

# Weather Resistive Barriers and Flexible Flashings



**AAMA WESTERN REGION  
MEETING**

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# State of the Industry

- Inadequate code requirements
- Evolving product choices
- Lack of comparability standards
- Inconsistent and conflicting performance claims
- Increasing liability and insurance costs
- Decreasing insurance availability
- No perfect products

# Window and Door Manufacturers and Vendors:

- Should anticipate how and where their products will be used
- Should be aware of regional practices
- Should be a part of the design-construction team responsible for a system that includes cladding, flashings and weather resistive barriers

# Plenty of War Stories





# Weather Resistive Barriers



# Types of Weather Resistive Barriers (WRB's)

- Paper-based ("Building Paper")
- Felt-based ("Roofing Felt")
- Polymer-based ("Housewraps")
- Rigid Board ("foam core")
- Trowel or spray applied (developed primarily for EIFS)

# Advantages of Paper Based WRB ("building paper")

- Traditional, prescriptive code-conforming and (some believe) proven
- Inexpensive
- West Coast "Standard of the Industry"
- Higher performance than Grade D ("60-minute) products available
- Tests show moderate resistance to water under pressure
- Does not normally stick to stucco

# Disadvantages of Paper Based WRB ("building paper")

- Obsolete code requirements
- Minimal performance test data available
- Subject to decay and decomposition
- Low durability – tearing and puncturing
- Does not self-heal punctures
- Subject to damage by surfactants



# Advantages of Felt-based WRB's

- History of successful use
- Low material cost
- Prescriptive code conformance
- Long-term durability superior to paper-based materials
- Best "boat test" performance

# Disadvantages of Felt-based WRB's

- Minimal performance test data available
- Low durability – tearing and breaking
- Decay and deterioration
- Surfactants may reduce water resistance
- Stucco admixtures may cause adhesion
- Fasteners not self-healing

# Advantages of Polymer WRB's

- Decay resistant
- Durable and strong
- High resistance to water under pressure
- High permeance may allow trapped water to dissipate as vapor

# Disadvantages of Polymer WRB's

- Can be degraded by surfactants
- Higher cost of material
- Long term performance unproven
- Perforated products do not perform well for water resistance at high pressures
- May trap liquid water in wall cavity
- High permeance may be a problem
- May not be suitable for stucco



# Stucco Adherence to Housewraps



Joseph Lstiburek. "Water-Managed Wall Systems" *Journal of Light Construction* (Williston, VT: Journal of Light Construction, March, 2003)

# Flexible Flashings



# Evolution of Flexible Flashings

1. Asphalt saturated felt
2. Laminated kraft paper + asphalt
3. Laminated kraft paper + asphalt + plastic
4. Polyethylene + kraft paper
5. Elastomeric + adhesive + facing

# Advantages of Self-adhering Flexible Flashings

- Strong – tensile strength
- Self-healing
- UV protection
- Flexible
- Adaptable



# Flexible Flashings - Challenges

- High level of workmanship required
- Adhesive migration and bonding failure
- Backing durability
- Wrinkles and fishmouths
- Avoiding penetrations
- Thickness and layering
- Rubberized asphalt vs. butyl
- Recessed windows

# System Compatibility Issues

- Weather resistive barriers (asphalts and polymers)
- Sealants
- Adhesives (rubberized asphalts and butyls)
- PVC (hard and flexible)
- Primer or no primer

# Window Challenges

- Integral flashing fins?
- To seal or not to seal
- Sill weeping?
- PVC products ( expansion /contraction)
- Installation recommendations for alternate weather resistive barriers
- EIFS

# Field Prototype Installation





# Adhesive Migration



# Recessed Windows

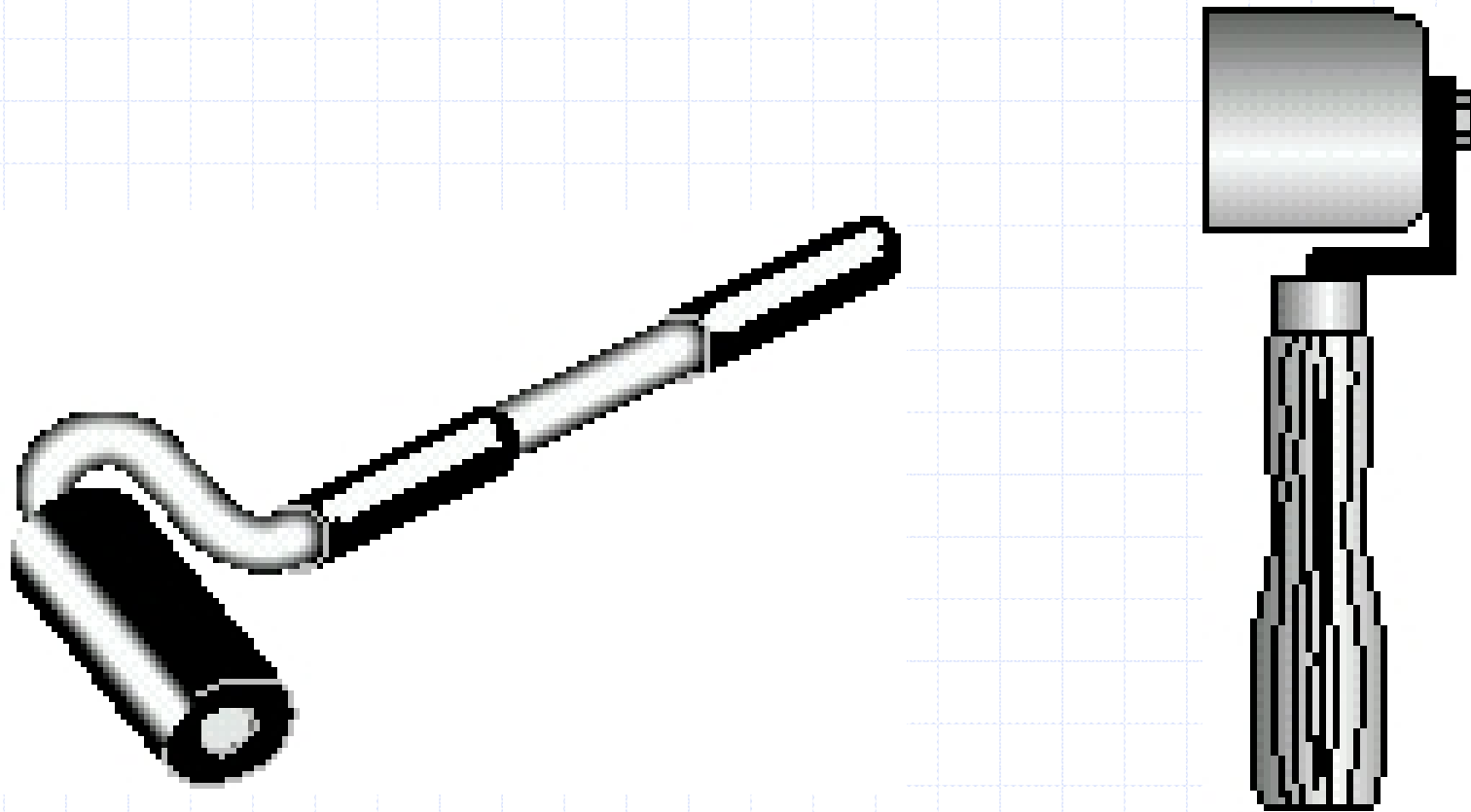




# Wrinkles and Fishmouths



# Wrinkles and Fishmouths





# Adhesion Failures



# Recessed Windows and Lath Fasteners



# Unanswered Questions

- Should air barriers be permeable?
- Can a WRB be an air barrier?
- A single test for permeance of WRB's and air barriers?
- Sealant/WRB/flexible flashing compatibility matrix?
- Application standards for flexible flashings?



# Recommendations

- New standards and guidelines
- Comprehensive testing of products and assemblies by impartial agencies
- New product development to performance specifications
- Coordination and cooperation between manufacturers, designers and builders
- Field prototype installation and testing

# Who Is Working On It?

- **ASTM Task Group E06.55.04 Weather Resistance of Frame Buildings**
- **ASTM Task Group E06.55.07 Weather Resistive Barriers**
- **ASTM Task Group E06.22.09 Durability of Weather Resistive Barriers**
- **ASTM Subcommittee E.06.41 Air Leakage and Ventilation Performance**
- **ASTM E 06.51.11 Fenestration Installation Task Group**
- **AAMA Self-Adhering Flashing Group**