



# The Critical Role Sealant Selection Plays in Your Project

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*Tremco Commercial Sealants & Waterproofing*



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# Dante Marimpietri

## Title



# Course Description

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For every component, accessory, and substrate on your project it is important to understand sealant performance. It has been shown that it is not as simple as grouping sealant chemistries together, and assuming results. Vast differences have been reported within chemistry classifications. Further, it is important to understand both adhesion AND compatibility for all these interfaces related to sealant application. Testing must be done for each of these interfaces.

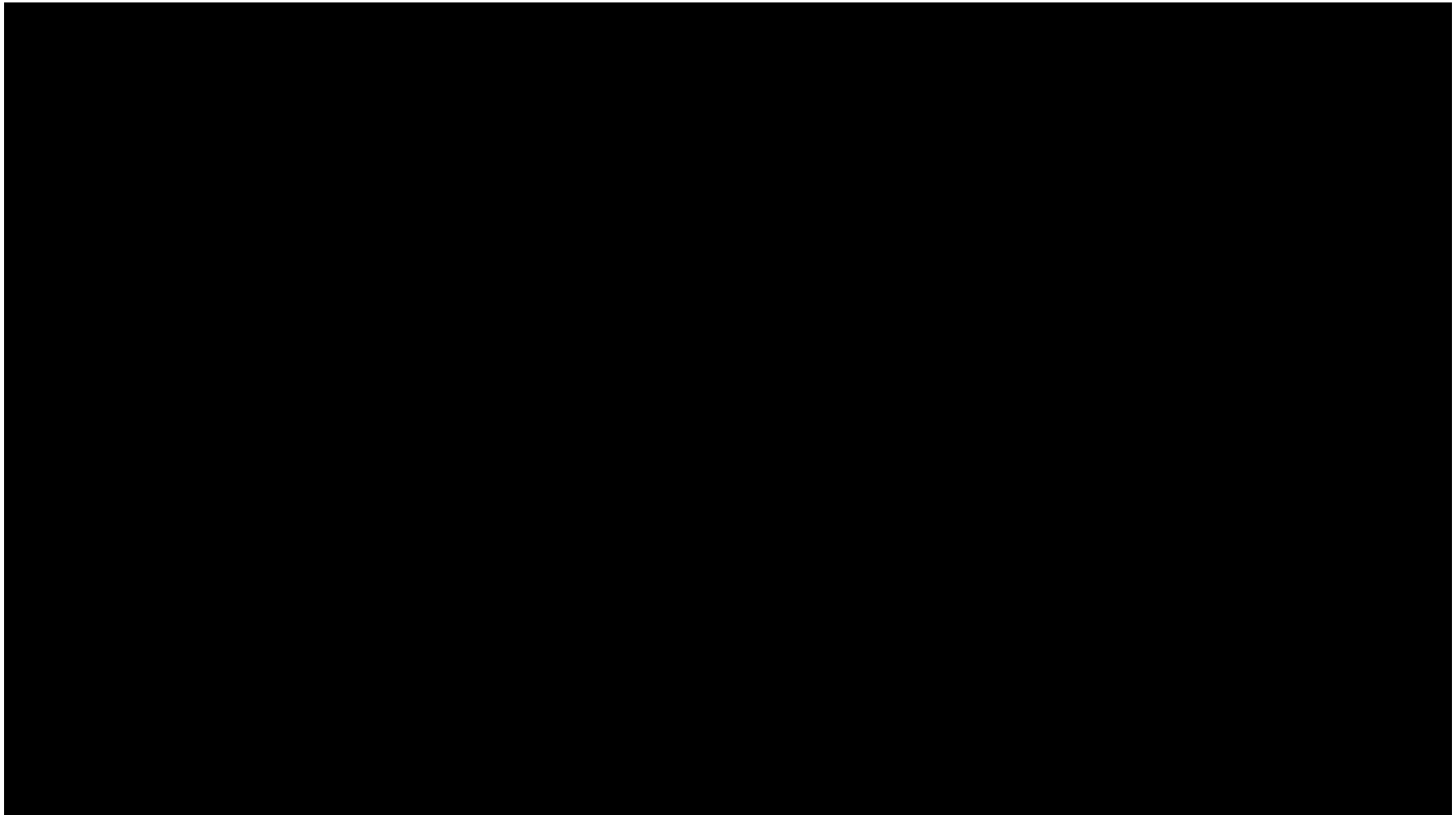
# Learning Objectives

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1. Review sealant chemistries and the part they play in sealant selection
2. Understand the importance of proper installation and how it can affect performance
3. Investigate sealant failures, and understand the causes behind these
4. Gain knowledge of a variety of questions that need to be answered to choose the right product for the right application

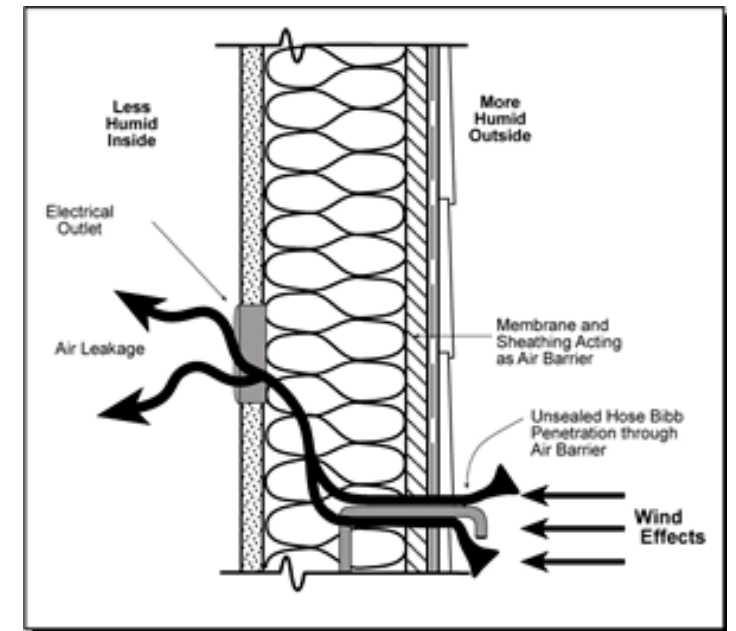
# The Importance of Making Connections

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# Function of Sealants

- Protection
  - Water infiltration
  - Air infiltration
- Thermal management
- Sound dampening
- Firestopping
- Dynamic joint movement
- Transitions
- Details
- Aesthetics





# Technologies

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- Silicones
  - Can't be coated over with anything but silicones
  - High temperature & UV resistance
- Polyurethanes
  - Can be coated over, but need to verify compatibility
  - Verify temperature and UV resistance
- Hybrids
  - Some can be coated over, but need to verify compatibility
  - Verify temperature and UV resistance
- Acrylics
  - Must be coated over, but may not provide the movement needed



# Technologies

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- Pre-cured Silicone Extrusions
- Pre-cured Polyurethane Extrusions
- Pre-compressed Foam Tapes



# Selecting your Sealant

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- What does the specification (spec) require?
- What is the application?
- What are the substrates?
- What kind of movement is expected?
- What is the installation temperature?
- Is Priming required?
- What other products will be adjacent?
- What membrane/coating will be applied over it?
- How long will you need to wait to coat over it?
- Warranty expectations?



# Selecting your Sealant

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- What type of sealant?
- Will it adhere to the substrates?
- What is the joint size and shape?
- Is it continuous or do the anchors get in the way?
- Can it be installed as detailed?
- Is it part of the Air Barrier's Manufacturers system or by another manufacturer? (accountability)
- Is it warranted?
- **Is it going to be a high stress joint?**

# What Else Should Be Considered

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- Do you have deflection joints?
- Do you have window/curtain-wall connections?
- Do you have seismic requirements?
- Does your wall have three dimensional returns?
- Does your roof/wall intersect maintain continuity?
- What type of products/components/assemblies - are required to make these critical connections?
- Can connections be made in the right sequence?
- Who are the manufactures you are working with?
- Typical details?
- Tested Assemblies?

# Connection Points Are All Impacted By

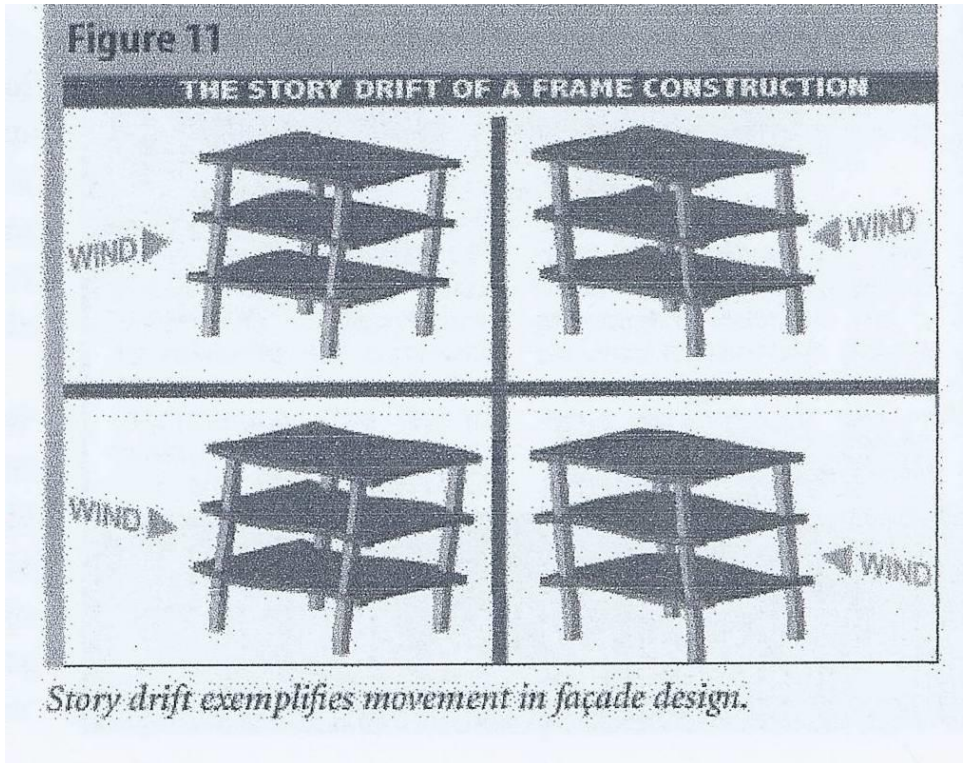
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- Wind Drift
- Deflection
- Creep
- Thermal Movement
- Moisture Expansion
- Tolerances

**HOW LONG WILL THE CONNECTIONS LAST?**



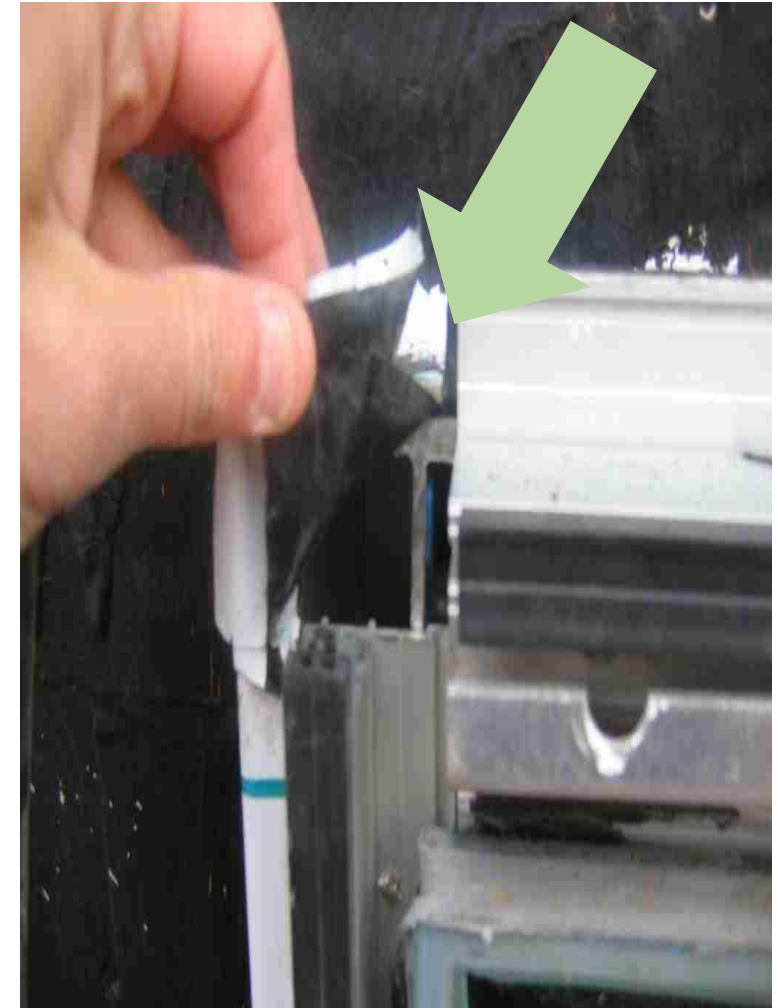
# Wind Drift Is Not One Directional



Wind drift can be as much as 4" on a 10 story building

# Limitations to Sealant Use

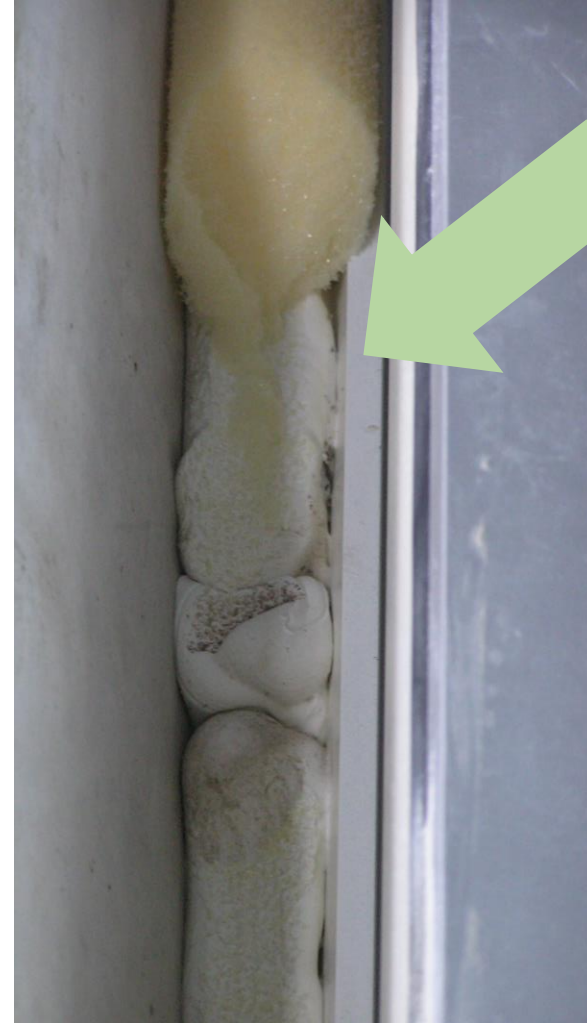
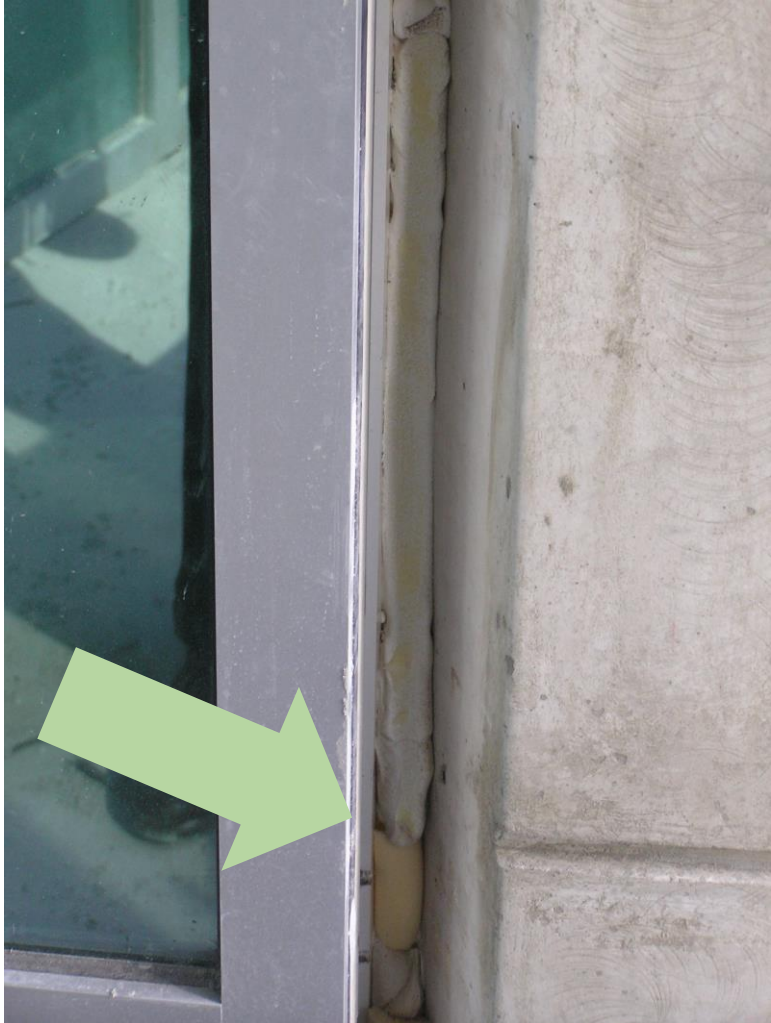
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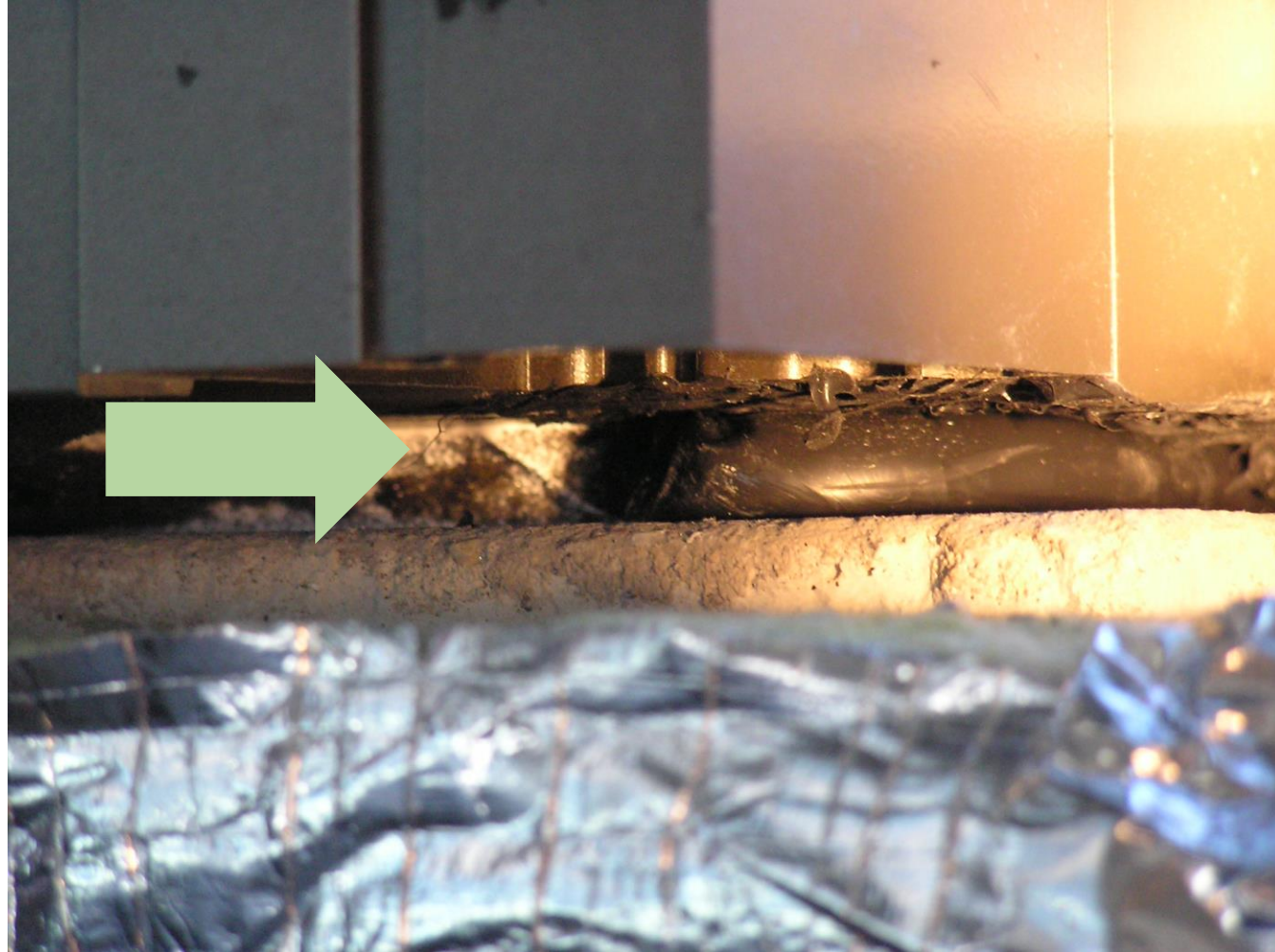
# Limitations to Sealant Use

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# Limitations to Sealant Use

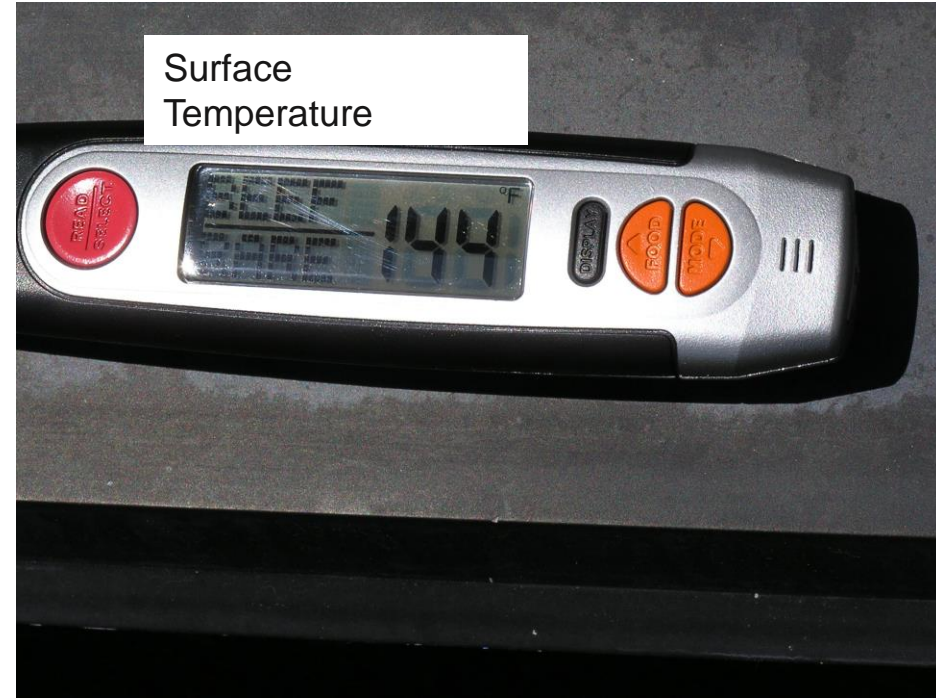
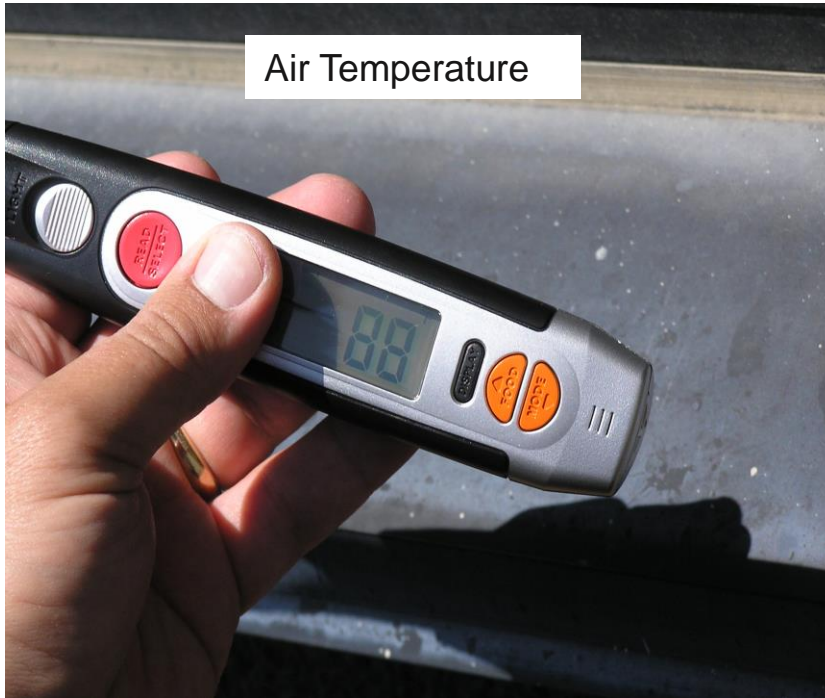
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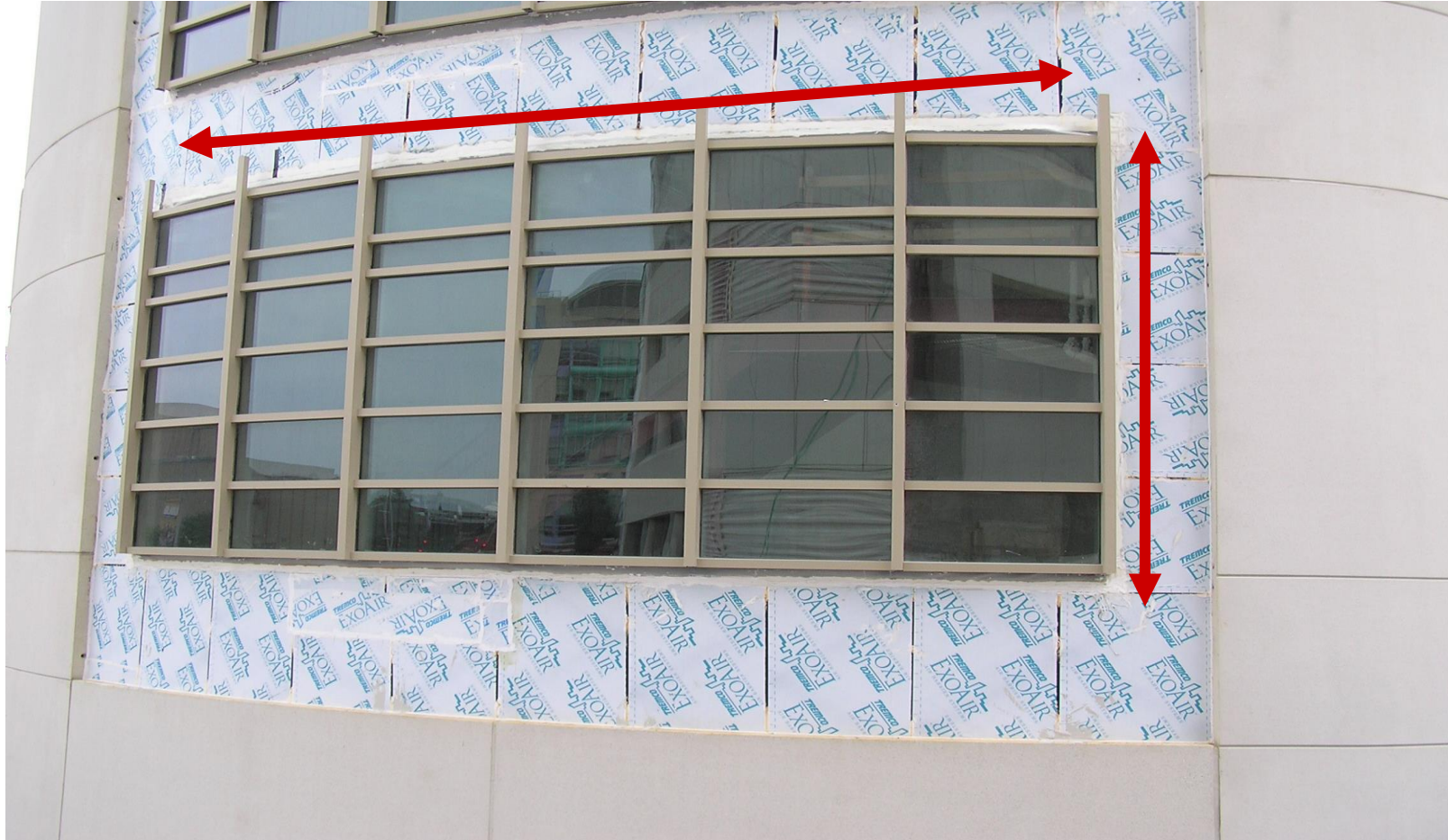
# Installation Temperature

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# Limitations to Sealant Use

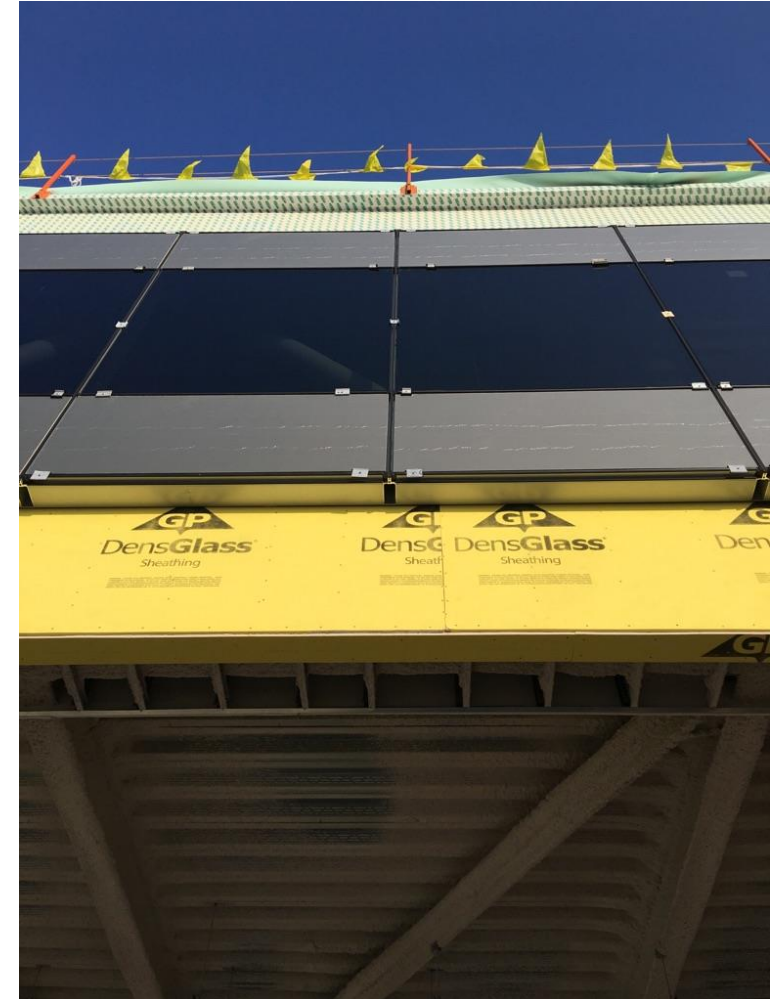
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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

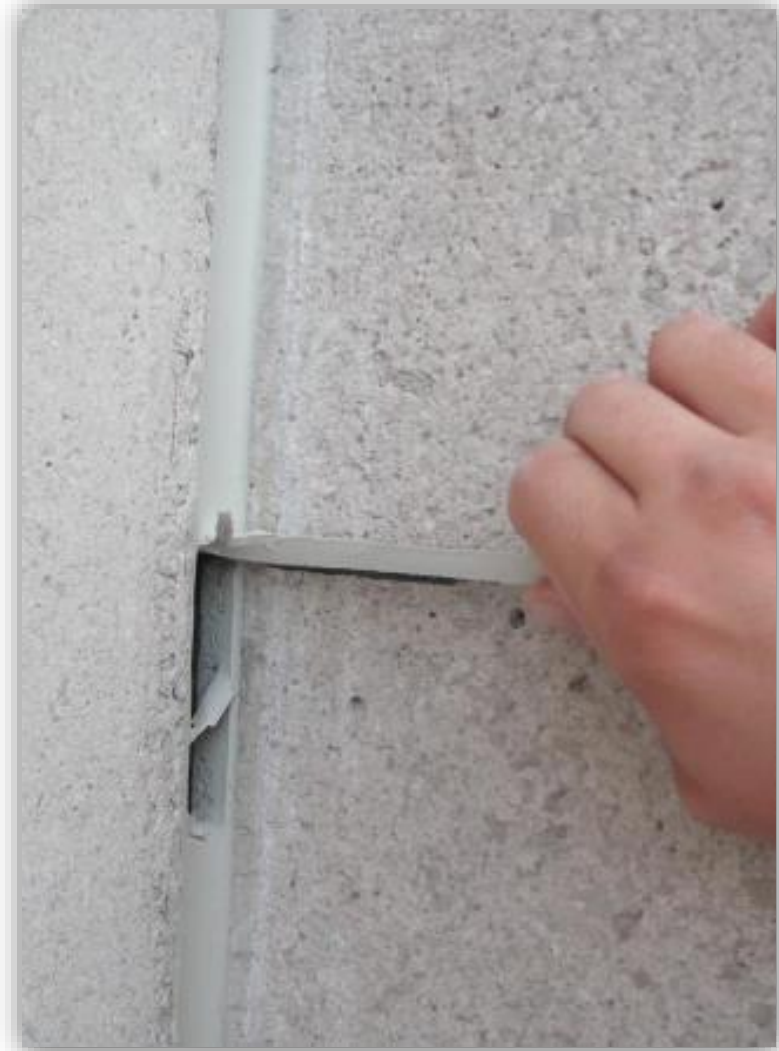
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# Adhesion

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# Adhesion

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# Compatibility

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- The compatibility of two or more compounds or substances to be placed in contact or close proximity to one another without detrimental effects on either
- Compatibility does not guarantee good adhesion



# Compatibility

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3 Different Polyurethane sealants,  
3 different results



# Compatibility

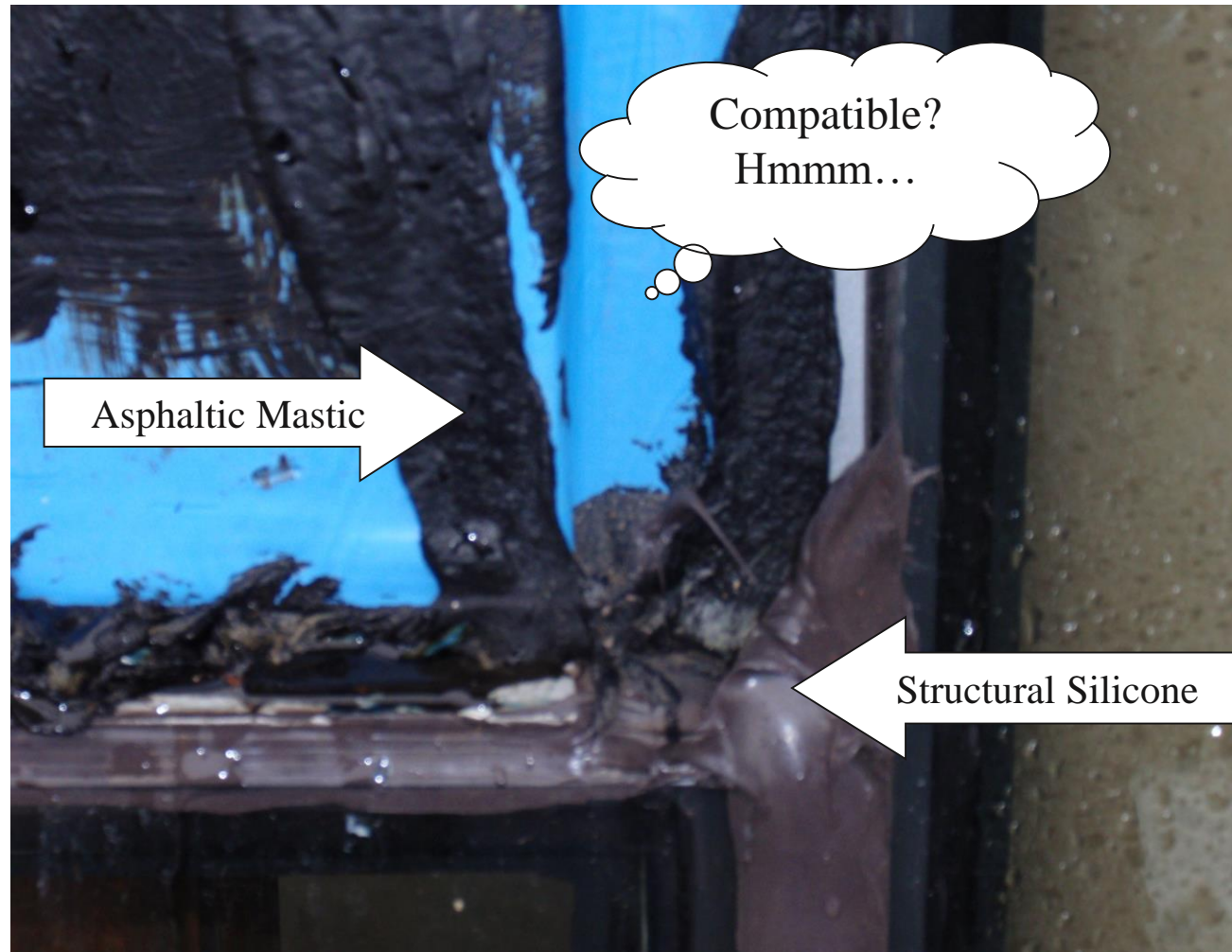
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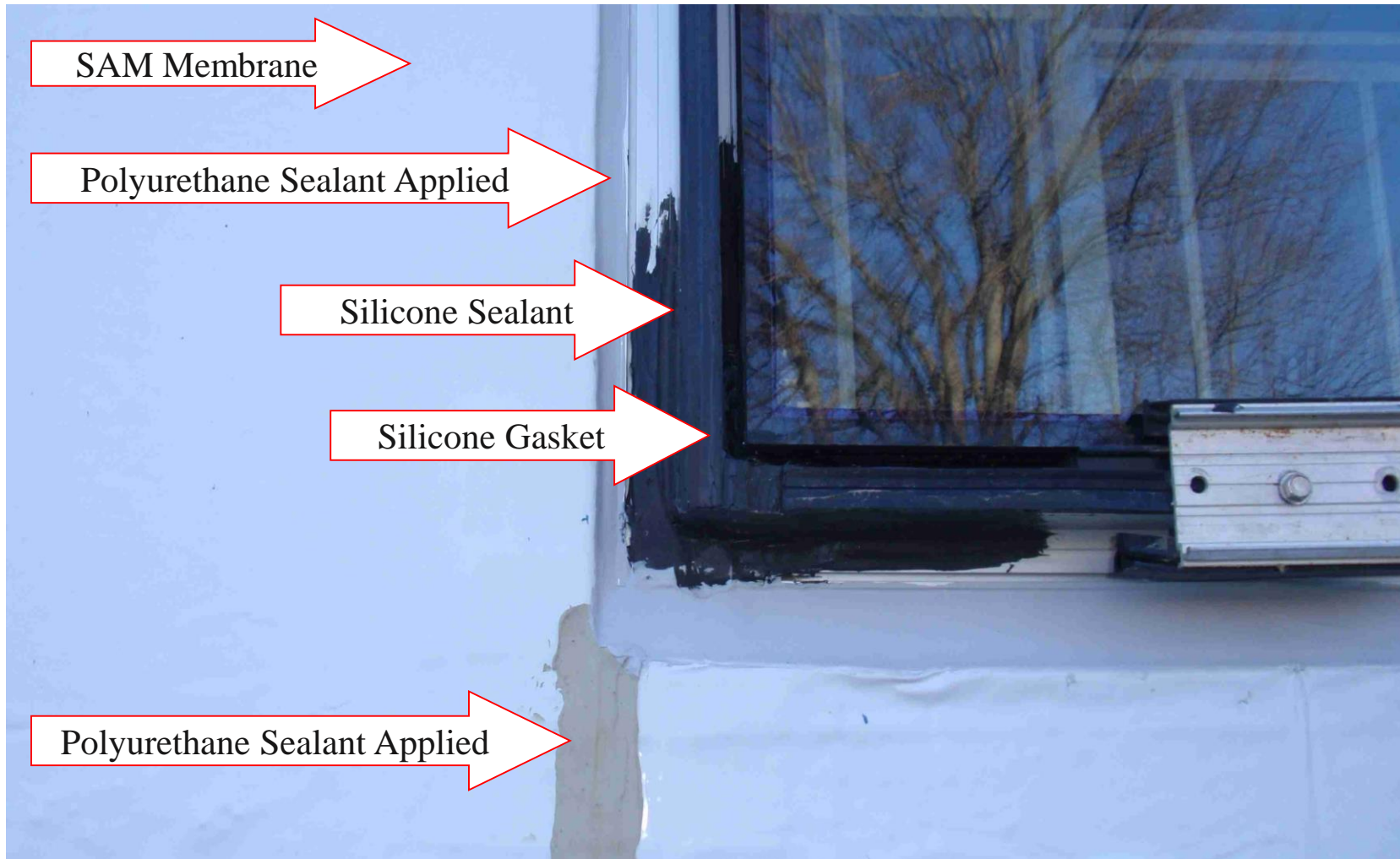
# Compatibility

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# Compatibility

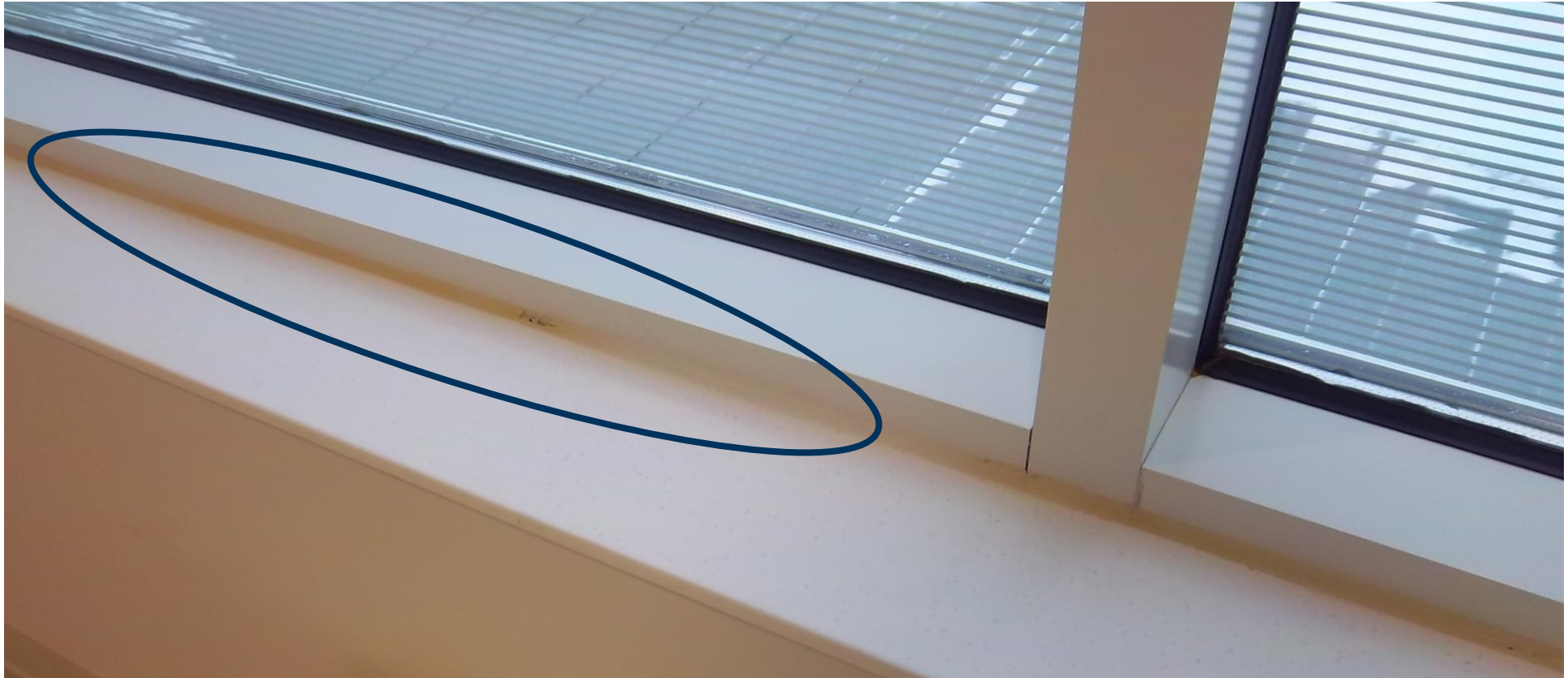
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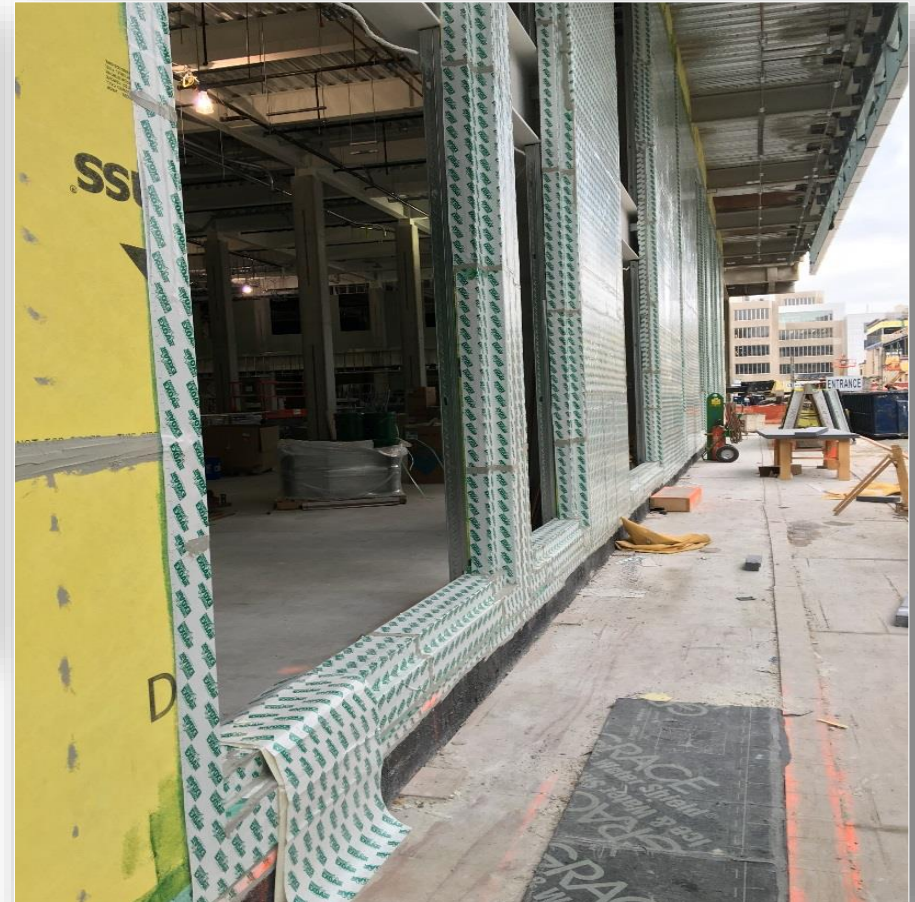
# Compatibility

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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- Polyurethane
- Acrylic





# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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# Sealant Detailing

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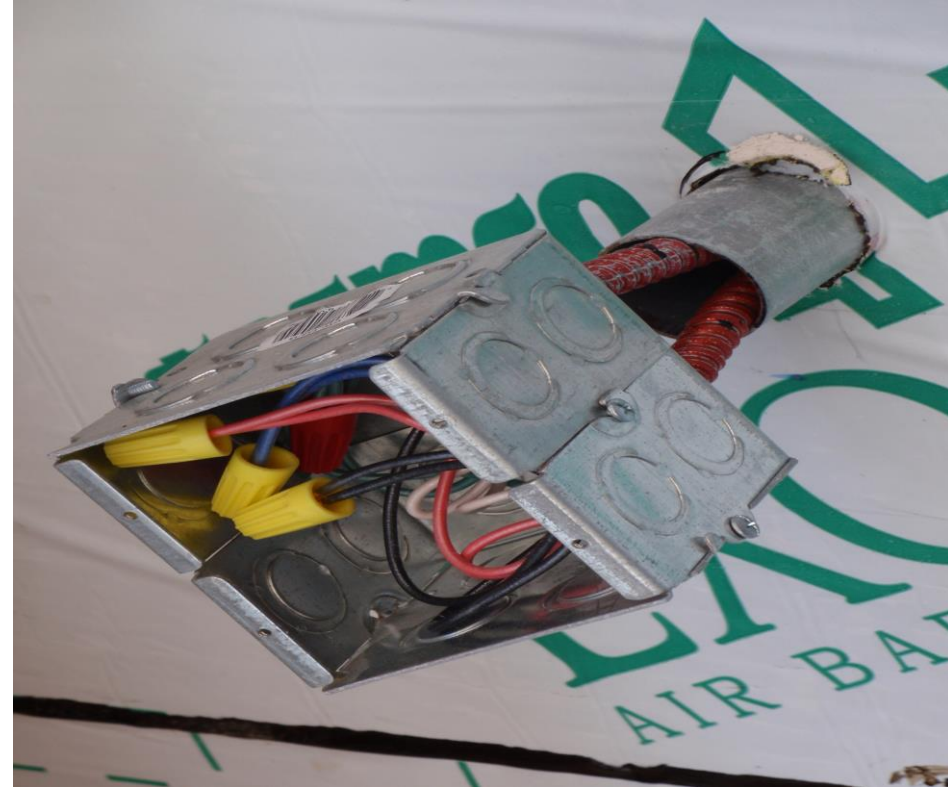
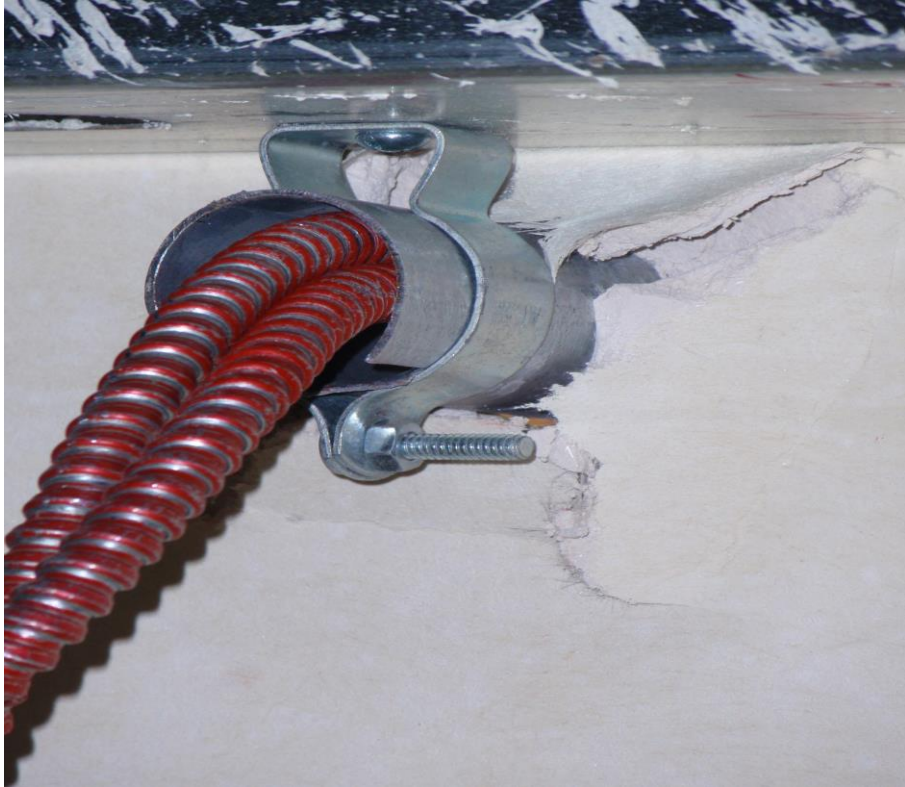
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# Sealant Detailing

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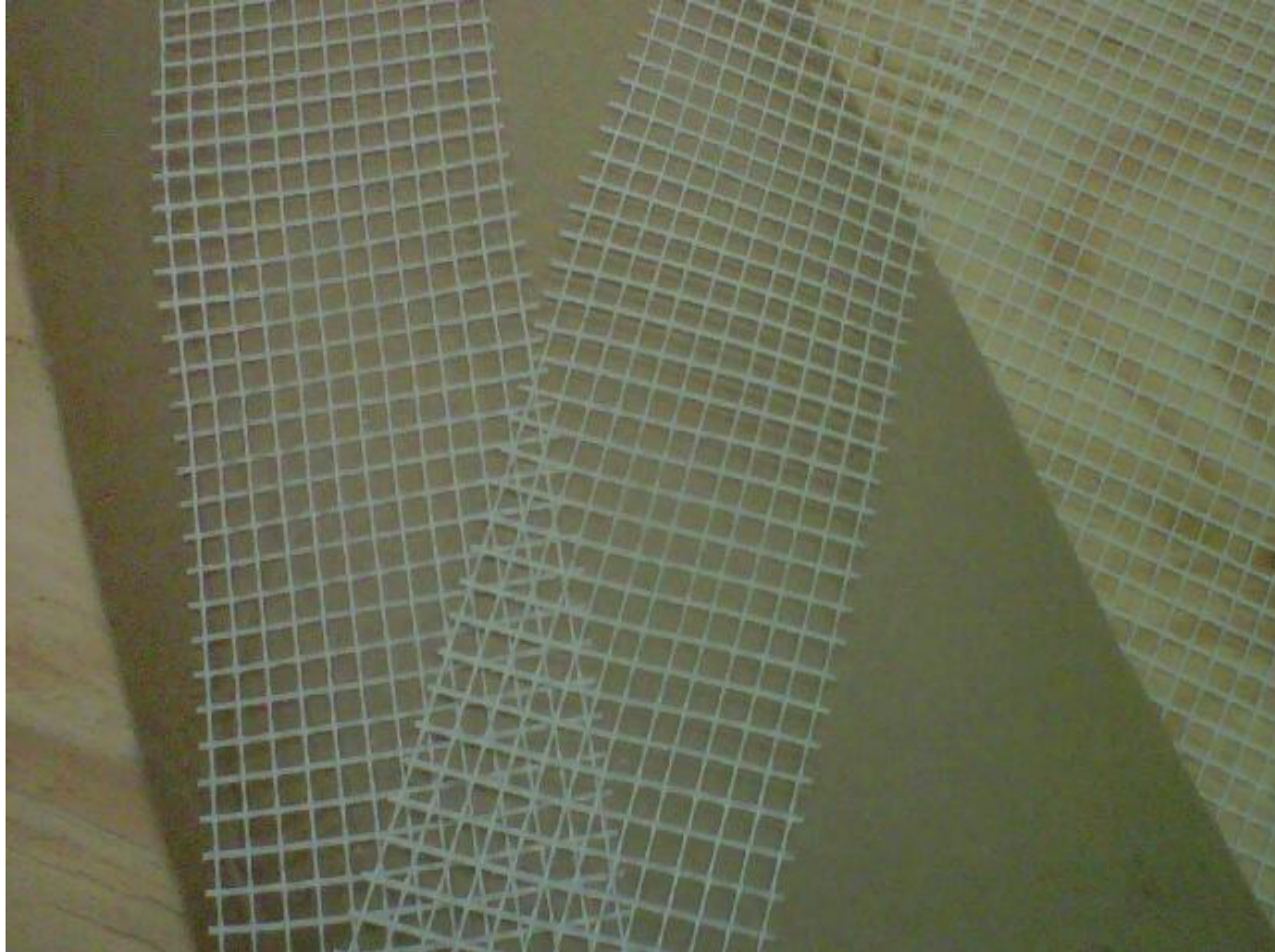
# Sealant Detailing

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# Reinforce?

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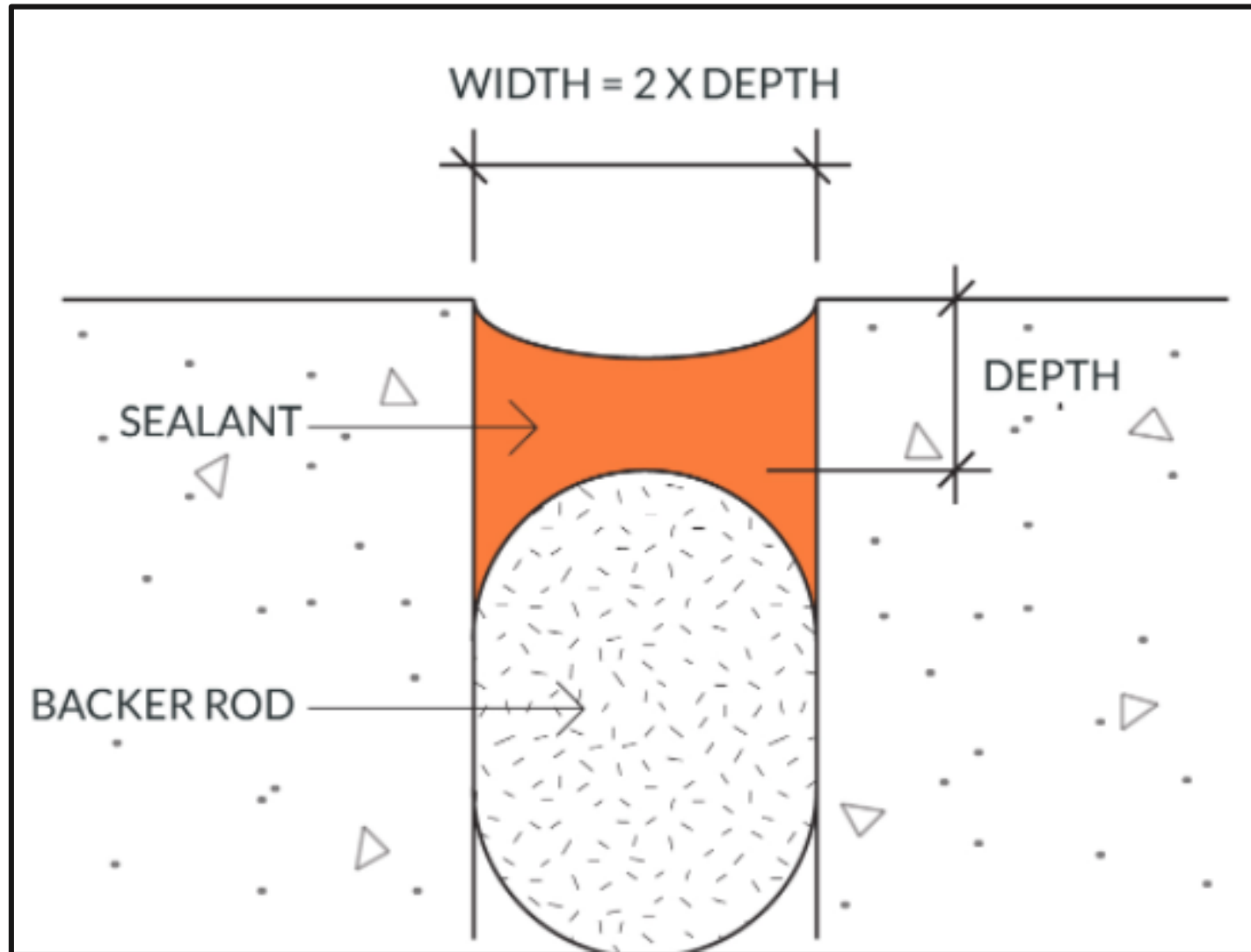


# Reinforce?

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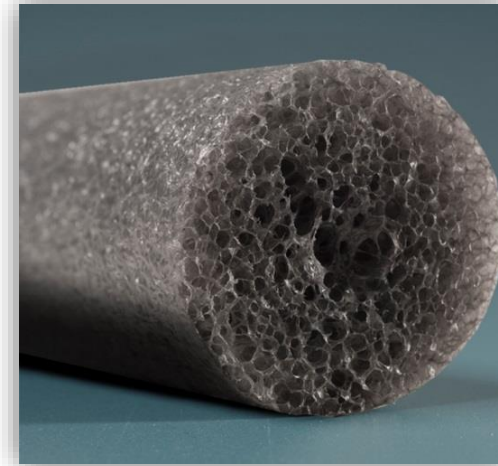
# Sealant Configuration



# Sealant Configuration

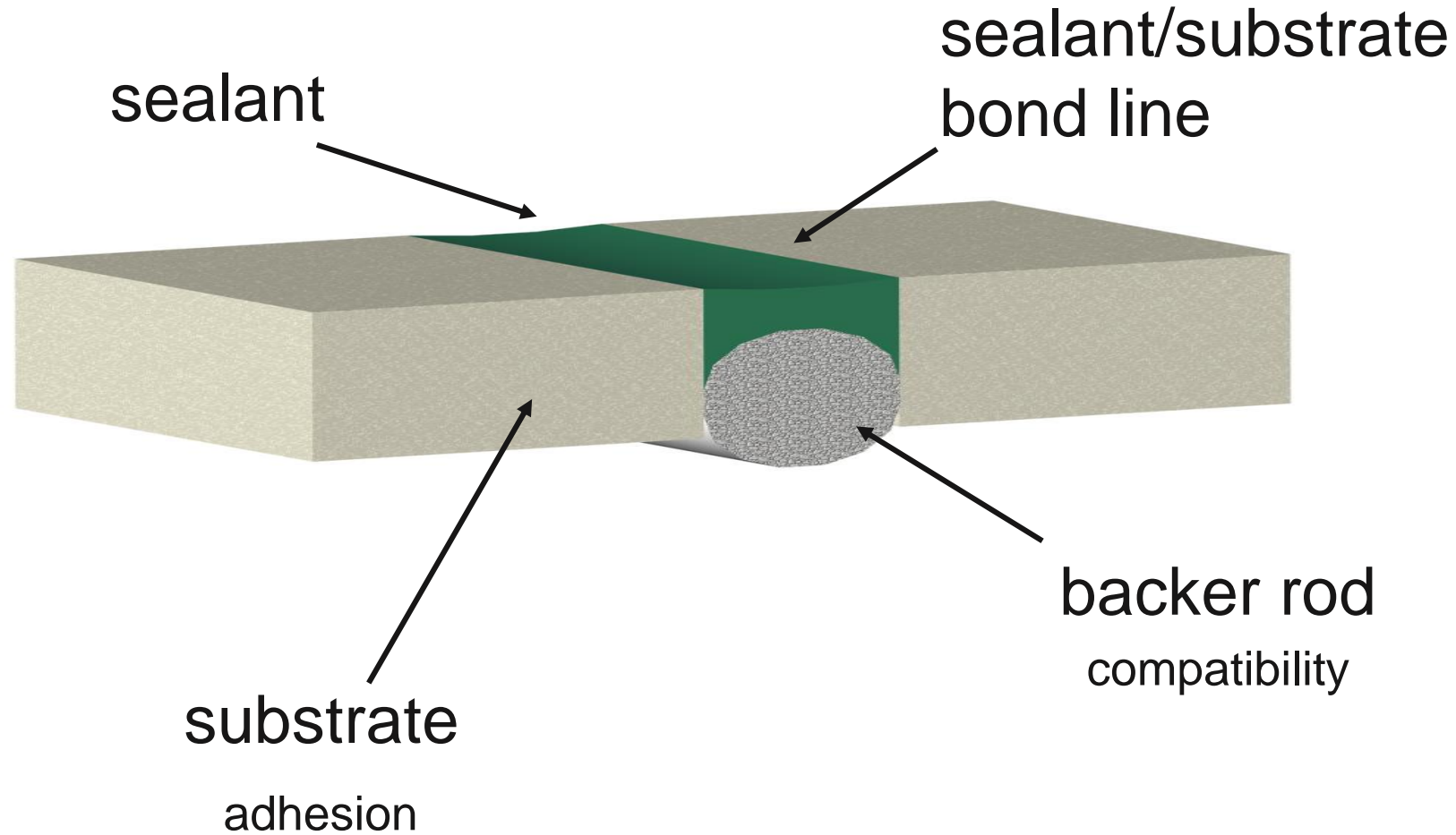
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- Why use a backer rod?
  - Control of joint depth
  - Prevent three-sided adhesion
  - Support tooling
  - Promote hourglass bead shape
- Types of backer rod
  - **Closed cell:** Resists air/moisture permeation
    - Cures from outside (single side)
    - Used in most applications
  - **Open cell:**
    - Allows air/moisture permeation
    - Curing from outside and inside (two sides)
    - Used in encapsulated or dry applications



# Sealant Configuration

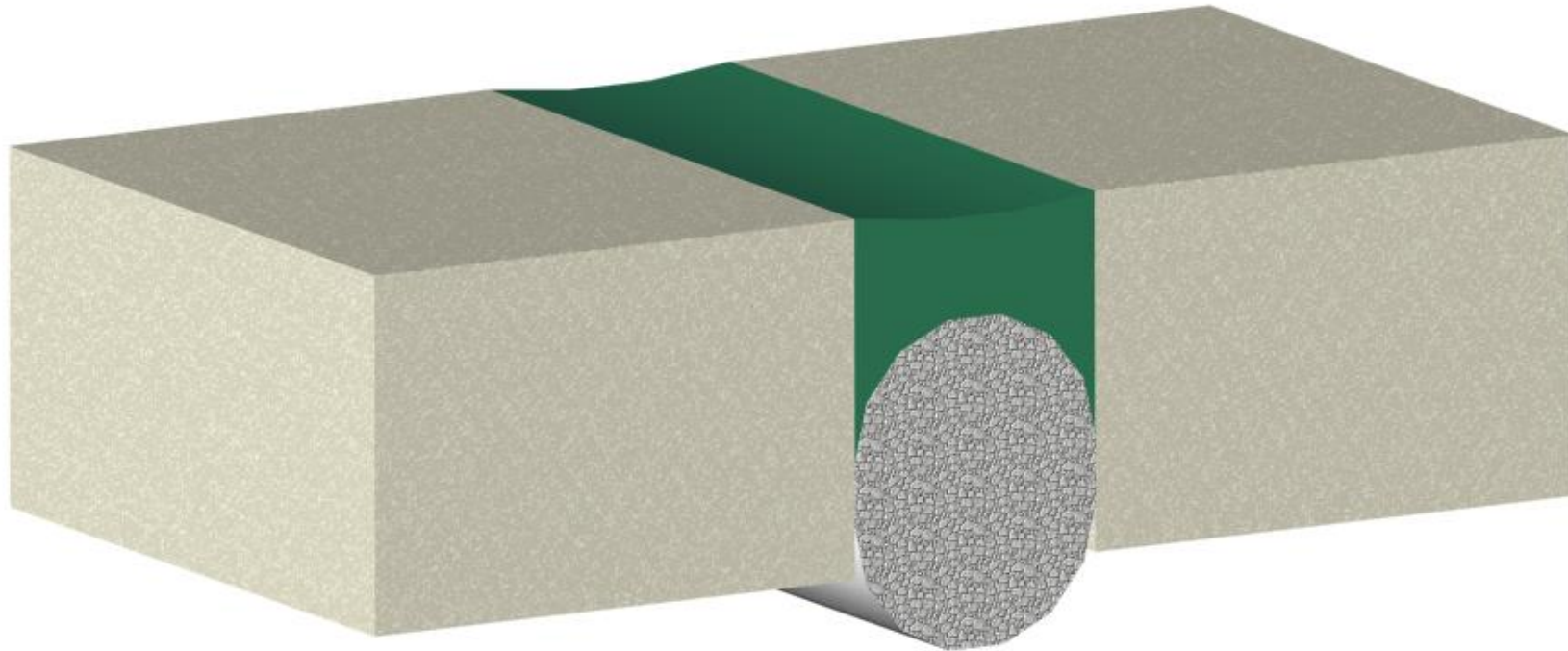
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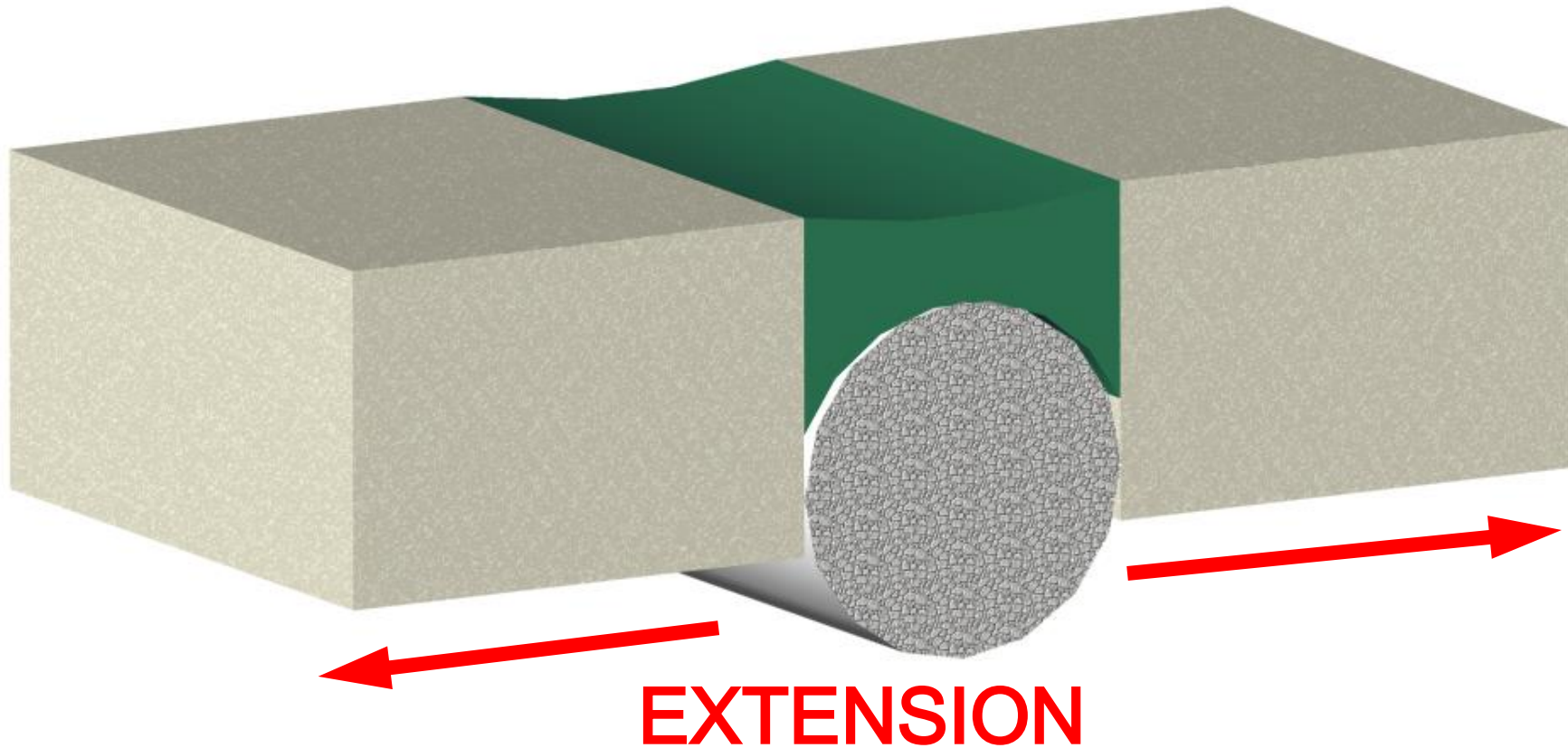
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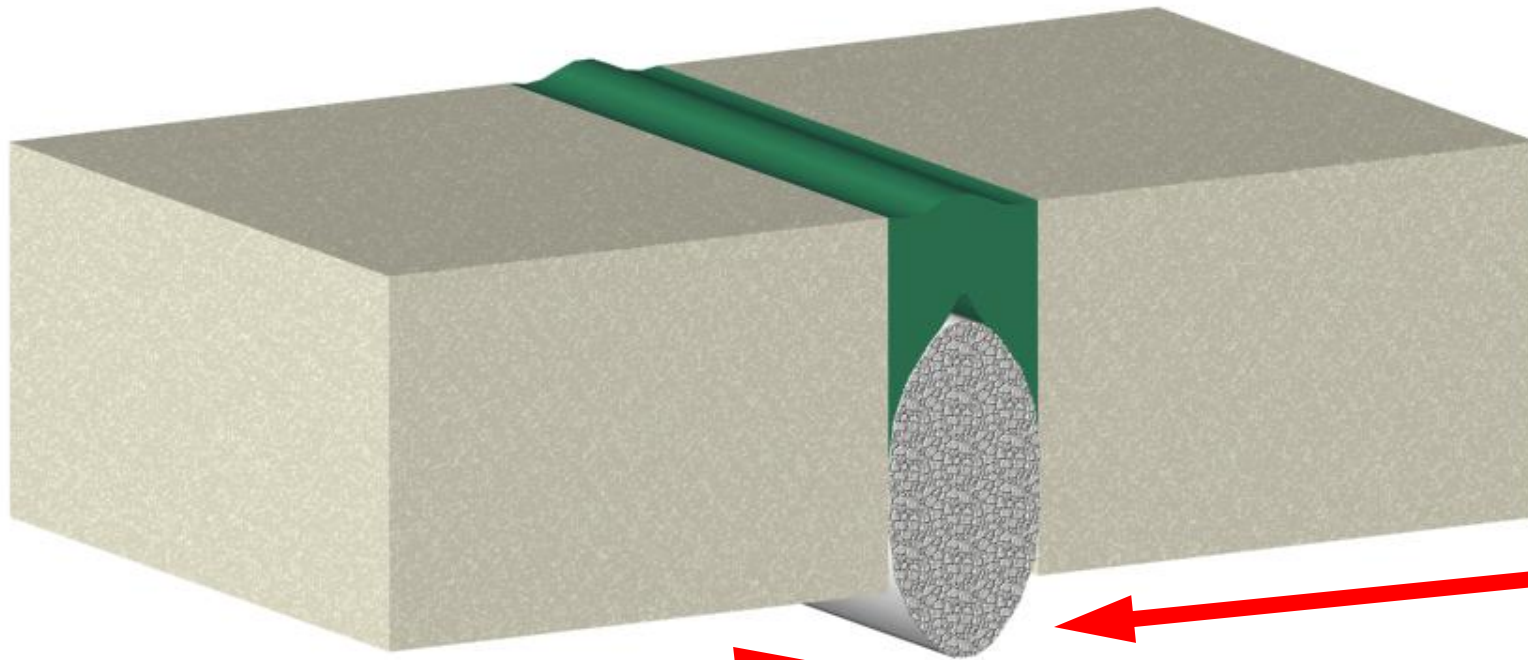
# Sealant Configuration

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# Sealant Configuration

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