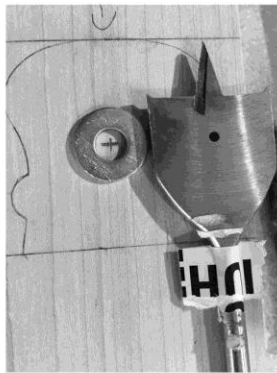


# Install a Rail Bolt



**1. On your post, mark where you want the final position of your rail to be. In this example, it will be 2 1/4" from the top of the post. Also, mark the centre point of the rail outline. This will be where your rail bolt connects to the rail once it's anchored to the post**

**2. On a 1/4" drill bit, mark with tape the depth of the lags on the bolt, minus roughly one rotation, or 1/8". If the hole is too deep, the bolt will not stop spinning in when you go to screw it in.**



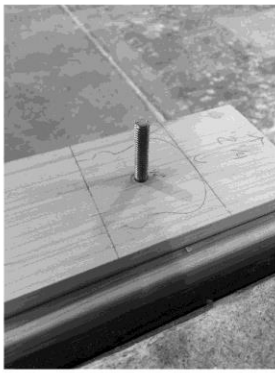
**Tip: Mark with tape on a 1 1/2" spade bit, the depth allowed for the bit to be drilled from the bottom of the rail. When you go to drill the rail from the bottom, you want to have enough depth to allow the rail bolt's washer to sit properly, but not to drill too deep so as to poke the top of the rail**

**3. Drill hole down to the tape marker**



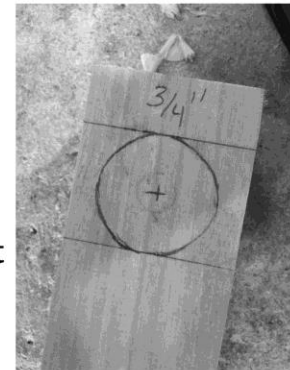
# Install a Rail Bolt

**4. Lock nut the rail bolt on the threaded side and using a ratchet or wrench, screw the rail bolt into the hole to the proper depth. Do not over fasten; screw until tight**



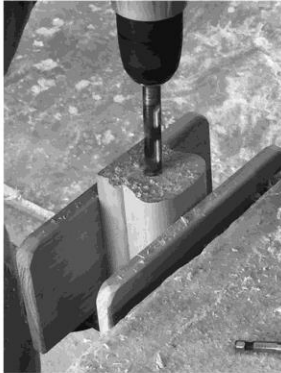
**The rail bolt is now secured to the post**

**5. Mark where the centre point of your taped spade bit will go on the bottom side of your rail, as well as the centre point of the rail from the end that will be attached to the post**



**6. Begin to drill your 1 1/2" hole on the bottom of your rail down to your tape marker. Ensure the drill bit is drilling as straight as possible with minimal lateral vibration**

# Install a Rail Bolt



**7. With a 3/8" drill bit, drill into the marked centre point from the end of the rail until the two holes intersect**

**8. Secure nut and washer from under the rail using the 1 1/2" hole to ensure everything lines up correctly**



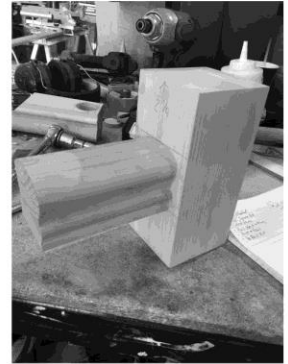
**9. When satisfied, apply wood glue to the end of the rail, and resecure the nut and washer, tightening as much as the wood type will allow. Wipe away excess wood glue**

**10. Dry fit the 1 1/2" plug to ensure proper sizing. When satisfied, apply wood glue to the outside of the plug and secure. Wipe away excess wood glue**



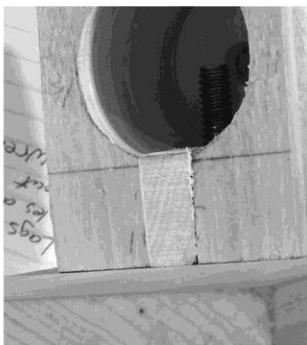
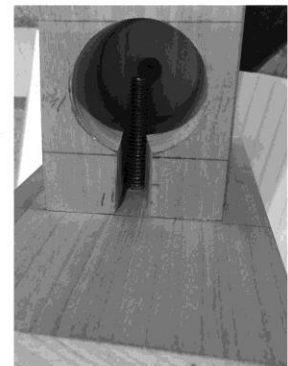
# Install a Rail Bolt

**This is what the final result should look like**



**Tip: To dry fit the rail, we need to make it removable from from the rail bolt. We do this by notching an angled gap where the two holes would intersect. Using a table saw, make two angled cuts in the shape of a V from the bottom of the rail**

**The tapered gap should now allow you to attach and remove the rail as needed through this slot. Try to keep the opening no larger than 1/2", but this is not crucial**



**Using a 1/2" piece of fillet, or some other material, make a tapered wedge to glue into this slot, and glue your plug after as described above**