



SECTION 074643 - REAR VENTILATED FAÇADE SYSTEM

This Section specifies Vintage, Arbor, and Harvest Collections® for rainscreen applications using capped PVC boards produced by AZEK® Building Products, 5215 Old Orchard Rd, Suite 725, Skokie, IL 60077. 1-877-275-2935. AZEK.com.

AZEK® Vintage, Arbor, and Harvest Collection boards are superior alternatives to commonly used cladding and rainscreen application products. Unlike traditional rainscreen and other siding products, AZEK capped PVC boards offer premium natural hardwood aesthetics while providing Alloy Armour Technology to create product performance capable of offering a Limited 30-year Fade & Stain warranty, and a Limited Lifetime material warranty against splitting, cupping, splintering, blistering, peeling, flaking, cracking, rotting or structural damage from termites or fungal decay.

AZEK capped PVC boards are available in many color options. The Vintage Collection® offers Mahogany, Dark Hickory, and Cypress®. The Arbor Collection® offers Brazilian Walnut, Mountain Redwood®, Morado®, Acacia®, Silver Oak®, and Hazelwood®. The Harvest Collection® offers Brownstone, Slate Gray, Island Oak™, Autumn Chestnut®, and Kona®.

AZEK capped PVC boards have been issued a Code Compliance Research Report CCRR-0266 for cellular PVC siding for compliance to the 2015 IRC and IBC model codes as well as the 2017 FBC-B and FBC-R codes. For use in Type V-B residential construction. Testing was undertaken for physical properties, surface burning characteristics and wind loads.

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Capped PVC (cPVC) boards for use in rainscreen applications to provide a rear-ventilated façade system (RVFS).

1.2 RELATED REQUIREMENTS

Editing Note: Edit the following referenced Sections to properly meet specific Project requirements. Requires close coordination with components of the exterior building wall assembly to receive the RVFS.

- A. Section 013000 - Submittals.

Editing Note: Minimum 2x4 nominal preservative-pressure-treated Southern Yellow Pine, Spruce-Pine-Fur, or other suitable species is required; Construction or No. 2 grade.

- B. Section 061000 - Rough Carpentry. For wood furring to receive cPVC boards.



- C. Section 072500 - Weather Barriers. For water-resistant barrier (WRB) materials installed over wall sheathing.
- D. Section 072713 - Modified Bituminous Sheet Air Barriers. For water-resistant barrier (WRB) materials installed over wall sheathing.
- E. Section 072726 - Fluid-Applied Membrane Air Barriers. For water-resistant barrier (WRB) materials installed over wall sheathing.

1.3 REFERENCES

Editing Note: Delete references not applicable to project requirements.

- A. AATCC 127: Water Resistance: Hydrostatic Pressure
- B. ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus.
- C. ASTM D3679: Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding, Section 6.12 Surface Distortion
- D. ASTM D570: Standard Test Method for Water Absorption of Plastics (2hr. boil condition)
- E. ASTM D635: Standard Test Method for Rate of Burning and/or Extent and Time of Burning Plastics in a Horizontal Position
- F. ASTM D648: Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in Edgewise Position, Method A
- G. ASTM D696: Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer.
- H. ASTM D792: Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- I. ASTM D1761: Standard Test Methods for Mechanical Fasteners in Wood.
- J. ASTM D1929: Standard Test Method for Determining Ignition Temperatures of Plastics
- K. ASTM D2565: Standard Practice for Xenon-Arc Exposure of Plastics Intended for Outdoor Applications.
- L. ASTM D4226: Standard Test Method for Impact Resistance of Rigid Poly Vinyl Chloride (PVC) Building Products, Procedures A
- M. ASTM D6109: Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products.



- N. ASTM D7031: Standard Guide for Evaluating Mechanical and Physical Properties of Wood-Plastic Composite Products.
- O. ASTM D7032: Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails).
- P. ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials.

1.4 DEFINITIONS

- A. Rainscreen: An exterior open-joint cladding system incorporating a continuous air cavity created by furring, a water-resistive barrier to manage water intrusion through drainage and ventilation, and a physical air barrier (e.g. sheathing) to prevent air leakage into the building.
- B. RVFS: Rear-ventilated façade system.

Editing Note: A continuous No. 15 asphaltic building felt or other approved materials, such as building wrap, are acceptable pursuant to the International Building Code (Ref.: IBC Chapter 14).

- C. WRB: Water-resistive barrier. A code-acceptable material behind the cPVC boards that prevents moisture in the air cavity from intrusion into the exterior building wall assembly.
- D. cPVC: Capped PVC material.

1.5 SUBMITTALS

- A. General: Comply with Section 013000 - Submittals.
- B. Product Data: For each product specified include the following:
 - 1. Technical product data, including component descriptions, details, and performance criteria.
 - 2. Manufacturer's printed surface preparation and installation instructions.
 - 3. Safety Data Sheets (SDS).
- C. Selection Samples: Full range of samples for color selection.
- D. Verification Samples: For selected color(s). Full board width by minimum 6-inch length in size.
- E. Quality Assurance Submittals:



1. Installer qualifications.
2. Certified test reports showing compliance with specified performance criteria.
3. Specimen copy of specified material warranties.

F. Closeout Submittals:

1. Maintenance data for installed system.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A licensed and bonded firm with a proven track record of good building practices is required by this Section.
- B. Project-Site Mockups: Erect project-site mockups incorporating materials and workmanship required. After mockups have been reviewed for acceptability, retain on site and suitably protected until the RVFS work has been completed. Accepted mockups will serve as quality control standards for judging acceptability of the installed work. Accepted mockups **[may] [may not]** be incorporated into the work.
1. Provide mockups as **[indicated on Drawings] [directed by Architect]**.

1.7 DELIVERY AND STORAGE

- A. General: Deliver and store materials in manufacturer's original packaging and with clear identification. Store on flat and level surface. If stored outdoors the product must be covered by a non-translucent material. Protect materials from harmful environmental elements, construction dust and other potentially detrimental conditions in a well-ventilated location. Prior to installation, store products in a cool, shady area.

1.8 ENVIRONMENTAL CONDITIONS

- A. Do not apply RVFS materials when the air temperature or relative humidity is outside the manufacturer's range limitations.

1.9 WARRANTY

- A. Manufacturer's Performance Warranty: Manufacturer's written materials warranty for long-term performance against splitting, cupping, splintering, blistering, peeling, flaking, cracking, rotting or structural damage from termites or fungal decay.
1. Warranty Period: Limited lifetime from date of Substantial Completion.
- B. Manufacturer's Stain and Fade Warranty: Manufacturer's written materials warranty for long-term performance against staining and color fade.



1. Color Fade: Color change from light and weathering exposure not to exceed 5 Delta E (CIE) units.
2. Warranty Period: 30 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CAPPED PVC BOARDS

- A. Basis of Design: **["Vintage"] ["Arbor"] ["Harvest"]** Square Edge Planking; AZEK Building Products.
- B. Composition: Cellular PVC (cPVC) core boards with "Alloy Armour Technology," a PVC-based capping material for superior stain, fade, and scratch resistance.
- C. Board Thickness: 1.0 inch total thickness; 0.020 inch capping material thickness;
- D. Board Width: 5.5 inches.
- E. Board Length: **[12 feet] [16 feet] [20 feet]**.
- F. Board Edges: 1/8-inch edge radius.
- G. Gapping: The following open joint dimensions for the RVFS are required:
 1. Butted Boards: No gap.
 2. Edge-to-Edge Boards: 1/8 inch open joints.
 3. Boards Adjacent to Walls or Posts: 1/8 inch open joints.
 4. Boards at Roof Interface: 1/8 inch open joints.

Editing Note: Following color selections for "Vintage" product.

- H. Color: **[Mahogany] [Dark Hickory] [Cypress]**

Editing Note: Following color selections for "Arbor" product.

- I. Color: **[Brazilian Walnut] [Mountain Redwood] [Morado] [Acacia] [Silver Oak] [Hazelwood]**

Editing Note: Following color selections for "Harvest" product.

- J. Color: **[Brownstone] [Slate Gray] [Island Oak] [Autumn Chestnut] [Kona]**

2.2 PERFORMANCE CRITERIA

- A. Structural Performance Criteria for cPVC Board Cladding Assembly:



1. General: AZEK Cellular PVC Cladding has been evaluated for the use as an exterior wall cladding on buildings of **[Type V-B construction (IBC, FBC-B) and all construction types permitted under the IRC and FBC-R] [governing building code]** and authorities having jurisdiction for RVFS wind load resistance for the geographical location of the Project.

Editing Note: AZEK Cellular PVC Cladding has not been evaluated for compliance with the High-Velocity Hurricane Zone provisions of the 2017 Florida Building Code.

B. Performance Criteria for cPVC Board Cladding Product: Comply with ASTM D7031 and the following:

1. Surface Burning Characteristics: Maximum 200 Flame Spread Index: Arbor-Harvest class (B) FSI, Vintage class (A) FSI ASTM E84
2. Self-Ignition Temperature: 842°F; ASTM D1929
3. Flash-Ignition Temperature: 716°F Arbor-Harvest, 734°F Vintage; ASTM D1929
4. Rate of burn: No sustained combustion ASTM D635
5. Surface Distortion: No effect at 120°F or at Max developed temp of 165°F ASTM D3679 Section 6.12
6. Specific Gravity: 0.63 g/cm³; ASTM D792
7. Heat Shrinkage: 0.2% linear Arbor-Harvest, 0.1% Vintage; ASTM D1042
8. Heat Deflection Temperature: 70.4°C at 0.45 MPa, 60.9°C at 1.8 MPa, Arbor-Harvest. 72.0°C at 0.45 MPa, 59.9°C at 1.8 MPa, Vintage. ASTM D648
9. Coefficient of Thermal Expansion: 2.66x 10⁻⁵ in/in/°F; ASTM D696
10. Modulus of Elasticity: Vintage: 200,000 psi, Arbor-Harvest 201000 psi; ASTM D6109
11. Modulus of Rupture: 3,600 psi Arbor-Harvest, 3800 psi Vintage; ASTM D6109
12. Flexural Rigidity: Vintage: 1313 lbs. ultimate load, 129 lbs. load at L/180 deflection, EI 92,180 lb-in². Arbor-Harvest: 1253 lbs. ultimate load, 133 lbs. load at L/180 deflection, EI 92,870 lb-in². Tested according to ASTM D6109
13. Impact: 265/220 (in·lb) mean failure energy (MFE) Arbor-Harvest /Vintage ASTM D4226
14. Water Absorption: No observed water droplets ASTM D570 & AATCC 127
15. Creep Recovery: 94% average recovery with maximum unrecovered deflection did not exceed 1/16 inch for 120 lb. test load; ASTM D7032
16. UV Resistance: Successfully passed after 2000 hours of Xenon-Arc exposure. Tested according to ASTM D2565 Cycle 1
17. Fungus Decay Resistance: Planking does not contain cellulosic material
18. Termite Resistance: Passes: Planking does not contain cellulosic material
19. Moisture Effect: Not prone to absorption, no adjustments; ASTM D7032
20. Freeze Thaw Resistance: Less than 10% effect, no adjustments; ASTM D7032

C. Performance Criteria for Mechanical Fasteners:

1. Fastener Allowable Design Pressure: Qty (2) #10 x 2" OMG Fastenmaster Cortex Screw: 223 psf, Qty (2) #8 x 2.5" stainless steel trim head screw: 395 psf



2.3 MISCELLANEOUS MATERIALS

- A. General: Provide miscellaneous materials as recommended by the RVFS manufacturer.
- B. Fasteners: stainless steel (grade 305 or 316) minimum #8 x 2-1/2" trim head for face-fastened installations or zinc plated, electric coated epoxy painted carbon steel #10 x 2" for counter-bored installations (fastener covered by a plug).
 - 1. ACQ Rated Fasteners: Coated fasteners to be approved for use with alkaline copper quaternary (ACQ) pressure treated wood attachment substrates per AC257.
 - 2. Coated carbon steel screw fasteners: Comply with ASTM B117 for corrosion-resistance.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive the RVFS work and conditions under which the work will be performed.
- B. Verify:
 - 1. Wall sheathing is in place and properly installed.
 - 2. WRB (or air barrier) is in place, continuous, and properly installed.
 - 3. RVFS furring is level, plumb, and true to line, correctly placed, securely attached to building substrates. Maximum furring spacing, whether horizontal or vertical, not to exceed 16 inches on center.
 - 4. Air cavity is continuous with minimum 1 ½ inch unobstructed width. Unobstructed air intake (bottom) and exit (top) of at least 1 ½ inch.
 - 5. Flashings for penetrations, head of openings, and base of air cavity are properly installed to redirect moisture to the exterior.
 - 6. Wood blocking and insect screens are in place as required to prevent intrusion by pests and not diminish ventilation/drainage performance.
- C. Commencement of RVFS work will constitute acceptance of substrates to receive the work.

3.2 PREPARATION

- A. General: Comply with manufacturer's printed installation instructions.
- B. Protect adjacent substrates not to receive the RVFS.



3.3 INSTALLATION

- A. General: Comply with RVFS manufacturer's printed installation instructions and approved shop drawings.
- B. Securely attach cPVC boards to furring substrates. Fastener size, number, spacing, and minimum dimensions from board edges and ends according to RVFS manufacturer's current recommendations.
 - 1. Cut and rout cPVC boards using only approved carbide-tipped blades, to preclude frayed edge cuts.
 - 2. Cut board ends square. Miter cuts at corners are acceptable.
 - 3. Install fasteners perpendicular to cladding board substrates and flush with board surface.
- C. Horizontal cPVC Board Orientation:
 - 1. Determine and begin at lowest point of cladding installation.
 - 2. Butt joints to occur only over furring and centered on furring. As cPVC board courses are added, stagger butt joints in a consistent "stair step" manner.
 - 3. Board lengths to span a minimum of three furring members.
 - 4. Gapping: Provide minimum 1/8 inch spacing between board edges. Spacing at end of boards with no gap; refer to RVFS manufacturer's published technical data for spacing dimensions.

3.4 CLEANING AND PROTECTION

- A. Clean cPVC boards according to RVFS manufacturer's printed maintenance instructions. Use only cleaning materials and methods acceptable to RVFS manufacturer.
- B. Repair any damage to adjacent substrates and surfaces due to work of this Section.
- C. Upon completion of RVFS work, protect for remainder of construction period.

END OF SECTION 074643