

Roofing / Shingles

TASKS 34, 36

Purpose: Install the shingles and waterproof the roof. This includes installing metal drip edging, rolling felt, laying shingles, waterproofing mechanics, and capping the peak(s). When this step has been completed, the roof must be completely waterproof.

Tools: Framing hammer or regular hammer, utility knife, hook blades, tape measure, pencil, tin snips, chalk line (red & blue), 5” stop block (see sketch).

Safety Issues:

- Hardhats must be worn at all times (NO exceptions)!! At all times, be aware of where other people are working (above, below, and around you).
- Don't go up on the roof if you feel uneasy.
- Make sure all tools are secure so that nothing slides down or off the roof - people are working below!
- Never walk backwards on the roof. You can easily lose your balance or walk off the edge.
- Careful where you step.
- Careful of stepping on sawdust or roof gravel- these can make the roof VERY SLIPPERY!! Keep the roof clear of debris.
- Don't force a knife blade toward yourself, or any one else!
- Sheet metal edges (drip edging, mechanicals, etc.) are very sharp, be careful!
- Hold ladders for others!
- Drink lots of water!

Materials: Metal drip edging
Standard three-tab shingles
"Architectural" style shingles
15# asphalt roofing felt
Galvanized roofing nails
“Grip-cap” or plastic cap roofing nails (have a 1” plastic washer)
Roof tar
4x4 Flashing (bent 90 degree angle)

Inspection Criteria-

- Shingles must be 75% complete before framing inspection.
- Drip edge is installed and roofing felt and shingles overlap it.
- Felt is secured to roof with staples and short nails on top of metal drip edging.
- A dummy first course is put down (usually install 3-tabs for this).
- Overhang shingles on roof edges by 1/4".
- Chalk lines are used every 5th or 6th course (25” or 30”) to insure a straight line.
- On unchalked rows, 5" gap from the bottom of the shingle to bottom of next row.
- Galvanized nails are used, 4 nails per shingle.

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- ❑ Only cut shingles from the backside, use jigs to cut pre-defined lengths.
- ❑ Each row is staggered from the previous row (full, 5" off, 10" off).
- ❑ Valleys have proper shingle overlap.
- ❑ Cap shingles are installed with prevailing wind direction taken into account, spaced 5 ½" apart.
- ❑ Shingles overlap mechanicals on top, and mechanicals overlap shingles on bottom (generally handled by plumber or mechanical contractor).
- ❑ Overall water flow will drain properly.
- ❑ Prior to starting, make certain all decking is well fastened and solid.

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Sequence and Methods:

- 1 Install drip edge around the sides and lower edge of the roof with roofing nails.
- 2 Roll out roofing felt from side-to-side, starting at the bottom of roof.
- 3 Each layer of felt should overlap the layer below to the second guideline, approximately 5".
- 4 Flatten out any bubbles in felt before nailing every 12" along the top with plastic-cap roofing nails.
- 5 If the roof has a valley, install adhesive-backed tarpaper in the valley and then the metal valley over it. Lap to assure the rain goes past the joint.
- 6 Place a starter row of 3 - tab style shingles (with the tabs cut off) along the outer edge of the roof. Install these shingles upside-down so the next strip will adhere to it. The starter shingle should have 5" cut off (making it 31" long) and the rest should be full-length shingles except the end of the row.
- 7 Let the shingle overhang the bottom edge and both sides of the roof by ¼".
- 8 From the top of this row, measure up both sides of the roof and put a mark at every 25" (or even multiple of 5") on the metal drip edges. Use this as a guide to keep the shingles level as they progress up the roof.
- 9 Use a chalk line to strike a line on each of these marks horizontally across the roof.
- 10 Start the second row with the normal style shingles; completely overlap the 3 - tab row. The first shingle in this row should be a full 36" shingle. Overlap drip edge joints with second row covering the first one so water won't run under the strip.
- 11 The third row overlaps 5" above the doubled row. The first shingle should have 5" cut off from a full shingle (31").
- 12 The first shingle in each row should be 5" shorter than the previous row until you reach a 16" length, and then repeat the pattern. (i.e. 26", 21", 16", then 36", 31", 26", etc.). This is to stagger the breaks in shingles along the roof. <See Illustration R.3>

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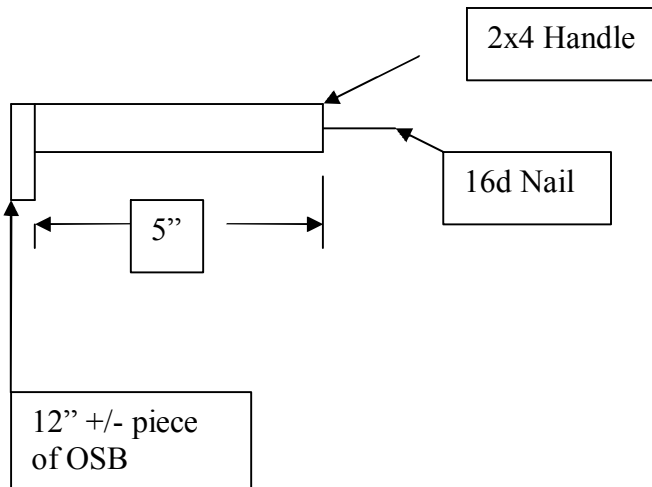
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- 13 The chalk line indicates the top of a row of shingles. Keep the rows even and level and make any needed corrections using the chalk line as a guide. A 5" spacing block can be used to help keep the rows even.
- 14 Roll the ridge vent along the ridge and nail about every 16" on each edge. Cut shingles in three 12" widths and turn the strips at right angles to their normal direction (so the 12" dimension runs over the ridge). Nail the strips over the ridge vent with 5" lap on each shingle.
- 15 Place the bottom of a mechanical fixture on TOP of the shingles below; place the top of the fixture **BELOW** the above shingles.
- 16 To cut a shingle, cut it on the back.
- 17 Only the **FIRST** and **LAST** shingles in each row may be cut short. Always use full shingles in between (unless the last is too short).
- 18 No partial shingles should be less than 6". If you come to the end of a row and the last shingle is too short, cut the adjacent one short so both will be OK. Remember to keep the joints staggered if you have to cut shingles.
- 19 Use 4 nails per shingle. Nail in the tar strip to prevent leaks.

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- Do not lean ladders against the 1/4" overhang of shingle; block the ladder away as to not damage the shingles.
- Use roofing tar on all exposed nails and potential water leaks.
- Use metal valley and sticky-backed tarpaper for valley flashing.



5" Shingle
spacing tool