



Handrail Installation Standards

June 2024

Southern Staircase Handrail Installation Standards

Southern Staircase takes pride in the quality of the products it produces, and therefore we set **Standards for Quality**. We expect all employees and subcontractors to follow these standards regardless of what other stair companies **or** the market may feel is acceptable. We insist on this quality, because our reputation is at stake.

All subcontractors that work on our jobs will conduct themselves in the same professional manner as Southern Staircase employees. At no time will they inform our customers that they are subcontractors. These **Standards** must be followed without exception.

Installation Specifications

Newels

- All newels and half newels will be installed using construction adhesive or wood glue and necessary anchors (lag screws, rail bolts, #10 wood screws) to ensure newels are structurally sound. **No nails are allowed to secure newels.** (See Newel fastening detail).
- All of the wood balusters around the volute should be dowel screwed.
- The **Standard** for metal newels is to mortise them 3" deep with epoxy or use the metal newel bracket from House of Forgings.
- Metal newels *can* be installed using a 3" x 3" wooden block with four wood screws at opposite corners. The newel block will have a cap with a hole in the center cut to match the newel, i. e. round hole; round newel, square hole; square newel, pin nailed to the newel block. This is optional and should be noted on the Installation Sheet.
- The grain on newels and newel caps should run parallel to the handrail.
- Angled balcony corner newels should be angled so that the rail on both sides will require one cut.

Handrails

- Per code, all rake rails need to be installed between 34" and 38" off the nose of the tread to the top of the rail. **34 ½" rake rail height is the standard.**
- Per code, all balcony rails need to be installed at a minimum of 36" off the landing tread or finish floor to the top of the rail. **40" balcony height is our standard.**
- All fittings attached to handrail will be glued with wood glue and secured with rail bolts.
- All connections made square to newels or half newels will be rail bolted, screwed with a #10 wood screw or lag screwed through newel face in a recessed hole and covered with a wood plug.
- All connections made to pin top newels will be glued with wood glue around dowel at top of newel and clamped until glue is set. **At no time will trim**

screws or nails be used through the side face of handrail, volutes, goosenecks, or any other fittings. Screws are acceptable only when used in a recessed hole and covered with a wood plug.

The only times a connection can be made through the top of the handrail is when a rake rail runs into a half newel, full newel, short wall or through the top of a mitered goose neck. This connection can be made with screws and covered with a wood plug. 90 degree up easing must be used on the volute on any inside radius curved stair. They must also be used on the gooseneck on any outside radius curved stair.

Balusters

- **Per code**, balusters on balconies will be installed with less than 4" between them at any point. All straight stairs must have at least 2 balusters per tread. Curved stairs require 2 balusters per tread on the inside radius and three to four per tread on the outside radius.
- **Taper top balusters** should be installed using wood glue around the dowel at the bottom and nailed at the top with one 1-1/2" nail toe nailed into the rail.
- **Square top balusters** should be installed using wood glue around the dowel at the bottom and toe-nailed into the rail. ***Fillet nailed in the center with at least two pin nails.***
- **Dowel screws** should be used in the bottom of balusters to strengthen long runs of rail where newels are not being used. Any run of rail over 10' should have balusters dowel screwed in the center of the run at a rate of one dowel screw per 2' of rail (Example: 14' of rail should have 7 balusters dowel screwed in the center of the run.)
- **Metal balusters** will be installed with epoxy, top and bottom, in a snug-fitting square hole at least 3/8" deep.
- **Balusters** on long runs of pitched wall cap should be screwed in through the face into wall cap at a rate of one screw per 2' of rail. (Example: 14' of rail should have 7 balusters screwed in the center of the run.)
- **Set screws** on balusters should be consistent:
 - Set screws should face the stair side when installed on a rake.
 - Set screws should face the living space side when installed on a balcony.
 - Set screws should face the newel when installed around a volute.

Landing tread

- All landing tread will be installed using construction adhesive and finish nails to secure to flooring.
- No more than 22.5 degree bevel at landing tread joints.

These are the standards and **should be followed at all times**, however there will be exceptions where the installer will need to make minor adjustments.

All employees are responsible for keeping a **safe job site, cleaning their job sites** when the job is complete, and **returning any extra parts** to Southern Staircase.

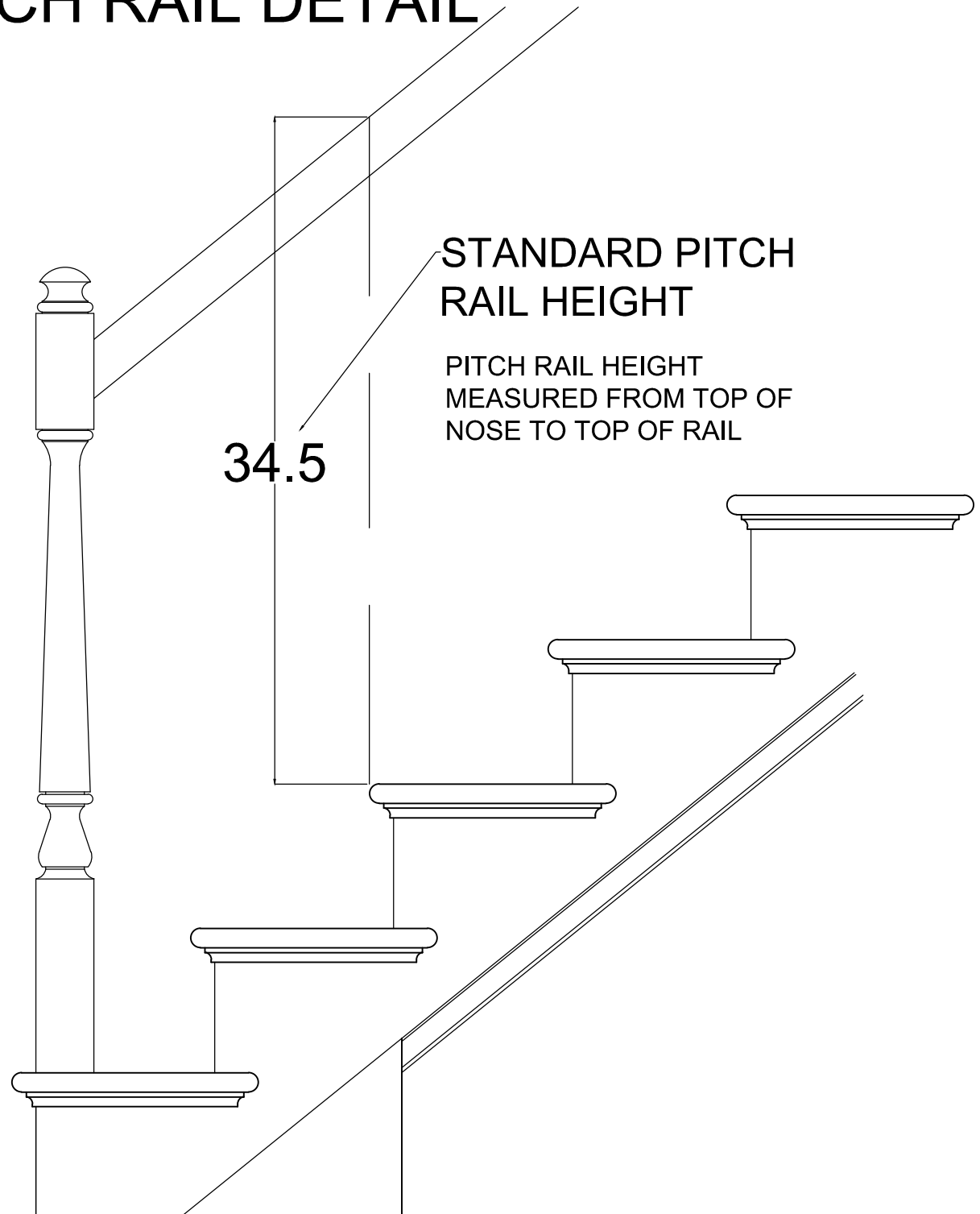


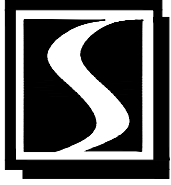
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PITCH RAIL DETAIL



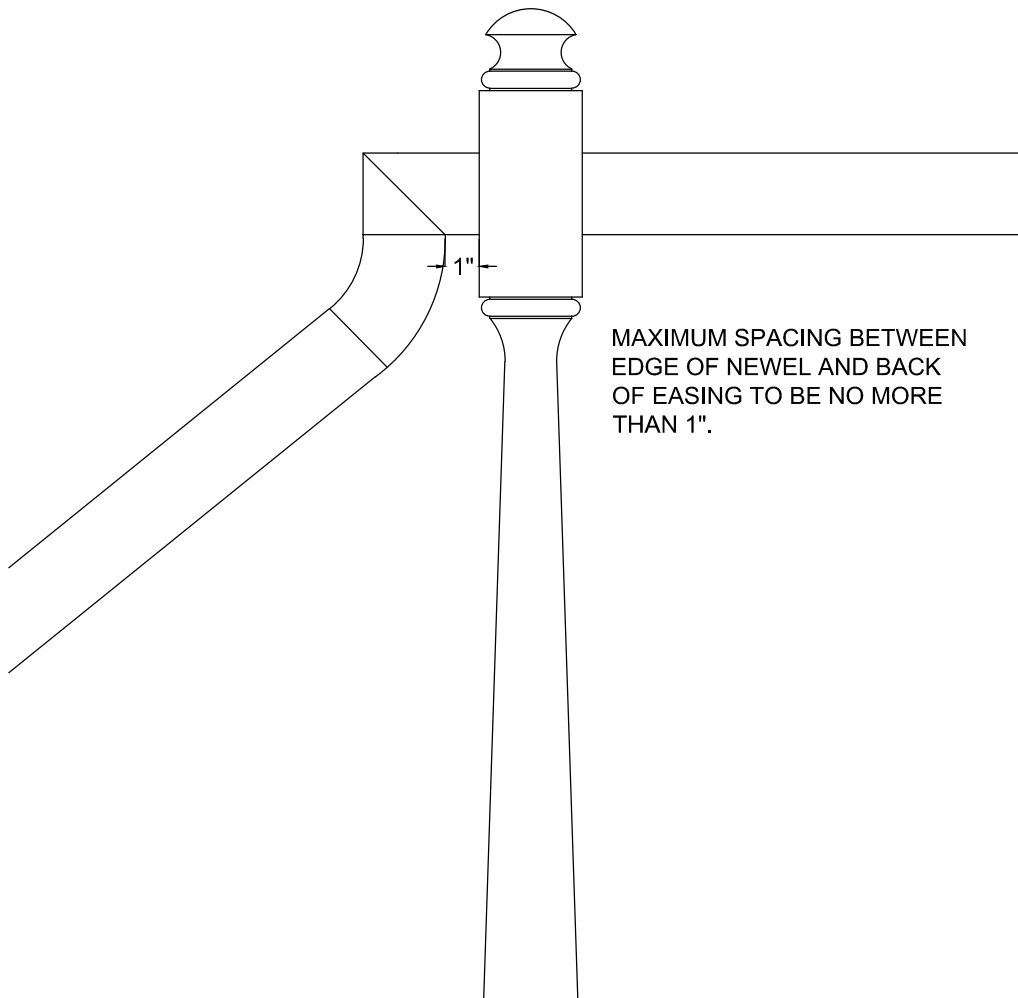


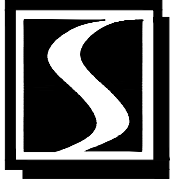
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GOOSE NECK DETAIL



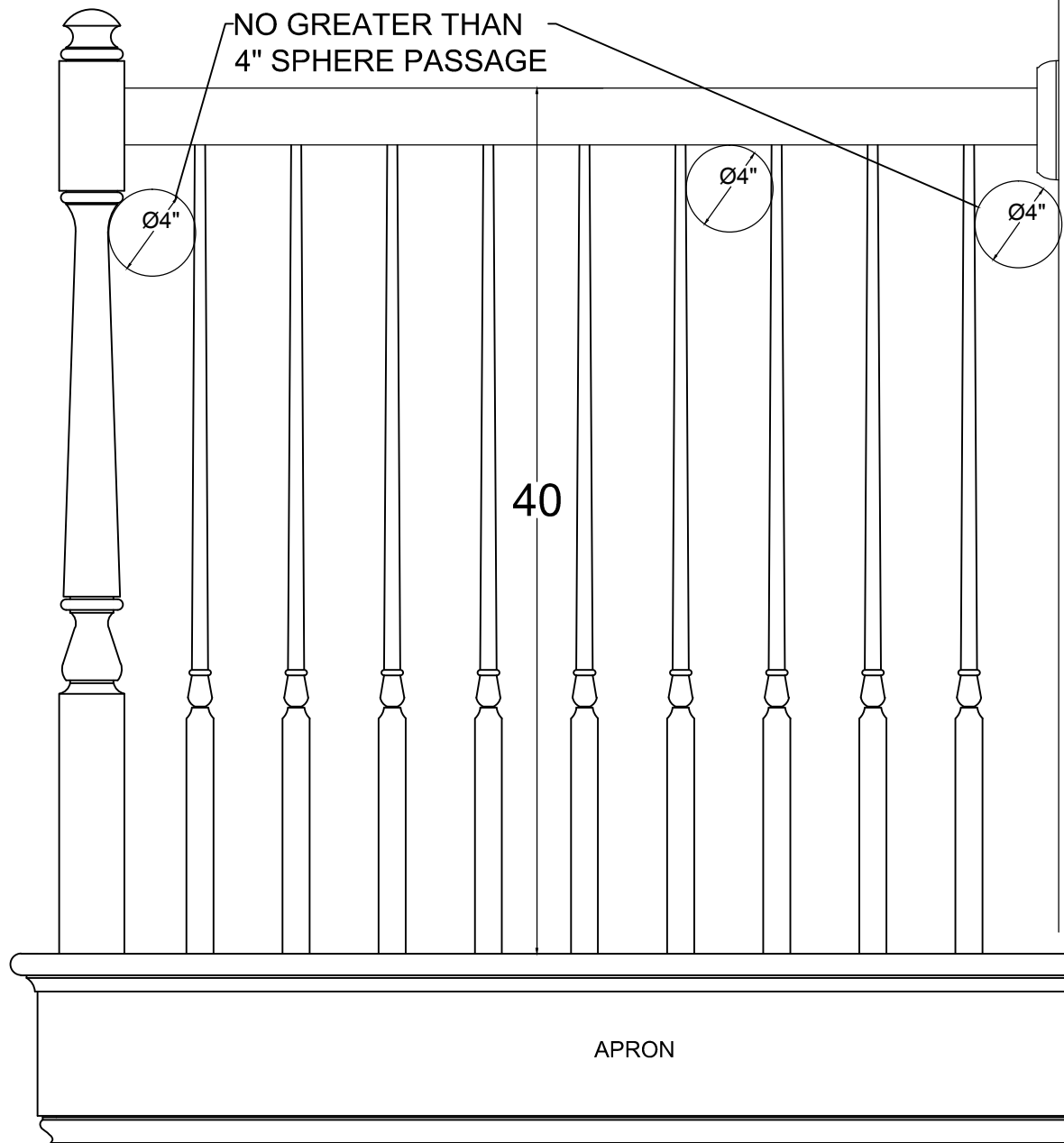


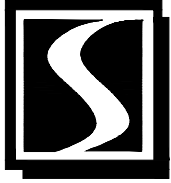
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BALCONY HEIGHT DETAIL



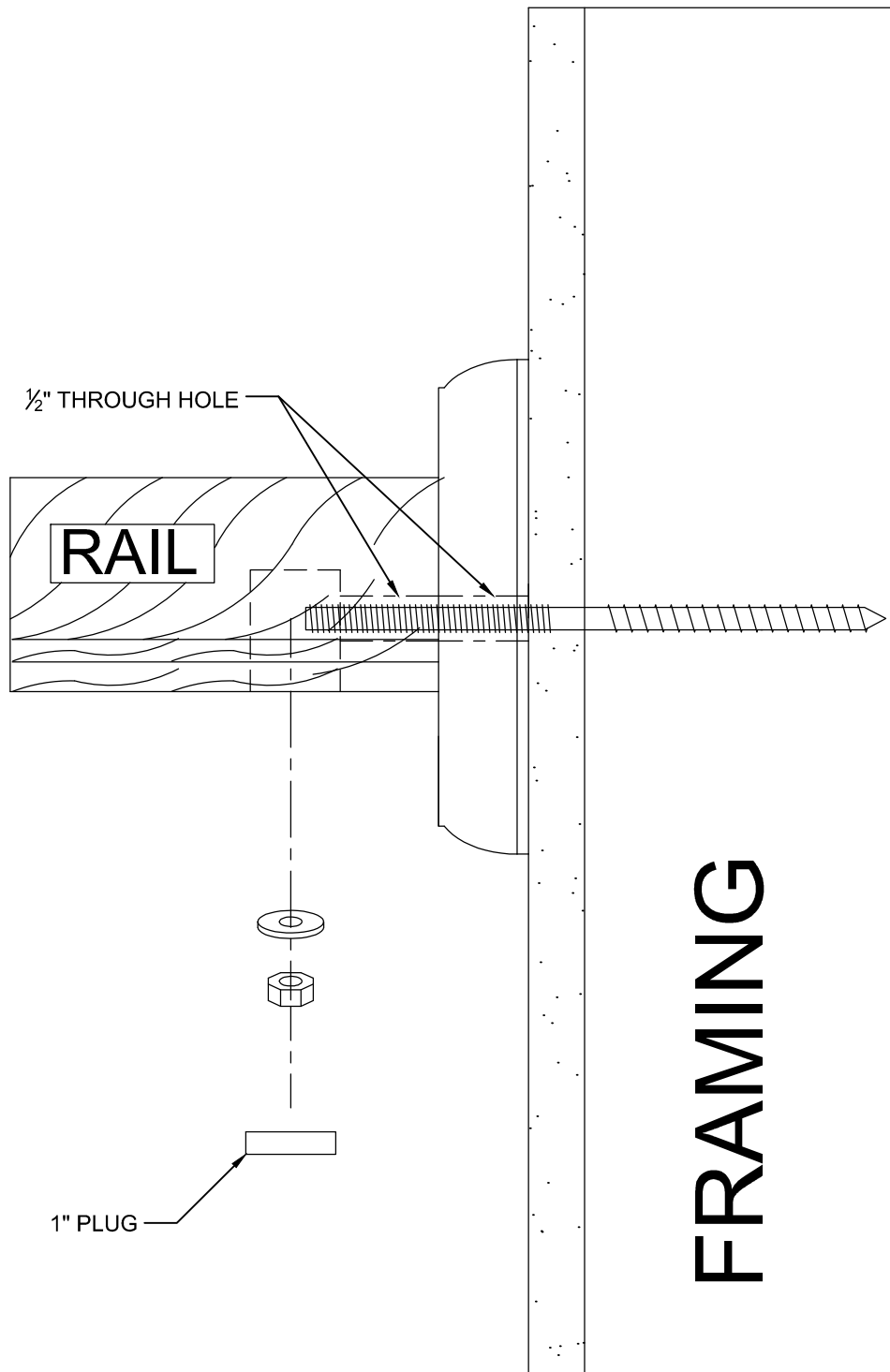


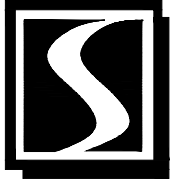
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ROSETTE DETAIL





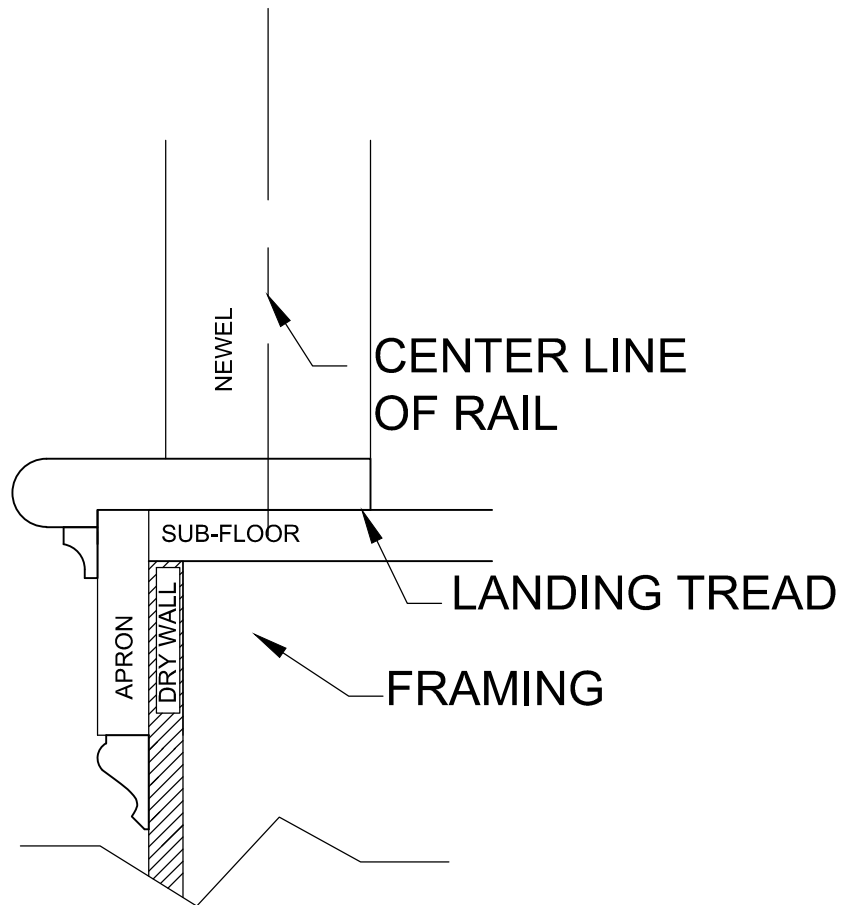
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NEWEL DETAIL

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ADHESIVE AND FINISH NAILED
(2 PER EVERY 16")



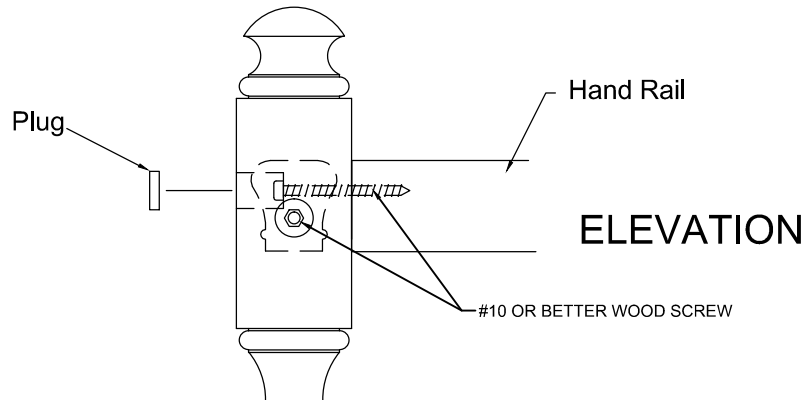


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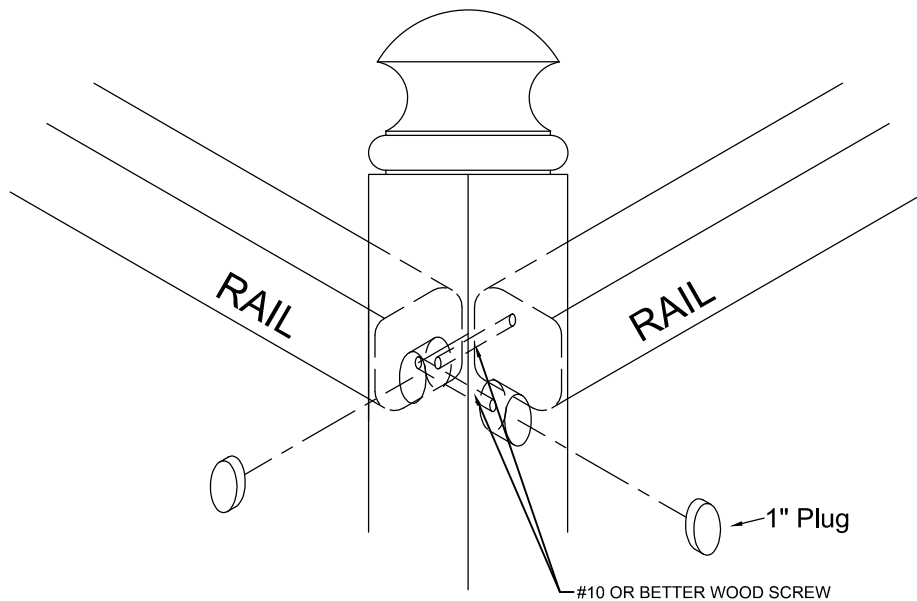
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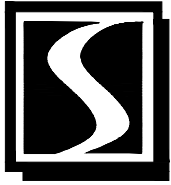
NEWEL FASTENING DETAIL



90 deg.
Intersection



ISOMETRIC VIEW



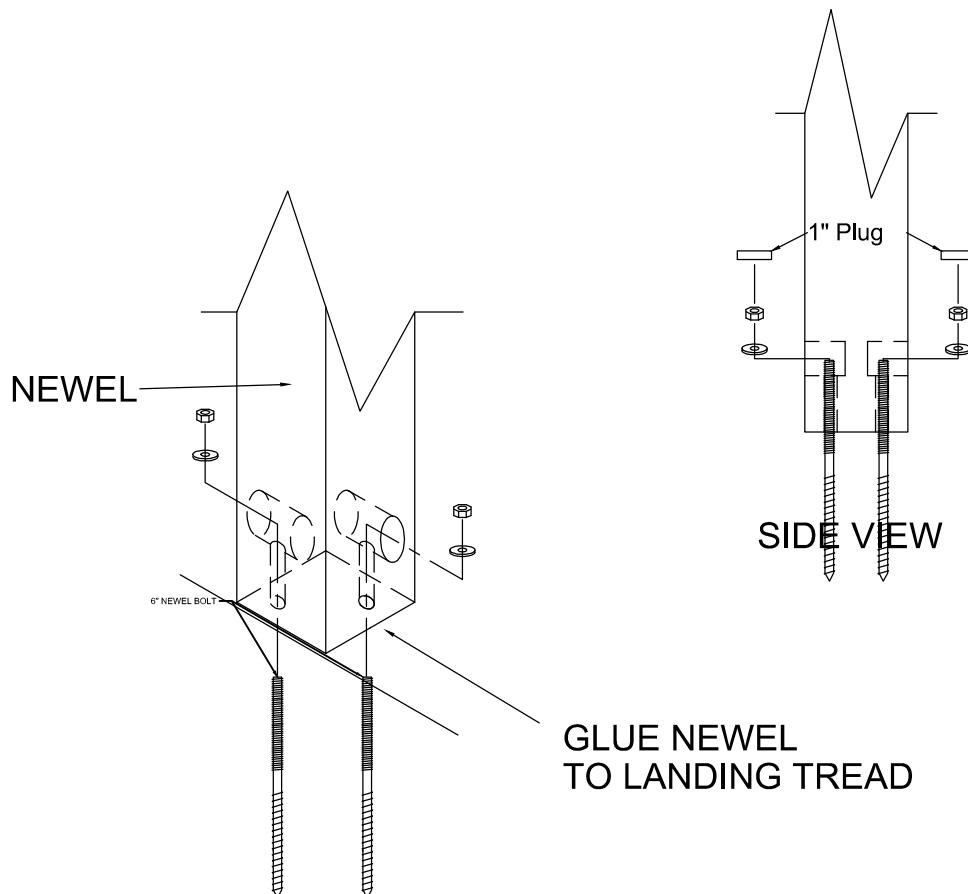
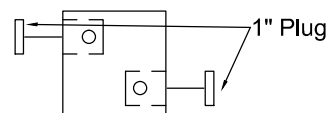
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NEWEL FASTENING DETAIL

TOP VIEW





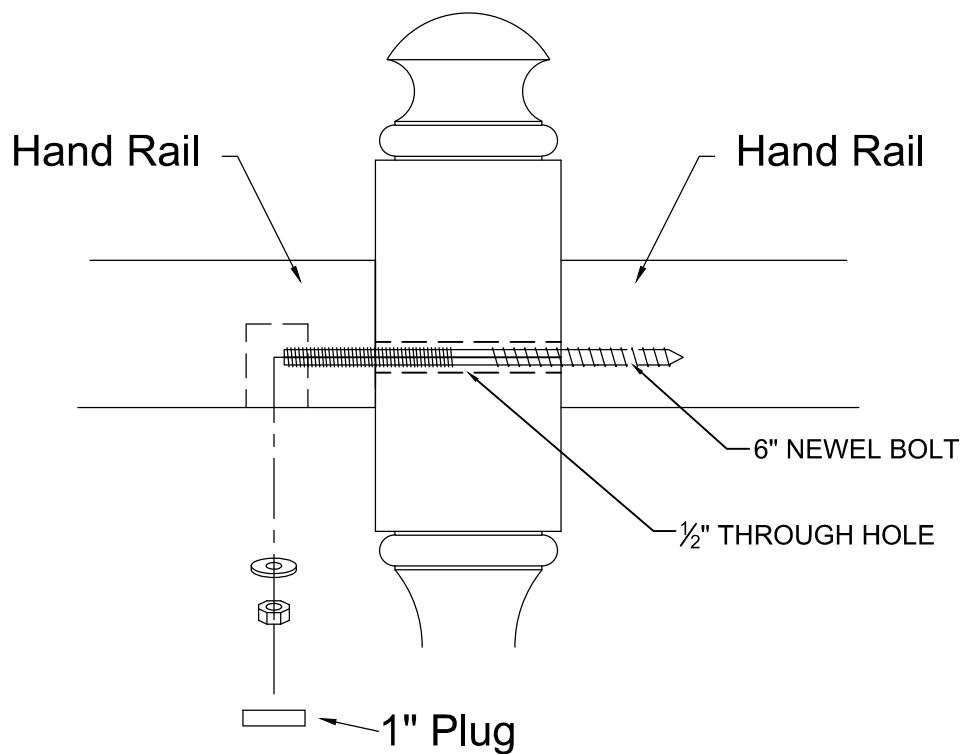
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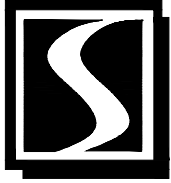
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NEWEL FASTENING DETAIL

In -Line Intersection





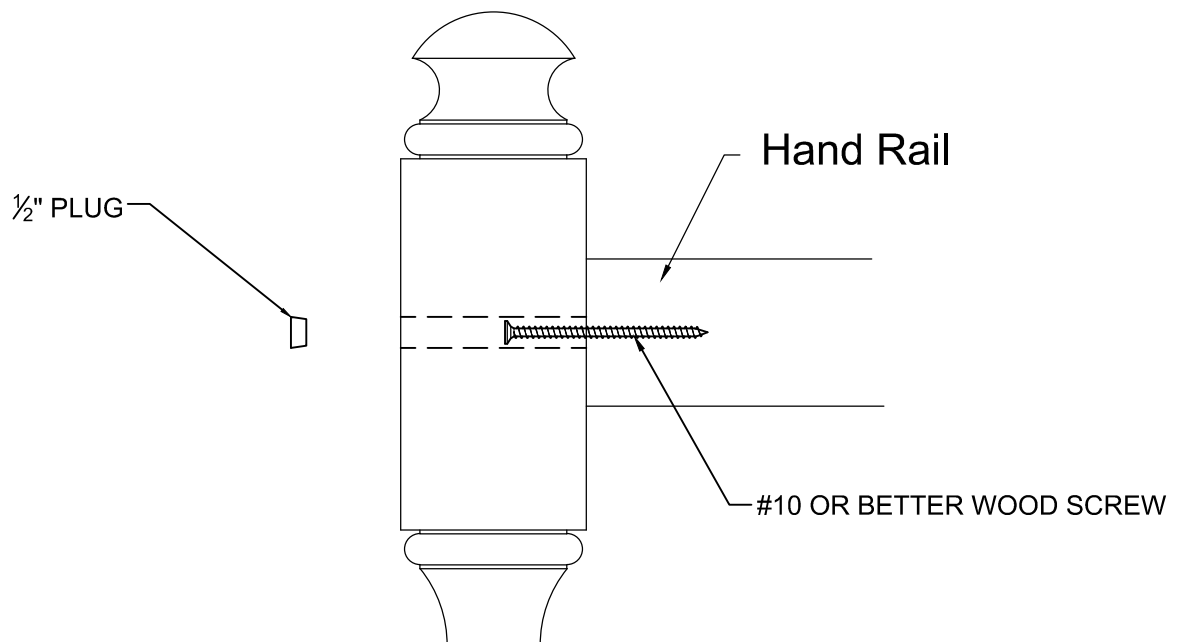
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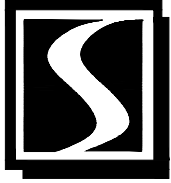
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NEWEL FASTENING DETAIL

End Newel



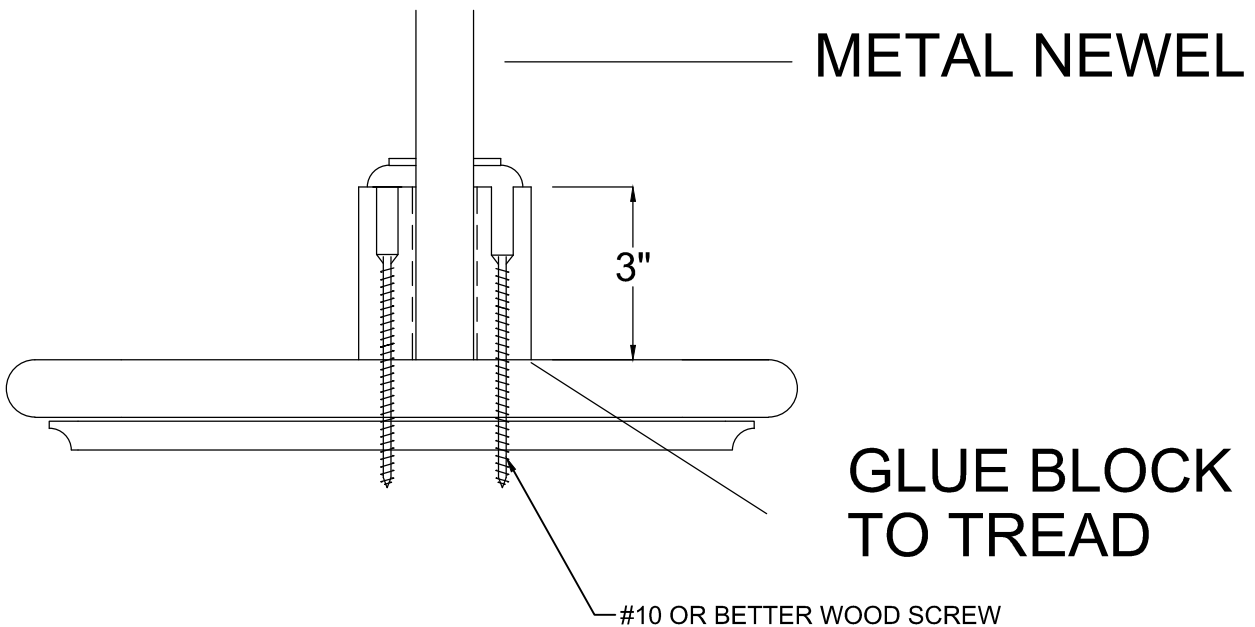
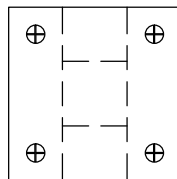


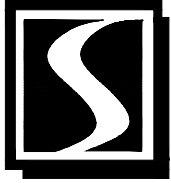
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NEWEL BLOCK DETAILS (OPTIONAL)





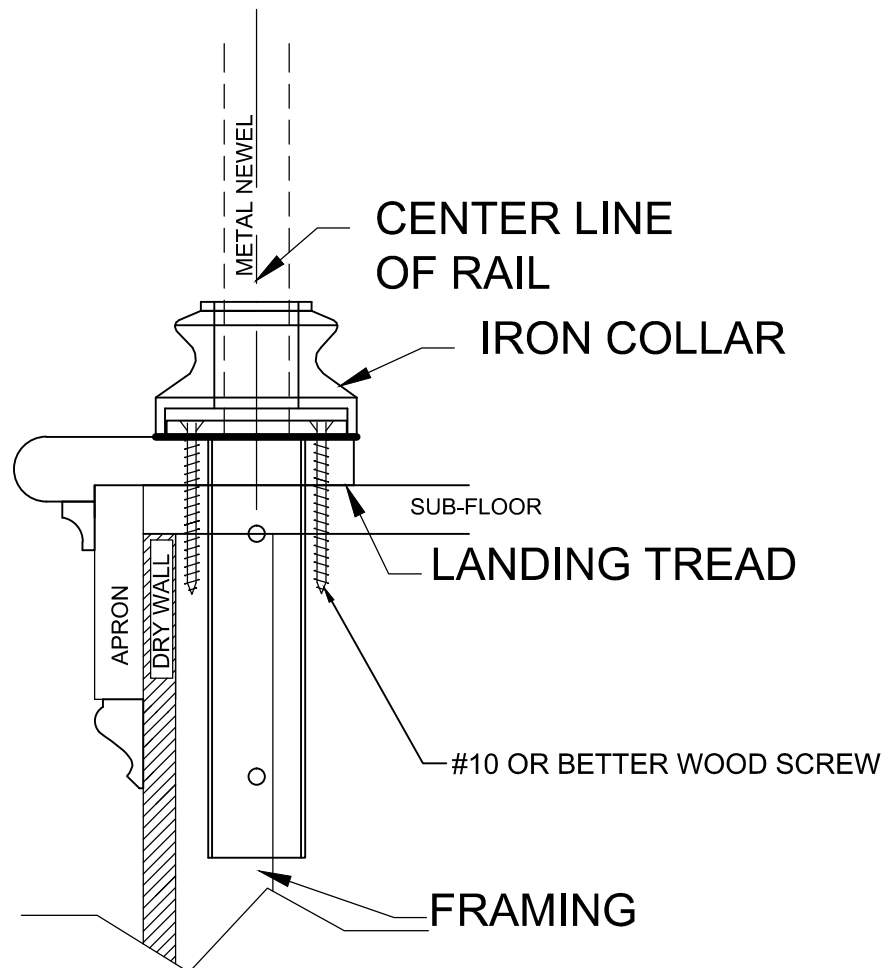
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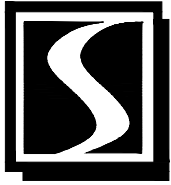
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METAL NEWEL DETAIL (WITH HOF BRACKET)

LANDING TREAD IS TO BE
FASTENED WITH CONSTRUCTION
ADHESIVE AND FINISH NAILED
(2 PER EVERY 16")



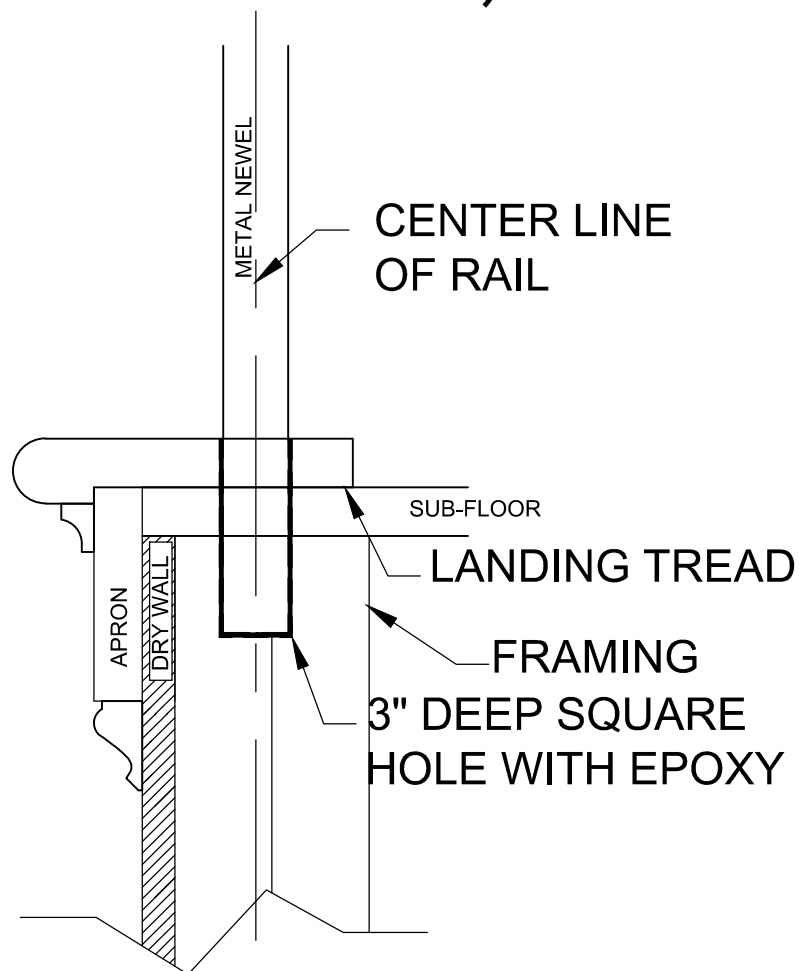


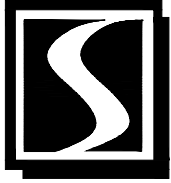
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METAL NEWEL DETAIL (MORTISED INTO FRAMING)





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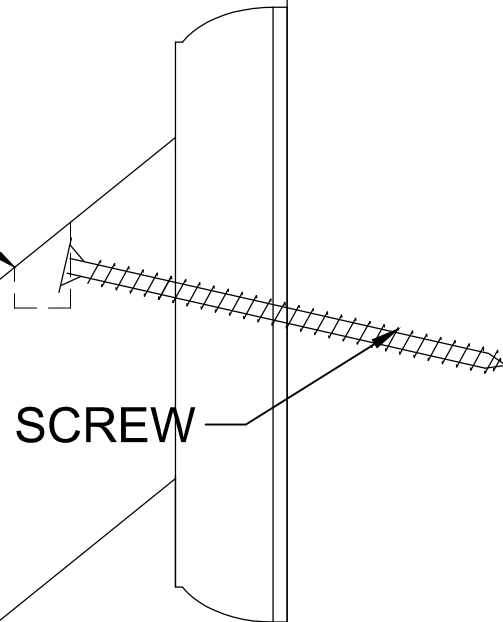
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**1/2" HOLE WITH
PLUG**

#10 OR BETTER WOOD SCREW

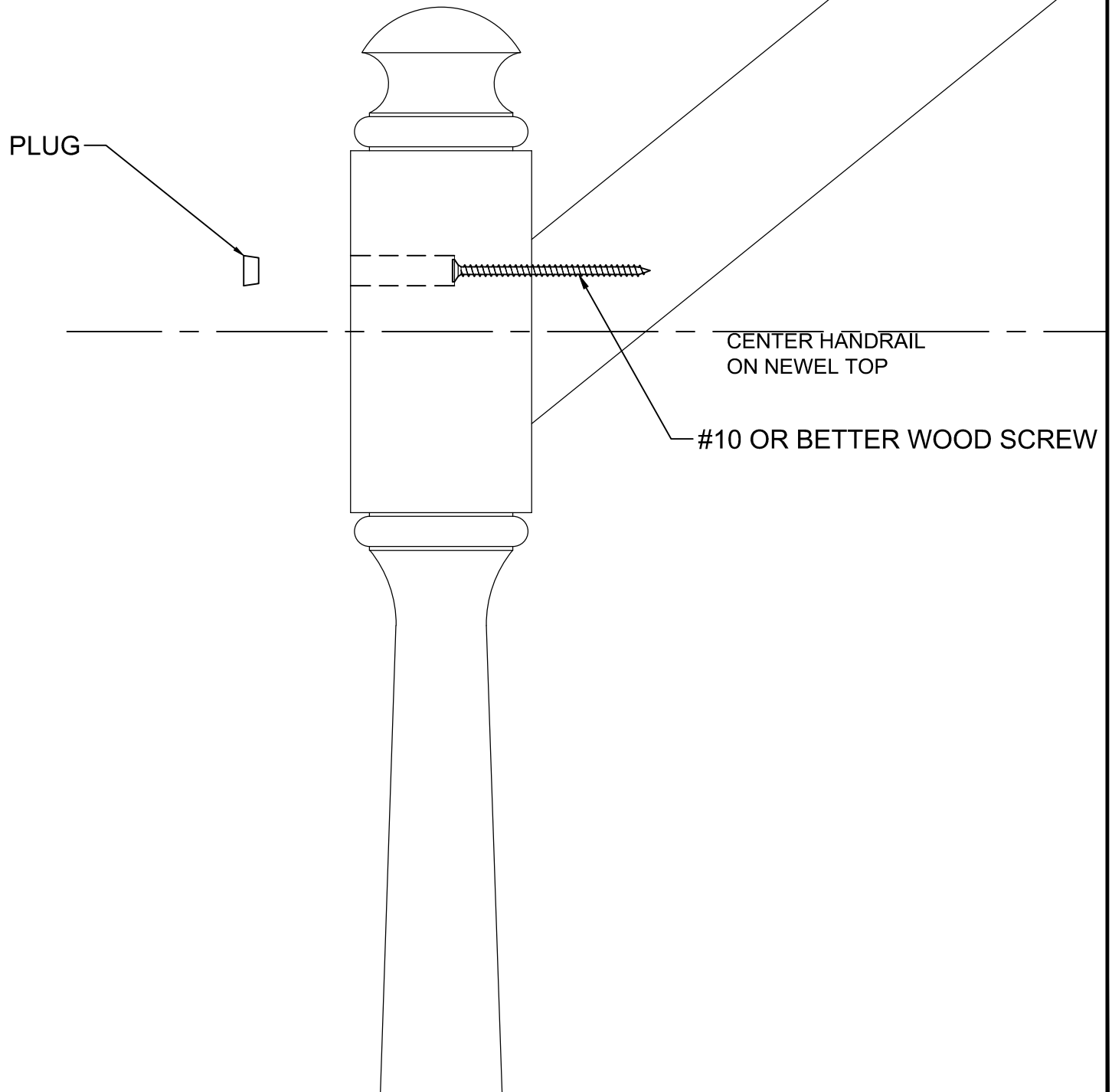


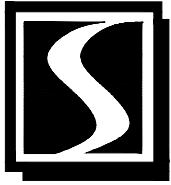


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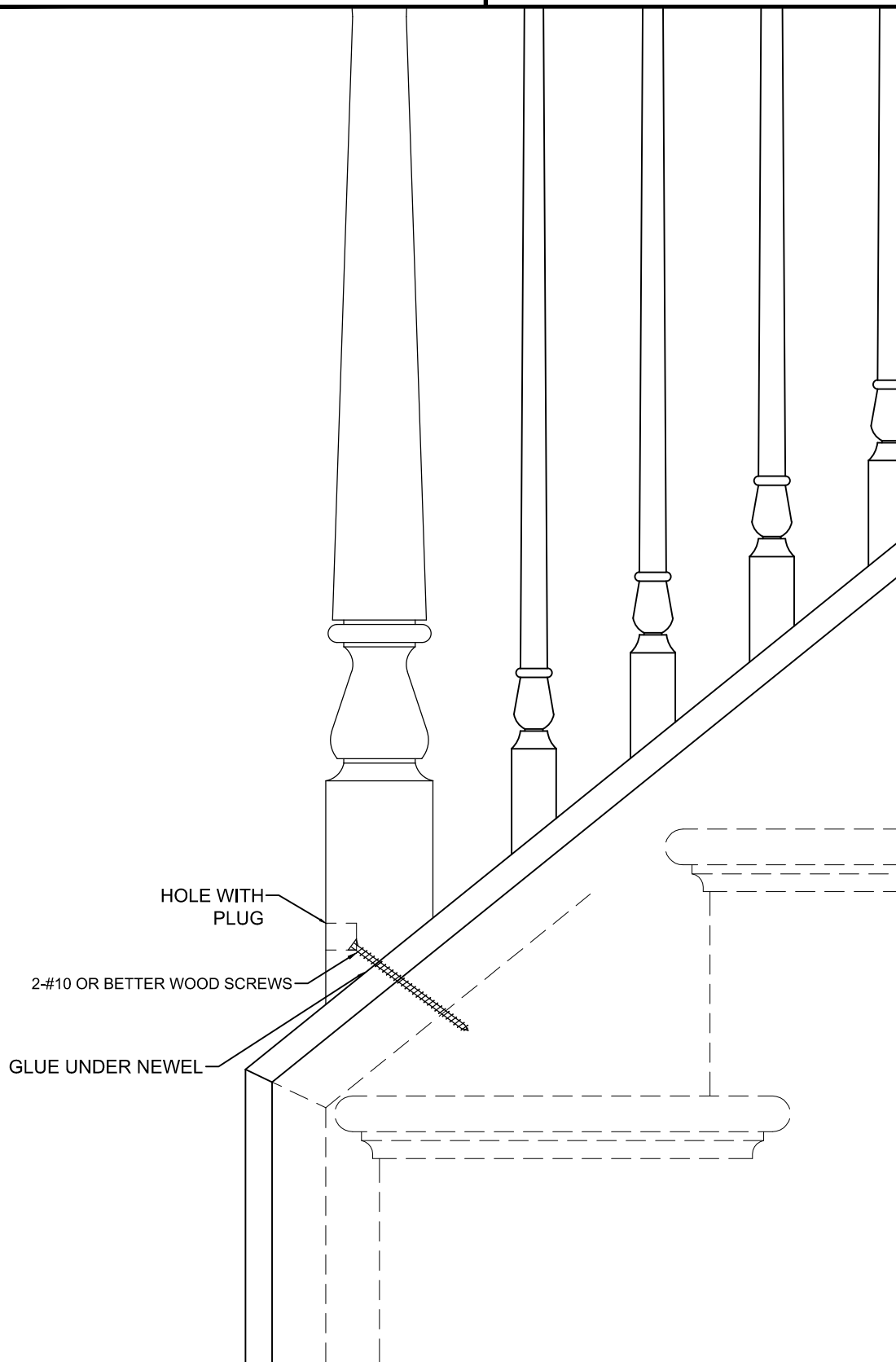




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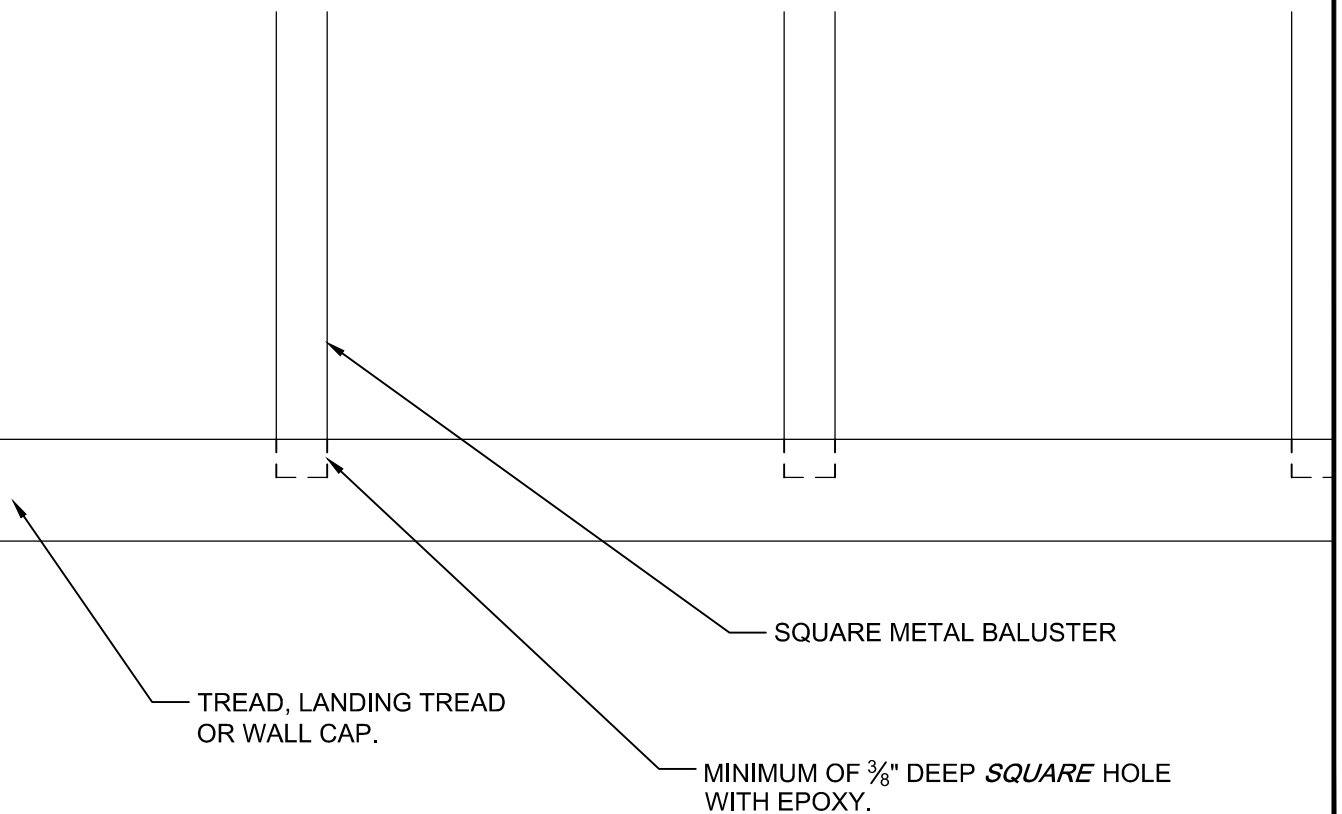
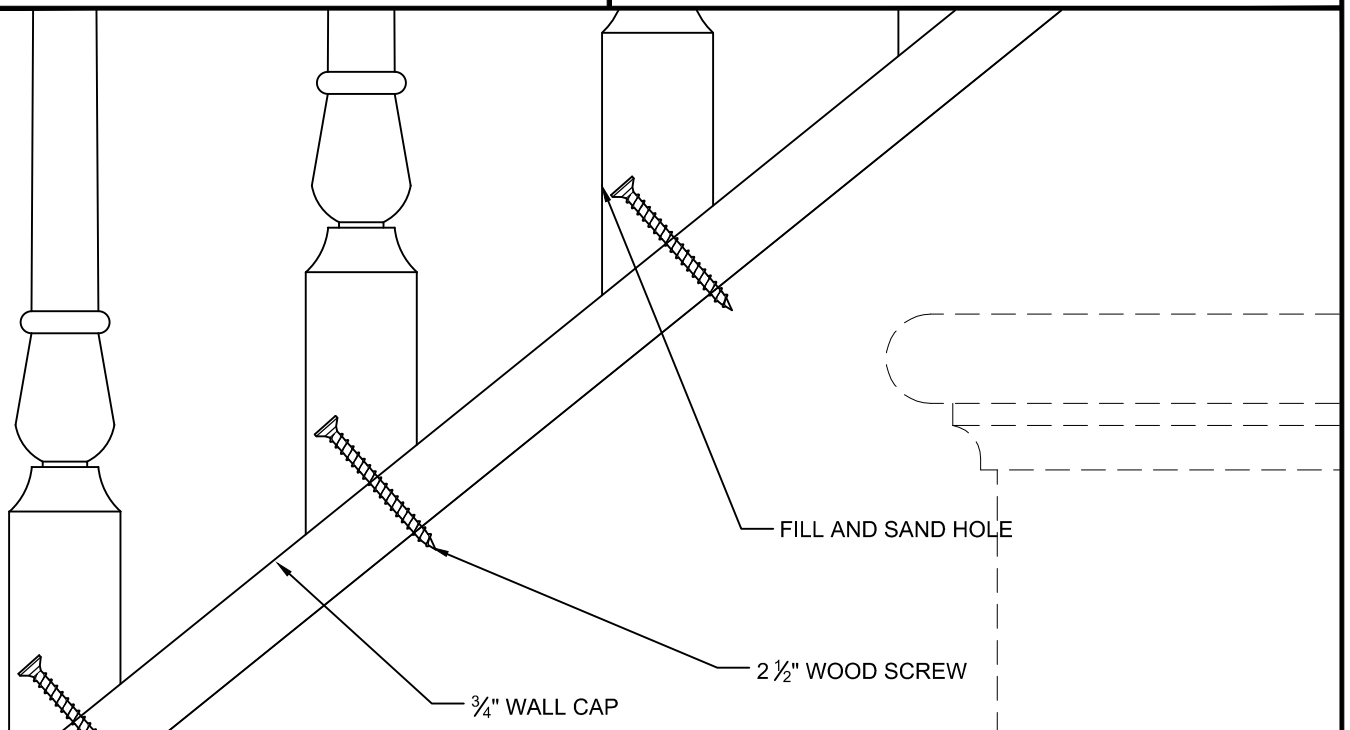


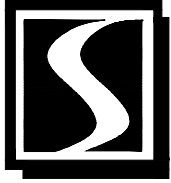


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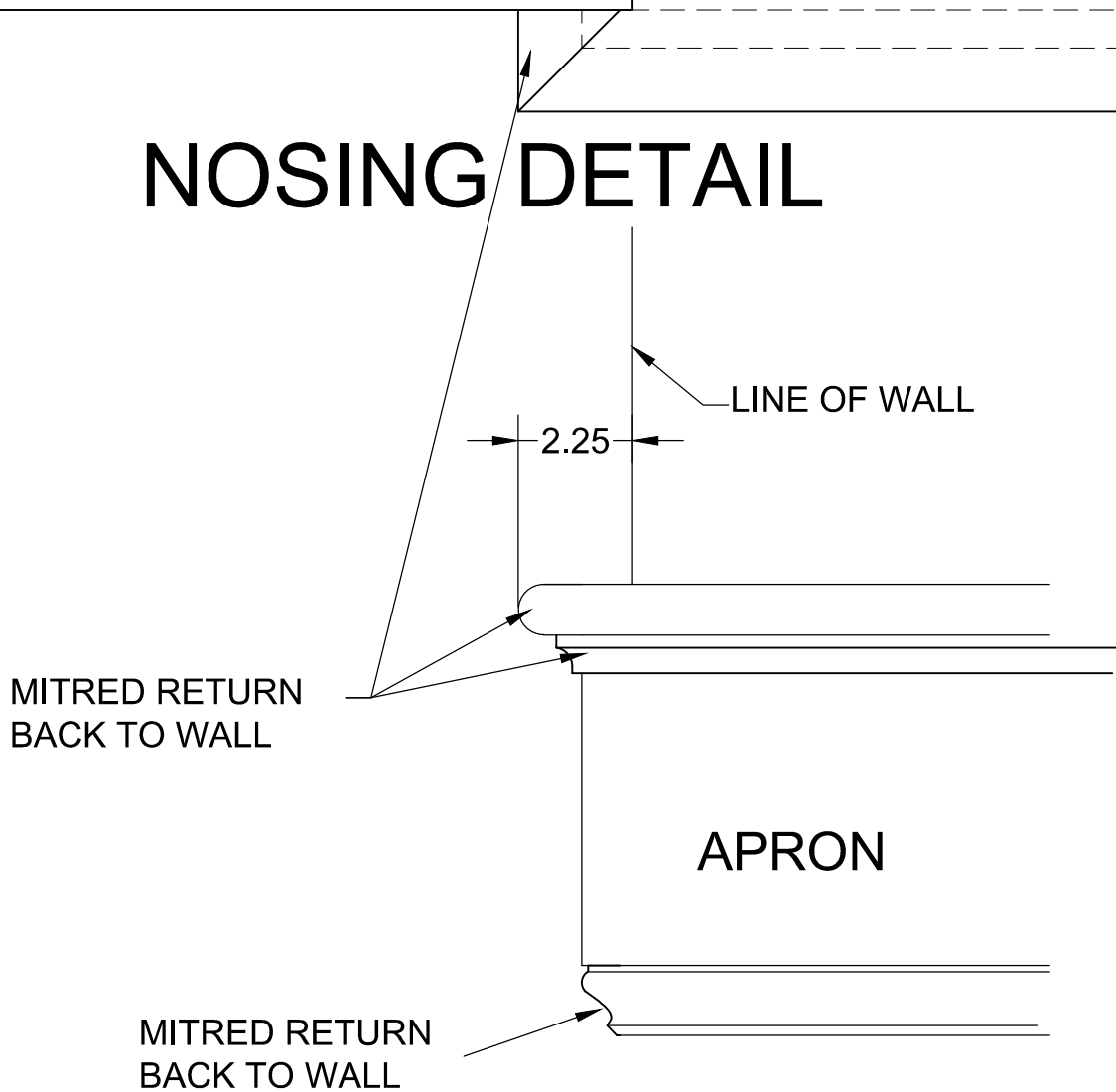
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PLAN VIEW

NOSING DETAIL



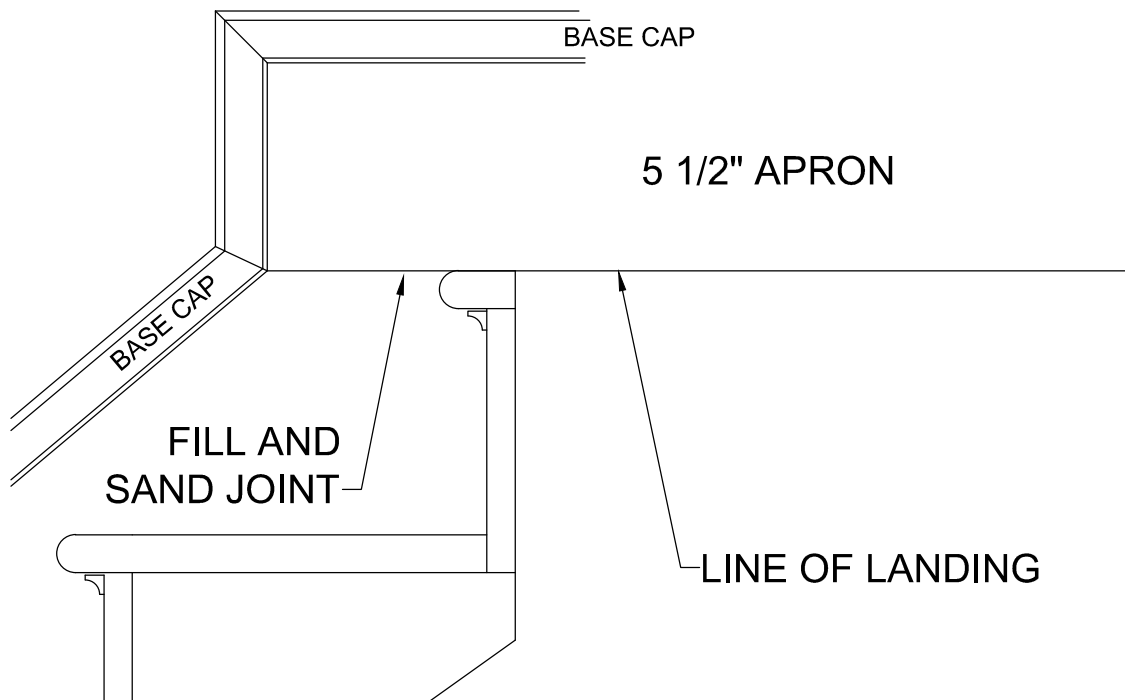


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APRON DETAIL





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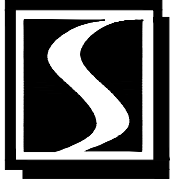
NOTCH

LINE OF WALL

RETURN BASE CAP

SAND END GRAIN

PLINTH FLUSH
WITH STRINGER

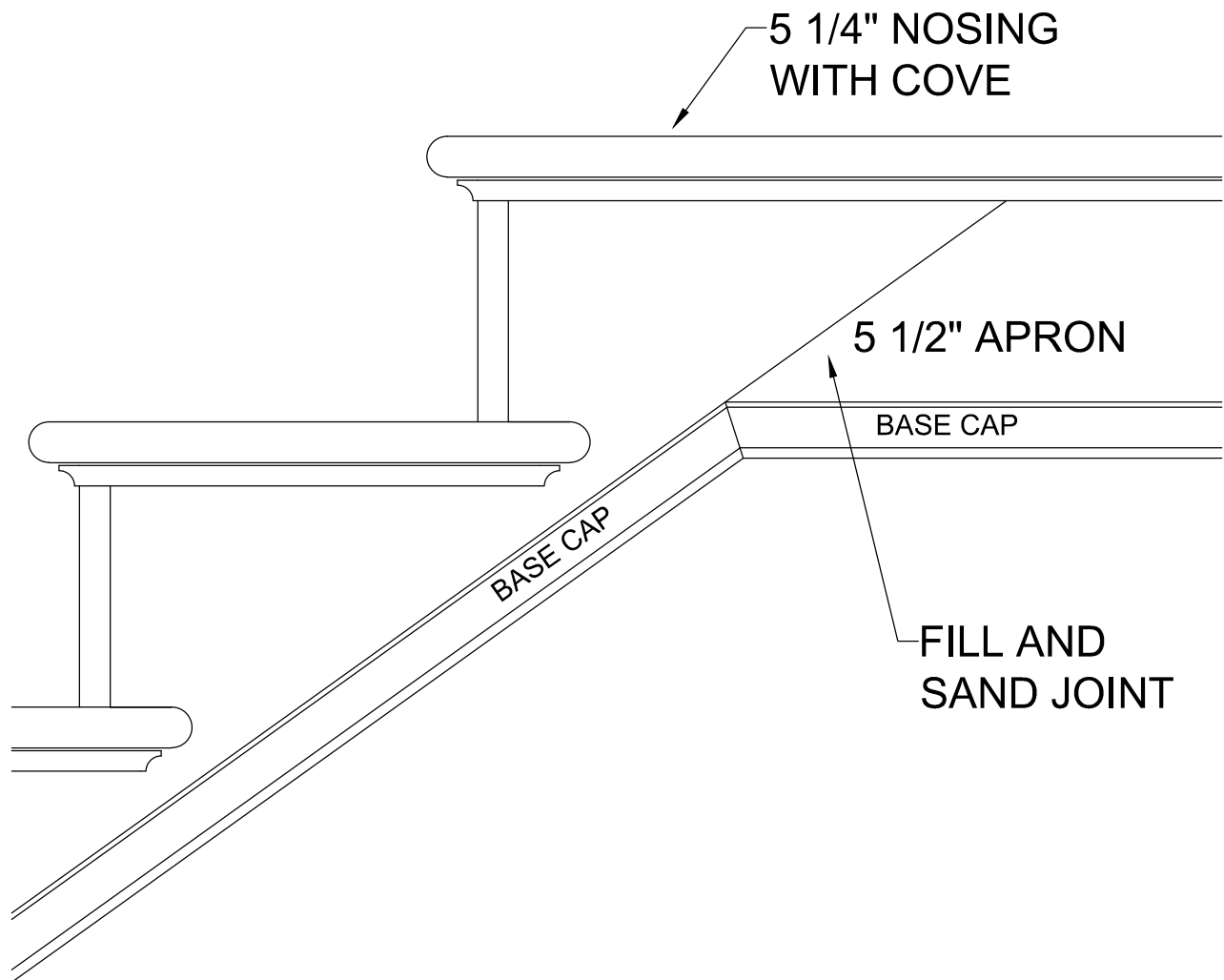


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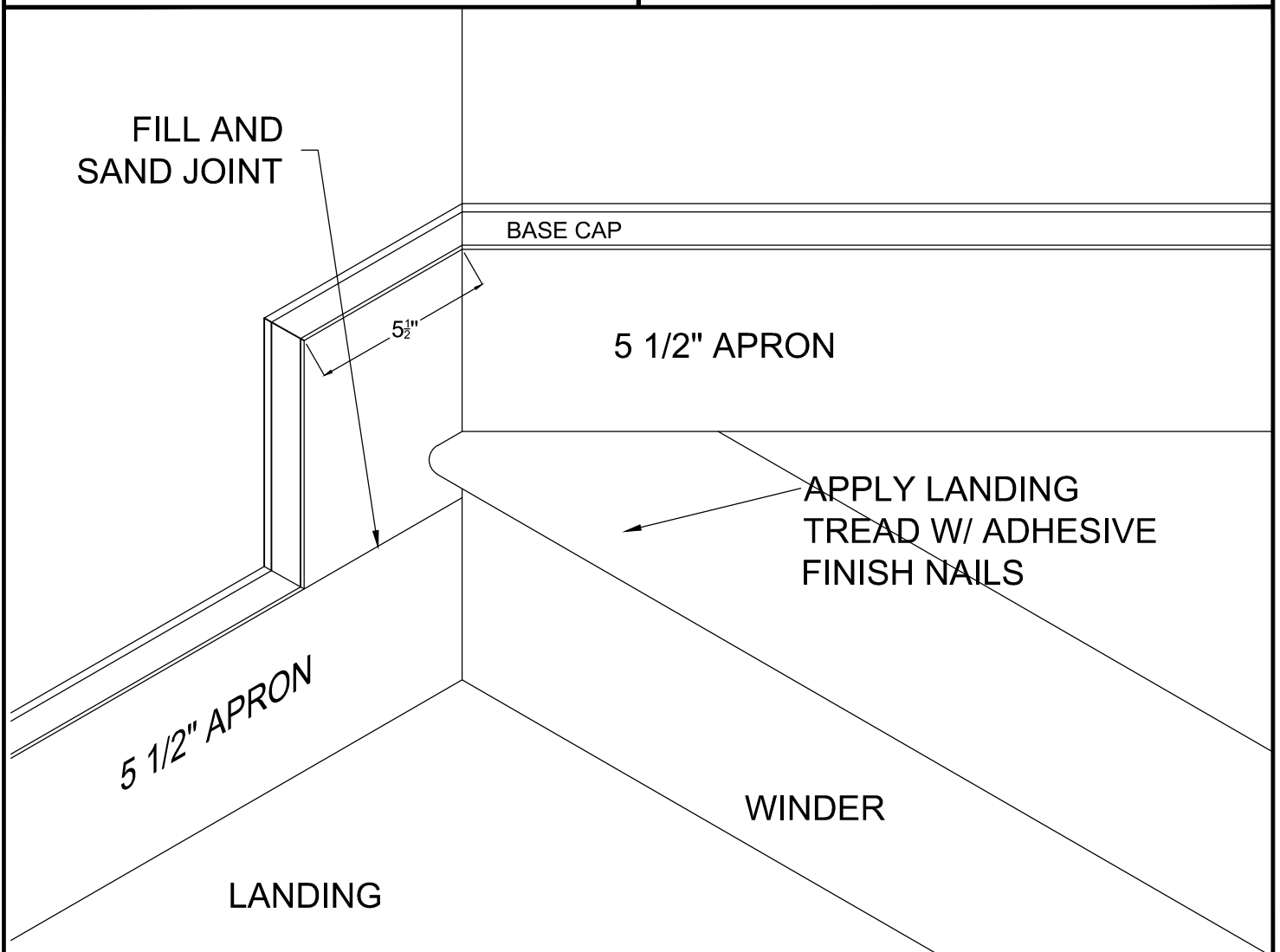


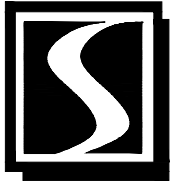


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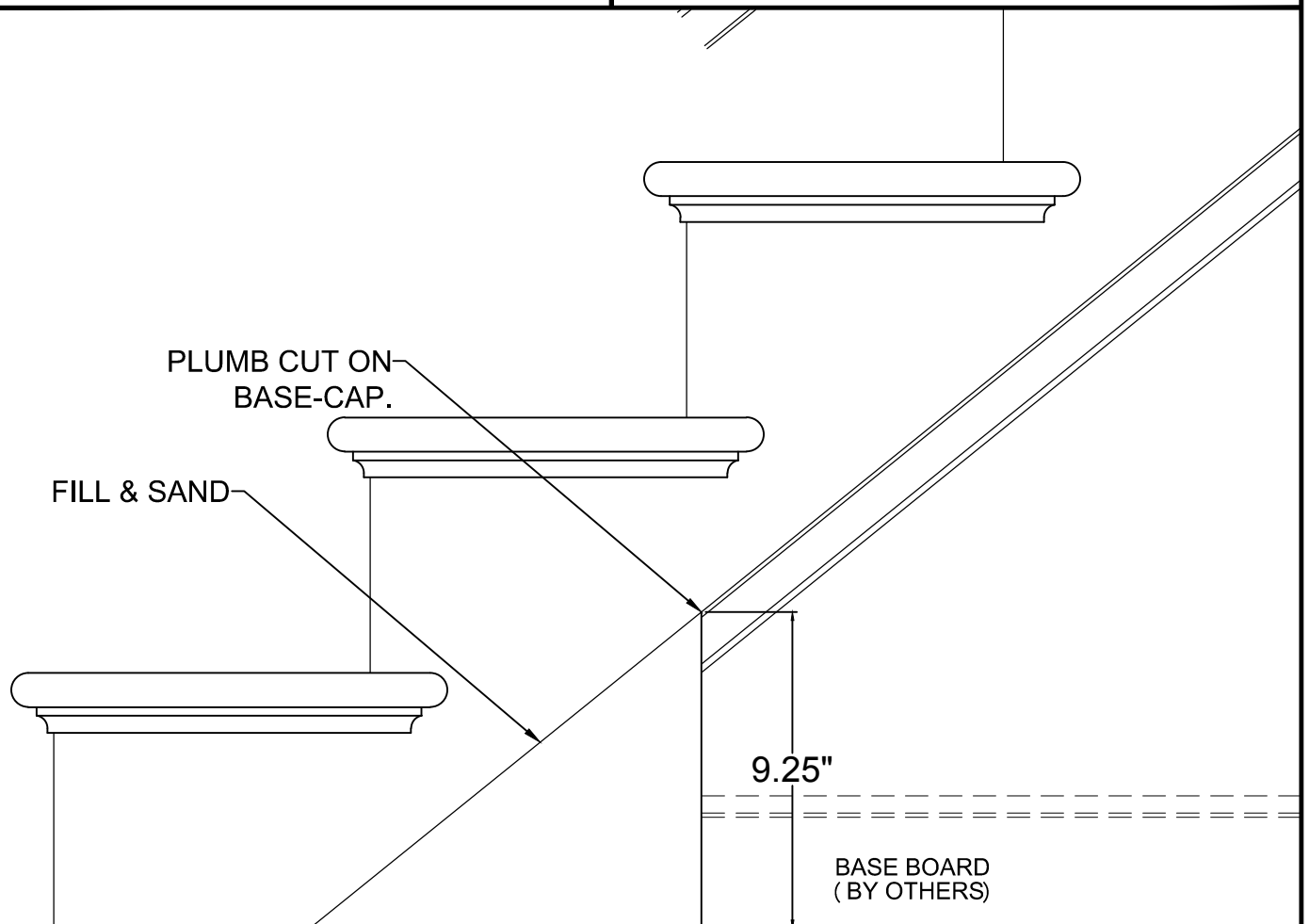


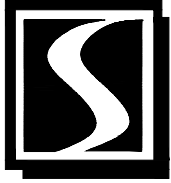


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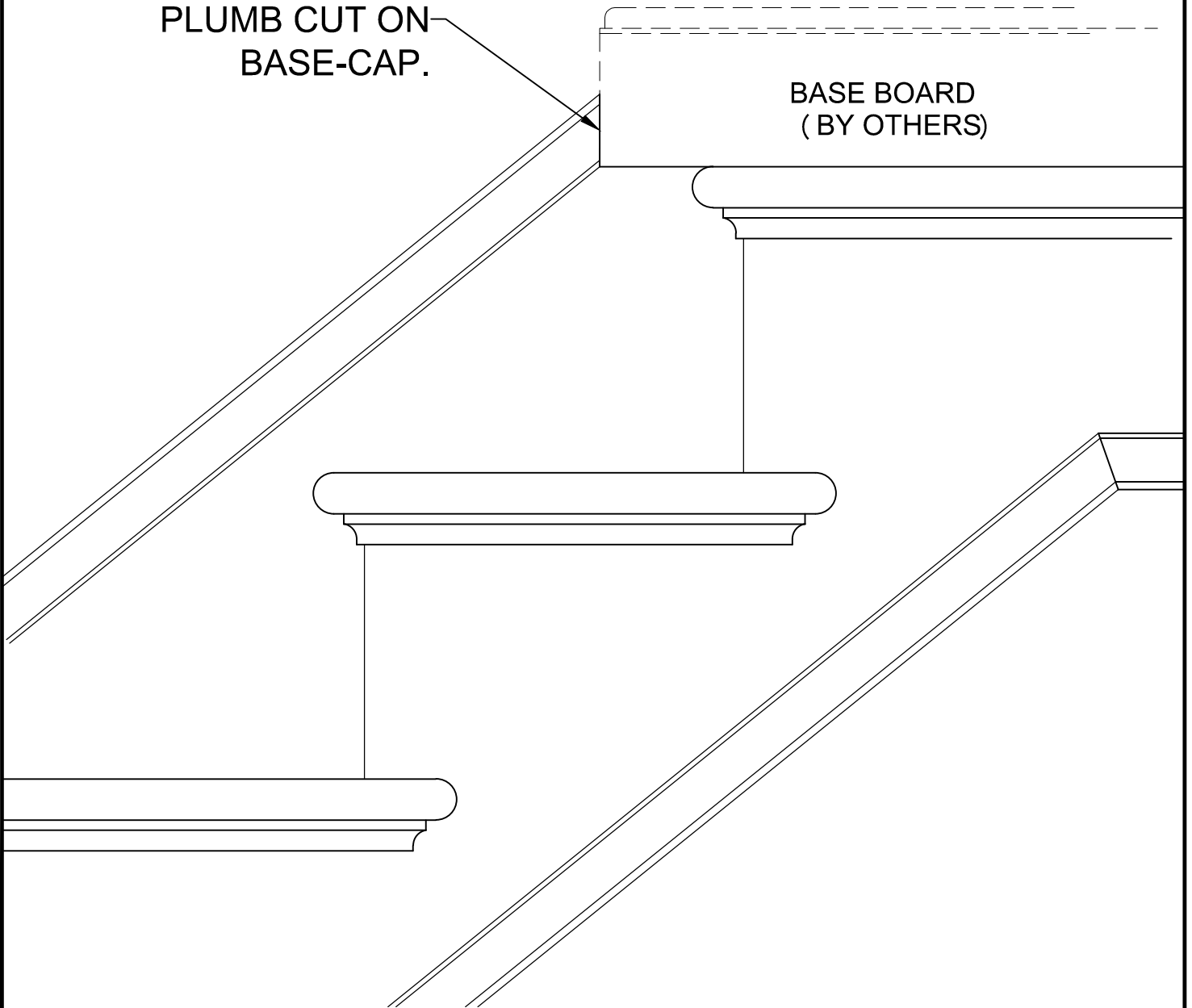
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PLUMB CUT ON
BASE-CAP.

BASE BOARD
(BY OTHERS)

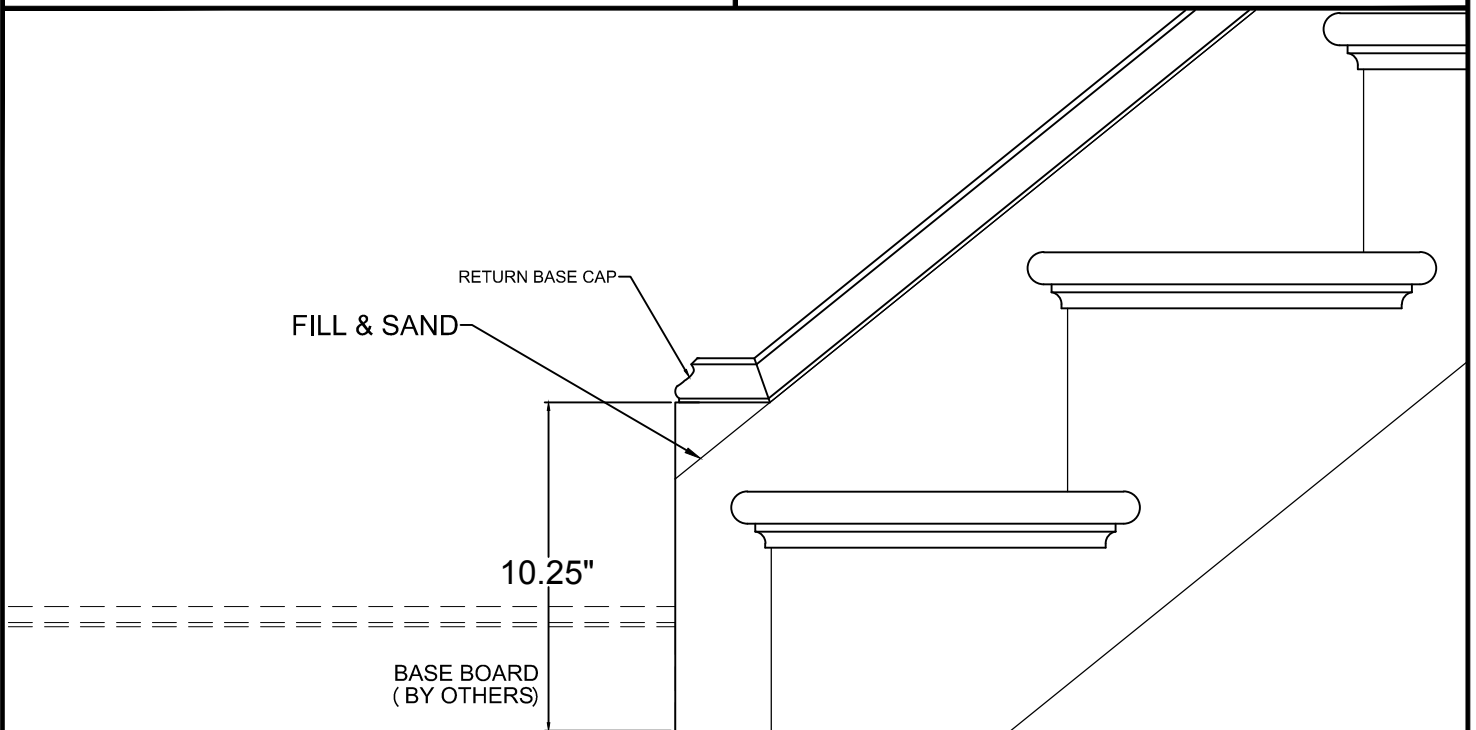




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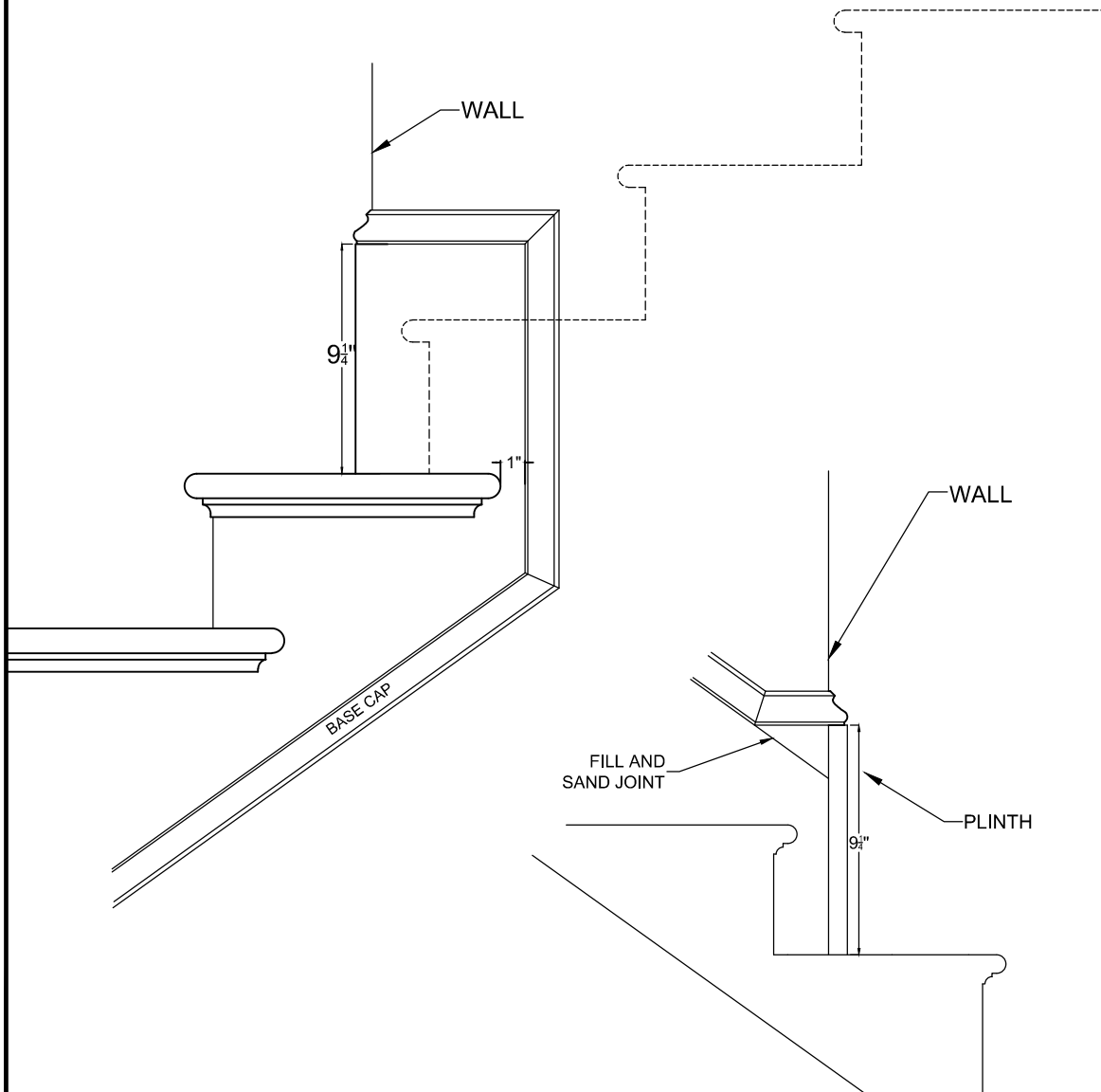
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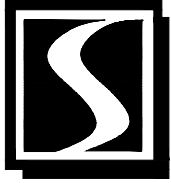




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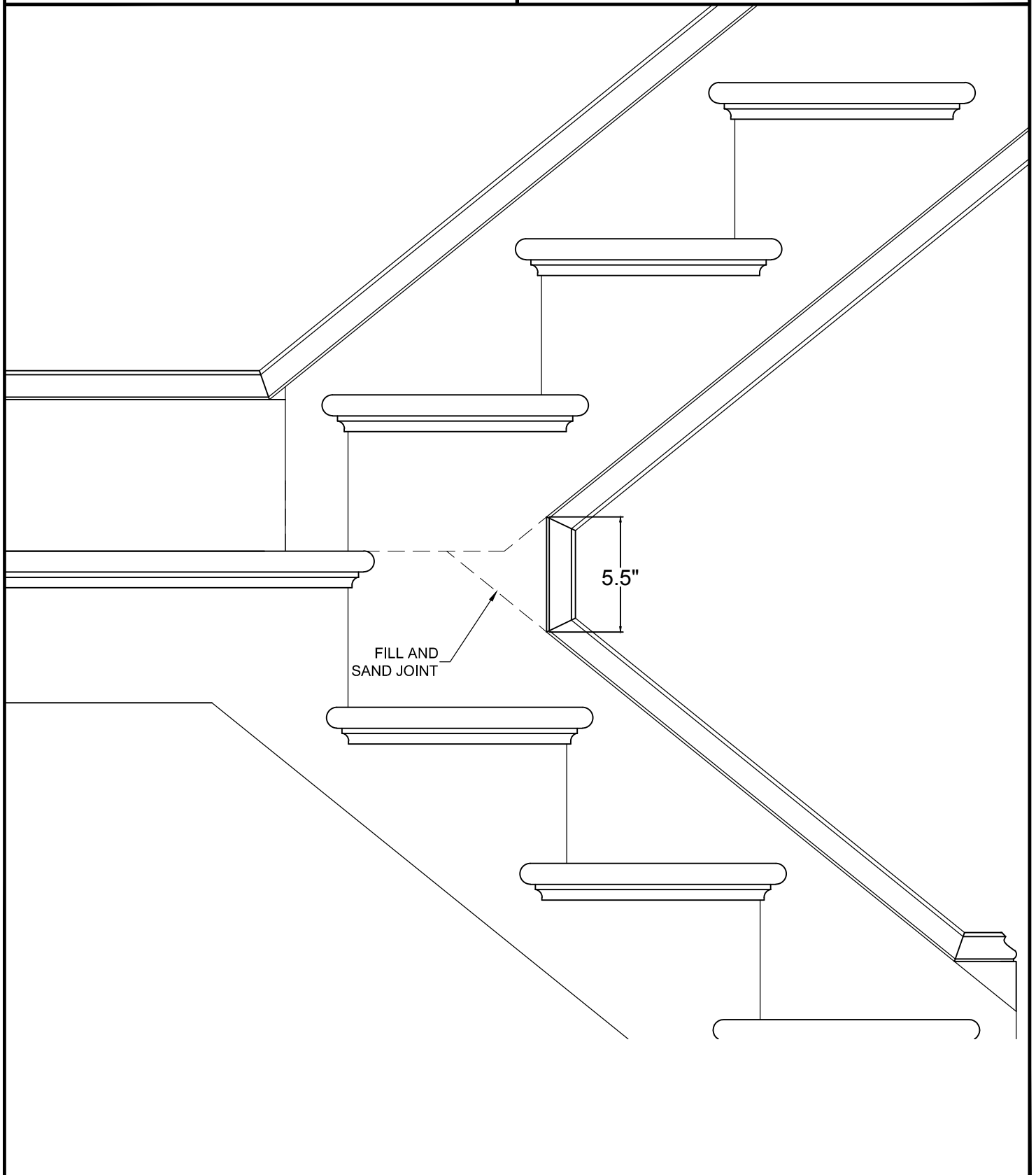




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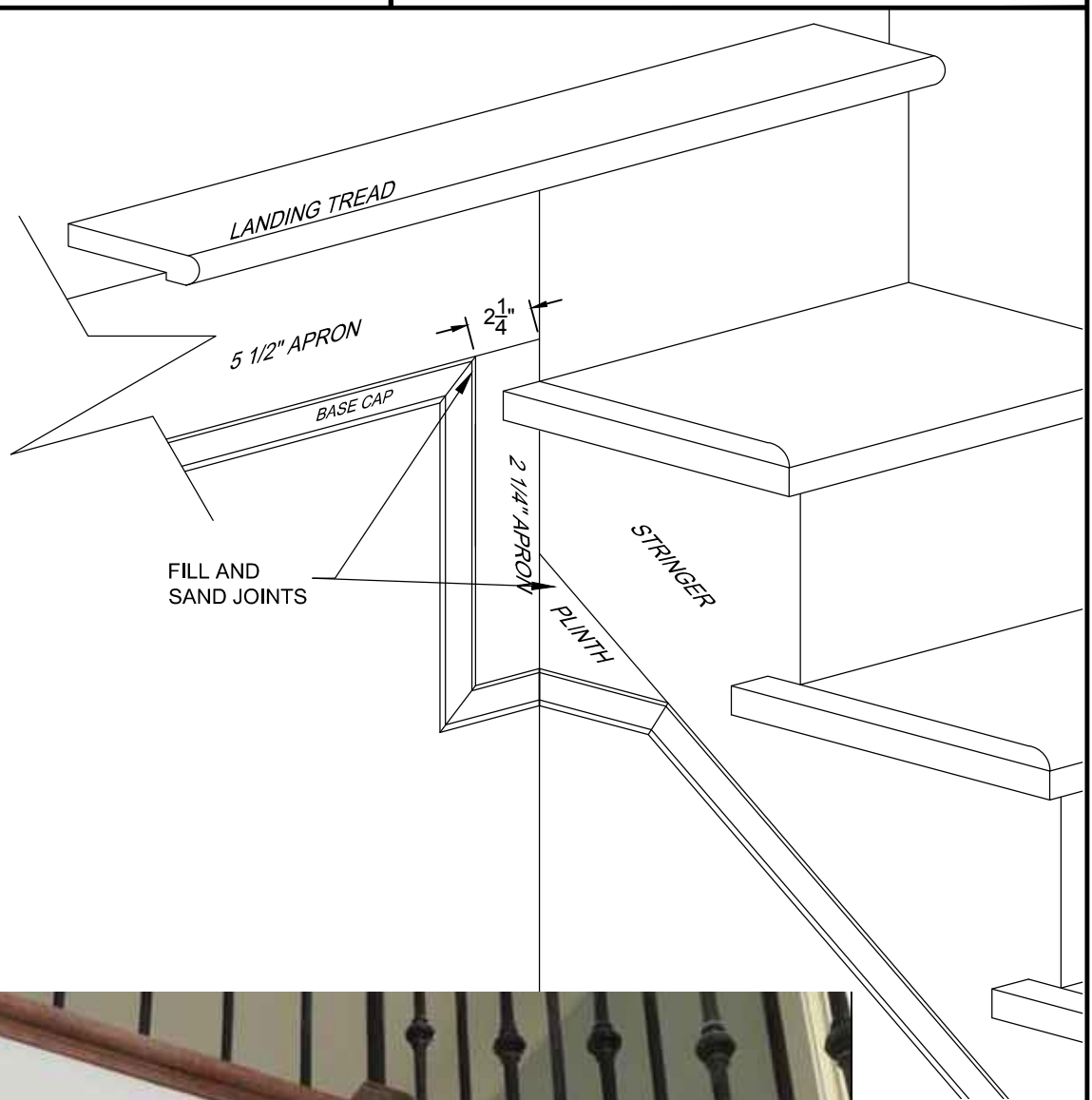




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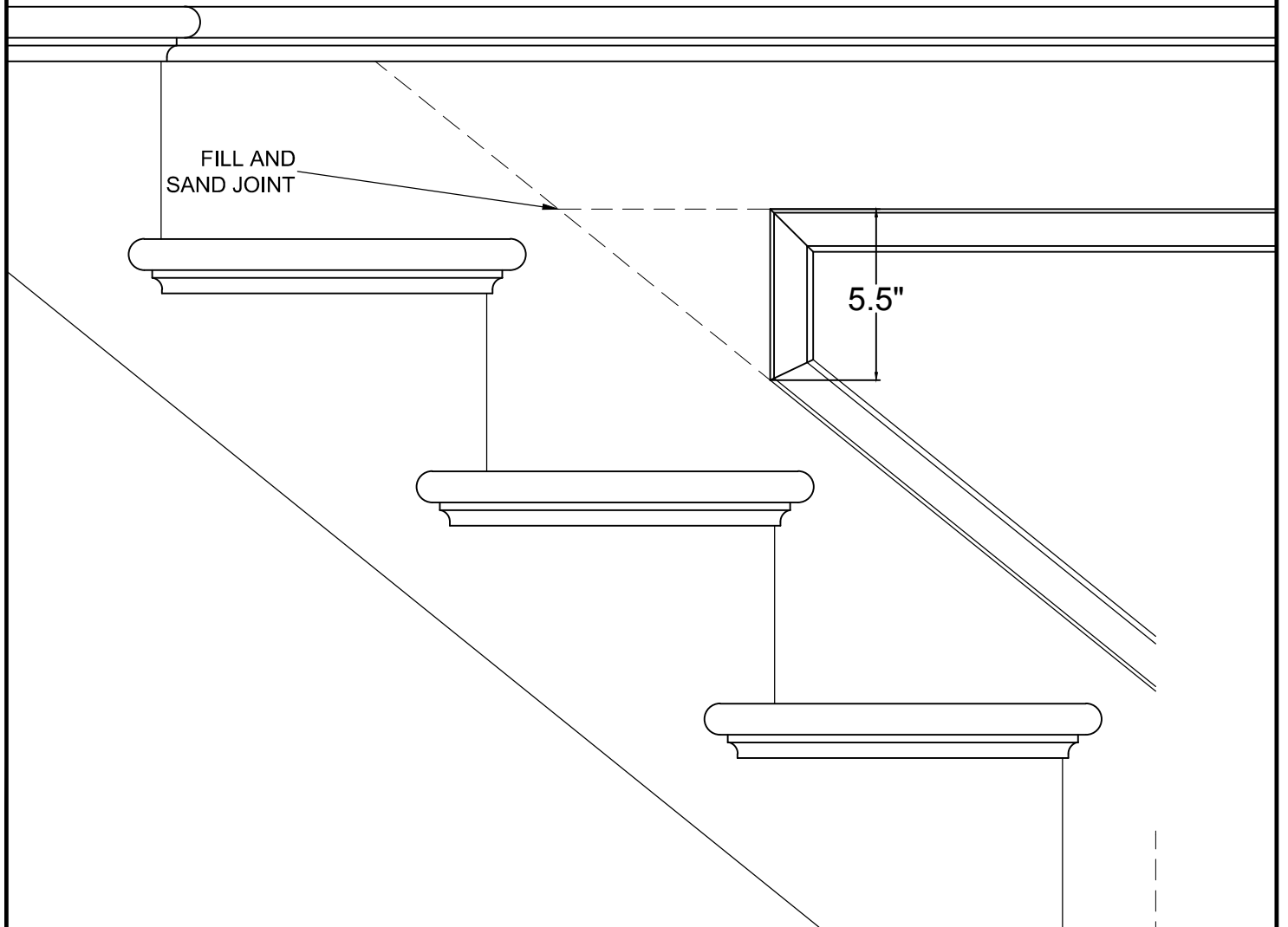
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FILL AND
SAND JOINT

5.5"





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