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Roofing Systems: Standing Seam Roofing

Description: Standing seam roofing is composed of preformed or field formed pans, usually about 18 to 24 inches wide when finished. The recommended dimensions should be specified from the table below. These pans run parallel to the slope of the roof, and are joined to adjacent pans with double locked standing seams. Fixed copper cleats, spaced 12" apart and locked into these seams, secure the roofing to the deck. This method limits slippage between pans, and is recommended for use with pans up to 10' long.

When preformed pans are used, they are joined at their upper and lower ends by transverse seams. These seams should be staggered for adjacent pans to avoid excessive thickness of copper at the standing seam.

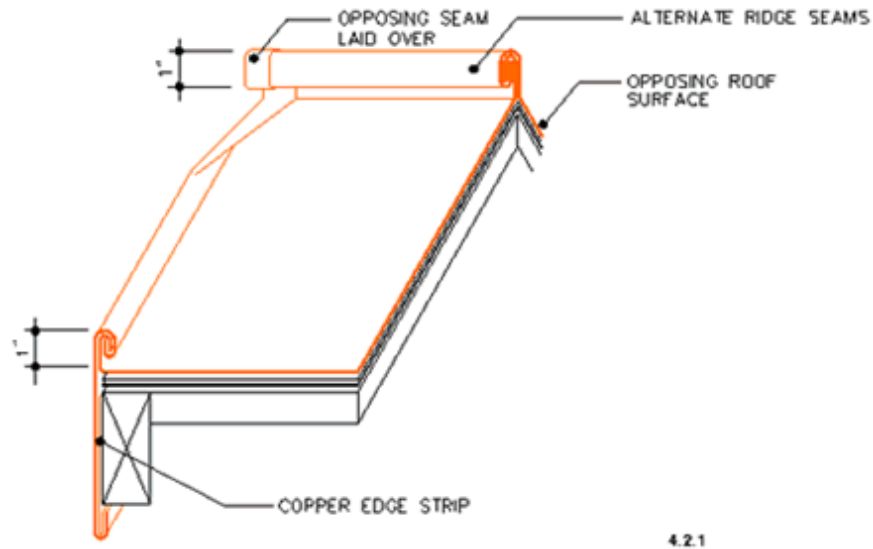
Field forming involves the use of copper in flat sheets or rolls which are formed into pans by power panformers. Long rafter-length pans can be made, eliminating the need for transverse seams, however eave and ridge details must allow for copper expansion and contraction characteristics. See [Roofing Systems - Long Pan](#), for additional information.

Special Conditions: The details shown are for roof slopes of at least 4" per foot. For roof slopes less than 4" per foot, and areas where ice, snow or heavy rain conditions occur, see [Roofing Systems - Special Roofing Design and Installation Considerations section](#).

For standing seam roofing using pan lengths greater than 10 feet in length see [Roofing Systems - Long Pan](#), for discussion.

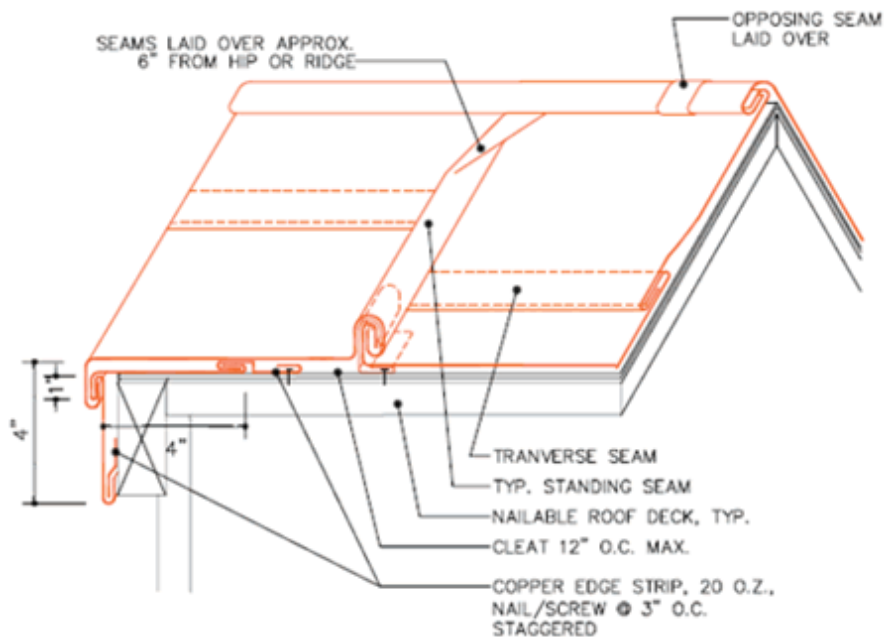
Decking Requirements: Nailable deck or nailing strips.

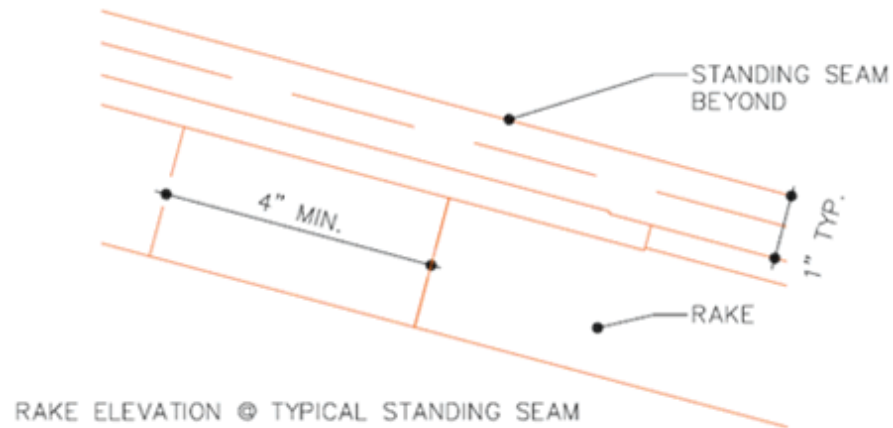
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A. Gable Rake This detail shows a typical gable rake and ridge seam. Adjacent lengths of rake strips should be lapped at least 3" in the direction of flow. Opposing standing seams are staggering to avoid excessive thickness of copper at the ridge.

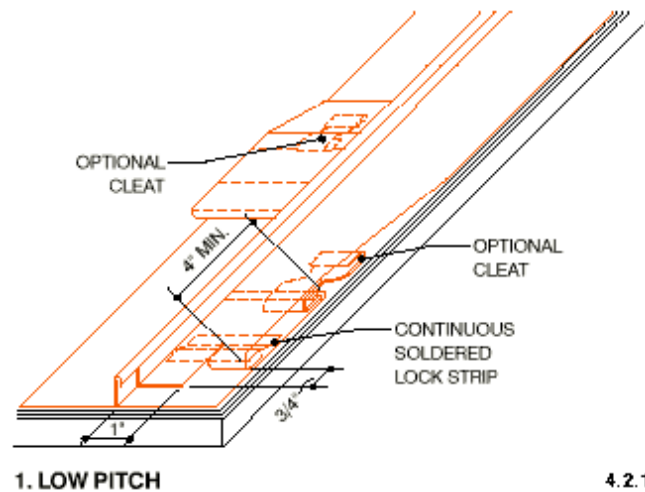
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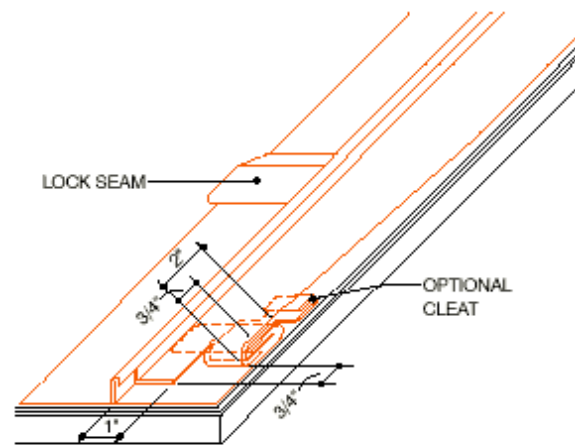




B. Typical Standing Seam A typical standing seam with cleats. Alternative gable rake and ridge seam are also shown in this detail. The gable detail shown in [Detail A](#) is generally preferred since it minimizes water washing down the gable end. All ridges should be cleated at 12" O.C.

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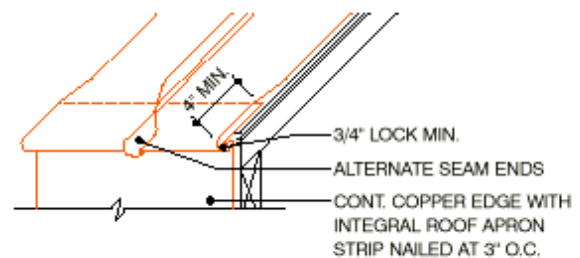
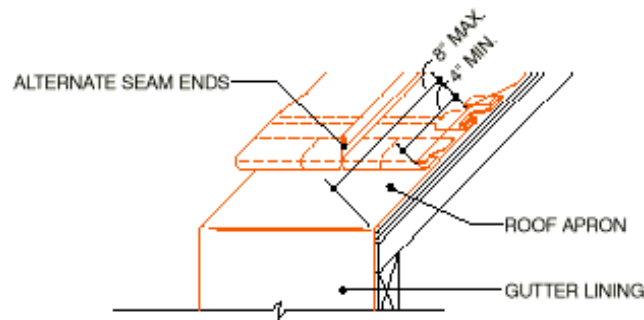


**2. STEEP PITCH**

4.2.1

C. Transverse Seams Two types of transverse seams are shown. The detail on the first example above is recommended only for steep pitch roofs, 6 or more inches per foot. The detail on the second can be used for roof slopes as low as 3 inches per foot. For roof slopes less than 3 inches per foot, and areas where ice, snow or heavy rain conditions occur, see [Roofing Systems - Special Roofing Design and Installation Considerations](#).

Cleats may be used at transverse seams to facilitate installation for sheets 10' or less in length.

**1. TYPICAL EAVE WITHOUT GUTTER — STEEP PITCH****2. EAVE WITH GUTTER LINING — LOW PITCH**

D. Eave Details Two types of eaves, one with a gutter and one with a copper edge strip are shown.

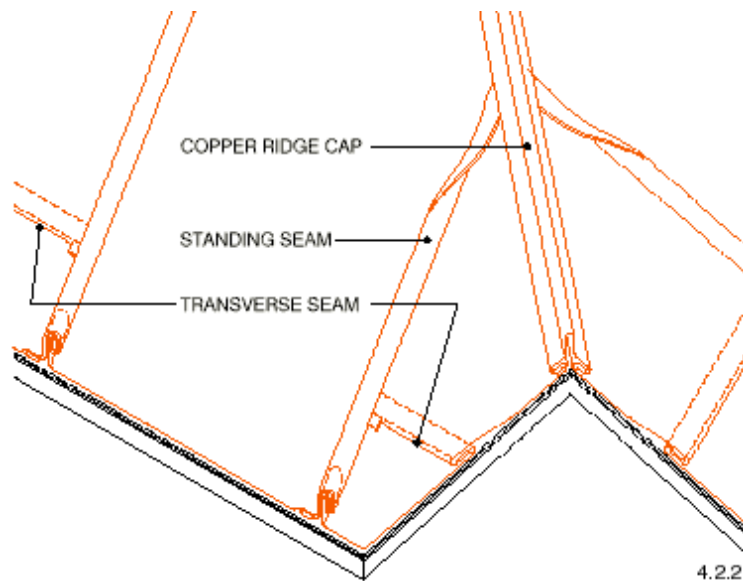
The eave ends of the standing seam are formed and folded vertically. Under the roofing, a continuous integral apron is installed and nailed at 3" O.C. in a staggered pattern.

The integral gutter lining apron in **Detail 2** should be a maximum of 8" in width, along the roof.

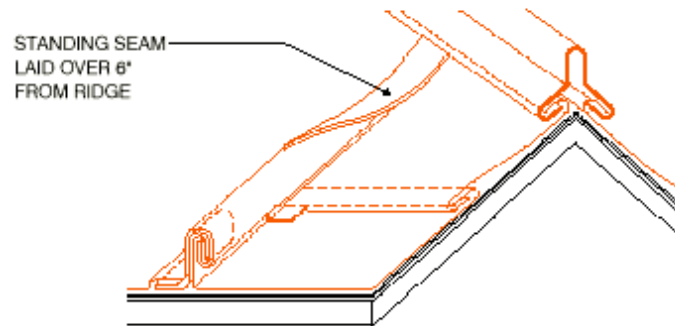
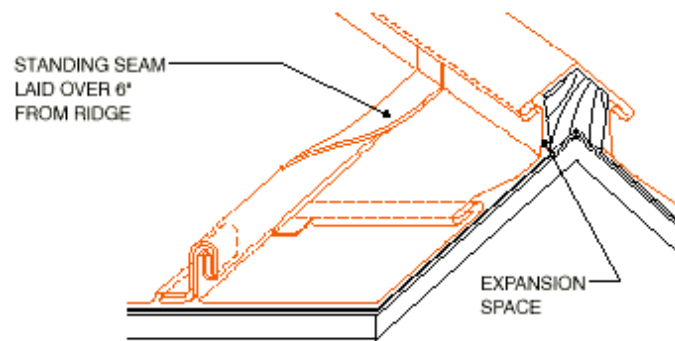
Table 4.2.1.1 Typical Seam Spacing for 1/2" Locks

| Width of Sheets | Seam Spacing (Inches) | | | Recommended Copper Wt. (Ounces) |
|-----------------|-----------------------|-------------|-----------------|---------------------------------|
| | Seam Ht. 7/8" | Seam Ht. 1" | Seam Ht. 1-1/4" | |
| 18 | 15 | 14-1/4 | 14-3/4 | 16 |
| 20 | 17 | 16-1/4 | 16-3/4 | 16 |
| 22 | 19 | 18-1/4 | 18-3/4 | 16 |
| 24 | 21 | 20-1/4 | 20-3/4 | 20 |
| 26 | 23 | 22-1/4 | 22-3/4 | 20 |
| 28 | 25 | 24-1/4 | 24-3/4 | 20 |

CAD File



E. Standing Seam at Hip This detail shows a method of finishing the standing seams of a copper hip roof along the sloping ridges. This method allows standing seams to be concealed by a ridge cap which affords both a clean appearance and weather tight seal.

**ALTERNATIVE 1****ALTERNATIVE 2**

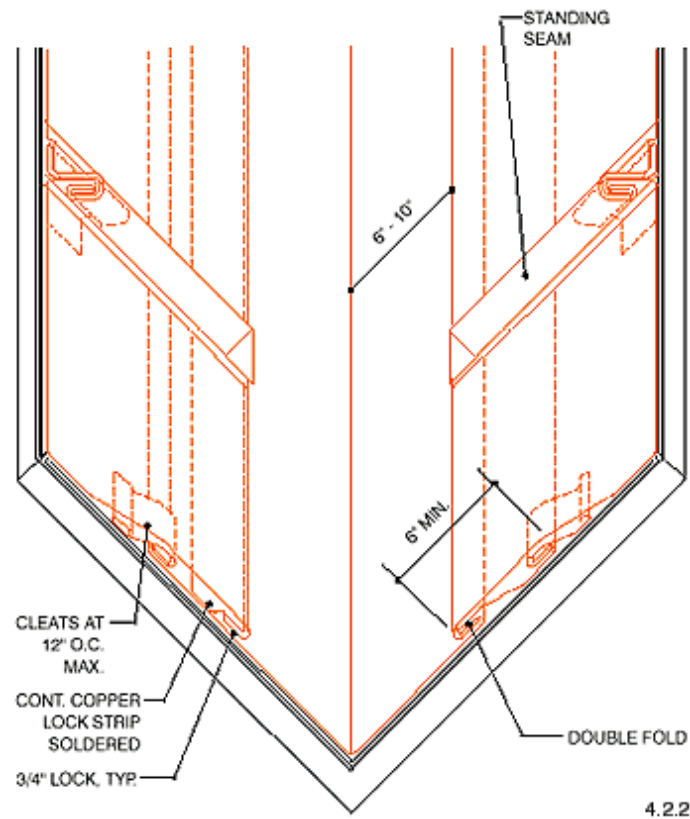
4.2.2

F. Alternative Ridge Caps Two alternative methods of detailing a ridge are shown. Both can be used at a gable ridge and/or a sloping hip ridge. The standing seams are laid over a minimum of 6" from the ridge.

In **Alternative 1**, a continuous copper cap is used to secure standing seams along the ridge. The ridge cap is loose locked into the upper edges of the roofing pans allowing for expansion and contraction. See [Detail D](#) for similar termination at eave.

In **Alternative 2**, the ridge is formed by a wood batten clad with a copper cap. The standing seams fold and lock into the batten cap along the vertical batten face. See [Detail C](#) for similar termination at eave.

[CAD File](#)

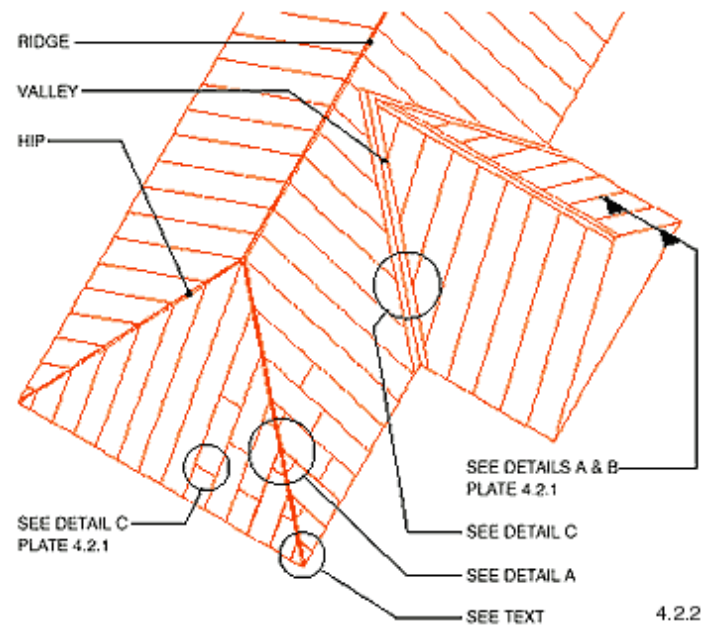


4.2.2

G. Detail at Valley This detail shows a method of detailing a valley condition on a standing seam roof. The copper roofing laps the valley flashing a minimum of 6" and is folded and locked into a continuous copper locking strip. The continuous locking strip is soldered to the valley flashing.

An Alternate method is to use a double fold in the valley flashing, instead of a locking strip. Both methods are shown in the detail.

[CAD File](#)



H. Overall View of Standing Seam Roof This overall view of a standing seam roof shows the basic concept.

For Additional Information:

- [Flashing and Copings](#), under the appropriate sections for flashing details.
- [Basic Details](#), for information on seams, fixed and expansion cleats, hold-downs, edge strips and transverse seams.
- [Roofing Systems - Long Pan](#), for requirements when using pans greater than 10' in length.

Equipment Available: This includes machine panformers, which use flat or coiled sheet copper to field form pans, and power seamers, which form full-finished, 1" high, locked standing seams.

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