

Building Code Compliance

Jurisdiction-Specific Requirements for Restoration Projects

PREPARED FOR

100 E Main Street

Front Royal, VA 22630

Jurisdiction: Virginia ' Warren County ' Front Royal

APPLICABLE CODE

2018

Statewide Adoption

CLIMATE ZONE

IECC Zone 4A

Mixed-Humid (moist)

WORK SCOPES INCLUDED

Roofing • Siding • Windows

GENERATED
February 26, 2026

DOCUMENT ID
SAMPLE-V

VERSION
v0.1.0

This document is a compliance reference compiled from publicly available building codes and official jurisdiction data. It does NOT replace professional engineering judgment, permit review, or verification with the local Authority Having Jurisdiction (AHJ). Building codes may have been amended or superseded since generation. All requirements must be independently verified before construction.

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Executive Summary

CRITICAL - VERIFY ALL REQUIREMENTS

This document contains building code information sourced from official databases as of February 26, 2026. Building codes are subject to change and may have local amendments not captured here. ALL requirements in this document MUST be verified with the local Authority Having Jurisdiction (AHJ) before beginning any construction work. Failure to verify current requirements could result in code violations, failed inspections, structural failures, or life-safety hazards.

- * **PROPERTY LOCATION**
100 E Main Street
Front Royal, VA 22630
- * **JURISDICTION**
Virginia 'Warren County 'Front Royal
No local amendments
- * **APPLICABLE CODE**
2018
Statewide mandatory adoption
- * **CLIMATE ZONE**
IECC Zone 4A
Mixed-Humid (moist) - affects insulation and energy requirements

IMPORTANT - EFFECTIVE DATE NOTICE

The 2021 Virginia USBC became effective January 18, 2024. A grace period allowed permits filed by January 17, 2025 to use the previous (2018) code. As of January 18, 2025, ALL permit applications must comply with the 2021 USBC. Mixing code editions is prohibited.

Key Requirements Summary

Based on the work scopes for this project (Roofing, Siding, Windows), the following critical requirements apply:

Roof Assemblies (Chapter 9)

- Drip edge required at eaves and gables (R905.2.8.5).
- Ice barrier not typically required (verify local amendments).
- Synthetic underlayment must meet ASTM D4869 or D226.
- Asphalt shingles: 4 fasteners min (6 in high wind zones).

Wall Covering (Chapter 7)

- Water-resistive barrier (WRB) required behind siding.
- Flashing required at all openings (windows, doors) and intersections.
- Clearance to grade: 6" (soil), 2" (paved).
- Fasteners must penetrate framing/sheathing per manufacturer specs.

Windows & Glazing (Chapter 6 & 11)

- U-Factor and SHGC must meet Energy Code (Ch 11).
- Flashing required at head, jambs, and sill (pan flashing recommended).
- Safety glazing required in hazardous locations (near doors, stairs, floors).
- Emergency escape and rescue openings (EERO) required in sleeping rooms.

IECC IECC Zone 4A - Mixed-Humid

Mixed-Humid zone requires ice barrier protection, balanced heating/cooling considerations, and enhanced moisture control. Energy code insulation requirements for IECC Zone 4A apply.

SECTION	TITLE	SOURCE
R905.2	Asphalt Shingles	IRC 2018
R905.1.1	Underlayment	IRC 2018
R905.1.2	Ice Barrier	IRC 2018
R905.2.8.1	Wind Resistance of Asphalt Shingles	IRC 2018

Jurisdiction Overview

Applicable Jurisdiction Hierarchy

Building codes flow from state to local levels. Your property is subject to requirements at each level.



STATE

Virginia

Base Code: 2018 • Statewide mandatory adoption

STATEWIDE CODE



COUNTY

Warren County

Follows state base code without local amendments

[OK] NO AMENDMENTS

Work Scopes Covered

Roofing

Siding

Windows

Applicable Codes

The following building codes are currently in effect for Virginia 'Warren County 'Front Royal. All construction work must comply with these codes as adopted by the local Authority Having Jurisdiction (AHJ).

CODE NAME	EDITION	EFFECTIVE DATE	AUTHORITY
VA USBC BASE	2018 (based on ICC 2018)	June 30, 2021	Virginia DHCD
IRC	2018 (as amended by VA)	June 30, 2021	Virginia DHCD
IECC	2018 (as amended by VA)	June 30, 2021	Virginia DHCD

Note: Local jurisdictions may adopt additional amendments or stricter requirements. Always verify current code editions with the local building department before beginning work.

Energy Requirements

Climate Zone Characteristics

IECC Zone 4A

Mixed-Humid (Moist) - Mixed-humid climate with cold winters and warm, humid summers. Balanced heating and cooling loads. Requires ice barrier protection, vapor retarder consideration, and moderate insulation levels.

HEATING DEGREE DAYS

4,800 HDD

COOLING DEGREE DAYS

1,200 CDD

WINTER DESIGN TEMP

10°F

INSULATION REQUIREMENTS

COMPONENT	R-VALUE	U-FACTOR	DEPTH	NOTES
Ceiling / Attic	R-49	0.026	Approx. 16" blown-in or R-49 batts	R-38 is acceptable where full height cannot be achieved at eaves.
Wood Frame Wall	R-20	0.06	R-13 cavity + R-5 cavity	Continuous insulation required if cavity-only is less than R-20.
Floor	R-19	0.033	R-19 batts (standard 2x10 joist bays)	
Basement Wall	R-10	0.059	R-10 continuous or R-13 cavity	Interior or exterior insulation acceptable.
Crawl Space Wall	R-10	0.059	R-10 continuous	Conditioned crawl space walls.
Slab Perimeter	R-10	—	2 ft depth	Heated slab-on-grade perimeter insulation.

FENESTRATION REQUIREMENTS

COMPONENT	U-FACTOR	SHGC	DEPTH	NOTES
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Window	0.3	0.4	–	NFRC labeled. ENERGY STAR certified windows meet these requirements.
Skylight	0.55	0.4	–	NFRC labeled.
Door	0.3	–	–	Opaque door U-factor. Glazed doors follow window requirements for glazed portion.

Applicable Building Code Sections

R905.2

Asphalt Shingles

Asphalt shingles shall be installed on roof slopes of two units vertical in 12 units horizontal (2:12) or greater. For roof slopes from two units vertical in 12 units horizontal (2:12) up to four units vertical in 12 units horizontal (4:12), asphalt shingles shall be installed by methods specified by the manufacturer. Asphalt shingles shall comply with ASTM D3462 or ASTM D

1. 7
2. 1
3. 5
4. Asphalt shingles shall have a classification of not less than Class A, B, or C as required by Section R902.
5. Shingles shall be fastened with a minimum of four fasteners per shingle. Where the roof slope exceeds 21 units vertical in 12 units horizontal (21:12 / 60 degrees), shingles shall be installed per manufacturer instructions with special steep-slope methods.

Source: IRC 2018

R905.1.1

Underlayment

Underlayment shall comply with the applicable standards listed in this section. Underlayment shall be applied in accordance with the underlayment manufacturer's installation instructions. Asphalt-saturated felt shall conform to ASTM D226 Type I or II. Synthetic underlayment shall conform to ASTM D8257 and be applied per manufacturer's instructions. Self-adhering polymer modified bitumen underlayment shall comply with ASTM D1970.

Source: IRC 2018

R905.1.2

Ice Barrier

In areas where the average daily temperature in January is 25°F (-4°C) or less, an ice barrier that consists of not less than two layers of underlayment cemented together or a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment and shall extend from the lowest edges of all roof surfaces to a point not less than 24 inches (610 mm) inside the exterior wall line of the building. This requirement applies to eaves, valleys, around roof penetrations, and at intersections with vertical surfaces. Virginia Climate Zone 4A: Ice barrier IS required per this section.

Source: IRC 2018

R905.2.2.1

Asphalt shingles shall be tested in accordance with ASTM D3161, Class F, or ASTM D7158, Class G or H. Asphalt shingle packaging shall bear a label indicating compliance with ASTM D3161, Class F, or ASTM D7158, Class G or H. Products tested to ASTM D7158, Class H, are acceptable for use in areas where the basic wind speed is up to 150 mph. For Virginia, the basic design wind speed for

R903.4**Roof Drainage**

Unless roofs are sloped to drain over roof edges, roof drains shall be installed at each low point of the roof. Where required for roof drainage, scuppers shall be placed level with the roof surface in the adjacent parapet walls. Scuppers shall be not less than 4 inches (102 mm) in height and have a width not less than the diameter of the conductor or leader to which the scupper is connected. Gutters and downspouts shall be sized to handle the rainfall intensity for the locality.

Source: IRC 2018

R703.1**General (Exterior Covering)**

Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section R703.4. The exterior wall envelope shall be designed and constructed in a manner that prevents the accumulation of water within the wall assembly by providing a water-resistive barrier behind the exterior veneer and a means of draining water that enters the assembly to the exterior. Protection against condensation in the exterior wall assembly shall be provided per Section R702.7.

Source: IRC 2018

R703.2**Water-Resistive Barrier**

One layer of No. 15 asphalt felt, complying with ASTM D226 for Type 1 felt, or other approved water-resistive barrier shall be applied over studs or sheathing of all exterior walls. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2 inches (51 mm). Where applied over wood-based sheathing, a water-resistive barrier shall be applied per manufacturer instructions. Housewrap-type water-resistive barriers shall comply with ICC ES AC38 or ASTM E2556.

Source: IRC 2018

R703.4**Flashing**

Flashing shall be installed at wall and roof intersections, at gutters, wherever there is a change in roof slope or direction, and around roof openings. Flashing shall be installed at the junction of exterior walls and roofs. Flashing shall be corrosion-resistant metal with a minimum thickness of 0.019 inch (No. 26 galvanized sheet gage). Flashing at exterior windows and doors shall extend to the surface of the exterior wall finish or to the water-resistive barrier for subsequent drainage.

Source: IRC 2018

R612.1**General (Windows)**

Windows shall be tested and labeled as conforming to AAMA/WDMA/CSA 101/I.S.2/A440 or ASTM E2190 and ASTM E

1. 3
2. 3
3. The design pressure rating of windows shall meet or exceed the design wind pressure specified in Table R301.2(2) for the location. For Warren County, VA, this corresponds to a basic wind speed of approximately 115 mph (Exposure B). Windows and glass doors shall comply with the applicable energy requirements per Section N1102.

Source: IRC 2018

N1102.4.3**Fenestration Air Leakage (Energy)**

Windows, skylights, and sliding glass doors shall have an air infiltration rate of not more than 0.3 cfm per square foot (1.5 L/s/m²) when tested in accordance with NFRC 400 or AAMA/WDMA/CSA 101/I.S.2/A440 by an accredited, independent laboratory, and listed and labeled by the manufacturer. Swinging doors shall have an air infiltration rate of not more than 0.5 cfm per square foot (2.6 L/s/m²). All fenestration products shall bear an NFRC label.

Source: IECC 2018

Key Rules & Requirements

Virginia Statewide Adoption

Virginia adopts building codes statewide through the USBC. Local jurisdictions CANNOT adopt their own building codes or make the state code more or less restrictive. All Virginia jurisdictions enforce the same code edition.

Ice Barrier Required (Zone 4A)

Climate Zone 4A requires ice barrier (ice and water shield) at eaves, valleys, and around penetrations. Must extend at least 24 inches inside the exterior wall line.

Water-Resistive Barrier Required

All exterior wall assemblies must have a continuous water-resistive barrier (WRB). When replacing siding, the WRB must be inspected and replaced if damaged.

Window Energy Performance (Zone 4)

Replacement windows in Climate Zone 4 must meet maximum U-factor of 0.30 and SHGC of 0.40. NFRC label required on all fenestration products.

Manufacturer Requirements

Building codes require compliance with manufacturer installation instructions as a condition of code compliance. The following manufacturer documents and installation specifications apply to the work scopes specified for this property. Non-compliance may void manufacturer warranties and violate building code.

TECHNICAL BULLETIN

Owens Corning Ridge Cap Installation Requirements

Owens Corning requires factory-manufactured ridge cap shingles (DecoRidge or similar). Using field-cut three-tab shingles as ridge cap VOIDS the manufacturer warranty. This is a code-required separate line item (IRC R905.2 references manufacturer installation instructions).

[Duration](#)[Duration Storm](#)[Oakridge](#)[DecoRidge](#)

INSTALLATION GUIDE

Owens Corning Underlayment Specifications

Synthetic underlayment (ProArmor or equivalent) is required under all Owens Corning shingle systems for warranty compliance. Single-layer application with minimum 4-inch horizontal laps and 6-inch end laps. Fastener spacing per manufacturer specification.

[ProArmor](#)[Deck Defense](#)

Installation Specifications by Manufacturer

Owens Corning

• NAILING REQUIREMENTS (6 specs)

Nail Gauge	12 gauge minimum
Nail Head Diameter Min	3/8 inch minimum
Nail Penetration	3/4 inch minimum penetration through deck
Nails Per Shingle Standard	4 nails per shingle
Nails Per Shingle High Wind	6 nails per shingle
Nail Placement Steep	6 nails required on slopes > 60° (21:12)

Source: [OC Duration Installation](#)

• VENTILATION REQUIREMENTS (2 specs)

Vent Ratio Standard	1:150 ventilation ratio or 1:300 with balanced
Intake Exhaust Balance	50% intake / 50% exhaust required for Total Protection warranty

Source: [OC Duration Installation](#)

• UNDERLAYMENT REQUIREMENTS (2 specs)

Five Star Required	DiamondDeck or RoofRunner required for 5-Star warranty product
Four Star Acceptable	Standard felt acceptable for 4-Star warranty product

Sources: [OC Duration Warranty Guide](#) [OC TruDefinition Duration War...](#) [OC Oakridge Warranty Guide](#)

• TEMPERATURE REQUIREMENTS (2 specs)

Min Install Temp	40°F minimum
Hand Seal Required Below	Hand seal with CertainTeed approved sealant below 40°F

Sources: [OC Duration Installation](#) [OC Oakridge Installation](#)

• STEEP SLOPE REQUIREMENTS (2 specs)

Steep Threshold	60° (21:12) - mansard
Hand Seal Mansard	Hand seal all shingles on slopes > 60°

Source: [OC Duration Installation](#)

Why Manufacturer Requirements Matter for Code Compliance

Per IBC Section 1705 and IRC Section R106, products must be installed in accordance with the manufacturer's published installation instructions. Failure to follow manufacturer requirements constitutes a building code violation and may void product warranties.

These requirements are separate from general code provisions and may mandate specific materials, methods, or accessories not covered by standard waste factors or installation allowances.

Compliance Checklist

- Verify permit requirements with local building department
- Confirm climate zone and applicable energy requirements
- Check for any local amendments that may supersede state code
- Verify special zone requirements (Flood, WUI, Historic, etc.)
- Ensure all materials meet manufacturer specifications
- Schedule necessary inspections at appropriate stages

[OK] Completion Verification

I certify that the work performed at this location complies with the applicable building codes and requirements listed in this document to the best of my knowledge.

Contractor Signature

Date

Legal Disclaimer

IMPORTANT NOTICE

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DOCUMENT ID
CBK-VA-22630-2026-02-26

TIMESTAMP
2026-02-26 23:46:06 UTC