REROOFING ON ROOFS WITH OR WITHOUT SOLAR ENERGY SYSTEMS

General Criteria

Roofs shall comply with requirements of Chapters 7A and 15 of the Los Angeles County Building Code (LACBC), and California Building Energy Efficiency Standards. Reroofing shall comply with all requirements of LACBC Section 1512. Roofs shall have a roofing assembly installed in accordance with the listing and manufacturer's installation instructions.

If reroofing changes existing material to a metal roof, Department of Regional Planning approval must be obtained.

If a rooftop mounted photovoltaic (PV) system is removed during the reroofing process, reinstallation shall comply with LACBC Section 1511.9. The procedure for reinstalling existing rooftop mounted PV system shall comply with Part II below. This policy does not address the reinstallation of a building-integrated PV system or a rooftop mounted solar domestic water heating system.

In addition to the requirements of LACBC Section 1512.2.1, the Building Official may allow existing roof coverings to remain when inspection reveals the following:

- No more than one layer of wood shingles, asphalt shingles, metal roofing, mineral-surfaced rolled roofing or built-up roofing. All other types of roof coverings shall be removed down to the roof deck.
- Roof framing is structurally adequate to sustain the weight of an additional roof covering.
- Existing roof covering is securely attached to the deck.
- Roof deck is structurally sound.
- Existing installation is not water soaked.
- New roof covering complies with specifications for existing pitch and fire classification for its location within the fire zone.
- New roof covering is listed by an approved agency for application over an existing roof covering matching the actual field conditions.

PART I. Reroofing shall comply with the following items

1. Existing Mineral Aggregate Built-up Roofs

   The roof shall be brushed clean of all loose gravel, debris, and embedded aggregate projecting more than 1/8 inch. All blisters, buckles, and other irregularities shall be cut and cemented, or nailed smooth. One layer of Type 30 organic fiber felt shall be nailed in place. Deck surface is now ready for new roof covering. Roofing nails shall be of sufficient length to penetrate through the existing covering and into the sheathing a minimum of 3/4 inch or through 1/2 inch plywood.

2. Existing Asphalt Shingles or Composition Roofs

   New asphalt shingles, composition, mineral-surfaced rolled roofing, or wood roofs (not located in Very High Fire Hazard Severity Zones) may be applied directly over an existing asphalt shingle, mineral-surfaced rolled roofing, or composition roof. Roofing nails shall be of sufficient length to penetrate through the existing covering and into the sheathing a minimum of 3/4 inch or through 1/2 inch plywood.

3. Existing Wood Shingles

   New wood shingles (not located in Very High Fire Hazard Severity Zones), or asphalt shingles with self-sealing tabs, or built-up roofs may be installed directly on existing wood shingles with or without a solid sheathing, or plywood base. Alternatively, a new 1/2 inch plywood deck may be fastened over wood shingles as noted in Item 6 below. The existing wood shingles within 3-1/2 inches of eaves and rakes shall be sawn and removed, and a solid wood filler strip of appropriate width and thickness shall be attached to provide a continuous nailing surface along these edges for the new roof covering.

4. Existing Wood Shakes

   Wood shakes shall be completely removed before reroofing unless the material complies with LACBC Section 1512.2.1. If new covering requires solid decking, the spaces between existing spaced sheathing shall be filled with appropriate width boards or 1/2 inch (minimum) thickness plywood may be fastened over spaced sheathing. Plywood shall be installed as noted in Item 6 below.

5. Existing Clay or Concrete Tiles

   Clay or concrete tiles shall be completely removed before reroofing with any material.

6. New Plywood Installation and Nailing

   Where plywood is installed directly on spaced sheathing, transverse panel joints should occur over a rafter. Nails shall be minimum 8d and of sufficient length to penetrate into the sheathing boards, and rafter a combined length of at least 1 inch. Nails shall be spaced 12 inches on center (o.c.) at each rafter. Where the panel edges that are parallel to the rafter do not occur over a rafter, nails shall be driven at 6 inches o.c. maximum spacing along each such edge, and through the sheathing boards.

7. Buildings located in Very High Fire Hazard Severity Zone

   Reroofing of buildings located in the Very High Fire Hazard Severity Zone shall comply with the requirements of LACBC Section 1505.1.1. Reroofing with wood shakes or wood shingles is prohibited per LACBC Section 705A.2.

PART II. Reinstallation of existing rooftop mounted photovoltaic systems

General Requirements

If the existing rooftop mounted photovoltaic system is removed when reroofing, then a separate permit for the reinstallation shall be required in addition to the building permit for the reroofing.

The Contractors State License Board requires that reroofing be performed by a C-39 licensed contractor and the reinstallation of rooftop mounted PV systems be performed by a C-10 or a C-46 licensed contractor. Otherwise, an A or B licensed contractor may apply for both trades.

Previously approved rooftop mounted PV systems may be reinstalled with the following requirements:

1. Reuse of existing Weeb clips is not permitted.

2. Standoff locations shall comply with Table 1 of Attachment A, Excerpt from Attachment E – Structural Criteria for PV Systems for One- and Two- Family Dwellings when the roof covering is different, i.e. shingle to tile.

3. For new metal roofs, the method of grounding and bonding shall be submitted for plan check.

Required Permits and Fees

1. Building plan check (if applicable) and permit fees for reroofing.
   [BL permit in DAPTS, BLDR permit in EnerGov]

2. Solar permit with issuance fee and one hour inspection fee only with a work description of "reinstallation of existing rooftop mounted photovoltaic system due to reroof".
   [CB permit in DAPTS, SOLR permit in EnerGov]

Procedure for reinstallation of rooftop mounted photovoltaic systems

Case 1 – When the previously approved rooftop mounted photovoltaic system plans are available, the reinstallation shall conform to the previously approved plans.

Case 2 – When the previously approved rooftop mounted PV system plans are not available, the contractor shall supply photographs and/or videos of the existing PV system prior to removal of the system and initial inspection. Images shall be readily identifiable to the installation project. Show, at a minimum, the following items:

a. PV module model number, quantity, and locations
b. Conductors, cables, and conduit types and sizes
c. Bonding of racking system and modules
d. Attachment spacing

Supersedes BCM 1510 Article 1 dated 03-14-16.

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EXCERPT FROM ATTACHMENT E – STRUCTURAL CRITERIA FOR PV SYSTEMS FOR ONE-FAMILY AND TWO-FAMILY DWELLINGS

Table 1. Maximum Horizontal Anchor Spacing				
Roof Slope		Rafter Spacing		
		16” o.c.	24” o.c.	32” o.c.
Photovoltaic Arrays (4 psf max)				
Flat to 6:12	0º to 26º	5'-4"	6'-0"	5'-4"
7:12 to 12:12	27º to 45º	1'-4"	2'-0"	2'-8"
13:12 to 24:12	46º to 63º	1'-4"	2'-0"	2'-8"
Solar Thermal Arrays (5 psf max)				
Flat to 6:12	0º to 26º	4'-0"	4'-0"	5'-4"
7:12 to 12:12	27º to 45º	1'-4"	2'-0"	2'-8"
13:12 to 24:12	46º to 63º	Calc. Req'd	Calc. Req'd	Calc. Req'd

Solar support component manufacturer’s guidelines may be relied upon to ensure the array above the roof is properly designed, but manufacturer’s guidelines typically do NOT check to ensure that the roof itself can support the concentrated loads from the solar array. Table 1 assumes that the roof complied with the building code in effect at the time of construction, and places limits on anchor horizontal spacing to ensure that a roof structure is not overloaded under either downward loads or wind uplift loads. Note 4 below lists the basic assumptions upon which this table is based.

Table 1 Notes:

1. Anchors are also known as “stand-offs”, “feet”, “mounts” or “points of attachment”. Horizontal anchor spacing is also known as “cross-slope” or “east-west” anchor spacing (see Figure 2).

2. If anchors are staggered from row-to-row going up the roof, the anchor spacing may be twice that shown above, but no greater than 6’-0”.

3. For manufactured plated wood trusses at slopes of flat to 6:12, the horizontal anchor spacing shall not exceed 4’-0” and anchors in adjacent rows shall be staggered.

4. This table is based on the following assumptions:

    - The roof structure conformed to building code requirements at the time it was built.
    - The attached list of criteria is met.
    - Mean roof height is not greater than 40 feet.
    - Roof sheathing is at least 7/16” thick oriented strand board or plywood. 1x skip sheathing is acceptable.

- If the dwelling is in Wind Exposure B (typical urban, suburban or wooded areas farther than 500 yards from large open fields), no more than one of the following conditions apply:

  - The dwelling is located in a special wind region with design wind speed between 115 and 130 mph per ASCE 7-10, or
  - The dwelling is located on the top half of a tall hill, provided average slope steeper is less than 15%.

- If the dwelling is In Wind Exposure C (within 500 yards of large open fields or grasslands), all of the following conditions apply:

  - Design wind speed is 110 mph or less (not in a Special Wind Region), and
  - The dwelling is not located on the top half of a tall hill.

- The solar array displaces roof live loads (temporary construction loads) that the roof was originally designed to carry.

- The Structural Technical Appendix provides additional information about analysis assumptions.