



# Building Guide

Colorado Chapter of the International Code Council

## Single Family Residential Re-roofing

**This handout addresses the frequently asked questions regarding re-roofing and to list the typical inspection and installation requirements for common types of roofing materials.**

### Things to be aware of before starting

- Many jurisdictions have additional application requirements because of high winds or snow and ice buildup.
- Fire Resistant roofing materials may be required by your Building Department.
- If there is a Homeowners Association and a change in roof covering material is planned, it is advisable to contact them.

### Frequently asked questions

#### 1. Is a permit required to re-roof my house?

Yes. Please contact your Building Department for requirements specific to your area.

The Colorado Chapter of the International Code Council is a professional organization seeking to promote the public health, safety and welfare to building construction. We appreciate your feedback and suggestions. To obtain a master copy of this building guide, please write to the Colorado Chapter of the International Code Council, P.O. Box 961, Arvada, CO 80001.  
<http://www.coloradochaptericc.org>

#### 2. May I, as a homeowner, do the re-roof myself?

Yes.

#### 3. Will my roof be inspected?

Yes, the permit holder must call for inspection(s) required by jurisdictions.

#### 4. How many layers of roofing are allowed?

Contact your building department.

#### 5. May nail guns be used?

If it is properly adjusted and is used correctly, a nail gun is allowed. (Refer to requirements under fasteners.)

#### 6. What should be done with the existing roof jacks & vents?

Roof jacks/vents must be raised to the level of the new roof and replaced if they are in poor condition, badly rusted or otherwise deteriorated.

#### 7. What if my roof slope is less than 4:12?

Contact your Building Department to learn about the requirements for low slope applications.

### Preparation checklist for the successful installation & longevity of your new roof

#### Roof Sheathing Preparation (For Complete Tear Offs)

- The roof sheathing must provide a rigid surface.
- Repair or replace all boards or sheathing which are warped, cracked or delaminated between supports.

#### Underlayment (For Complete Tear Offs)

- Apply new, minimum 15# asphalt saturated felt underlayment over a DRY deck.
- For roofs with slopes of 4:12 or greater, one layer of underlayment is required. For roofs with slopes between 2:12 and 4:12, 19" laps of underlayment is required, starting with a 19" strip, then full sheets.
- For roofs with slopes of less than 2:12, contact your Building Department.

#### Fasteners (For All Roofs)

- Fasteners must be long enough to penetrate through the total thickness of the roofing and a minimum of 3/4" into the decking material.
- For open soffits, contact your Building Department.
- Nails must not be over or under driven, the head must be flush with the shingle surface and located per the package instructions. Nails must be driven in perpendicular to the roof surface.

This handout was developed by the Colorado Chapter of the International Code Council as a basic plan submittal under the 2009 International Residential Code. It is not intended to cover all circumstances. Check with your Department of Building Safety for additional requirements.

Pueblo Regional Building Dept.  
316 West 15th Street  
Pueblo, Colorado 81003  
(719) 543-0002

# Single Family Residential Re-roofing

## Roofing material installation checklist for the successful installation and longevity of your new roof

### Shakes and Wood Shingles

- Felt interlace on shakes shall be 18" type 30 installed at twice the weather exposure of the material. Example: 24" shakes with 10" exposure, felt is applied at 20" from the butt.
- Install type 30 felt under hip and ridge.
- Replace any damaged or rusted metal.
- Starter course at eaves shall be doubled.
- Minimum shake width of 4" required.
- Offset gaps from course to course with a minimum 1 1/2" side lap.
- Provide a 1/4" to 3/8" gap for shingles.
- Provide a 3/8" to 5/8" gap for shakes.
- Step flashing must be interlaced at roof to sidewall junctions.
- Raise flashing at jacks vents and sidewall junctions.
- For hip and ridge caps double the first cap and alternate the overlaps. 10" exposure for 24" shakes and 7 1/2" for 18".
- A minimum 1 1/2" edge and 1" eave overhang is required. Two fasteners per shake/shingle 1" in from edge 2" up from exposure line.
- Shakes/shingles in valleys must be angle cut.
- Limit the number of exposed fasteners.
- Defective shakes, i.e. bark, knots, curling and thin areas are not permitted.

### 3 Tab or Laminate Shingles

- A cricket or saddle shall be installed on the ridge side of any chimney greater than 30" inches wide.
- A starter course with factory adhesive at the eave line or a manufactured starter with a tar sealant is required.
- Fasten with 4 nails per strip shingle and 6 nails in high wind areas. Do not nail into the factory applied adhesive. Locate fasteners per manufacturer's instructions.
- There should be no tab offset joints closer than 4" between adjacent rows.
- Raise all roof jacks and vents so that shingles are underneath the lower edge of the flange -- shingle over the top and sides at least past the point of roof penetration. Fasten down the lower edge.
- At roof to vertical junctions, shingle under the flashing.
- At sidewall junctions, provide sealant unless the re-roof is a tear-off, then re-interlace with step flashing.
- An edge and eave overhang of 3/8" - 1/2" is required.
- Closed, woven or open valleys must be properly installed.
- Replace any damaged or rusted metal.
- Nail heads must be flush with shingle surface, not penetrating the shingles or above shingle surface.

### Interlocking

- A starter course is required.
- Nails & nail placement must be per manufacturer's specifications.
- Raise flashing at all jacks, vents and roof to vertical junctions.
- Hand seal with roofing adhesive or face nail gable and rake edges.
- Hand seal loose tabs at valleys. Closed valleys are not allowed.
- A maximum 5" exposure for hip and ridge caps is allowed.
- An edge and eave overhang of 3/8" - 1/2" is required.

### Tile, Metal & Special Roofs

- An engineered analysis of the roof structure is required if the roofing material type exceeds 7.5 pounds per square foot.
- These roofs must be applied as per manufacturer's specifications.
- A mid roof inspection may be required.
- A complete copy of the manufacturer's specifications and installation instructions must be on site and available for the installers and the building inspector.

### Rolled Roofing

- Some rolled roofing is allowed for low slope roofs with a pitch as low as 2:12.
- Some rolled roofing may be used on a slope as low as 1:12 if it is installed using the concealed nail method or the double coverage method as per the manufacturer's installation instructions.
- For low slope applications, please contact your Building Department.
- An edge and eave overhang of 3/8" - 1/2" is required.

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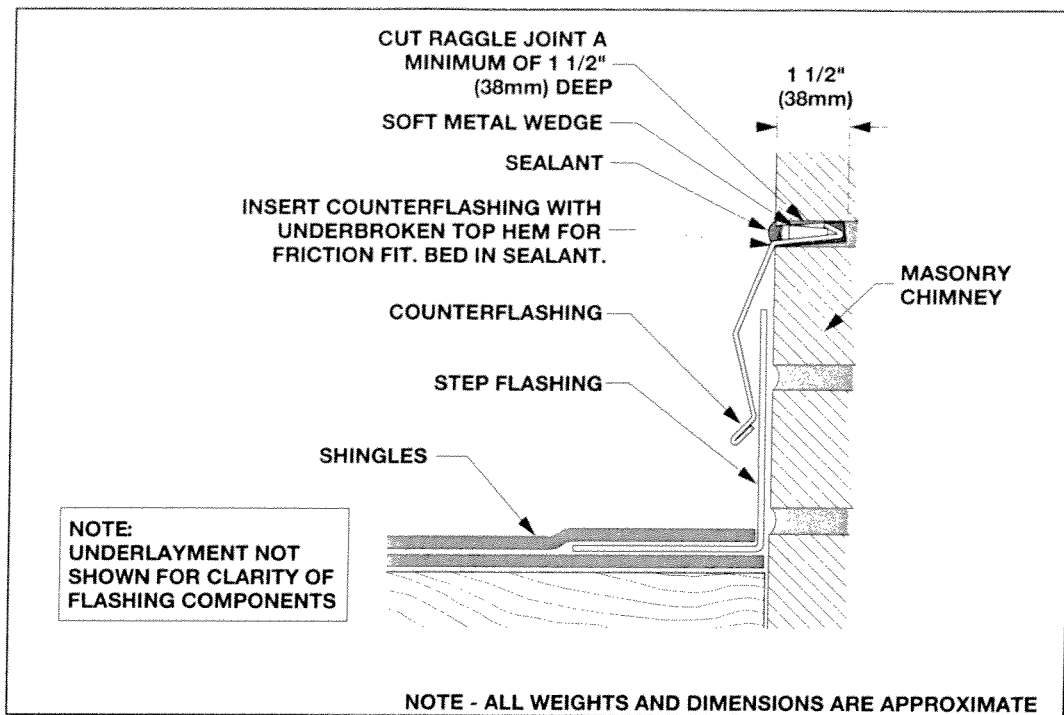


Figure 45A Metal counterflashing inset in masonry mortar joint.

This open joint is referred to as a raggle joint. Inset counterflashing may be installed in the following manner:

- The depth of the raggle should be a minimum of 1½ inches (40mm).
- The metal counterflashing may be formed with a friction fit extension along its upper edge. This extension should be a minimum of ½ inch (13mm), and be under-broken so that the counterflashing will fit tight into the raggle joint.
- Once the raggle is cut, fit a small sample piece of the counterflashing to be sure the raggle is deep enough.
- Cut the counterflashing into appropriate lengths. Use one continuous counterflashing piece on the front and back of the chimney. Use several similar pieces stepped up the sides, trimmed to fit the particular location.
- Clean the joints with compressed air or brush to remove mortar dust, and inject a bead of polyurethane sealant into the joint.
- Set the counterflashing into the raggle, and drive it back into the joint with a wide blade screwdriver to seat the back of the metal fully into the joint. Be sure the friction fit is tight and the counterflashing is secure. The upper exposed flange of the counterflashing, extending out of the masonry, should be sloped down to promote runoff away from the masonry joint.
- Refill the joint with polyurethane sealant. Before the sealant skins over, tool it into the joint to be sure the joint is fully sealed. The sealant should achieve positive contact with the masonry along the sealant's upper edge and with the metal along the lower edge.

For other common counterflashing options see Figures 45B and 45C.

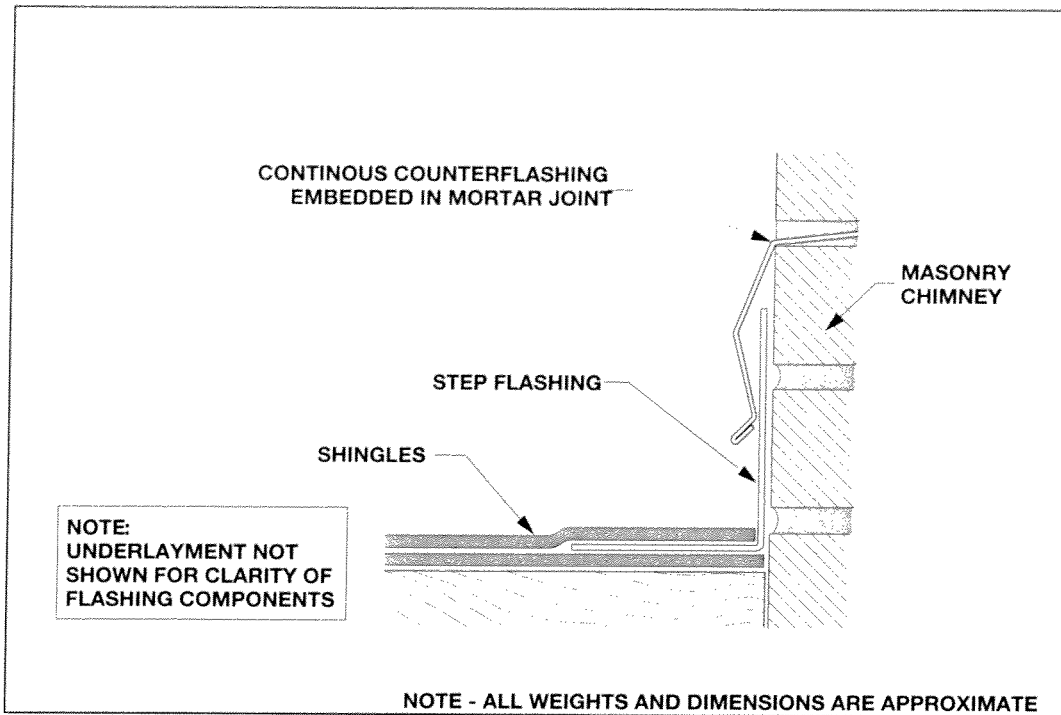


Figure 45B Through-wall metal counterflashing embedded in masonry.

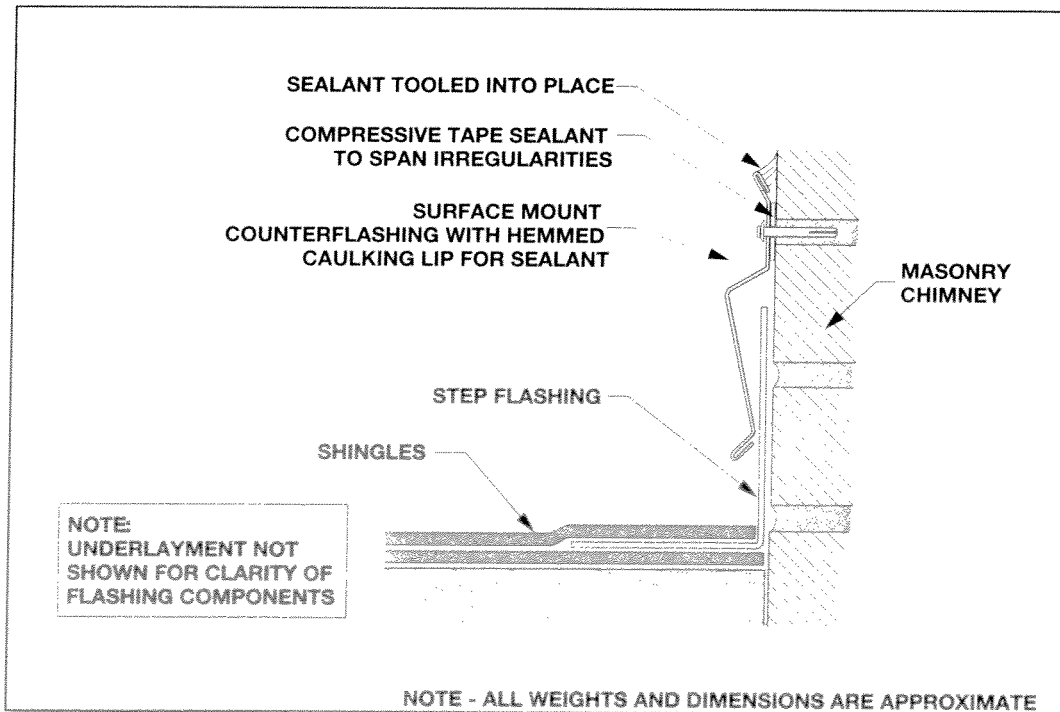


Figure 45C Surface mount metal counterflashing.

### 3.11 Additional Flashing Details

Two other flashing details that are often encountered with steep-slope roof construction are skylights and roof-to-roof transitions. See Figures 46 and 47 for suggested roof, flashing and counterflashing configurations associated with these two commonly encountered conditions.