SACRAMENTO COUNTY

Building Permits & Inspection Division

General Information: (916) 875-5296
www.building.saccounty.net

Full Service Center 827 7th Street, Room 102 Sacramento, CA 95814 *M-F 8:30am - 4:30pm*	**East Area Service Center** 5229 Hazel Avenue, Suite B Fair Oaks, CA 95628 *M-Tu. 9:00am - 4:00pm*
Bradshaw Center 9700 Goethe Road, Suite A Sacramento, CA 95827 *M-F 8:30am - 4:30pm*	**North Area Service Center** 3331 Peacekeeper Wy, Suite 100 McClellan, CA 95652 *W-Th. 9:00am - 4:00pm*

Roofing Policy for Commercial Buildings

Purpose:
To establish a procedure for complying with the provisions the most current California Building Code (CBC) in force at the time as adopted by Sacramento County.

General Roofing Requirements

Commercial projects also include multi-family condominiums and apartment buildings containing three or more dwelling units.

New roof coverings shall not have less than a Class C fire rating; however, there are areas in Sacramento County that are subject to Government Code Section 51175 et seq. (Bates Bill). The reroof assembly must comply with a Class A rating for buildings on affected parcels. Please refer to the Sacramento Fire Marshall to determine if your roofing project is subject to these laws.

Roofs of new buildings located within Very-High Fire Hazard Severity Zones and Wild Land Urban Interface areas must comply with CBC chapter 7A and CRC chapters 9 and R327. Reroofs of buildings originally permitted under the 2007 (and later) CBC must comply with these provisions as well.

In these areas, a fire-retardant roof covering that is at least a Class A rating, as defined by the California Building Code is required. The effective date of this requirement was January 1, 2008. In addition, the applicable code chapters mandate special design requirements that may impact your roofing project.

It is critically important that you know what roof classifications are required on your project. These will be either A, B or C Class and the type of classification will determine the roof assembly required and the inspection procedures followed on your project.

When a Permit is required:

Reroofing permits must be obtained **prior** to starting of any phase of the job, and it is the responsibility of the contractor and/or home owner to obtain one. Failure to obtain a permit prior to commencement of work will result in a violation fee equal to 3 times the regular permit fee rate.

Incidental Work:
Incidental work is defined as the removal and resetting of existing equipment and is included under the reroof permit. Additional work outside of this scope will require separate miscellaneous and/or building permit.

Permit Application Submittal Requirements:

The permit application must clearly show the scope of work to be performed and include the following information:

1. Existing roofing material.
2. Proposed roofing material.
3. Catalog cuts or manufacturer's specifications and/or installation instructions for roofing material to be used.
4. List the addition of any skylights, dormers, equipment, etc.
5. List all equipment relocations necessary to perform the reroof.
6. Indicate whether it will be a tear-off or an overlay. If overlay, list the number of existing roofs and types of material and indicate if new or infill sheathing is being installed.
7. Indicate the existing type of roof framing, i.e., truss or rafter construction.
8. Fees are due at time of issuance.

Online Permit Issuance:

Sacramento County now offers the ability to obtain permits over the internet for single family residences and will soon offer the option for multifamily as well. An online account must be created as outlined on Building Inspection's website, www.bldginspection.org, to complete the process. There is a two day wait on processing and issuing these permits, so please submit your application in advance.

Valuation and Permit Fees:

The reroofing permit fee is based upon the current construction valuation multiplied by the number of squares to be reroofed but no less than the minimum valuation of $362.00 per square. The valuation of any added skylights, dormers, equipment relocations, new or infill sheathing or any structural work is not included in the minimum valuation and must be added to the total construction valuation.

Assessment of Re-Inspection Fees:
Re-inspection fees will be assessed when:

- When work scheduled for inspection is not complete.
- When written corrections are not made.
- When access to the building is not provided.
- When a proper ladder is not provided.
- When the building permit, permit folder, or other required documentation is not available at the site.
- When work is concealed prior to inspection approval, a Violation Fee equal to twice the permit fee may also be incurred.

Installation Requirements:

Products shall be installed per the product listing (ICC-ES). For reference, asphalt or wood shingle/shake installation requirements, per the CBC, are summarized in excerpts from Chapter 15.

Exempted Work:

Repairs to a roof that do not exceed the lesser of 10 percent of the roof area or a maximum of 400 square feet, do not require a permit.

Utility Relocations/Fixed Equipment:

It may be necessary to temporarily relocate gas piping or an electric service during a reroof. Any fixed equipment that has been removed to facilitate reroofing shall be reinstalled in a manner compliant to the current CBC and shall not present a hazard. Associated conduits, gas piping, access ladders, condensate drains, etc., shall be adequately supported and secure d in place. Electrical risers and service entrance equipment must be reinstalled in as required by the most recent applicable codes. Contact the applicable utility company for temporary disconnection of power or gas.

A separate miscellaneous permit is required for the replacement of any equipment, disconnect, wiring, conduit or piping affected by the reroofing work.

Example:
The gas piping to a roof mounted HVAC unit may need to be pressure tested if it has been removed and replaced.

New roof ventilation Requirements:
Refer to the most recent publication of the California Energy Code: Cool Roof ventilation requirements.

Gravity Attic vents fall generally into 3 groups

- Eave or low vents
- Dormer, turbine or high vents
- Ridge vents

Termination clearances from eave vents or other low roof (intake) vents shall be:

- 3’ from environmental air terminals (dryers, residential hoods or restroom exhaust). CMC 504.5
- 1’ below or 8’ away from gas appliance vent terminals CMC 802.6.2 (gas appliance vents shall not terminate below overhanging eaves.)
- 3’ below or 10’ away from plumbing vent terminals per CPC section 906.2

Termination clearances from Dormer, Ridge or other high (exhaust) vents, including forced air exhaust not continuously operational, shall be:

- 3’ from environmental air terminals. CMC 504.5
- 1’ below or 4’ away from gas appliance vent terminals. CMC 802.8.2
- 1’ below or 4’ away from plumbing vent terminals. CPC 906.1 and .2 (distance not specifically regulated however it should be interpreted as similar to appliance vent terminal.)

Inspections:
Coordination of inspections is a critical element in the success of any project. Building Inspection recognizes this and will work with the industry in adjusting inspection times provided clear communication is maintained. In addition to requesting your inspection via our IVR system please contact our Supervising Building Inspectors should you require a more specific inspection time. We will do our best to accommodate these requests.

Tear offs and Overlays:

In no case shall any roof be permitted to consist of more than one roof and one overlay.

Commercial Tear Offs (Inspection Code 132)

A tear-off inspection is required to take place after the old roof coverings have been removed. A 4-hour inspection window, morning or afternoon may be **requested**. This request must be made directly with the inspector or supervisor. Do not install any new roofing materials or underlayment without the field inspector’s or field supervisor’s prior approval.

Commercial Overlays (Inspection Code 131)

The roof must be inspected prior to installing new materials to determine suitability of the existing roof deck for installation of new roofing materials; this applies to all roof types. For overlays, roof core samples or roof cuts of the existing roofing will be required at the time of overlay inspection. The inspector will specify sample locations. Do not install any new roofing materials without the field inspector’s prior approval.

Final Inspections: (Inspection Request Code 199)

A final inspection and approval shall be obtained from the Building Official when the reroofing is complete.

Built-up Roofs

A. General

Built-up roof covering may be applied over one existing roof covering when all the conditions listed below are satisfied:

1. The roof structure is sufficient to sustain the weight of an additional roof. If required, this can be verified through inspection by a California licensed engineer or architect. A stamped and signed report must be submitted in writing.
2. There is no more than one existing roof on the structure.
3. The existing roof is securely attached to the deck.
4. The roof deck or structure is not damaged or rotted and is structurally sound.
5. Neither the existing roofing materials nor insulation materials are water soaked.
6. The roof deck has been inspected and approved by the field inspector. (Inspection Code 131).

B. Preparation of Roof and Application of New Overlay Covering

When the conditions specified in Section A, above, have been met, the reroofing shall be done as follows:

1. **Gravel surfaced:** All existing gravel shall be removed to provide a smooth surface. All blisters shall be cut and cemented smooth. A base sheet, as defined in the CBC, shall be secured in

place with approved fasteners. The base sheet shall not be mopped to the old roofing. New roofing material conforming to CBC Section 1516.2 shall be applied.

2. **Smooth or Cap Sheet Surfaced:** All blisters and curled edges shall be cut and cemented or nailed smooth. A base sheet shall be nailed, or in the case of non-nailable decks, adhered to the existing roofing. New roofing materials conforming to CBC Section 1516.2 shall be applied
3. **Flashing and edging:** Rusted or damaged metal shall be replaced. Metal shall be primed with cutback primer prior to installation. Collars and flanges shall be flashed per the manufacturer's instructions.
4. **Intersecting Walls:** All concrete masonry walls shall be completely cleaned and primed to receive new flashing. All vertical walls, other than concrete or masonry, shall have the surface finish material removed to a height of approximately 6 inches above the deck of the new roof surface to receive new roofing and flashing. All rotted wood shall be replaced with new materials. Surface finish materials shall be replaced or reinstalled.
5. **Parapets:** The upper 18 inches of parapet walls must be finished with non-combustible materials.
6. **Cant strips:** Where space permits, cant strips shall be installed at all angles. All angles shall be flashed with a least two more layers than in the new roof with an exposed finish layer of inorganic felt or mineral surfaced cap sheet.
7. **Minor Sags in the Roofing Plane:** Upon inspection, minor sags in the roofing plane where water ponds shall be corrected by either structural repairs or by building up the sag with roofing material in conformance with all roofing standards.
   Major Sags or deflection of the Roofing Plane: Major sags or deflections require a design from a California Licensed Engineer or Architect.

Shingles and Shakes:

The Building Official may permit an overlay in accordance with the following provisions and compliance with the engineering section of this policy.

1. **Asphalt/Composition Shingle Application:** Not more than one overlay of asphalt/composition shingles shall be applied over an existing composition or asphalt shingle roof. Not more than one overlay of asphalt/composition shingles shall be applied over wood shingles. Asphalt shingles applied over wood shingles shall not have less than Type 30 non-perforated felt underlayment installed prior to reroofing.
2. **Wood Shake Application:** ***Not more than one overlay of Class C minimum wood shakes shall be applied over an existing composition or asphalt shingle or wood shingle roof (with one layer of 18 inch, Type 30 felt interlaced between each layer of shakes).***
3. **Wood Shingle Application:** Not more than one overlay of Class C rated wood shakes shall be applied over existing wood shingles.
4. **Application over Shakes:** New roof covering shall not be applied over an existing shake roof, unless approved by the Building Official.
5. **Flashing and Edging:** Rusted or damaged flashing, vent caps and metal edgings shall be replaced with new materials as necessary.

Other Roofing / Specialty Roofs

Reroofing with systems not covered in CBC Chapter 15 shall not be applied without prior approval of the Building Official.

Platforms/Catwalks

When installing a new HVAC system or replacing an existing system, the following code requirements must be met:
A furnace located on a roof shall be installed and connected to a substantial level platform. An equipment access working area of at least 30 inches in depth shall be provided along the firebox and control sides of the furnace.

Access:

A new HVAC system installed on roofs of buildings of greater than 15' in height shall be provided with a means to access the equipment from inside the building (roof hatch). Replacement systems may retain their existing means of access if it was code compliant at the time of original installation. This may include permanent exterior ladders, level working platforms and catwalks.

Exceptions:
Temporary removal of the existing HVAC unit during reroofing.

Other Information:
For reference purposes, excerpts from Table 2304.9.1 and Table 23-II-B-2 are summarized from the 2013 CBC. They present nailing schedules and allowable spans for roof sheathing.

Excerpts from Section 1507 Requirements for Roof Coverings, 2013 California Building Code

1507.2 Asphalt shingles. The installation of asphalt shingles shall comply with the provisions of this section:

1507.2.1 Deck requirements. Asphalt shingles shall be fastened to solidly sheathed decks.

1507.2.2 Slope. Asphalt shingles shall only be used on roof slopes of two units vertical in 12 units horizontal (17-percent slope) or greater. For roof slopes from two units vertical in 12 units horizontal (17-percent slope) up to four units vertical in 12 units horizontal (33-percent slope), double underlayment application is required in accordance with Section 1507.2.8.

1507.2.3 Underlayment. Unless otherwise noted, required underlayment shall conform to ASMT D 226, Type I, ASTM D 4869, Type I, or ASTM D 6757.

1507.2.4 Self-adhering polymer modified bitumen sheet. Self-adhering polymer modified bitumen sheet shall comply with ASTM D 1970.

1507.2.5 Asphalt shingles. Asphalt shingles shall have self-seal strips or be interlocking and comply with ASTM D 225 or ASTM D 3462. Asphalt shingle packaging shall bear labeling indicating compliance with ASTM D 7158. Exception: Asphalt shingles not included in ASTM D 7158 shall be tested and labeled to indicate compliance with ASTM D 3161 and the required classification in Table 1507.2.7.1(2) or a listing by an approved testing agency in accordance with the requirements of Section 1609.5.2.

1507.2.6 Fasteners. Fasteners for asphalt shingles shall be galvanized, stainless steel, aluminum or copper roofing nails, minimum 12 gage [0.105 inch (2.67 mm)] shank with a minimum 0.375 inch-diameter (9.5 mm) head, of a length to penetrate through the roofing materials and a minimum of 0.75 inch (19.1 mm) into the roof sheathing. Where the roof sheathing is less than 0.75 inch (19.1 mm) thick, the nails shall penetrate through the sheathing. Fasteners shall comply with ASTM F 1667.

1507.2.7 Attachment. Asphalt shingles shall have the minimum number of fasteners required by the manufacturer and Section 1504.1. Asphalt shingles shall be secured to the roof with not less than four fasteners per strip shingle or two fasteners per individual shingle. Where the roof slope exceeds 20 units vertical in 12 units horizontal (166-percent slope), asphalt shingles shall be installed in accordance with the manufacturer's printed installation instructions for steep-slope roof applications.

1507.2.8 Underlayment application. For roof slopes from two units vertical in 12 units horizontal (17-percent slope) and up to four units vertical in 12 units horizontal (33-percent slope), underlayment shall be two layers applied in the following manner. Apply a minimum 19-inch-wide (483 mm) strip of underlayment felt parallel with and starting at the eaves, fastened sufficiently to hold in place. Starting at the eave, apply 36-inch-wide (914 mm) sheets of underlayment overlapping successive sheets 19 inches (483 mm), by fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal. For roof slopes of four units vertical in 12 units horizontal (33-percent slope) or greater, underlayment shall be one layer applied in the following manner. Underlayment shall be applied shingle fashion, parallel to and starting from the eave and lapped 2 inches (51 mm), fastened sufficiently to hold in place. Distortions in the underlayment shall not interfere with the ability of the shingles to seal.

1507.2.9 Flashing. Flashing for asphalt shingles shall comply with this section. Flashing shall be applied in accordance with this section and the asphalt shingle manufacturer's printed instructions.

1507.2.9.1 Base and cap flashing. Base and cap flashing shall be installed in accordance with the manufacturer's instructions. Base flashing shall be of either corrosion-resistant metal of minimum nominal 0.019-inch (0.483 mm) thickness or mineral-surfaced roll roofing weighing a minimum of 77 pounds per 100 square feet (3.76 kg/m^2). Cap flashing shall be corrosion-resistant metal of minimum nominal 0.019-inch (0.482 mm) thickness.

1507.2.9.2 Valleys. Valley linings shall be installed in accordance with the manufacturer's instructions before applying shingles. Valley linings of the following types shall be permitted:

1. For open valleys (valley lining exposed lined with metal, the valley lining shall be at least 24 inches (610 mm) wide and of any of the corrosion-resistant metals in Table 1507.2.9.2.
2. For open valleys, valley lining of two plies of mineral-surfaced roll roofing complying with ASTM D 3909 or ASTM D 6380 shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer a minimum of 36 inches (914 mm) wide.
3. For closed valleys (valleys covered with shingles), valley lining of one ply of smooth roll roofing complying with ASTM D 6380, Class S Type III, Class M Type II or ASTM D 3909 and at least 36 inches (914 mm) wide or types as described in Items 1 and 2 above shall be permitted. Specialty underlayment shall comply with ASTM D 1970.

1507.2.9.3 Drip edge. Provide drip edge at eaves and gables of shingle roofs. Overlap to be a minimum or 2 inches (51 mm). Eave drip edges shall extend 0.25 inch (6.4 mm) below sheathing and extend back on the roof a minimum of 2 inches (51 mm). Drip edge shall be mechanically fastened a maximum of 12 inches (305 mm) on center.

1503.6 Crickets and saddles. A cricket or saddle shall be installed on the ridge side of any chimney or penetration greater than 30 inches (762 mm) wide as measured perpendicular to the slope. Cricket or saddle coverings shall be sheet metal or of the same material as the roof covering.

Wood Shingle and Shake Installation California Building Code		
	Wood Shingles	**Wood Shakes**
1. Roof Slope	Wood shingles shall be installed on slopes of three units vertical in 12 units horizontal (3:12) or greater.	Wood shakes shall be installed on slopes of four units vertical in 12 units horizontal (4:12) or greater.
2. Deck requirements	—	—
Temperate climate	Shingle shall be applied to roofs with solid or spaced sheathing. Where spaced sheathing is used, sheathing boards shall not be less than 1" x 4" nominal dimensions and shall be spaced on center equal to the weather exposure to coincide with the placement of fasteners.	Shakes shall be applied to roofs with solid or spaced sheathing. Where spaced sheathing is used, sheathing boards shall not be less than 1" x 4" nominal dimensions and shall be spaced on center equal to the weather exposure to coincide with the placement of fasteners. When 1" x 4" spaced sheathing is installed at 10 inches, boards must be installed between the sheathing boards.
In areas where the average daily temperature in January is 25°F or less or where there is a	Solid sheathing required.	Sold sheathing is required.

possibility of ice forming along the eaves causing a backup of water.		
3. Underlayment	No requirements	Interlayment shall comply with ASTM D 226, Type 1
4. Underlayment	—	—
Temperate climate	Underlayment shall comply with ASTM D 226, Type 1	Underlayment shall comply with ASTM D 226, Type 1.
In areas where there is a possibility of ice forming along the eaves causing a backup of water.	Any ice shield that consists of at least two layers of underlayment cemented together or of a self-adhering polymer-modified bitumen sheet shall extend from the eave's edge to a point at least 24 inches inside the exterior wall line of the building.	An ice shield that consists of at least two layers of underlayment cemented together or of a self-adhering polymer-modified bitumen sheet shall extend from the eave's edge to a point at least 24 inches inside the exterior wall line of the building.
5. Application	—	—
Attachment	Fasteners for wood shingles shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.	Fasteners for wood shakes shall be corrosion resistant with a minimum penetration of 0.75 inch into the sheathing. For sheathing less than 0.5 inch thick, the fasteners shall extend through the sheathing.
No. of fasteners	Two per shingle.	Two per shingle.
Exposure	Weather exposures shall not exceed those set forth in Table 1507.8.6	Weather exposures shall not exceed those set forth in Table 1507.9.7

Wood Shingle and Shake Installation Continued:

Method	Shingles shall be laid with a side lap of not less than 1.5 inches between joints in courses, and no two joints in any three adjacent courses shall be in direct alignment. Spacing between shingles shall be 0.25 to 0.375 inch.	Shakes shall be laid with a side lap of not less than 1.5 inches between joints in adjacent courses. Spacing between shakes shall be less than 0.375 inch, or more than 0.625 inch for shakes and Taper-sawn shakes of naturally durable wood and shall be 0.25 to 0.375 inch for preservative taper sawn shakes
Flashing	In accordance with section 1507.8.7	In accordance with Section 1507.9.8

For SI: 1 inch = 25.4mm, °C = [(°F) – 32]/1.8.

Excerpts from CBC

FASTENING SCHEDULE

CONNECTION	FASTENING[a,m]	LOCATION

Wood structural panels and particle board[b] Subfloor, roof and wall sheathing (to framing)	½" and less	6d[c,l] 2 3/8" x 0.113" nail[n] 1 ¾" 16 gage[o]	
	19/32" to ¾"	8d[d] or 6d[e] 2 3/8" x 0.113" nail[p] 2" 16 gage[p]	
	7/8" to 1"	8d[c]	
	1 1/8" to 1 ¼"	10d[d] or 8d[d]	

a. Common or box nails are permitted to be used except where otherwise stated.
b. Nails spaced at 6 inches on center at edges, 12 inches at intermediate supports except 6 inches at supports where spans are 48 inches or more. For nailing of wood structural panel and particleboard diaphragms and shear walls, refer to Section 2305. Nails for wall sheathing are permitted to be common, box or casing.
c. Common or deformed shank (6d – 2" x 0.113"; 8d – 2 ½" x 0.131"; 10d – 3" x 0.148").
d. Common (6d – 2" x 0.113"; 8d – 2 ½" x .0131"; 10d – 3" x 0.148").
e. Deformed shank (6d – 2" x 0.113"; 8d – 2 ½" x 0.131"; 10d – 3" x 0.148").
l. For roof sheathing applications, 8d nails (2 ½" x 0.113") are the minimum required for wood structural panels.
m. Staples shall have a minimum crown width of 7/16 inch.
n. For roof sheathing applications, fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.
o. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports for subfloor and wall sheathing and 3 inches on center at edges, 6 inches at intermediate supports for roof sheathing.
p. Fasteners spaced 4 inches on center at edges, 8 inches at intermediate supports.

Excerpts from CBC

ALLOWABLE SPANS FOR LUMBER FLOOR AND ROOF SHEATHING[a,b]

	MINIMUM NET THICKNESS (inches) OF LUMBER PLACED			
	Perpendicular to supports		Diagonally to supports	
	Surfaced dry[c]	Surfaced unseasoned	Surfaced dry[c]	Surfaced unseasoned
Floors				
24	¾	25/32	¾	25/32
6	⅝	11/16	⅝	11/16
Roofs				
24	⅝	11/16	¾	25/32

a. Installation details shall conform to Sections 2304.7.1 and 2304.7.2 for floor and roof sheathing, respectively.
b. Floor or roof sheathing conforming to this table shall be deemed to meet the design criteria of Section 2304.7.
c. Maximum 19-percent moisture content.

Definitions per CBC Chapter 15 Roofing

Reroofing. The process of recovering or replacing an existing roof covering. See "Roof recover" and "Roof replacement."

Roof Covering. The covering applied to the roof deck for weather resistance, fire classification or appearance.

Roof Recover. The process of installing an additional roof covering over a prepared existing roof covering without removing the existing roof covering.

Roof Repair. Reconstruction or renewal of any part of an existing roof for the purposes of its maintenance.

Roof assembly. A system designed to provide weather protection and resistance to design loads. The system consists of roof covering and roof deck or a single component serving as both a roof covering and the roof deck. A roof assembly includes the roof deck, vapor retarder, substrate, or thermal barrier, insulation vapor retarder and roof covering.

Roof Ventilation. The natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, attics, cathedral ceilings or other enclosed spaces over which a roof assembly is installed. Referenced to CBC Section 1203.