

NOTE: For all permits issued after September 12, 2016, the effective code is 2016 DBCA/2015 IBC/2015 IRC.

1. Permits and Scope of Work

- A. If repairs are more than 10% of the roof square footage or two roof squares (whichever is smaller), then the repair needs a roofing permit.
- B. All new roof penetrations require a permit (e.g., skylight, rooftop units, pipes, solar, etc.).
- C. Partial roofs that end at a natural edge may be replaced under a permit, but not partial slopes.
- D. Roof coatings do not require a permit.

Abbreviations
IBC = International Building Code
IRC = International Residential Code
IECC = International Energy Conservation Code
DBCA = Denver Building Code Amendments
IPC = International Plumbing Code

2. Underlayment

- A. Ice and Water Shield Requirements
 - i. Self-adhering bitumen installed at the eaves and rakes to two feet inside the exterior wall is NOT required per 2016 DBCA (see highlighted column in Table R301.2(1) below).
- B. For specific underlayment requirements, see Tables R905.1.1(1), R905.1.1(2), R905.1.1(3) governing underlayment types, applications, and attachments in the 2015 IRC or request a copy of these tables from Building Inspections.

Table R301.2(1)
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

Ground Snow Load (psf)	Wind Design				Seismic Design Category	Subject to Damage From			Winter Design Temp (degrees)	Ice Barrier Under- layment Required	Flood Hazard	Air Freezing Index	Mean Annual Temp (degrees)
	Speed (MPH)	Topo-graphic Effects	Special Wind Region	Wind-borne Debris Zone		Weathering	Frost	Termite					
35	115/125/140	No	Yes	No	B	Severe	36"	Slight/Mod	1° C	No	1978	712	40-45° F

3. Roof Decking

- A. Existing roofs must be removed to deck and replaced where two or more layers of any roof covering exist.
- B. No continuous opening between boards can be greater than 1/2" regardless of manufacturer's recommendations. If manufacturer requires a smaller gap, then the manufacturer's requirement prevails.
- C. Asphalt Shingles
 - i. For maximum gap definition on 1X decking sheathed roofs, consult the manufacturer's installation instructions for the product being installed, with the caveat that no opening can be greater than 6 square inches regardless of manufacturer's recommendation. Openings smaller than this dimension can be covered with 26-gauge metal.

4. Low-slope Roofs

- A. Membrane roofs must be installed by a D-Roof Covering/Waterproofing licensed contractor.
- B. If membrane is less than 10% of the entire roof or two roof squares (whichever is smaller), it can be installed by a D-Roof Shingles licensed contractor on shingle projects that have some low-slope areas (porches and patios, for example).

5. Wind Speed Requirements

- A. Wind Resistance of Asphalt Shingles (per the 2015 IRC - Section R905.2.4.1)
 - i. All shingles shall be tested and labeled to comply with the requirements of ASTM D 7158.
 - ii. If the brand of shingles is not included in the scope of ASTM D 7158, then the shingles must be tested and labeled to comply with ASTM D 3161.
- B. Wind Speed Zones for Denver (per the 2015 IBC Section 1609)
 - i. Areas east of Federal Blvd. – 115 mph min. rating
 - ii. Federal Blvd. to Sheridan Blvd. – 125 mph min. rating
 - iii. Sheridan Blvd. to Kipling St. – 140 mph min. rating

6. Attic Venting

- A. New Construction (per the 2015 IRC Section R806 Roof Ventilation)
 - i. Unvented attic assemblies require air-impermeable insulation (minimum of R-20, per IRC R.806.4). The total insulation R-value must meet 2015 IECC.
- B. Re-roofing Existing Construction
 - i. Venting is not inspected on re-roof projects, if the venting meets the building code in effect at the time of original construction.
 - ii. *Optional:* Venting can be added to meet manufacturer’s warranty requirements, as per manufacturer’s installation instructions.

7. Energy Code Requirements

- A. New roofs must comply with the 2015 IECC.
- B. Existing roofs without insulation in the cavity and where the sheathing or insulation is exposed during reroofing shall be insulated either above (R-30ci) or below (R-38 Flat/R-49 Attic) the sheathing.

8. **Asbestos:** Must follow the Colorado Department of Public Health and Environment’s (CDPHE) requirements for a certified asbestos inspection and removal, and may be required to show proof of the inspection.

9. Inspections Required for Roofing and Siding Permits

Use the “205,” “206,” or “201” inspection code when requesting an inspection by phone at 720-865-2501.

3-Digit Inspection Code and Type of Roof System	205 – Pre-Inspection Commercial (New or Re-roof)	206 – Other (Mid-roof, Roof Insulation, Meeting)	201 – Roof (Final)
One- and Two-Family Asphalt Shingles	No	If Needed*	Yes
Townhomes	Yes	If Needed*	Yes
Commercial Asphalt Shingles	Yes	If Needed*	Yes
Low-slope Roofs	Yes	If Needed*	Yes
Tile	No	Yes	Yes

* A mid-roof inspection may be required when the pre-inspection identifies items that need to be completed, but will not be visible for inspection at the final.

#	P A S S	2015 IRC/IBC 2016 DBCA	Chapter Section	Building Code	F A I L
General Roof and Re-roof Requirements					
1		IRC R903.1 IBC 1503.1	General	Manufacturer's installation instructions are included as part of the IBC and IRC.	
2		IRC R908.2 IBC 1511.2	Structural and construction loads	Structural roof components shall support the roof covering system and the materials and equipment loads encountered during installation.	
3		IRC R908.3.1.1(3) IBC 1511.3.1.1	Roof replacement	Existing roof covering must be removed down to deck unless re-covering a single layer.	
4		IRC R903.2 IBC 1503.2	Flashing	Flashing shall be installed to prevent moisture from entering the roof and wall.	
5			Pitch pans	Required if multiple penetrations are intended to be flashed together, or for equipment support legs.	
6			Duct and pipe jacks	Pipe and duct penetrations shall be flashed using roof flashing (jacks) intended for the specified roof system.	
7			Flues/ducts	B-vent pipes must have a metal boot of the same gauge of the pipe and have a storm collar installed to protect the metal boot to pipe connection. Vent caps shall be in good shape and fitted for proper venting.	
8		IRC R903.2.1 IBC 1503.2.1	Locations	Flashing shall be installed at wall and roof intersections, change in roof slopes, and roof openings.	
9		IRC R903.2.2 IBC 1503.2.2	Crickets and saddles	All vertical projections on sloped roofs greater than 30" require a cricket or saddle made of sheet metal or of the same material as the roof covering.	
10		DBCA R903.2.3	Flashing Single-ply	Flashing for single-ply roof systems shall be installed per manufacturer's current recommendations.	
11		IRC R908.5	Reinstallation of materials	Existing flashings shall be replaced where rusted, damaged, or deteriorated.	
12		IRC R903.3 IBC 1503.3	Coping	Parapet walls shall be properly coped with non-combustible, weatherproof materials of a width not less than the thickness of the wall and be sealed at every joint with an overlap of no less than 2".	
13		IRC R903.4	Roof drainage	Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point on the roof.	
14		IRC R903.4.1 IBC 1503.4.1	Secondary drains or scuppers	Where roof drains are required, secondary (overflow) drains and scuppers are required where parapets are present and entrapped water cannot drain when primary drains back-up. Overflows shall be the same size and installed 2" above the main drain. The installation and sizing of the drains shall comply with the IPC. Overflow drains cannot connect to the primary drain.	
15		IBC 1503.4.2	Scuppers	Emergency overflow scuppers shall be sized and located to prevent the depth of ponding water from exceeding the designed roof load. Scuppers shall have a minimum 4" opening.	
16		IRC R908.1(2) IBC 1511.1(2)		For roofs that provide positive drainage, re-covering or replacing an existing roof covering shall not require the secondary (emergency overflow) drains or scuppers of Section R903.4.1 to be added to an existing roof.	
17		DBCA R903.4.2 & 1503.2.2	Equipment on roof	Equipment on the roof shall be installed on 8" legs bearing on decking or be installed on an 8" curb bearing on decking which can be flashing in properly. Placing the equipment on resonator pads or slip sheets is not allowed.	
18		IRC R905.1.1	Underlayment	Must meet the specifications in Tables R905.1.1(1), (2), and (3) regarding underlayment types, application, and attachment.	

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19		DBCA R903.2.6 & 1507.10.5	Stucco	Exterior wall finishes must terminate a min. of 8" above the finished roof of a low-slope roof or a min. of 2" above a shingle, shake, or tile roof.	
Asphalt Shingle Roof Requirements					
20		IRC R905.2.1	Sheathing	Roof decking shall be solidly sheathed (new construction only).	
21		IRC R905.2.2 IBC 1507.2.2	Slope	Asphalt shingles shall be used only on roof slopes of 2:12 or greater. For slopes 2:12 up to 4:12, double underlayment is required. (See underlayment tables: Tables R905.1.1(1), R905.1.1(2), R905.1.1(3) in the 2015 IRC.)	
22		IRC R905.2.4.1	Wind resistance	Asphalt shingle classification shall be ASTM D 7158 D, G or H depending on wind zone.	
23		IRC R905.2.6	Attachment	As required by manufacturer or minimum of four nails per shingle for all roof slopes up to 21:12.	
24		IRC R905.2.8.2	Valleys	All materials must comply with the ASTM's listed in R905.2.8.2.	
25		IBC 1507.2.9.2	(1) Open metal	Open valleys lined with metal shall be a minimum of 24" wide and corrosion-resistant.	
26			(2) Open roll	Open valleys lined with two plies of rolled roofing shall be permitted where the bottom layer is at least 18" wide and the top layer is at least 36" wide.	
27			(3) Closed roll	Closed valleys shall be a minimum of 36" wide of either 1) one ply of smooth roll roofing or 2) self-adhering modified bitumen.	
28		DBCA R905.2.8.2	(3) Closed metal	Metal is not allowed in a closed valley.	
29		IRC R905.2.8.3	Sidewall flashing: Headwall	Continuous flashing shall be a minimum of 4" x 4" and all flashing shall be counter flashed with metal or exterior finish and properly sealed.	
30			Step	Step flashing shall be a minimum of 4" x 4" piece per shingle, and all flashing shall be counter flashed with metal or exterior finish and properly sealed.	
31			Kick-outs	Kick-outs at the end of the sidewall step flashing shall be turned out in a manner that directs water away from the wall onto the roof or into a gutter.	
32		IRC R905.2.8.4	Other flashing	Flashing against a vertical wall, soil stack, vent pipe and chimney.	
33		IRC R905.2.8.5 IBC 1507.2.9.3	Drip edge	Drip edge shall be provided at eaves and rake edges: <ul style="list-style-type: none"> Installed with a minimum of 2" overlap for segments, extend a minimum of ¼" below roof sheathing and a minimum of 2" onto roof deck; Mechanically fastened at a minimum of 12" o.c.; and Underlayment shall be installed over drip edge along eaves and under drip edge along rakes. 	
Low-slope Roof Requirements					
34		DBCA 140.7	Other inspections	All commercial roofs require a "205 - Pre-Inspection Commercial" inspection.	
35		DBCA R905.5.2	Deck slope	90 lb. roll roofing shall not be applied to roof slopes less than 2:12. Exception: Detached garages, patios and carports open on three sides may have a slope of 1:12.	
36		IRC R905.11-13.1 IBC 1507.11-13.1	Slope	Modified Bitumen, Thermoset (EPDM), and Thermoplastic (TPO/PVC) shall have a minimum design slope of ¼:12 for drainage.	
37		IRC R905.11.3 IBC 1507.11.3	Application	Modified Bitumen shall be installed in accordance with manufacturer's instructions.	

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38			Torch Down Peel-n-Stick	Modified Bitumen shall be installed: <ul style="list-style-type: none"> Overlap all edges a minimum of 2"; Edge metal flashings shall be a minimum of 2" x 4" and be fully primed; Wall flashings to be independent of field sheet and properly terminated; Cant Strip (if required by manufacturer). 	
39		IRC R908.1 IBC 1511.1	General exception (1)	Re-roofing shall not be required to meet the minimum design slope of ¼:12 for roofs that provide positive drainage.	
Metal Roof Shingles Requirements					
40		IRC R905.4.2 IBC 1507.4.2	Slope	Metal roof shingles shall not be installed on roof slopes below 3:12.	
41		IRC R905.5.6 IBC 1507.5.7	Flashing	Valley flashing shall: <ul style="list-style-type: none"> Be of the same material as the roof covering; Extend a min. of 8" from the centerline with a min. ¾" high splash diverter rib built-in at the flow line with sections overlapping a min. of 4"; and Min. 36" Type I underlayment for slopes greater than 3:12. 	
Tile Roof Requirements					
42		IRC R907.5 IBC 1511.5	Reinstallation of materials	Existing slate, clay or cement tile can be reinstalled if not damaged, broken or deteriorated. Existing flashing must be replaced when deteriorated, rusted or damaged.	
43		IRC R905.3.2 IBC 1507.3.2	Slope	Clay and concrete tile shall have a minimum 2½:12 slope. For slopes 2½:12 up to 4:12, double underlayment is required.	
44		IRC R905.3.8 IBC 1507.3.8	Flashings	Valley flashing shall: <ul style="list-style-type: none"> Extend a minimum of 11" from the centerline with a minimum 1" high splash diverter rib built-in at the flow line with sections overlapping a minimum of 4"; and Minimum of 36" Type I underlayment for slopes greater than 3:12. 	
45		DBCA R905.3.9	Inspection of tile roof	A mid-roof inspection shall be made to inspect underlayment, battens and flashings. No more than 30% of the tile system may be completed before requesting the inspection.	

For Denver Building Department Use Only	
#	Corrections required of failed item numbers:
Re-inspection required. When corrections are made, please request a new inspection.	
Re-inspection fee required: \$100.00.	
Inspector: _____	Date: _____

