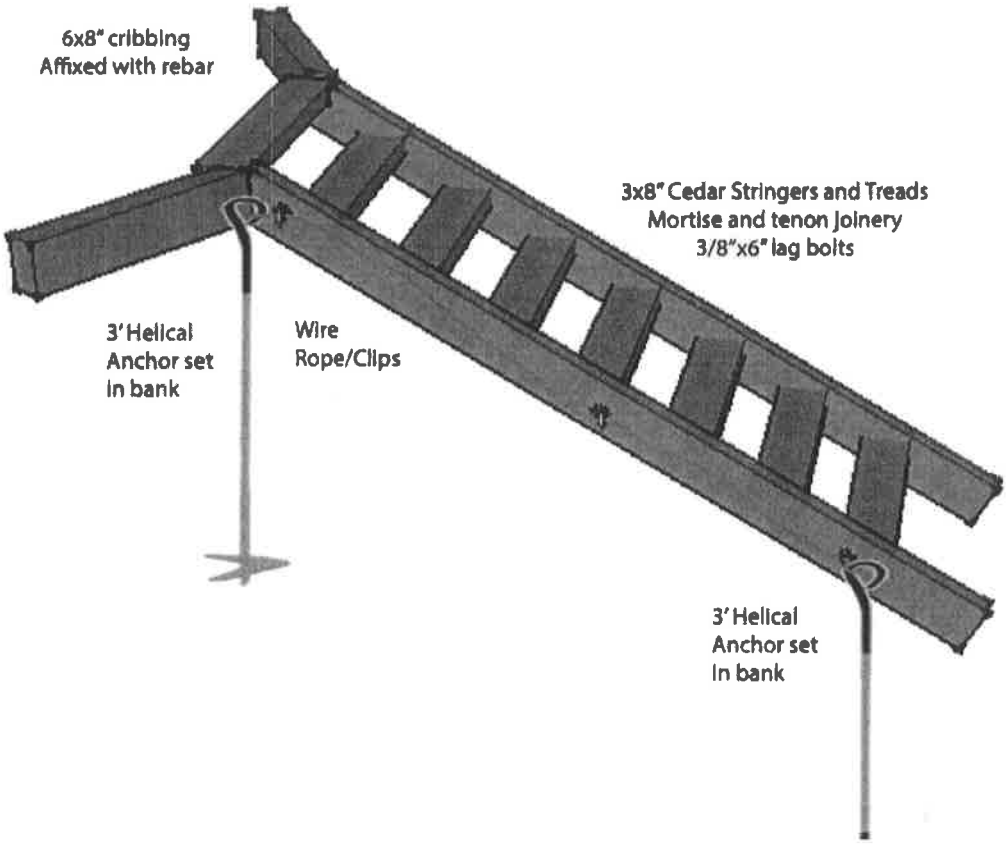
11. Position the ladder into place on the bank. Shape the bank as necessary to insure stable positioning.

12. Screw in helical anchors using a bar. We typically use ½" x 30" galvanized earth anchors purchased from milspec.com. The anchors should be located near the top and bottom of the ladder, above and below eyebolts, and set perpendicular to the bank.

In rocky soils, we sometimes use a rock drill and concrete adhesive to anchor eyebolts to riprap rock set in the bank. In situations where the ladder may be installed or removed at highwater, we run 3/16" galvanized or stainless steep wire rope between the helical anchors. We clip the ladder into this wire, Otherwise, we secure the steps to the anchors with shackles.

13. Often we affix top cribbing "wings "of ~6x8 cedar anchored in place with rebar, backfilled with soil or gravel. (These wings are independent of the steps)




6x8" cribbing
Affixed with rebar
3x8" Cedar Stringers and Treads
Mortise and tenon joinery
3/8"x6" lag bolts
3' Helical
Anchor set
in bank
Wire
Rope/Clips
3' Helical
Anchor set
in bank