



CHAPTER 15

APPLICATION OF NON-SELF-ADHERED SINGLE AND DOUBLE COVERAGE ROLL ROOFING

SINGLE COVERAGE:

Asphalt roll roofing is typically manufactured in 36" wide sheets and comes in a variety of weights, surface materials and colors. It is used both as a primary roof covering and as a flashing material.

When maximum service life is an important consideration, use the concealed nail method of application. The type of nail shall fit the application and have a length sufficient to penetrate $\frac{3}{4}$ " into the deck or through the deck panel. As a primary roof covering, roll roofing is used on slopes down to 1" per foot. The roofing is applied either parallel to the eaves or parallel to the rakes.

Store the material in a warm place on its end until ready for use, especially during the colder seasons of the year. It is not good practice to apply roll roofing when the temperature is below 45°F. If rolls are handled below this temperature and have not been stored as suggested, warm them before unrolling to avoid cracking the coating. Cut the rolls into manageable 12' to 18' lengths and spread them in a pile on a smooth surface until they flatten out.

Before applying roll roofing, prepare the deck and install the necessary flashing in the same manner as described in Chapter 7 for strip shingles. Valleys will be the open type, so follow the appropriate valley flashing procedures.

[Warning]

Excessive amounts of cement may cause blistering of roll roofing. Allow sufficient time for volatiles to flash off.

Because all roll roofing is applied with a certain amount of top and side lapping, proper sealing of the laps is critical. Use only the lap cement recommended by the roofing manufacturer. Store the cement in a warm place until ready to use. The lap cement is asphalt based and contains solvents, therefore, always take proper safety precautions. Lap cement should never be heated directly over an open flame. Do not attempt to thin the cement by diluting it with solvent.

When cementing roll roofing, apply the cement in a continuous (but not excessive) layer over the full width of the lap.

Press the lower edge of the upper course firmly into the cement until a small bead appears along the edge of the sheet. Using a roller, apply pressure uniformly over the entire cemented area. Unless otherwise noted by the roofing manufacturer, apply lap cement conforming to ASTM D 3019 at the rate specified by the coating manufacturer.



APPLICATION PARALLEL TO THE EAVES

A. Concealed Nail Method (Slopes of 1" Per Foot or Greater)

When using this method, narrow edging strips are placed along the eaves and rakes before applying the roofing. Figure 15-1 illustrates the general installation procedure, including lapping, cement and nailing.

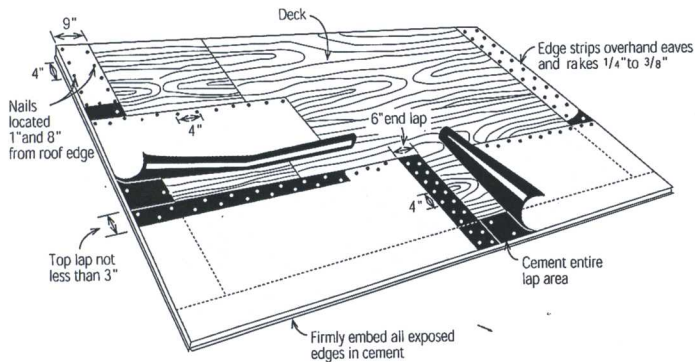


Figure 15-1
Concealed nail method of
applying roll roofing parallel
to the eaves

1. Edge Strips

Place 9" wide strips of roll roofing along the eaves and rakes, positioning them to overhang the deck $\frac{1}{4}$ " to $\frac{3}{8}$ ". Fasten the strips with rows of nails located 1" and 8" from the roof edge and spaced 4" on center in each row.

2. First Course

Position a full-width strip of roll roofing so that its lower edge and ends are flush with the edge strips at the eaves and rakes. Fasten the upper edge with nails 4" on center and slightly staggered. Locate the nails so that the next course will overlap them a minimum of 1". Lift the lower edge of the first course and cover the edge strips with cement according to the manufacturer's specifications. In cold weather, turn the course back carefully to avoid damaging the roofing material. Press the lower edge and rake ends of the first course firmly into the cement-covered edge strips. Work from one side of the sheet to the other to avoid wrinkling or bubbling.

End laps should be 6" wide and cemented over the full lap area with the recommended cement. Nail the underlying sheet in rows 1" and 5" from the end of the sheet with the nails spaced 4" on center and slightly staggered. End laps in succeeding courses should be offset at least 18" to prevent lining up with one another.

3. Second and Succeeding Courses

Position the second course so that it overlaps the first course at least 3" or as specified by the roofing manufacturer. Fasten the upper edge to the deck, cement the laps and finish installing the sheet in the same manner as the first course. Follow the same procedure for each successive course. Do not apply nails within 18" of the rake until cement has been applied to the edge strip and the overlying strip has been pressed down.

4. Hips and Ridges

Trim, butt and nail the sheets as they meet at a hip or ridge. Next, cut 12" x 36" strips from the roll roofing and bend them lengthwise to lay 6" on each side of the joint. Do not bend the strips in cold weather without first warming them. These will be used as "shingles" to cover the joint, each one overlapping the other by 6" as shown in Figure 15-2.

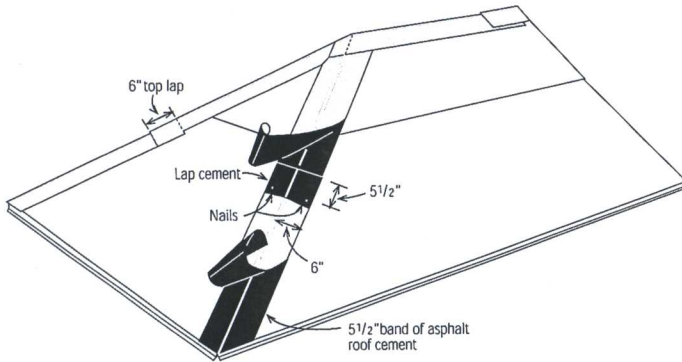


Figure 15-2
Concealed nail method of applying roll roofing at the hips and ridges

Start hips at the bottom and ridges at the end opposite the direction of the prevailing winds. To guide the installation, snap a chalk line 5 1/2" from and parallel to the joint on both sides. Apply asphalt plastic cement evenly over the entire area between chalk lines from one side of the joint to the other. Fit the first folded strip over the joint and press it firmly into the cement, driving two nails 5 1/2" from the edge of the end that will be lapped. Cover the 6" lap on this strip with lap cement. Place the next strip over it then nail and cement in the same manner as the first strip. Continue the same procedure until the hip or ridge is finished.

B. Exposed Nail Method (Slopes of 2" Per Foot or Greater)

Figure 15-3 illustrates the general installation procedures, including lapping, cementing and nailing.

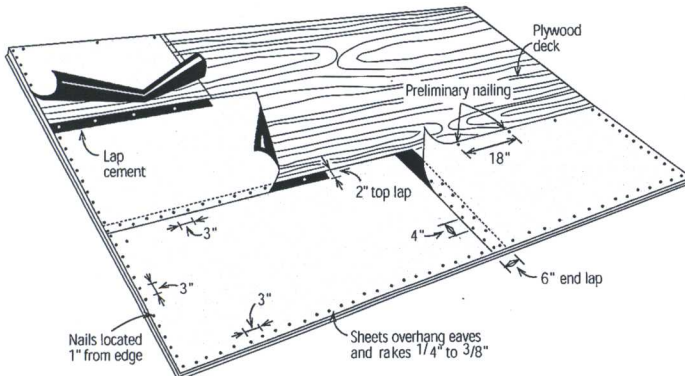


Figure 15-3
Exposed nail method of applying roll roofing parallel to the eaves

1. First Course

Position a full-width sheet so that its lower edge and ends overhang the eaves and rakes between $\frac{1}{4}$ " and $\frac{3}{8}$ ". Nail along a line $\frac{1}{2}$ " to $\frac{3}{4}$ " parallel to the top edge of the sheet, spacing the nails 18" to 20" apart. This top nailing holds the sheet in place until the second course is placed over it and fastened. Nail the eaves and rakes on a line 1" parallel to the edges of the roofing with the nails spaced 3" on center and staggered a bit along the eaves to avoid splitting the deck.

If two or more sheets must be used to continue the course, lap them 6". Apply lap cement to the underlying edge over the full lap width. Embed the overlapping sheet into it and fasten the overlap with two rows of nails 4" apart and 4" on center within each row. Stagger the rows so that the spacing is 2" between successive nails from row to row.

2. Second and Succeeding Courses

Position the second course so that it overlaps the first course by 2". Fasten the second course along the top edge following the same nailing directions as the first course. Lift the lower edge of the overlapping sheet and apply lap cement evenly over the upper 2" of the first course, then embed the overlapping sheet into it. Fasten the lap with nails spaced 3" on center and staggered slightly. Place the nails not less than $\frac{3}{4}$ " from the edge of the sheet. Nail the rake edges in the same manner as the first course. Follow the same procedure for each successive course. End laps should be 6" wide and cemented and nailed in the same manner as the first course. Stagger end laps so that an end lap in one course is never positioned over the end lap in the preceding course.

3. Hips and Ridges

Trim, butt and nail the roofing as it meets at a hip or ridge. Snap a chalk line on each side of the hip or ridge, located $5\frac{1}{2}$ " from the joint and parallel to it. Starting at the chalk lines and working toward the joint, spread a 2" wide band of asphalt lap cement on each side of the hip or ridge. (See Figure 15-4)

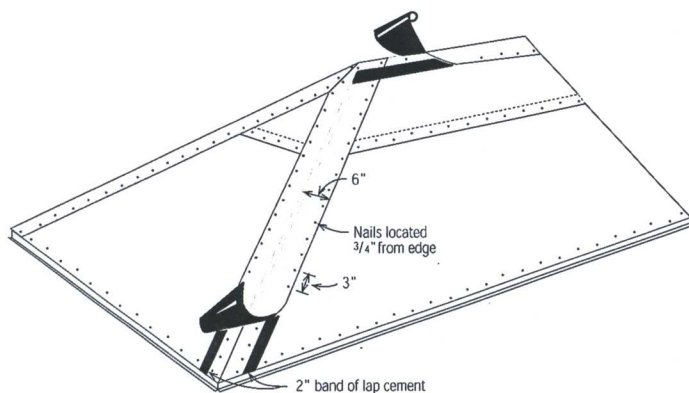


Figure 15-4
Exposed nail method of
applying roll roofing to
hips and ridges

Cut strips of roll roofing 12" wide and bend them lengthwise along the centerline so that they will lay 6" on each side of the hip or ridge. In cold weather, warm the roofing before bending it. Lay the bent strip over the joint and embed it in the cement. Fasten the strip to the deck with two rows of nails, one on each side of the hip or ridge. The rows should be located $\frac{3}{4}$ " from the edges of the strip and the nails spaced 3" on center. Be sure the nails penetrate the cemented zone underneath which will seal the nail hole with asphalt. End laps should be 6" and cemented the full lap distance. Avoid excessive use of cement as it may cause blistering.

APPLICATION PARALLEL TO THE RAKE

A. Concealed Nail Method (Slopes of 1" Per Foot or Greater)

With this method, illustrated in Figure 15-5, the sheets are applied vertically from the eaves up. Lay the sheets out and let them warm in the sun until they lie smoothly on a flat surface. If you nail the sheets before they have time to relax, wrinkling may occur.

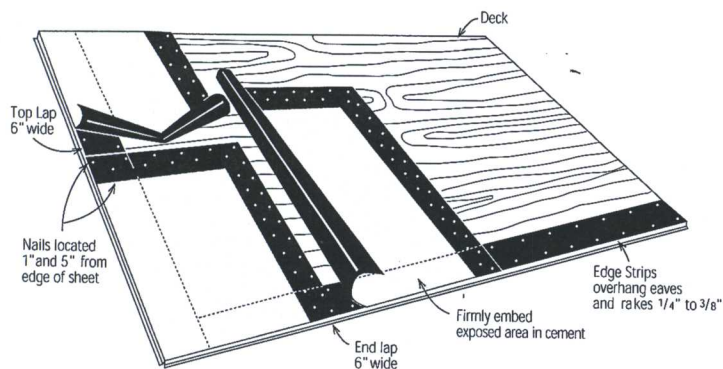


Figure 15-5
Concealed nail method
of applying roll roofing
parallel to the rake

1. Edge Strips

Place 9" wide strips of roll roofing along the eaves and rakes. Placement and nailing of these strips is identical to the description found in the concealed nail method for application parallel to the eaves.

2. First Course

Position the first sheet so it is flush with the edge strips at the rake and eaves. Fasten the upper edge with nails located 1" and 5" from the top edge of the sheet with the nails spaced 4" on center. Carefully lift the first sheet back and cover both edge strips with an even layer of roof cement. Remember that excessive amounts of roof cement may cause blistering. Press the sheet firmly into the cement and work from the top of the sheet down to avoid wrinkling or bubbling.



End laps should be a minimum of 6" wide. Fasten the length of the end lap with nails 4" on center and slightly staggered. Locate the nails so that the next sheet will overlap them a minimum of 1". End laps should be cemented over the full lap area with recommended lap cement.

Top laps should be a minimum of 6" wide. Stagger the top laps of adjoining sheets to prevent a buildup where the sheets intersect. End laps should be sealed over the full lap area with the recommended lap cement.

3. Second and Succeeding Courses

Position the second course so that it overlaps the first course at least 6". Fasten the upper edge to the deck, cement the laps and finish installing the sheet in the same manner as the first course. Do not apply nails within 18" of the rake until cement has been applied to the edge strip and overlying strip has been pressed down. Remember to apply all cement in a continuous (but not excessive) layer over the full width of the lap. Press the edge of the sheet into the cement until a small bead appears at the lap. Use a roller to apply uniform pressure over the entire cemented area.

4. Hips and Ridges

Finish the roof at these joints in the same manner as the concealed nail method of application parallel to the eaves.

APPLICATION OF DOUBLE COVERAGE ROLL ROOFING

Double coverage roll roofing is a 36" wide sheet of which 17" is intended for exposure and 19" for a selvage edge. It provides double coverage for the roof and may be used on slopes down to 1" per foot.

The 17" exposed portion is covered with granules while the 19" selvage portion is finished in various manners depending on the manufacturer. Some saturate the selvage portion with asphalt; some saturate and coat it.

The selvage edge and all end laps should be cemented according to the manufacturer's recommendations. Thus, it is important to know the requirements of the particular product being used and follow the roofing manufacturer's directions concerning the type and quantity of adhesive. Unless otherwise noted by the roofing manufacturer, apply asphalt lap cement conforming to ASTM D 3019 at the rate of 1 gallon per 100 ft² of covered area or as recommended by coating manufacturer.

Make certain there is adequate roof drainage to eliminate the possibility of water standing in puddles (ponding). This is especially important on the low slopes on which double coverage roofing is commonly used. Choose the correct type and length of nail to fit the application. The fastener should be able to penetrate the deck 1/2" or through the deck panel.

Observe the same precautions concerning storage, application temperature and warming of the rolls as those described for single coverage roll roofing. Similarly, store asphalt cements in a warm place until ready for use.

Application of double coverage roll roofing may be parallel to the eaves or parallel to the rake. Although 19" selvage roll roofing is discussed here, any roll roofing may be applied in the same manner to obtain double coverage if the lapped portion of the sheet is 2" wider than the exposed portion.

Before applying the roofing, prepare the deck and install flashings in the same manner as described in Chapters 6, 7, and 10. Valleys will be the open type, so follow the appropriate valley flashing procedures.

APPLICATION PARALLEL TO THE EAVES

A. Starter Strip

Remove the 17" granule-surfaced portion from a sheet of double coverage roll roofing. Install the 19" selvage cut portion of the roofing parallel to the eaves so that it overhangs the drip edge $\frac{1}{4}$ " to $\frac{3}{8}$ " at both the eaves and rakes. Fasten it to the deck with two rows of nails, one on a line 5" from the top edge of the strip, the other on a line 1" above the lower edge. Nail spacing should be 12" on center, slightly staggered them in each row. (See Figure 15-6)

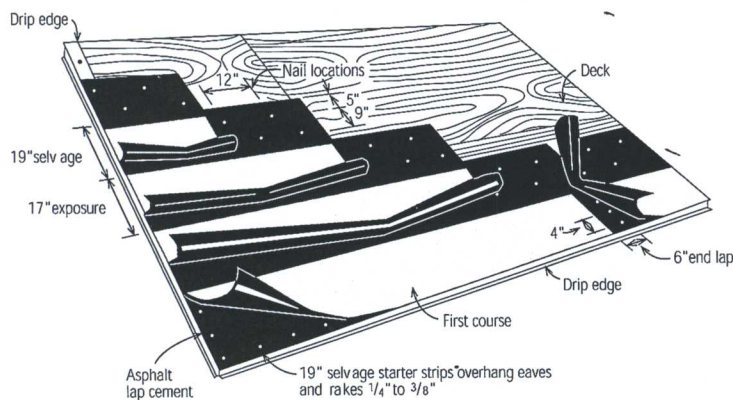


Figure 15-6

Application of double coverage roll roofing parallel to the eaves

B. First Course

Cover the entire starter strip with asphalt roof cement. Avoid excessive use of cement as it may cause blistering. Then position a full-width sheet over it. Place the sheet so that the side and lower edge of the granule-surfaced portion are flush with the rake and eaves edges of the starter strip. Fasten it to the deck with two rows of nails in the selvage portion. Locate the first row 5" below the upper edge and the second row 9" below the first with the nails spaced 12" on center and staggered.



C. Succeeding Courses

Position each succeeding course so that it overlaps the full 19" selvage width of the course below and nail the selvage portion in the same manner as the first course. Carefully turn the granule portion of the sheet up and apply cement to the full selvage portion of the underlying sheet. Spread the cement to within $\frac{1}{4}$ " of the edge of the exposed portion. Press the overlying sheet firmly into the cement. Apply pressure over the entire lap using a broom or light roller to ensure complete adhesion between the sheets. It is important to apply the cement so that it flows to the edge of the overlying sheet under the application pressure. Avoid excessive use of cement as it may cause blistering. Follow the roofing manufacturer's recommendations.

[Caution]

Never cement roll roofing directly to the deck. This will ensure that the sheets do not split due to deck movement. To make certain that roll roofing is not cemented to the deck when hot application is allowed, nail down a base sheet.

D. End Laps

All end laps should be 6" wide. Fasten the underlying granule-surfaced portion of the lap to the deck with a row of nails 1" from the edge. Space the nails 4" on center then spread asphalt roof cement evenly over the lap area. Embed the overlying sheet in the cement and secure the selvage portion of the sheet to the deck with nails on 4" centers in a line 1" from the edge of the lap. Stagger all end laps so that those in successive courses do not line up with one another.

APPLICATION PARALLEL TO THE RAKE

With this method, the sheets are applied vertically from the ridge down. Begin by applying starter strips to both rakes using the same procedures as in horizontal application. Cover the starter strip with lap cement and apply a full-width sheet over it as the first course. Position all end laps so that the upper sheet overlies the lower one, thereby carrying drainage over the joint rather than into it. The remainder of the application is then the same as that for parallel to the eaves. Figure 15-7 shows the general arrangement for application parallel to the rake.

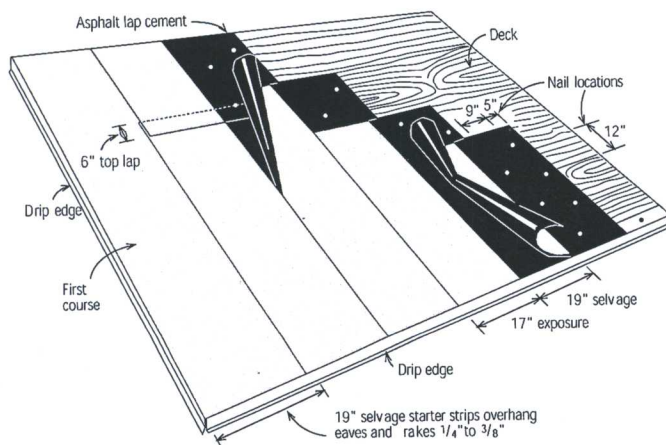


Figure 15-7
Applications of double coverage roll roofing parallel to the rake

HIPS AND RIDGES

For both applications, trim, butt and nail the roofing sheets as they meet at a hip or ridge. Snap chalk lines 5½" from and parallel to the joint on each side to guide the installation.

Next, cut 12" x 36" strips of roll roofing that include the selvage portion. Bend the strips lengthwise to lie 6" on either side of the joint. In cold weather, be sure to warm the strips before bending. Start applying the strips at the lower end of the hip or at the end of the ridge opposite the direction of prevailing winds.

Cut the selvage portion from one strip to use as a starter. Fasten this strip in place by driving nails 1" from each edge and 4" on center over the full length. Cover it completely with asphalt roof cement. Fit the next folded strip over the starter and press it firmly into the cement, nailing it in the same manner as the starter but only in the selvage portion. Continue the process until the hip or ridge is completed. Figure 15-8 illustrates the procedure.

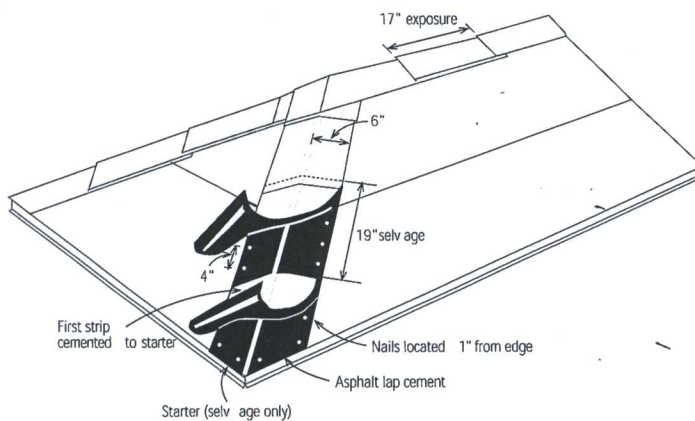


Figure 15-8
Application of double
coverage roll roofing to
hips and ridges

Double coverage roll roofing is frequently used on sheds which contain no hips or ridges. To finish this type of roof, trim and nail the selvage portion of the last course to the edge of the roof. Then trim the exposed, granule-surfaced portion that had been cut from the starter strip to fit over the final selvage portion and cement it in place. Finally, overlay the entire edge with metal flashing and cement it in place.