

Webinar October 2, 2025

<u>International Building Code, 2021 Edition</u> Chapter 15-Roof Assemblies and Rooftop Structures



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Some background

- The I-codes are "model codes" developed by the International Code Council (ICC)
- Model codes serve as the technical basis for state or local code adoption
- The code provides the minimum legal requirements for building construction...and operation
- The code is enforced by the "authority having jurisdiction" (AHJ)
- The code can also provide a basis for construction claims-related litigation

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Code development process

The 2021 I-codes are the 8th edition

The 2021 I-codes present the code as originally published in 2000, with changes reflected in the 2003 through 2018 editions and further changes approved by the ICC Code Development Process through 2020. A new edition is promulgated every three years.

2018 Group A: IBC Building Fire, Building General and Plumbing Committees 2019 Group B: IBC Structural, IECC-Commercial, IECC-Residential Committees

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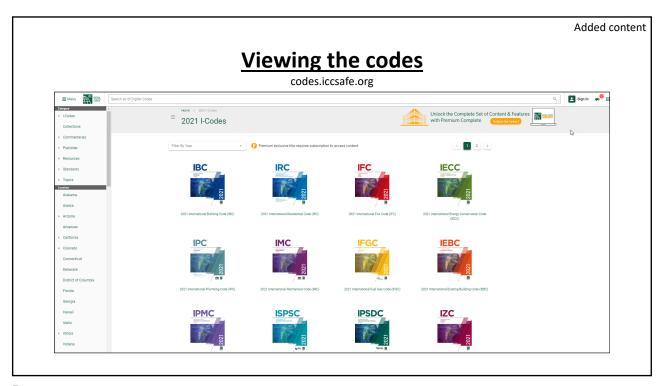
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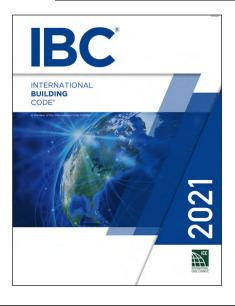
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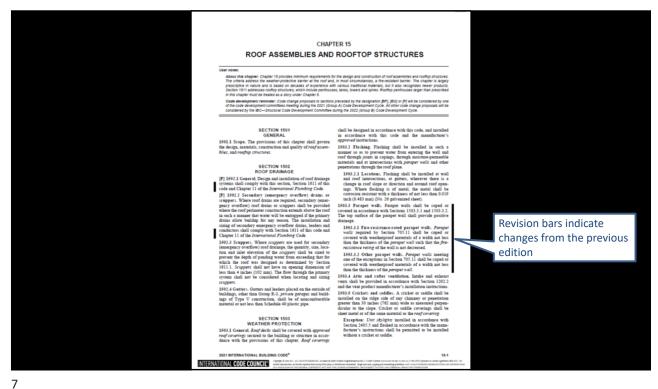


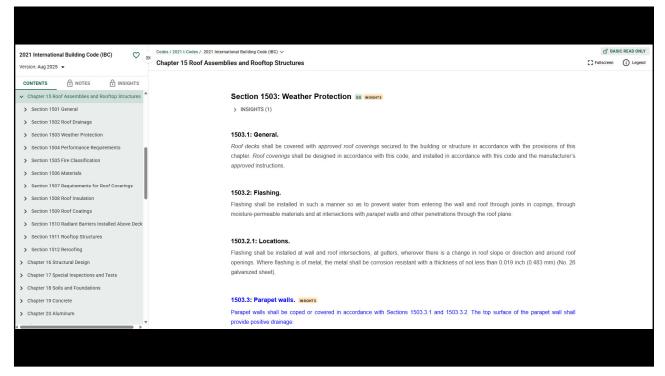
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- Applicable to all buildings and structures, excepts those applicable to IRC 2021
- Roofing-related requirements:
 - Ch. 10-Means of egress
 - Ch. 12-Interior environment
 - Ch. 13-Energy efficiency
 - Ch. 15-Roof assemblies and rooftop structures
 - Ch. 16-Structural design
 - Ch. 20-Aluminum
 - · Ch. 22-Steel
 - Ch. 24-Glass and glazing
 - · Ch. 26-Plastic

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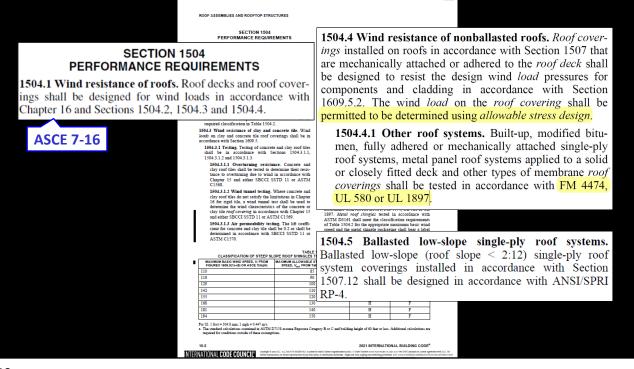


Significant roof-related requirements

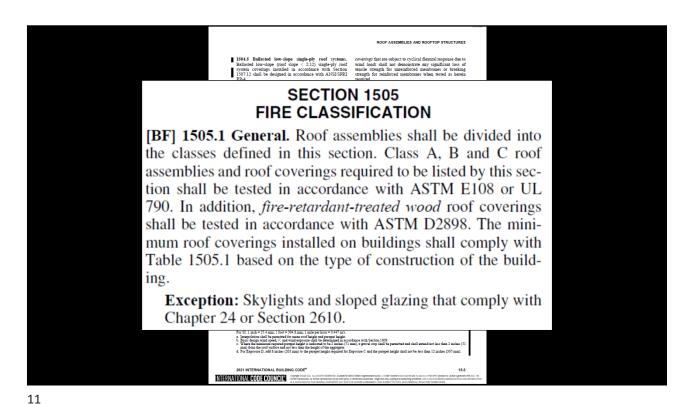
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- Wind resistance (Sec. 1504)
- Fire classification (Sec. 1505)
- Installation requirements (Sec. 1506)
- Prescriptive requirements (Sec. 1507)
- Reroofing (Sec. 1512)

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[BF] 1505.2 Class A roof assemblies. Class A roof assemblies are those that are effective against severe fire test exposure. Class A roof assemblies and roof coverings shall be *listed* and identified as Class A by an *approved* testing agency. Class A roof assemblies shall be permitted for use in buildings or structures of all types of construction.

Exceptions:

- Class A roof assemblies include those with coverings of brick, masonry or an exposed concrete roof deck.
- Class A roof assemblies also include ferrous or copper shingles or sheets, metal sheets and shingles, clay or concrete roof tile or slate installed on noncombustible decks or ferrous, copper or metal sheets installed without a roof deck on noncombustible framing.
- Class A roof assemblies include minimum 16 ounce per square foot (0.0416 kg/m²) copper sheets installed over combustible decks.
- Class A roof assemblies include slate installed over ASTM D226, Type II underlayment over combustible decks.

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TABLE 1505.1^{a, b} MINIMUM ROOF COVERING CLASSIFICATION FOR TYPES OF CONSTRUCTION

IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
В	В	В	Cc	В	Cc	В	В	Cc

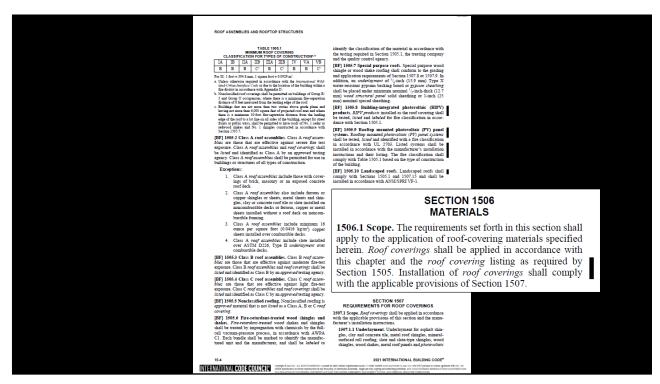
For SI: 1 foot = 304.8 mm, 1 square foot = 0.0929 m^2 .

- unless otherwise required in accordance with the *International Wildland-Urban Interface Code* or due to the location of the building within a fire district in accordance with Appendix D.
- b. Nonclassified roof coverings shall be permitted on buildings of Group R-3 and Group U occupancies, where there is a minimum fire-separation distance of 6 feet measured from the leading edge of the roof.
- c. Buildings that are not more than two stories above grade plane and having not more than 6,000 square feet of projected roof area and where there is a minimum 10-foot fire-separation distance from the leading edge of the roof to a lot line on all sides of the building, except for street fronts or public ways, shall be permitted to have roofs of No. 1 cedar or redwood shakes and No. 1 shingles constructed in accordance with Section 1505.7.

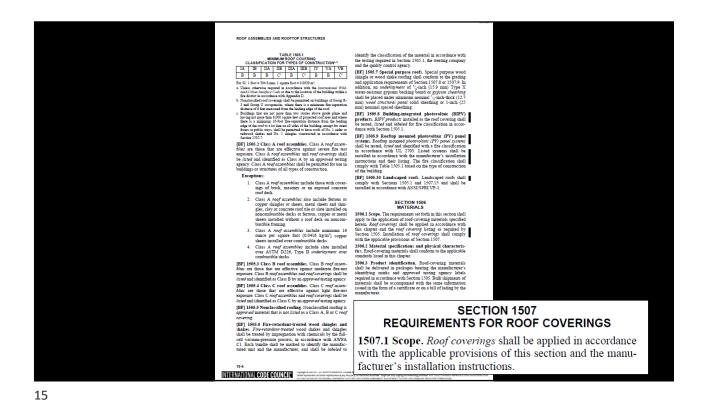
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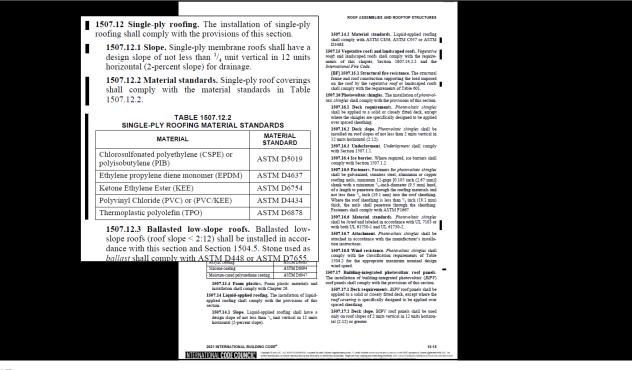
Roof system types

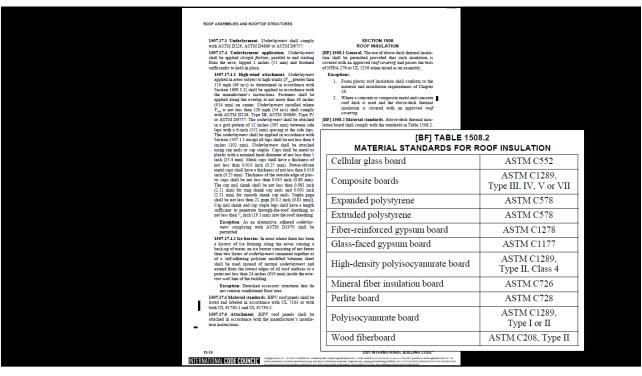
Prescriptive requirement in Section 1507

- Asphalt shingles
- Clay and concrete tile
- Metal panels
- Metal shingles
- Mineral-surfaced roll roofing
- Slate shingles
- Wood shingles
- Wood shakes
- Built-up roofs

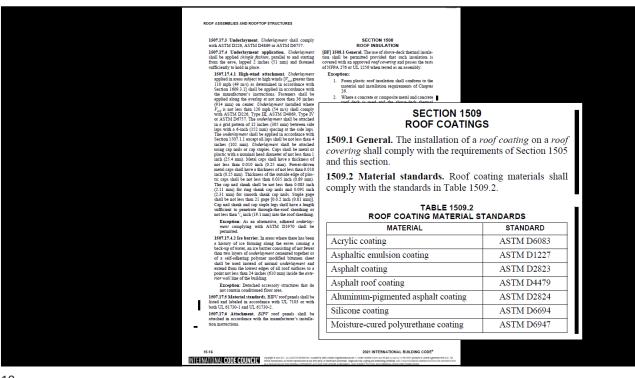
- Modified bitumen roofing
- Single-ply roofing
- Spray polyurethane foam
- Liquid-applied roofing
- Vegetative roofs, roof gardens and landscaped roofs
- Photovoltaic shingles
- Building-integrated photovoltaic roof panels

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ROOF ASSEMBLIES AND ROOFTOP STRUCTURES

SECTION 1511 REROOFING

1511.1 General. Materials and methods of application used for recovering or replacing an existing roof covering shall comply with the requirements of Chapter 15.

Exceptions:

- Roof replacement or roof recover of existing lowslope roof coverings 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.
- 2. Recovering or replacing an existing roof covering shall not be required to meet the requirement for secondary (emergency overflow) drains or scuppers in Section 1503.4 for roofs that provide for positive roof drainage. For the purposes of this exception, existing secondary drainage or scupper systems required in accordance with this code shall not be removed unless they are replaced by secondary drains or scuppers designed and installed in accordance with Section 1503.4.

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1511.3 Roof replacement. Roof replacement shall include the removal of all existing layers of roof coverings down to the roof deck.

Exception: Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck, the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with Section 1507.

1511.3.1 Roof recover. The installation of a new roof covering over an existing roof covering shall be permitted where any of the following conditions occur:

- Where the new roof covering is installed in accordance with the roof covering manufacturer's approved instructions.
- Complete and separate roofing systems, such as standing-seam metal roof panel 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.
- Metal panel, metal shingle and concrete and clay tile roof coverings shall be permitted to be installed over existing wood shake roofs when applied in accordance with Section 1511.4.

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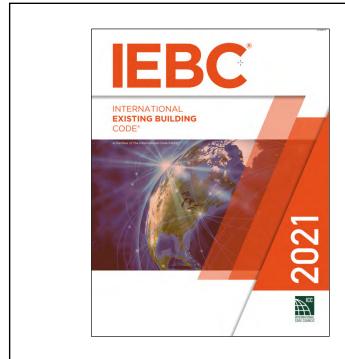
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ROOF ASSEMBLIES AND ROOFTOP STRUCTURES 4. The application of a new protective roof coating over an existing protective roof coating, metal roof panel, built-up roof, spray polyurethane foam roofing system, metal roof shingles, mineral-surfaced roll roofing, modified bitumen roofing or thermoset and thermoplastic single-ply roofing shall be permitted without tear off of existing roof coverings. 1511.3.1.1 Exceptions. A roof recover shall not be permitted 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 slate, clay, cement or asbestos-cement tile. 3. Where the existing roof has two or more applications of any type of roof covering. INTERNATIONAL CODE COUNCIL

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Roof zones Changes in IBC 2021, Section 1603-Construction Documents CHAPTER 16 1603.1.4 Wind design data. The following information related to wind loads shall be shown, regardless of whether wind loads govern the design of the lateral forceresisting system of the structure: 1. Basic design wind speed, V, miles per hour and allowable stress design wind speed, V_{asd} , as determined in accordance with Section 1609.3.1. Risk category. 3. Wind exposure. Applicable wind direction if more than one wind exposure is utilized. 4. Applicable internal pressure coefficient. 5. Design wind pressures and their applicable zones with dimensions to be used for exterior component and cladding materials not specifically designed by the registered design professional responsible for the design of the structure, pounds per square foot (kN/m²).

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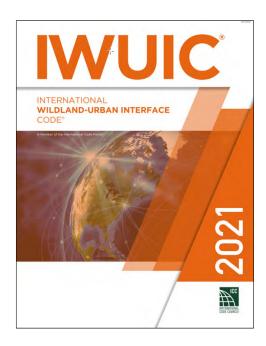


Roof requirements:

Ch. 7-Alterations-Level 1

- Sec. 705-Reroofing (IBC 2021)
- Sec. 706-Structural
 - Increased dead, live or snow loads
 - Unreinforced masonry parapets
 - Roof diaphragms

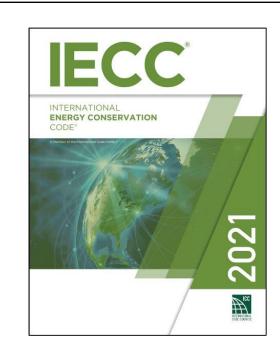
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Roof requirements:

- Sec. 504 Class 1 Ignition-resistance Construction
- Sec. 505 Class 2 Ignition-resistance Construction
- Sec. 506 Class 3 Ignition-resistance Construction

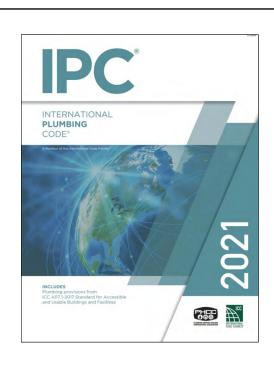
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Roof requirements:

- C301 Climate Zones
- C402 Building Envelope:
 - Table C402.1.3 R-values
 - C402.3 Roof reflectance
 - C402.5 Air laeakage

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Roof requirements:

Ch. 11: Storm drainage

- Roof drains
- Overflow drains
- Gutters and downspouts

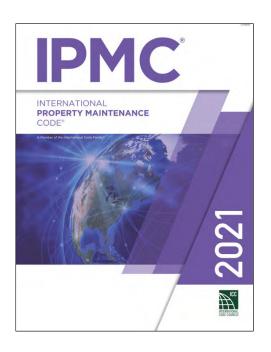
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Roof requirements:

- Ch. 2-Definitions (torch-applied roof system)
- Sec. 303-Asphalt Kettle
- Sec. 317-Landscaped Roofs
- Sec. 905-Landscaped Roofs
- Sec. 3318-Safeguarding Roofing Operations

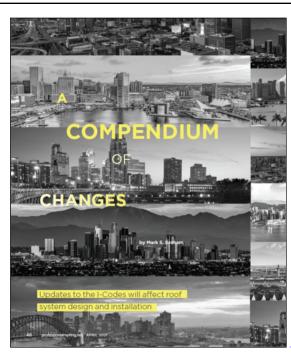
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Roof requirements:

Sec. 304 Exterior Structure

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Roofing-related revision in IBC 2024 and any questions



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Questions...

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