



How to Prevent the Five Most Common Air and Water-Resistive Barrier Transition Failures

Many building envelope issues don't start with the air and water-resistive barrier (AWRB) product itself, they start at the transitions between building materials or systems.

When AWRB continuity is compromised, it often shows up as:

- Interior leaks and resident complaints
- Wet insulation and concealed damage
- Mold risk and indoor air quality concerns
- Schedule impacts due to rework and re-inspections
- Warranty claims and disputes

An AWRB transition is any point where the air/water barrier material must connect to a different type of construction material or system.

The transition locations are where continuity is easiest to lose—and hardest and most expensive to fix later.

Common transitions include:

- Window and door rough openings
- Slab edges and floor line conditions
- Roof-to-wall intersections
- Balcony/deck/waterproofing tie-ins
- Penetrations including MEP, vents, mounts, and louvers
- Material changes such as masonry to stud wall or sheathing to concrete

Here are the 5 most common AWRB transition failures.

1. Reverse shingling at overlaps.

When an upper layer of building material is tucked under instead of overlapping properly, this mistake is referred to as reverse shingling. Water will move behind the barrier instead of shedding outward.



A reverse lap condition like the one circled here with an upward-facing overlap creates a direct pathway for water intrusion and can defeat the intended drainage plane.

2. Rough opening prep that isn't fully integrated.

The rough opening is one of the highest-risk areas for water and air intrusion on most buildings. Proper integration requires coordination between:

- Sill pan/sill flashing
- Jamb transition detailing
- Head flashing/drip cap
- Window attachment method
- Perimeter sealant strategy



If left this way, there will be air leaks at this interface where the rough opening prep is not integrated with the exterior wall air barrier. When properly prepped, the pink fluid-applied air and water-resistive barrier on the left meets the red liquid flashing on the right, and fully covers the transition between sheathing and 2x4 framing that's visible in this image.

3. Over-reliance on sealant.

Sealant is important, but it's not the system. Sealant is a component that must be backed up by proper detailing and continuity.



Excess sealant is not a viable substitute for a properly detailed AWRB system.

4. Sequencing issues between trades.

Many AWRB problems aren't caused by bad details, they're an outcome of bad timing. If transition work occurs out of sequence, the result is patchwork instead of continuity of the building envelope barrier.



This condition resulted from inadequate coordination of work sequencing. The mechanical penetration was installed after the AWRB and subsequently concealed by masonry cladding, eliminating access to properly install flashing and achieve continuous air and water barrier integration at the mechanical sleeve.

5. Scope gaps at trade handoffs.

AWRB failures are common where scope responsibility is unclear, such as:

- Framing vs. waterproofing contractor
- Window installer vs. AWRB installer
- Façade contractor vs. roofer
- Penetrations added late by MEP trades



This unsealed penetration through the AWRB was a result of a scope gap at trade handoff. Responsibility for flashing installation needs to be clearly scoped in bid documents.

Best practices that reduce rework.

Confirming AWRB continuity early will help catch issues before they become costly, time-consuming rework. These simple habits can prevent most transition problems.

A. Think of the AWRB as a continuous line.

The air and water-resistive barrier is not a product, nor a separate layer. Consider it a continuous, unbroken line that must connect through the entire enclosure.

B. Hold a brief AWRB transition meeting.

A focused 20–30 minute field review with the trades, construction manager, and BEC consultant during early phases can prevent weeks of rework later.

C. Use mockups, even small ones.

Mockups can help solve:

- Installation sequence questions
- Material compatibility concerns
- Inspection expectations
- Clarity on trade responsibilities

D. Document critical areas before cover-up.

Photos of transition conditions before cladding become valuable quality control documentation and project records.

E. Use a field checklist to verify AWRB transitions.

A simple checklist is a powerful tool to verify that critical AWRB transitions are not overlooked. A typical checklist would include:

- AWRB continuity at slab edges and interfaces
- Proper lap sequencing (no reverse laps)
- Substrates clean and dry enough for adhesion (where applicable)
- Openings prepped before windows are set
- Tie-ins at roof-to-wall and deck/balcony interfaces
- Penetrations sealed and detailed (not just caulked)
- Compatible materials and terminations per manufacturer guidance

How GCI helps building owners, developers and contractors.

GCI's Building Envelope team supports clients with:

- Construction observations and reporting
- Targeted transition reviews during critical install phases
- Photo documentation and action item tracking
- Issue identification before concealment
- Troubleshooting and corrective recommendations as needed

To discuss BEC services for your project call 614.895.1400 or email:

Ken Terry, REWO, BECxP, CxA+BE
Vice President, Director of Building
Envelope Services
kterry@gci2000.com

Jack A. Chapin, Jr. AIA, NCARB
Building Envelope Manager
jchapin@gci2000.com



Ken Terry Promoted to Vice President and Director of Building Envelope Services

GCI is delighted to announce the promotion of Kenneth J. Terry, REWO, BECxP, CxA+BE to Vice President and Director of Building Envelope Services. Ken will work on BEC service line expansion and growth while continuing to perform design review, field inspection, and testing of building envelope systems for new construction, renovation projects, and property acquisitions.

Ken joined GCI in 2005, and was instrumental in developing GCI's BEC services. He is a key technical resource for design teams and contractors, helping identify and resolve building envelope performance issues related to water and air intrusion.

Ken holds numerous certifications supporting building envelope consulting, commissioning, and quality assurance. His qualifications support services related to fenestration systems, exterior wall assemblies, roofing assemblies, air and moisture barrier assemblies, and waterproofing systems across a wide range of building types and project conditions.



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CONSULTANTS INC.

720 Greencrest Drive, Westerville, OH 43081 | 614.895.1400 phone www.gci2000.com

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