

## TYPICAL AIR AND WEATHER BARRIER REQUIREMENTS FOR A RAINSCREEN CLADDING SYSTEM

A properly designed *air and weather barrier system* is essential to the performance of a rainscreen cladding assembly. These components prevent bulk water intrusion, reduce air leakage, and enhance energy efficiency while allowing vapor to diffuse appropriately through the wall.

### PURPOSE & FUNCTION

Air and weather barriers perform two primary roles:

- **Air Barrier:** Prevents uncontrolled air infiltration and exfiltration, reducing condensation, energy loss, and risk of mold.
- **Weather (Water-Resistive) Barrier (WRB):** Provides continuous protection against bulk water intrusion from wind-driven rain or snow, directing moisture toward drainage planes within the ventilated cavity.

### PLACEMENT & CONTINUITY

- Both barriers are installed *behind the cladding system* and *inboard of the ventilated rainscreen cavity*, typically over exterior sheathing.
- The system must form a *continuous, sealed layer* across the façade, including transitions at windows, doors, corners, and penetrations.
- Overlaps and seams should follow manufacturer recommendations, generally *4–6 inches*, and be sealed or taped to maintain integrity.

### MATERIAL CLASSIFICATIONS

Air and weather barriers may be *sheet-applied, fluid-applied, or self-adhered membranes*, depending on design and performance needs.

Common examples include:

- **Fluid-Applied Barriers:** Acrylic, silicone, or elastomeric coatings (e.g., Prosoco R-Guard, Tremco ExoAir, Henry Air-Bloc, Carlisle Barriseal).
- **Self-Adhered Membranes:** Rubberized asphalt, SBS-modified bitumen, or advanced vapor-permeable options (e.g., 3M Air & Vapor Barrier 3015, Grace Perm-A-Barrier, Carlisle CCW-705).
- **Sheet/Mechanically Fastened WRBs:** High-performance synthetic wraps or micro-porous films (e.g., DuPont Tyvek CommercialWrap, VaproShield RevealShield, Delta-Vent SA, StoGuard).

These represent commonly used materials but are not limited to the examples listed.

### PERFORMANCE STANDARDS

All air and weather barrier materials should comply with the following industry standards:

- **ASTM E2357:** Air leakage of wall assemblies.
- **ASTM E2178 / E283:** Air permeability of materials and systems.
- **ASTM E331 / E547:** Water penetration resistance of assemblies.
- **ASTM E96:** Water vapor transmission (for vapor-permeable barriers).
- **IBC Sec. 1403.2 & 1404.2:** Weather protection requirements for exterior walls.

### DESIGN CONSIDERATIONS

- **Vapor Permeability:** For most rainscreen systems, a *vapor-permeable weather barrier* is preferred to allow outward drying.
- **Compatibility:** Sealants, flashing, adhesives, and tapes must be compatible with selected barrier materials.
- **Durability:** Barriers should resist UV exposure, puncture, and tearing during installation.
- **Integration:** Coordinate barrier installation with flashing, roof-to-wall, and foundation transitions to maintain full system continuity.

This document provides a typical overview of industry-standard air and weather barrier requirements for rainscreen cladding systems. Actual system design, detailing, and installation should always be verified with the project architect, building envelope consultant, or manufacturer's technical representative to ensure compliance with project-specific conditions, climate zones, and code requirements.

