Sonoma County Reroofing Guidelines

Revised July 2008

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Introduction

Note: Chapter 7A "Materials and Construction Methods for Exterior Wildfire Exposure" is a new chapter in the 2007 CBC which became effective January 1, 2008. This chapter incorporates requirements for the Wildland Urban Interface and areas within designated Fire Severity Zones. In unincorporated areas of the county, these FSZ's occur in what is referenced as the State Responsibility Area (SRA). In the incorporated cities, these FSZ's occur in what is referenced as the Local Responsibility Areas (LRA). These regulations are valid for new construction only and are not applicable to the requirements of re-roofing and the guidelines incorporated herein. For more information regarding these requirements for new construction, contact the appropriate building department with jurisdiction over the proposed new construction project site. Additional information can be obtained from the State Fire Marshal's website at: http:/www.fire.ca.gov/wildland.php

Introduction

These recommended guidelines for re-roofing are the product of a cooperative effort between the County of Sonoma and all of the City Building Departments in Sonoma County and representative members of the Independent Roofing Contractors of California, Inc., Northbay Chapter. The goal of this effort, which was launched in June of 2000, and revised in July of 2008, has been to develop a working outline of the California roofing industry's generally accepted standards for the application of roof decking, repairs, and roof system applications. The information contained in the *Re-roofing Guidelines* ranges from ply-wood deck nailing requirements to the installation of built-up roofing, composition asphalt shingles, metal, concrete & clay tiles, modified bitumen, and single-ply applications.

The *Sonoma County Re-roofing Guidelines* are meant to assist roofing contractors, members of Sonoma County's building departments, and consumers in understanding the specifics of re-roofing. Hopefully, the document is both useful and informative to all users. It should be noted that, though emphasis has been placed on roofing practices that are relevant to Sonoma County, much of the material within the *Guidelines* is most probably relevant to those other areas of California which share a climate similar to Sonoma County's.

As a greater aid to Sonoma County's community of roofing contractors and consumers, this document includes a number of appendices which provide Sonoma County jurisdictional-specific information, as well as sections from the 2001 Edition of California Building Code, which are relevant to re-roofing. Although the new CBC is based on the International Building Code, references from the 2001 CBC have been retained as a guideline as many of the tables and sections are no longer housed in the current code and are still valuable tools.

The information contained in this document was current at the time of publication. It should be noted, however, that building code requirements change from time to time, as do local ordinances and policies. Consequently, the *Sonoma County Re-roofing Guidelines* Drafting Committee advises contractors and consumers to verify re-roofing requirements of the jurisdiction in which they are working prior to commencing the work.

Notes: (1) *These guidelines are recommendations that are based on generally accepted roofing techniques, which have evolved over time. The techniques have been time-tested and found to be effective by the Independent Roofing Contractors of California.* ***(2)*** *Where Guideline recommendations conflict with California Building Code (CBC) requirements, local amendments or local re-roofing policies, CBC Code provisions, local amendments or policies shall prevail.*

Roof Deck Applications

Roof Deck Applications

A. Existing Deck Repairs:

1. If replacing defective decking, then new decking should match existing and be nailed in the same manner.

B. Spaced Sheathing Boards:

1. Fill-in between existing spaced sheathing boards is not allowed for composition shingle re-roofing.
2. Fill-in is allowed for other types of roofing.[1]
3. All fill-in boards should end on rafters and be attached with two fasteners per rafter location.

C. Plywood over Spaced Sheathing:

This section is applicable to plywood or oriented strand board (OSB) sheathing installed to provide a smooth surface on which to apply roofing materials and not for structural support and/or diaphragm purposes. IRCC recommends the following guidelines for such sheathing applications when installed over pre-existing spaced sheathing:

1. Sheathing shall comply with the California Building Code (CBC) and the roofing material manufacturer's installation instructions.[2]
2. Plywood vertical seams do not need to end on rafters.
3. Horizontal seams shall be fully blocked by spaced sheathing boards or by fill-in boards.
4. All fasteners shall be at least 1 1/2" in length. Staples or nails are acceptable, providing that staples have at least a 7/16th inch crown. (***Shorter fasteners are acceptable for use at overhangs to minimize penetration of visible underside)***
5. Fasteners should be placed approximately 6" apart along the horizontal edges.

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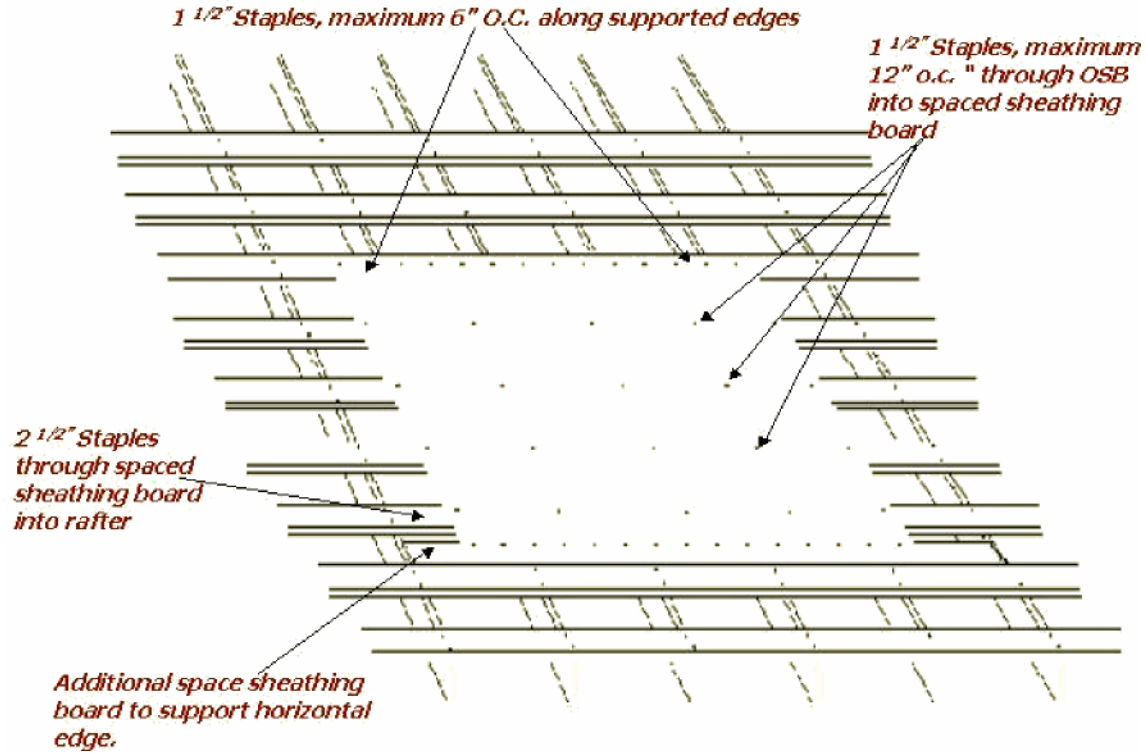
[1] *Verify with local jurisdiction.*

[2] *While 3/8 " panel thickness is allowed by 2007 CBC Table 2304.7(3) under limited circumstances, roofing material manufacturers require a minimum nail/staple penetration through the substrate of at least 1/2 ". Consequently, the use of 3/8" panel thickness for roof sheathing is not allowable without voiding the manufacturer's installation instructions.*

Roof Deck Applications

6. All vertical ends shall be fastened with at least one fastener on every spaced sheathing board.
7. All field nailing shall be placed at **a maximum of 12"** apart and roughly equidistant from top and bottom edges.
8. All exposed edges of plywood shall be covered.

Diagram of Nailing Plywood Over Spaced Sheathing



D. Sheathing for Fire Rating:

In some cases a specific type and size of plywood may be required to meet the fire rating for the combined deck and roof application. Please refer to local building codes, manufacturer's specifications, ICC-ES reports or to other design professionals for specific application requirements.

Roof Deck Applications

E. Building Inspection Requirements:

1. All new roof sheathing will require a nailing inspection, unless approved by local jurisdictions.
2. A ladder shall be provided by the contractor on the job site for all inspections.
3. The inspector will inspect the sheathing for compliance to these requirements.

Composition Shingle Roofing

Composition Shingle Roofing

A. Roof Deck:

1. Roof deck shall be solid sheathing, which meets California Building Code (CBC) and those of the roofing material manufacturer's installation requirements (refer to footnote 2, page 5)
2. Original solid plank board construction is acceptable provided large voids such as knotholes are replaced or covered with metal.
3. Fill-in between existing spaced sheathing boards is not allowed for shingle re-roofing.
4. Also see section on Roof Deck Application if needed. (refer to page 5)

B. Underlayment:

1. A minimum Type 15 (ASTM) felt underlayment is required over solid sheathing.
2. No underlayment is required when roofing over existing shingles when the pitch is at least 4/12 or more, it is recommended that a Type 30 felt be used.
3. A minimum Type 30 felt underlayment should be used when roofing over wood shingles.
4. A 72 lb. capsheet, or two layers of 30 lb., or three layers of 15 lb. felt underlayment shall be applied to all valleys where shingles are used over the valley in lieu of sheet metal (as in a "California" or woven valley.)
5. Slopes less than 4/12 pitch and greater than 2/12 should have a minimum double layer of 15 lb. felt underlayment installed in shingle fashion.
6. Application of composition shingles on slopes less than 2/12 is not recommended.
7. All sheet metal valleys shall receive a felt underlayment at least equal to the roofing underlayment.

Composition Shingle Roofing

C. Fasteners:

1. Nails should be EG type, 7/16 head, long enough to penetrate 3/4" into or through the sheathing.
2. Staples should be galvanized type, at least 7/8" crown, and long enough to penetrate 3/4" into or through the sheathing.
3. Shorter fasteners are acceptable for use at overhangs to minimize penetration of visible underside.
4. Fasteners shall be located so that they penetrate through all laminations and the selvage top of the underlying shingle.

Composition Shingle Roofing

D. Ridge:

1. Ridge should be installed with one nail minimum on each side. All nails must be galvanized.
2. Blind nailing is recommended.
3. Supplemental surface nailing is acceptable in addition to blind nailing and is desirable for high wind areas.
4. Spacing of ridge shingles shall match that of the field shingles unless otherwise specified by manufacturer.

E. Starter Coursing:

1. Can be made of shingles or rolled roofing.
2. Starter can be fastened separately or be fastened along with the first course of field shingles.
3. Low nailing of starter shingles is not recommended.
4. Supplemental spot sealing of first course of shingles is not recommended.

F. Valleys:

1. A minimum 28 gauge, 18" wide, W type valley shall be used. The shingles should overlap a minimum of 6" on each flange, or:
2. A "California Valley" consisting of shingles lapped a minimum of 12" past center of valley and covered with a shingle (bleeder strip) parallel with the center of the valley is also acceptable, or:
3. Woven shingles from each side 12" minimum onto the opposite side.

Composition Shingle Roofing

G. Chimney Flashing:

1. May be re-used, if in serviceable condition. When the roofing is over an existing roof, the base flange should be lifted and installed into the new roof.
2. If counter flashing is replaced, it may be fastened to the chimney using concrete nails and sealed with a good exterior caulking or mortared.

H. Roof Jacks and Plumbing Vents:

1. All standard roof jacks and flashings must be replaced; however, certain resizable custom fabricated roof flashings may be used if in serviceable condition.
2. When roofing over an existing roof, the flashings can be lifted and reinstalled with the new roof if in serviceable condition. Any flashings or metal edgings (etc.) which are missing, rusted or damaged must be replaced.
3. All plumbers' vents may be sealed to the flashing with flashing tape or by installation of a rubber storm collar or plastic cement.

I. Miscellaneous Flashings:

1. Flashings do not need to be painted.
2. Drip edge flashing is required only when needed to cover exposed edges of plywood.
3. Drip edge flashing is not required but is desirable to cover exposed shingles when overlaying existing roofs.

Composition Shingle Roofing

4. When flashing against a vertical side wall:
   a. The old flashings may be re-used if they are in serviceable condition.
   b. New flashings may be installed behind the wall if feasible.
   c. When roofing over composition, the old flashings may remain in the old roof. Embed the last 3" of the new shingles in asphalt plastic cement. Apply a bead of cement on top of the shingles, between the shingles, and the vertical wall.
   d. When roofing over wood shingles, the old flashings may remain in the old roof. Install 6" wide strip of mineral surfaced roofing upside down next to wall. Cover the strip with plastic cement and install the new shingles. Apply a bead of cement on top of the shingles between the shingles and the vertical wall. (As per NRCA specs.)
   e. Installation of new roof flashings and a surface mounted counter flashing caulked to the wall is also acceptable.

J. Re-cover Application:

1. Shingle re-covers over shakes, slate, clay, cement or asbestos-cement tile are not permitted.
2. No more than one overlay of composition shingles is allowed over original composition or wood shingles. No more than one overlay of architectural shingles is recommended; and, in certain jurisdictions may be prohibited.
3. All rusted or damaged sheet metal vents or flashings should be replaced.

H. Building Inspection Requirements

1. All new roof sheathing will require a nailing inspection.
2. A ladder shall be provided by the contractor on the job site for all inspections.
3. The inspector will inspect the sheathing for compliance to these requirements.

Wood Shake Roofing

Wood Shake Roofing

Note: *All complete new and re-roofing shall be done using a minimum of #1 Grade, Class "C" fire rated shakes. See Appendix A for a listing of those jurisdictions which require greater than Class C material or roof assembly.*

A. Decking:

1. Shakes may be installed over spaced or solid sheathing, with the approval of the local jurisdiction.
2. Solid sheathing of 1/2" plywood is required to meet a Class B fire rating.
3. Typical Class A fire rating may be achieved by the use of a jurisdictionally approved Class A assembly which may consist of Class B shakes 1/2” plywood and 5/8” Type X sheetrock, or an approved proprietary material. Installers will find Class A assemblies approved by each Sonoma County jurisdiction in Appendix D. Verification of the approved assembly is encouraged prior to installation.
4. Refer to section on roof deck applications when installing new sheathing over existing spaced sheathing.
5. Submit the ICC-ES approval number with your permit application.

B. Underlayment/ Interlayment:

1. All sheet metal valleys shall have a 36” wide ASTM 30 lb. felt underlayment.
2. Low slope applications may require additional underlayment. The IRCC requires a mineral surfaced capsheet underlayment on slopes greater than 2/12 and less than 4/12.
3. All field felt shall be a minimum of 18” wide ASTM 30 lb. felt interlayment installed to the desired shake exposure not to exceed a nominal 10" maximum.

C. Field Shakes:

1. All shakes shall be installed with a nominal maximum 10” exposure.
2. A total of 102" over 10 courses shall be an acceptable maximum exposure.
3. No felt shall be exposed between the open keyways between the shakes.
4. Keyway spacing between shakes shall be a maximum of 5/8".

Wood Shake Roofing

5. All shakes in alternate courses shall be offset at least 1 1/2".
6. Shakes shall be a minimum of 4" wide.
7. Starter course can be either shakes or wood shingles.

D. Hip and Ridge Shakes:

1. Shall be installed with the same 10" maximum exposure as the field.
2. Exposed nailing is acceptable.

E. Fasteners:

1. All fasteners shall be galvanized nails or staples long enough to penetrate 3/4" into or through the sheathing.
2. All shakes shall be fastened with 2 nails or staples.

F. Flashings:

1. Flashings do not need to be painted.
2. Drip edge flashing is required only when needed to cover exposed edges of plywood.
3. Drip edge flashing is not required but is desirable to cover exposed shingles when overlaying existing roofs.
4. The old flashings may be re-used if they are in serviceable condition.
5. New flashings may be installed behind the wall if feasible.
6. Installation of new roof flashings and a surface mounted counter flashing caulked to the wall is also acceptable for vertical side walls.
7. A minimum 28-gauge 24” wide, W type valley shall be used. The shakes should overlap a minimum of 6” on each flange.

Wood Shake Roofing

G. Re-cover Applications:

1. Shakes may be installed over no more than one existing wood shingle or composition shingle roof.
2. All rusted or damaged sheet metal vents or flashings shall be replaced.
3. All flashing shall be properly roofed-in with new roofing.

H. Building Inspection Requirements

1. An In-Progress Inspection will be required.
2. A Final Inspection will be required.
3. A ladder shall be provided by the contractor for each inspection.

Cement Fiber Shake Roofing

Cement Fiber Roofing

Note: (1) *The general application of cement fiber shakes shall be the same as for wood shakes except as noted and as required in the manufacturer's instructions.* ***(2)*** *The IRCC requires an in progress inspection and requests that any final inspections be performed from the ground or from a ladder to avoid walking damage to the cement shakes.*

A. Decking:

1. Can be solid or spaced sheathing with the approval of the local jurisdiction.
2. If over spaced sheathing, sheathing shall be filled in as needed to meet nailing zone for material.
3. The IRCC *requires* complete fill-in of spaced sheathing.
4. Refer to section on roof deck applications when installing new sheathing over existing spaced sheathing.

B. Underlayment/ Interlayment:

1. All sheet metal valleys shall have a 36" wide ASTM 30 lb. felt underlayment.
2. Low slope applications may require additional underlayment. The IRCC *requires* a mineral surfaced capsheet underlayment on slopes of 2/12 to below 4/12.
3. All field felt shall be a minimum of 18" wide ASTM 30 lb. felt interlayment installed to the desired shake exposure not to exceed a nominal 10" maximum.

C. Field Shakes:

1. All shakes shall be installed with a nominal maximum 10" exposure.
2. A total of 102" over 10 courses shall be an acceptable maximum exposure.
3. No felt shall be exposed between the open keyways between the shakes.
4. Keyway spacing between shakes shall be a maximum of 5/8".

D. Hip and Ridge Shakes:

1. Shall be installed with the same 10" maximum exposure as the field.

Cement Fiber Roofing

E. Fasteners:

1. All fasteners shall be galvanized nails or staples long enough to penetrate 3/4" into or through the sheathing.
2. All shakes shall be fastened with 2 nails or staples.

F. Flashings:

1. Flashings do not need to be painted.
2. Drip edge flashing is required only when needed to cover exposed edges of plywood.
3. The old flashings may be re-used if they are in serviceable condition.
4. New flashings may be installed behind the wall if feasible.
5. Installation of new roof flashings and a surface mounted counter flashing caulked to the wall is also acceptable for vertical side walls.
6. A minimum 28 gauge 24" wide, W type valley shall be used. The shakes should overlap a minimum of 6" on each flange.

G. Re-cover Application:

1. Roofing over any existing roof is not recommended, and may be prohibited per local ordinance, respectively.

H. Building Inspection Requirements:

1. An In-Progress inspection will be required.
7. A Final Inspection will be required.
8. A ladder will be provided for the in-progress inspection.

Tile Roofing

Tile Roofing

Note: *The IRCC recommends an in progress inspection and requests that any final inspections be performed from the ground or from a ladder to avoid walking damage to the tile roofing.*

A. Decking:

1. Shall be 1/2" plywood sheathing, OSB, or complete fill-in of spaced sheathing.
2. Refer to section on roof deck applications when installing new sheathing over existing spaced sheathing.

B. Underlayment:

1. The minimum standard for tile underlayment is an ASTM type 30 felt.
2. One layer of an ASTM coated base sheet or mineral surfaced roofing may be substituted for ASTM Type 30 felt.

C. Battens:

1. Battens shall be nominal 1” x 2” boards and are required on all solid sheathed roofs where pitches exceed 7:12.
2. Battens shall be nailed or stapled at 24 inches on center over felt and deck.
3. Batten installation on roof slopes 3:12 and greater shall have provision for drainage by providing a minimum 1/2 inch break in battens every 4 feet or by shimming with moisture resistant 3/8 inch nominal lath or strips of decay resistant material such as asphalt cap sheet or asphalt shingle.
4. It is important that all tile be nailed on non-batten applications.

D. Fasteners:

1. All tile fasteners shall be galvanized nails.
2. Fasteners must extend through substrate.

Tile Roofing

3. Where field tile nailing is specified, one galvanized nail per tile is used and must be of sufficient length to penetrate 3/4 inch into or through the thickness of the sheathing, whichever is less.

E. Hips, Ridges and Rakes:

1. The use of mortar, pressure-sensitive adhesive material, or special fabricated flashings supplied by the tile manufacturer is mandatory.
2. Each hip and ridge tile is to be nailed to the supporting member using one corrosion-resistant nail.
3. Nose ends are to be set in a bead of roofer's mastic which also covers the nail head.
4. The underlayment at gable ends must be wrapped over and turned down over the rake edge.
5. All rake tiles shall be fastened with two galvanized nails.

F. Eaves:

1. Raised fascia shall require anti-ponding by either:
    a. Metal flashing that is installed beneath the underlayment, or 3 coursed to the underlayment.
    b. A tapered cant installed beneath the underlayment.
2. A metal bird stop can be used on flush deck applications.

G. Rake Wall Flashings:

1. The underlayment must be turned up the wall a minimum of 4 inches.
2. The galvanized pan flashing is to be 4 inches by 6 inches with 3/4 inch hem, installed with a minimum of 6 inches on the deck.
3. A portion of the tile headlug where the tile rests on the metal flashing shall be removed to prevent water damming.
4. At no time are nails to be driven through the pan flashing.

Tile Roofing

5. Where tiles cannot be nailed, a wire tie or approved adhesive shall be used for securement.
6. All pan flashings will either extend to the eave line, or be tailed-out atop lower tile courses with a flexible metal skirt, preferably lead.

H. Roof to Wall Flashing:

1. The underlayment must be turned up the wall a minimum of 4 inches.
2. Roof-to-wall flashing must be set atop the tile and counter flashed in an acceptable manner.

Tile Roofing

3. If an 'S' tile or similar high profile tile is used, a weatherblock must be installed. This weatherblock may consist of a prefabricated flashing supplied by the tile manufacturer, or the same roof-to-wall flashing used with the low profile tile may be used with a weatherblock. A third option would be the use of a sheet lead flashing molded to the tiles.

I. Plumbing and Mechanical Flashings:

1. Galvanized metal flashings can be used with flat and low profile type tiles.
2. High profile tile flashings shall be fabricated of aluminum or lead and molded over tiles to ensure water sheds atop lower course of tile.

Tile Roofing

J. Valley Flashings:

1. All valley shall be minimum 28 gauge galvanized metal, 24 inch wide "W" type with hemmed edges and a raised diverter down the center.
2. All valley metal shall be installed over at least one layer of 36-inch wide, 30-pound felt.

K. Chimneys, Dormers and Skylights:

1. The front, or bottom side, shall be treated as a roof-to-wall, and the sides as rake walls.
2. Saddle flashings shall be installed around the tops where applicable.

L. Building Inspection Requirements

1. An In-Progress Inspection is required.
2. A Final Inspection will be required.
3. A ladder will be provided by the contractor for the in-progress inspection.

Metal Tile Roofing

Metal Tile Roofing

Note: *Metal tile roofing shall be installed as noted below and as required by the specific manufacturer's instructions. In progress inspections are required for the verification of conformance to California Building Code requirements and ICC-ES Reports, relative to fill material within gaps between battens. Installers should contact the individual jurisdiction for approved materials and inspection requirements.*

A. Existing Roof Preparation:

1. Cut back existing roofing at all perimeter edges, and remove hip and ridge material.
2. Install new lumber along perimeter edges to match height of adjacent roofing.

B. Batten Installation:

1. Install 1" x 4" vertical battens over existing roof and rafters.
2. Battens to be fastened with nails of sufficient length to penetrate through batten, old roof and at least ¾" into rafters.
3. When the application of new roofing over existing wood shingle or wood shake roofs creates a combustible concealed space, the entire existing surface shall be covered with gypsum board, mineral fiber, glass fiber or other approved materials securely fastened in place, as required in Appendix CBC Section No. 1516.3. For approved materials or methods, contact the individual jurisdiction.

C. Counter Batten Installation:

1. Install 2" x 2" horizontal counter battens over 1 x 4 vertical battens.
2. Counter battens to be spaced to set exposure for tiles.
3. Counter batten 2 x 2's to be fastened to 1 x 4's with nails of sufficient length to penetrate the 1 x 4 battens.

D. Perimeter Flashing:

1. Nosing to be installed over perimeter edge to cover existing roof and batten structure.

Metal Tile Roofing

E. Vent Flashing:

1. All roof penetration vents shall be double flashed.
2. All vents to be caulked at tiles.

F. Tile Application:

1. All tile to be installed and fastened with 8-d galvanized nails.

G. Building Inspection Requirements

1. An In-Progress Inspection will be required.
2. A Final Inspection will be required; however, these should be performed from the ground or from a ladder to prevent damage to the roofing materials.
3. A ladder will be provided by the contractor for the in-progress inspection.

Built-up Roofing

Built-up Roofing

A. Roof Decks:

1. Roof deck shall be solid sheathing and shall comply with CBC requirements and manufacturers' installations instructions . (Please note footnote No. 2 on page 5.)
2. Original solid plank board construction is acceptable provided large voids such as knot holes are replaced or covered with metal.

B. Field Application:

1. Dry nail one layer of basesheet over entire roof surface. Nailing pattern shall be conventional pattern using cap nails; roughly 9" along edges and 2 rows staggered, 18" apart, equidistant, from outside edges of each sheet.
2. Solid mop successive layers of ply sheet in shingle fashion.
3. Surfacing shall generally be one of the following:
    a. Mineral surfaced capsheet set in a solid mopping of hot asphalt.
    b. Gravel surfacing embedded in a flood coat of asphalt adequate to cover underlying plies.
4. Plies may also be surfaced with a coat of asphalt, emulsion, aluminum or a host of other elastomeric coatings.
5. Perimeter edges shall be finished with metal flashing or three-coursed with plastic cement and webbing where applicable.

C. Base Flashing:

1. All vertical angles should receive cant strip where curb is 2 or more inches.
2. Angles should receive a finish layer of mineral surfaced capsheet.
3. Top of base flashing shall be nailed securely to prevent slipping.

Built-up Roofing

D. Sheet Metal Installation:

1. All sheet metal penetration flashings shall be set in plastic cement, nailed securely, primed, and strip mopped into roof assembly.
2. Existing flashings can be re-used if in good condition.
3. Flashings do not need to be painted.

E. Vertical Wall Flashing:

Roof-to-wall locations can vary greatly based on existing conditions; the following are the more common methods of treatment:

1. Turn up roofing under counter flashing.
2. Remove and replace siding or stucco after turning plies up wall.
3. Three course roofing to wall using plastic cement and webbing.

F. Re-cover Application:

1. Re-cover/overlay roofing should only be done if existing roof and deck are sound and adequate to support the additional weight.

Built-up Roofing

2. Overlay of one existing built-up roof is acceptable.
3. If overlaying mineral surfaced capsheet or other smooth surface then basic application shall be the same as new construction.
4. If over gravel, then surface shall be cleaned and a layer of insulation board be installed prior to application of roof membrane.

G. Equipment Supports and Blocking:

1. All large equipment blocks and/or sleepers shall be securely mounted to the roof deck. When the equipment is removed as part of the re-roofing process, and if it weighs over 400 pounds and is supported directly on the roof , it shall be supported in a manner compatible with CBC Section 1613 (Earthquake Loads) and ASCE 7-05 Chapter 13 (Seismic Design Requirements for Non structural components) or in a manner acceptable to the jurisdictional authority.
2. All minor conduit or pipe blocking should be fastened to piping but not to roof membrane.

H. Building Inspection Requirements

1. An In-Progress Inspection will be required.
2. A Final Inspection will be required.
3. The contractor will provide a ladder for the in-progress inspection.

Modified Bitumen Roofing

Modified Bitumen Roofing

A. Field Applications:

1. Dry nail one layer of fiberglass basesheet over entire roof surface. Nailing pattern shall be conventional pattern using cap nails; roughly 9" along edges and 2 rows staggered, 18" apart, equidistant from outside edges of each sheet.
2. Apply modified bitumen by use of torch, hot mopping or cold process adhesive as required for specific type of membrane.[1]
3. The entire roll shall be torched, mopped, or glued.
4. All seams shall be fully sealed.

B. Base Flashings:

1. All vertical intersections, such as at walls or curbs, should receive a minimum of two layers of modified bitumen.
2. Cant strip not necessarily required at such areas.
3. Top of base flashing shall be nailed securely to prevent slipping.

C. Sheet Metal Installation:

1. All sheet metal penetration flashings shall be sandwiched between two layers of modified bitumen.
2. All sheet metal shall be primed and allowed to dry before applying roof membrane.
3. Flashing flange shall be nailed securely over first membrane layer.

D. Vertical Wall Flashings:

1. When flashing against a vertical side wall:
   a. The old flashing may be re-used if they are in serviceable condition.
   b. New flashing may be installed behind the wall if feasible.
   c. It is acceptable to turn up wall and three course membrane to wall.

[1] *Portable fire extinguishers shall be placed in locations and in a quantity as described in industry standards.*

Modified Bitumen Roofing

d. Installation of new roof flashings and a surface mounted counter flashing caulked to the wall is also acceptable.

E. Re-cover Application:

Re-cover/Overlay roofing should be done only if existing roof and deck are sound and adequate to support the additional weight.

1. Overlay of 1 existing built-up roof is acceptable.
2. If overlaying mineral surfaced capsheet or other smooth surface then basic application shall be the same as new construction.
3. If over gravel, then surface shall be cleaned and a layer of insulation board shall be installed prior to application of roof membrane.

F. Building Inspection Requirements.

1. An In-Progress inspection will be required.
2. A Final Inspection will be required.
3. The Contractor will provide a ladder for the in-progress inspection.

Appendix A
Individual Jurisdictional Building Department
Roofing Requirements

Revised July 2008

Note: References to California Building Code pertain to the 2007 CBC. In some cases, the Sonoma County Re-roofing Guidelines (SCRG) are referenced in which tables and specific code sections from the 2001 CBC are documented in the appendices and are retained as a guideline that remains applicable and is incorporated into these guidelines herein..

Appendix A[1]

Individual City Building Department Requirements

Users of this Appendix are urged to read the footnotes contained in the informational boxes Associated with the specific jurisdiction for which information is being sought.

Jurisdiction	Material or Assembly Requirements	Overlays Allowed (see Table 15A, Appendix B)	Arranging an Inspection[2]	Pre-roofing Inspection Required	In-Progress Inspection Required	*Self-Certification*[3]	Final Required
Cotati	Class A Material or Assembly only	Per 2007CBC Sec. 1510 & SCRG[5] Appendix C	24-hr. Notice Call 665-3632	Yes Per Appendix B Section 15 15.2.1[6]	Yes	No	Yes
Sebastopol	Class A Material or Assembly only	Per 2007 CBC Sec. 1510 & SCRG[5] Appendix C	24-hr. Notice Call 823-8597	Yes, by contractor.	Yes	No	Yes
Rohnert Park	None beyond minimum Code	Per 2007 CBC Sec. 1510 & SCRG[5] Appendix C	24-hr. Notice Call 588-2257	Yes By Contractor	Yes	Yes	Yes
City of Sonoma	No Special Requirements	Per CBC Sec. 1510 & SCRG[5] Appendix C	24-hr. Notice Call 938-3681 or fax 938-8775	Yes may be by Contractor if utilizing self certificatio	Yes may be by Contractor if utilizing self certification program	Yes, applies only to One & Two Family Dwelling Reroofing Projects	Yes – unless utilizing Self-Cert. Program
City of Healdsburg	Min. Class B High Fire Area Class - A (If in Historical District check w/Planning Dept)	Per 2007 CBC Sec. 1510 & SCRG[5] Appendix C	24-hr. Notice Call 431-3346	Tear-Off required if dry-rot or structural damage is present	Nailing, if New Sheathing is Applied	No	Yes (Provide Ladder, B-Vent Inspection Required)
City of Cloverdale[7]	Class-A Material Or Class-A Assembly[8]	Per 2007 CBC Sec. 1510 & SCRG[5] Appendix C	24-Hr. Notice Call 894-1701 Fax 894-4673	Yes Per Appendix B Section 15 15.2.1[6]	Nailing if New Sheathing is Applied	No	Yes
City of Petaluma	Minimum Class - B	Per 2007 CBC Sec. 1510 & SCRG[5] Appendix C	24-Hr. Notice Call 778-4479	If Known To Require Repairs	Nailing if New Sheathing is Applied	No	Yes (B-Vent Inspection Required)

Appendix A

Individual City Building Department Requirements

Jurisdiction	Material or Assembly Requirements	Overlays Allowed	Arranging an Inspector	Pre-roofing Inspection Required	In-Progress Inspection Required	*Self Certification*	Final Required
City of Santa Rosa	Per 2007 CBC Chapter 15	Per 2007 CBC Section 1510.3	24-Hr. Notice call 707-543-3230	If flat roof tear-off or similar	Not req'd but recommended	No	Yes
County of Sonoma	Class – A Material Or Class - A Assembly	Per CBC Sec. 1510 & SCRG[5] Appendix C	24-Hr. Notice Call 565-3551 Fax 565-1972	Yes Per Appendix B Section 15 15.2.1[6]	Yes	Yes	Yes
Town of Windsor	Class – A Material Or Class - A Assembly	Per CBC Sec. 1510 & SCRG[5] Appendix C	24 –Hr Notice 533-8346	No	Yes	Yes	Yes

' Information in regards to jurisdictional specific plywood nailing requirements is contained in Appendix- D, page 47.

2 Portable ladders for inspection purposes must meet Cal-OSHA requirements, including the following installation requirements: (1) Side rails must extend 3ft above upper landing surface. (2) When such an extension is not possible, the ladder must be secured and a grasping device, such as a grab rail, must be provided. (3) The horizontal distance from the top support to the foot of the ladder shall be approximately 1/4 of the working length of the ladder.

~ Information regarding Self-Certification is contained in Appendix-E, page 49.

4 2001 California Building Code, Appendix Table 15-A is shown in Appendix -B, page 41.

5 2007 California Building Code, Chapter 15, Section No. 1510 is shown in Appendix C, page 44. (California minimum Class C for all residential construction, unless the local jurisdiction has more restrictive requirements.)

6 2001 California Building Code, Appendix Section Numbers 1515.1 & 1515.2.1. are shown in Appendix-B, page 42.

7 Cloverdale requires Code complying attic ventilation prior to final approval for re-roofing work.

8 Cloverdale requires Class-A materials or assembly when 25% or more of the roof is re-roofed within a one-year period.

***Note:** The jurisdictional information provided in Appendix A was current at the time of publication of the document and was revised July 2008. However, The Guidelines Drafting Committee recommends that contractors & consumers, using the Sonoma County Re-roofing Guidelines verify jurisdictional requirements prior to commencing work.*

Appendix B
2001 California Building Code (CBC)
Table 15-A and Section 1515

Revised: July 2008

Note: Table 15-A and Appendix Ch 15, Section 1515 have not been superseded in the 2007 CBC. This Appendix retains the aforementioned table and section from the 2001 CBC as a guideline that remains applicable and is incorporated into these guidelines herein.

Appendix B

Appendix Table 15-A
Appendix Section 1515
(2001 CBC)

TABLE A-15-A-Allowable Re-roofs Over Existing Roofing
(Inspection and Written Approval Required Prior to Application)

Existing Roofing	New Overlay Roofing							
	Built Up	**Wood Shake**	**Wood Shingle**	**Asphalt Shingle**	**Tile Roof**	**Metal Roof**	**Modified Bitumen**	**Spray Polyurethane Foam**
Built Up	Yes	NP	Yes (3:12)	Yes (2:12)	Yes (2.5:12)	Yes	Yes	Yes
Wood Shake[1]	NP	NP	NP	NP	Yes [2]	Yes [2]	NP	NP
Wood Shingle[1]	NP	Yes [3] (4:12)	Yes[4]	Yes [4]	Yes [2]	Yes [2]	NP	NP
Asphalt Shingle[1]	NP	Yes [3] (4:12)	Yes [4] (3:12)	Yes	Yes (2.5:12)	Yes	Yes	NP
Asphalt over Wood	NP	NP	NP	Yes	Yes [2]	Yes [2]	Yes	NP
Asphalt over Asphalt	NP	NP	NP	Yes	Yes	Yes	Yes	NP
Tile Roof	NP	NP	NP	NP	NP	NP	NP	NP
Metal Roof	NP	NP	NP	NP	NP	Yes	NP	NP
Modified Bitumen	Yes	NP	Yes (3:12)	Yes	Yes (2.5:12)	Yes	Yes	NP

NP = Not Permitted.

Note: *(Minimum Roof Slope)*
[1]*See Section 1515.2 below for specific requirements.*
[2]*Board and batten leveling system must be fire-stopped in accordance with Appendix C, Section 1510.4.*
[3]*One layer 18-inch (457 mm) Type 30 non-perforated felt interlaced between shake courses required.*
[4]*Type 30 non-perforated felt underlayment required for re-roofing.*

SECTION 1515 (2001 CBC) – INSPECTION AND WRITTEN APPROVAL

1515.1 Written Approval Required. New roofing shall not be applied without first obtaining written approval from the building official.

The building official may allow existing roof coverings to remain when inspection or other evidence reveals all of the following:

1. The roof structure is sufficient to sustain the weight of the additional dead load of the new roofing.
2. The roof deck is structurally sound.
3. Roof drains and drainage are sufficient to prevent extensive accumulation of water.
4. The existing roofing is securely attached to the deck.
5. Existing insulation is not water soaked.
6. Fire-retardant requirements are maintained.

1515.2 Required Inspections.

1515.2.1 Pre-roofing inspection. Inspection prior to the installation of new roofing must be obtained from the building official to verify the existing roofing meets all the conditions in Section 1515.1. The building official may accept an inspection report of above-listed conditions prepared by a special inspector.

1515.2.2 Final inspection. A final inspection and approval shall be obtained from the building official when the re-roofing is complete.

Appendix C

2007 California Building Code (CBC)

Section 1510

Revised: July 2008

Note: This Appendix has changed from the previous version by eliminating reference to the 2001 CBC Section 1516 and replacing it with the 2007 CBC referenced section

Sonoma County Reroofing Guidelines

Appendix C

2007 CALIFORNIA BUILDING CODE

Section 1510
REROOFING

SECTION 1510 - REROOFING

1510.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

> **Exception:** Reroofing shall not be required to meet the minimum design slope requirement of one-quarter unit vertical in 12 units horizontal (2-percent slope) in Section 1507 for roofs that provide positive roof drainage.

1510.2 Structural and construction loads. Structural roof components shall be capable of supporting the roof-covering system and the material and equipment loads that will be encountered during installation of the system.

1510.3 Recovering versus replacement. New roof coverings shall not be installed without first removing all existing layers of roof coverings where any of the following conditions occur:

1. Where the existing roof or roof covering is water soaked or has deteriorated to the point that the existing roof or roof covering is not adequate as a base for additional roofing.

2. Where the existing roof covering is wood shake, slate, clay, cement, or asbestos-cement tile.

3. Where the existing roof has two or more applications of any type of roof covering.

Exceptions:

1. Complete and separate roofing systems, such as standing-seam metal roof systems, that are designed to transmit the roof loads directly to the building's structural system and that do not rely on existing roofs and roof coverings for support, shall not require the removal of existing roof coverings.

2. Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when installed in accordance with Section 1510.4.
3. The application of a new protective coating over an existing spray polyurethane foam roofing system shall be permitted without tear-off of existing roof coverings.

1510.4 Roof recovering. Where the application of a new roof covering over wood shingle or shake roofs creates a combustible concealed space, the entire existing surface shall be covered with gypsum board, mineral fiber or other approved materials securely fastened in place.

1510.5 Reinstallation of materials. Existing slate, clay or cement tile shall be permitted for reinstallation, except that damaged, cracked or broken slate or tile shall not be reinstalled. Existing vent flashing, metal edgings, drain outlets, collars and metal counterflashings shall not be reinstalled where rusted, damaged or deteriorated. Aggregate surfacing materials shall not be reinstalled.

1510.6 Flashings. Flashings shall be reconstructed in accordance with approved manufacturer's installation instructions. Metal flashing to which bituminous materials are to be adhered shall be primed prior to installation.

Appendix D
Plywood Nailing and Class A Requirements

Revised: July 2008

Appendix D

Jurisdictional Plywood Nailing & Class-A Assembly Requirements

Jurisdiction	Plywood Nailing Requirements	Class-A Assembly Requirements
City of Cotati	**Plywood end joints must be over rafters** Nailing: maximum 6" o. c. at perimeter Maximum 12" o.c. in the field	**Class-A materials or Class-A Assemblies required**
City of Sebastopol	**Plywood end joints must be over rafters** Nailing: maximum 6" o.c. at perimeter Maximum 12" o.c. in the field	**Class-A materials or Class-A Assemblies required**
City of Rohnert Park	Apply to roof sheathing applied directly over "skip" sheathing. Plywood panels may be placed perpendicular or parallel to rafters/trusses. All horizontal joints must be solidly supported. Nailing shall be per APA bulletin P300B, March 1995	**For residential: minimum Class-C** No Class A- Assembly (wood shake or clay tile may be replaced with composition shingle)
City of Sonoma	**Plywood end joints must be over rafters** Nailing: maximum 6" o. c. at perimeter Maximum 12" o. c. in the field	**No special Class-A requirements.** Dens Deck, Type X gypsum over 1/2 plywood or other as approved by the building official
City of Healdsburg	**Specify nail crown size**	**Consult building official for Class-A Assembly approval**. When using gypsum for an assembly it must be exterior type X.
City of Cloverdale	**Plywood end joints must be over rafters** Nailing: maximum 6" o. c. at perimeter Maximum 12" o.c.	**Class-A materials or Class-A Assemblies required**
City of Petaluma	**Plywood end joints must be over rafters** Nailing: maximum 6" o. c. at perimeter Maximum 12" o.c.	**Class-A materials or Class-A Assemblies required**
City of Santa Rosa	**Plywood end joints must be over rafters** Nailing: maximum 6" o. c. at perimeter. Maximum 12"o.c.in field	
County of Sonoma	**Plywood end joints** Nailing: (plywood nailing required at soffit blocking required)	**Class-A materials or Class-A Assemblies required**
Town of Windsor	**Plywood end joints** Nailing: 4" O.C. Perimeter 8" O.C. Field	**Class-A Assembly:** Dens Deck, Type X gypsum over 1/2 Plywood or other as approved by the Building Official

Appendix E
Self Certification
Reroof Inspection Policy

Appendix E

Sample

(Jurisdiction Name)
Self Certification Reroof Inspection Policy[1&2]

General Requirements

The City/County of (jurisdiction name) requires those who are engaged in a re-roofing project to call for all required inspections, as noted for the jurisdiction in Appendix A. Every re-roofing project must receive at least one inspection, unless determined otherwise by the building official. It is the applicant's duty to call for each of the inspections at the appropriate phase of the work. Additionally, the applicant is required to supply a ladder that meets Cal – OSHA standards for each inspection. When ladders do not meet Cal-OSHA standards as described in footnote # 2 of Appendix A, the building inspector has the option of not performing the roofing inspection.

In-Progress Inspections

The following requirements apply to In-Progress Inspections: (1) at least 50% of new roof sheathing shall be visible for examination of nailing & (2) no more than 50% of the roofing material shall be applied at the time of inspection. The building inspector will make available the "*Re-roof In-Progress/Final Completion Verification"* at this time, should it be applicable after the inspection.

1. If the In-Progress Inspection is approved or in the opinion of the inspector only minor corrections are needed, he/she will check box #1, sign of the "Re-roof Progress/Final Inspection & Completion Verification" form, leave the signed ***Contractor & Owner*** copies of the form with the roofing installer and file the ***Inspector***'s copy with the permit.

   When applicable corrections have been made and the project has been completed, the applicant fills out the lower portion of the form and mails the ***Completed*** copy back to the Building Department for filing with the permit.

2. If major corrections are required, the inspector will check box #2 of the form and inform the applicant of the necessity of a re-inspection upon the completion of the corrections. When corrections are approved, procedure No.1 above will then be followed.

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[1] *See Model Completion/Verification Form following this section.*

[2] *Roofing installers working within a jurisdiction which is participating in the Self-Certification Program are urged to confirm that the jurisdiction's policies are the same as described above.*

Appendix E
Sample

(Jurisdiction Name)
Self Certification Re-roof Inspection Policy

Final Inspection Only

1. The applicant calls for an inspection when the re-roofing project has been completed. (See ladder requirements in Appendix A, footnote No.2). If approved, or in the opinion of the inspector only minor corrections are required, the inspector will check box # 3, sign the form, distribute the ***Contractor*** & ***Owner*** copies, and file the ***Completed*** copy with the permit.

   When applicable corrections have been made and the project has been completed, applicant fills out the lower portion of the form and mails the ***Completed*** copy back to the Building Department for filing with the permit.

2. If major corrections are required, the inspector will check box # 4 of the form and inform the applicant of the necessity of a re-inspection upon the completion of the corrections. When corrections are approved procedure No1. above will then be followed.

Model Completion/Verification Form

City/County of (jurisdiction name) **Re-roofing Verification/Completion**

Address Phone # Fax #

Permit Number Type of Inspection Date Scheduled AM PM

Job Address Name Phone

(contractor/owner)

Corrections to be completed prior to verifying completion or calling for re-inspection:

1. In- Progress Inspection - **Approved**
2. In-Progress Inspection - **Disapproved** Complete noted corrections & call for inspection.
3. Final Inspection - **Approved**
4. Final Inspection - **Disapproved** Complete noted corrections & call for inspection.

Date Inspector's Name

(Print Name) (Signature)

Completion Verification

If Box Numbers 1 or 3 above are checked, complete the Verification form and mail to the (jurisdiction's name) Building Department, (address) **Note:** This form, when properly completed, constitutes the final inspection for reroofing projects.

I verify that all of the items above have been corrected and the completed roof was installed in accordance with the California Building Code, local amendments & reroofing policies as well as all applicable manufacture's instructions.

Licensed Contractor or Building Owner

(Business Name/Owner Name) (Authorized Rep. Signature)

License No. Date

WHITE - Office/Inspector CANARY - Completed (return) BLUE - Contractor YELLOW - Owner

Glossary of Common Roofing Terms

Roofing Glossary

Aggregate Crushed or smooth rock, crushed slag, or water-worn gravel to surface flat or low-slope roofs and to provide ballast for floating membranes. (Specifications for single-ply roofing systems usually prohibit the use of crushed rock or slag aggregate unless it is installed over a layer of cushioning material.)

Asphalt A brownish-black, natural petroleum residue used in applying roofing.

Ballast Aggregate, concrete pavers, or other material used to prevent wind uplift of a loose-laid single-ply roofing system. Old tires are sometimes used as temporary ballast during the installation of the membrane.

Base Coat The first coat of adhesive in a built-up roofing system; also, the multiple coats of base waterproofing material in a fluid-applied single-ply roofing system, usually followed by one or more protective topcoats of a more weather-resistant material.

Batten A narrow reinforcing strip, usually made of metal, used to secure a single-ply roofing membrane at parapet walls, curbs, and other locations where the membrane terminates or turns up at an angle change. Battens are also used in some mechanically fastened single-ply roofing installations to secure the membrane in the field area.

Bitumen Coal, tar pitch, or asphalt.

Brace A piece of wood or other material that holds anything tightly or supports it firmly; a prop.

Building Code Governmental rules and regulations for building construction, which in most California cities is the latest Edition of the California Building Code, including local amendments.

Built-Up A roof formed by a number of layers of roofing mopped together with hot asphalt or pitch.

Cant Strip A bevelled strip of wood, wood fiber, or other material installed in the angle where a roof deck adjoins a parapet wall, curb, or other vertical structure. The 45-degree bevel of the cant strip permits the roofing membrane or base flashing to make a smooth transition from the horizontal to the vertical.

Cantilever A projecting beam supported at only one end.

Cap Sheet A finish roofing material used as a covering for a roof.

Caulk To make watertight by plugging with mastic.

Chalk Line A heavy string or cord used for lining purposes.

Cleat A strip of wood or metal fastened across other.

Coal-Tar Pitch A thick dark liquid obtained by distillation of soft coal; used for roofing and waterproofing.

Coating Liquid A liquid with an asphalt or coal-tar base used for preserving roofs.

Condensation The conversion of water vapor to water as the temperature drops or the atmospheric pressure rises. Heavy condensation on the underside of a roof may give the appearance of a leak.

Coping The top covering of a wall; may be metal, tile, masonry, or wood.

Core Sheet A reinforcing sheet of polyethylene plastic sandwiched between the bitumen layers in some modified bitumen single-ply membrane materials; also called a "carrier sheet."

Cornice A horizontal molded projection at the top of a building; also the plastered underside of the eaves,

Counter-Flashing Flashing that extends over another flashing. Also called cap flashing.

Course A continuous row or layer of shingles or other roofing material.

Coverage The area covered by a given quantity of roofing material, with an allowance made for lapping.

Cricket A superimposed structure installed in a roof area, for example behind a chimney, to divert water and assist drainage. Also called a saddle.

Cupola A hemispherical roof; a small structure above the roof.

Curb A base for a skylight, hatch, or rooftop mechanical equipment; usually constructed of lumber.

Cured Completely dry; moisture free.

Curing Agent The part B component in a two-part synthetic fluid-applied roofing or waterproofing material that chemically solidifies the part A component; also, a coating applied to fresh concrete to retain moisture and aid curing.

Cutback Asphalt dissolved into its liquid form.

Cutout The narrow slot between the tabs of an asphalt strip shingle.

Dead Load The weight of all materials and fixed equipment incorporated into the building such as those loads imposed on a roof structure by air-conditioning units, other permanent rooftop equipment, the roof system, and the roof deck (See Live Load.)

Roofing Glossary

Deck The structural surface on which the roofing or waterproofing system is applied. (See roof system.)

Delamination Separation of the plies in a plywood panel or a built-up roofing membrane; also, separation of the insulation material in an insulation board.

Dormer A vertical protrusion rising from a sloping roof, such as a minor structure containing a window.

Double Coverage Roofing Shingles or roll roofing applied with sufficient overlap so that no part of the deck is covered with less than two layers of roofing. Double-coverage roll-roofing material is called split sheet or 19-inch (48.3 centimeter) selvage.

Dry Rot Wood decay caused by a fungus that consumes the cellulose portion of the wood, leaving a soft skeleton that readily crumbles to a powder. Wood structures that are inadequately ventilated and constantly exposed to moisture are especially vulnerable to dry rot.

Eaves The projecting lower edge of a roof.

Elastomer Synthetic material with rubber-like properties. Elastomeric roofing and waterproofing materials are marketed as fully or partly cured roll sheeting or as fluids that cure after application to become tough, elastic membranes.

Elastoplastics General term for all synthetic roofing and waterproofing materials.

Expansion Joint A planned structural separation between two adjoining sections of a deck, wall, or floor that relieves stresses resulting from building movements and thermal expansion and contraction.

Felt The general term for all ply materials used in built-up roofing and waterproofing systems. Felts are manufactured from organic materials, such as vegetable fibers; from mineral fibers, such as asbestos; or from glass fibers. They may be saturated (with soft bitumen) or unsaturated; coated (with harder bitumen) or uncoated; or impregnated with resin.

Firewall A wall erected above the roof to block fires between sections of the building.

Flash Point The temperature at which asphalt or tar, when slowly heated, gives off vapors that will ignite upon the application of a flame.

Flashing The system used to seal the edges of a roofing or waterproofing membrane at walls, curbs, expansion joints, gravel stops, drains, pipes and other projections, and wherever else the membrane is interrupted or terminated. Base flashing covers the edge of the membrane at walls, curbs, and other vertical intersections; cap flashing or counter-flashing protects the turned-up edge of the base flashing.

Flashing Cement (Mastic) Trowel-grade cement used alone or in conjunction with fabric reinforcement where flashing is required.

Floating Membrane A single-ply roofing membrane that is fastened to a flat or low-slope deck only at the perimeter and other terminations and is held down by rock or gravel ballast; also called a loose-laid membrane.

Flue A channel or passage for smoke or gases of combustion; a chimney.

Flush A term applied to surfaces that are level and form a single unbroken surface.

Gable Roof A ridged, double-sloping roof.

Gambrel Roof A gable roof with its slopes broken by an obtuse angle; a gable roof with two pitches in one field.

Gravel Stop A flanged barrier, usually formed of sheet metal that is installed around the perimeter of an aggregate-surfaced roof to retain the aggregate and to weatherproof and finish the roof's edge.

Hip Roof A roof having sloping ends, thus four sloping sides. The line where adjacent sloping sides meet is called a hip.

Joist A horizontal timber to which the boards of a floor or lath on a ceiling are fastened.

Kettle A metal vessel for heating asphalt or coal-tar pitch.

Live Load The load imposed on a roof by workers and their equipment, may also include wind, rain, snow, and ice loads (See Dead Load.) Materials for additional strength; may be nailed against the wall for supporting an object.

Matting Strip A strip of wood set in concrete along the eaves or gable of a roof.

Mission Tile A curved tapering tile unit.

Modified Bitumen Asphalt or coal-tar pitch compounded with a synthetic polymer to produce a bituminous material with superior toughness, elasticity, weathering ability, and resistance to temperature extremes.

Molding A cornice or projecting decorative member used on any pan of a building.

Roofing Glossary

Nailer A length of treated lumber installed at the edge of a deck and around projections to provide anchorage for the roofing membrane. In a poured concrete deck or wall, the nailers may be embedded in the concrete. **Parapet** A low wall above the roof level.

Penetration A pipe, vent stack, column, or similar piece that extends up through a deck.

Perlite Expanded volcanic glass used as an insulating aggregate in some types of lightweight concrete and as the principal component in some insulation boards.

Pitch Pocket A flanged, metal container installed around a column or other penetration on a roof and filled with bitumen or plastic cement to seal the penetration.

Pitch The slope of a roof, indicated by the relation of the rise to the span; also a coal-tar roofing material.

Plastic Waterproofing material composed of coal tar, asphalt, asbestos fibers, and so on.

Plasticizer A modifier added to a synthetic polymer to facilitate processing and to give the finished product increased flexibility and toughness.

Ply A layer of felt in a built-up roofing or waterproofing membrane.

Ponding Accumulation of water on a flat or low-slope roof usually due to plugged drains or excessive deflection of the deck.

Pot Life The length of working time available before a container of single-ply adhesive or fluid rooting material that has been opened and stirred or combined with a curing agent begins to set up.

Rake The slope of a roof; the sloping edge on a gable roof that may be covered with a barge board, or verge board.

Reglet A groove in a parapet wall or other vertical surface adjoining a roof deck; used in attaching a flashing strip or counter-flashing.

Ridge The point on a double-sloping roof at which the rafters meet the ridge pole.

Rise The vertical height of the top of a roof above the plate line, or tile increase in height of a rafter per foot of run.

Roof System A system of interacting roof components (not including the deck) designed to weatherproof and normally to insulate the top surface of a building.

Roofjack A flashing device, made of sheet metal or molded plastic, used to cover a pipe or a vent stack on a roof (also called a pipe jack); also, a bracket used to support a scaffolding plank on a steep roof. **Rotor Welder** An automatic lap-welding machine.

Run Usually one-half the distance of the span of a roof.

Scrim Woven polyester or fiberglass fabric reinforcement embedded in many types of single-ply membrane materials.

Separation Sheet A protective layer of kraft paper, metal foil, or other material installed between a single-ply membrane and a chemically incompatible substrate (for example, between a PVC membrane and an existing bituminous membrane); also called a divorcing sheet.

Shake A rough, unshaved wood shingle.

Sheathing The boards or other material used for covering the frame or roof structure.

Shelf Life Amount of time that an adhesive or a fluid roofing material can be stored in its unopened container.

Softening Point The temperature at which bitumen becomes soft enough to flow.

Solvent Wash Solvent used to clean the lap-joint mating surfaces in a single-ply membrane before the laps are sealed; also called splice wash or lap wash.

Span A space or distance between supports; in roof framing, the width of the frame between the outside edges of the building.

Specifications Written information augmenting the plans of a building.

Sphere Terminated at the boundary thereof.

Square A roof area of 100 square feet (9.3 square meters).

Substrate The surface on which the roofing or waterproofing membrane is placed (i.e., the deck or insulation).

Thermoplastic A nonvulcanized plastic that can be repeatedly heat-softened and reshaped.

Thermoset A vulcanized elastomer.

Valley The guner or angle formed by the meeting of two roof slopes.

Vapor Retarder Sheet material designed to restrict the passage of water vapor through a wall or roof; improperly called a vapor barrier.