Quality Technical Bulletin

Building Expansion Joint—Descriptions

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Horizontal Expansion Joint

Building Expansion Joints (EJ) are a complex component in the building. They typically are fire rated, weather-proof, and/or an air barrier. They must also connect to other EJ's of different materials and manufacturers with questionable compatibility. There are many different types of EJ's that we must consider and understand. The design, connection to other materials, and purpose are just a few of the items we must consider.

The following Technical Bulletin will describe **Air/Vapor Barrier** expansion joints and considerations to be taken when coordinating and installing these types of joints. Set up a Pre-Installation Meeting with the Quality Department Early – it might take several meetings to complete.

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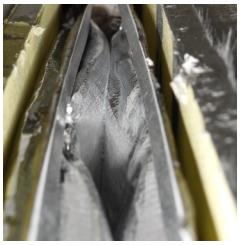


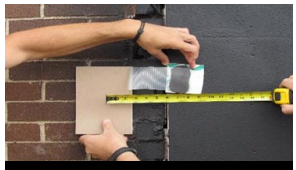
Joints are typically managed with different materials that need to connect to other materials.
Different types of systems that need to manage these joints are:
Weather, Air Barrier, Vapor Retarder, Waterproofing, Roofing, Fire, smoke, etc.
We will review the "Air/Vapor Barrier" connection with this Bulletin

Vertical Expansion Joint

Roof to Air/Vapor Barrier Expansion Joint

Large Expansion Joint at Existing Building

Expansion Joint at Existing Building



Air/Vapor Expansion Joint Using Pre-Cured Silicone

- **Typical air barrier expansion joints are vertical and horizontal**
  - **Horizontal Expansion joints**
    - Located at the floor line, below the floor deck, typically associated with Live Load deflection.
    - Determine the LL deflection and ensure that the joint is appropriately sized for the movement based on the material's ability to move plus any material in the joint.
    - Need to coordinate the shelf angle location in relation to the horizontal joint. The joint must be fully accessible and allow for a proper attachment on both sides of the joint without interruption from the shelf angle.
    - The horizontal expansion joint might need to connect to the air barrier vertical expansion joint – coordinate connection materials and movement.
  - **Vertical Expansion joints**
    - Determine the building expansion movement and ensure that the joint is appropriately sized for the movement based on the material's ability to move plus any material in the joint.
    - The vertical expansion typically will need to connect to the roofing expansion joint. Coordinate connection materials and movement. This is one of the most difficult details to coordinate.
      - Determine who will be making the connection
      - Determine the location of the connection between roofing and AVB.
      - Determine what materials will be used to connect the two different systems. We will likely need a transition membrane, as the materials used for roofing & AVB typically are not compatible or able to be properly adhered.
      - Determine who will be obtaining the compatibility verification between materials (roof and AVB)
    - The vertical expansion typically will need to connect to the waterproofing expansion joint. Coordinate connection materials and movement. This is one of the most difficult details to coordinate.
      - AVB materials typically cannot be located below grade - Determine the location of the connection between waterproofing and AVB.
      - Determine who will be making the connection
      - Determine what materials will be used to connect the two different systems.
      - Determine who will be obtaining the compatibility verification between materials (roof and AVB).
- Determine if we are connecting to an existing building expansion joint and how this will be accomplished. What about warranty concerns as well and material compatibility and adhesion.
- Horizontal air barrier expansion joints will be at the floor lines, typically when the backup framing in non-load bearing and goes from floor to floor.
- Review if the wall is fire-rated; if so, there will need to be a fire-rated assembly joint behind the air barrier expansion joint. Make sure that the air barrier joint does not interfere with the fire-rated joint. Also need to review and confirm the connecting joints for the roof and waterproofing for compatibility, adhesion, and proper fire-rated materials.
- Confirm the sequence of installation and materials needed for proper installation for all the building expansion joints.
- Review of the building expansion joint has fastener requirements or if a supplemental material is needed to create the AVB. Confirm edge distance for the fastener and if the material being attached too is proper and structural (not veneer material)
- Make sure that we get connection, transition, and joint drawings from the expansion joint manufacturer to review and confirm
- Do we need an expansion joint at the intersection of a building "T", "L", or "U" configuration?
- Review detail of expansion joint – we typically do not want to rely on the air barrier sheet material alone to create the movement (the force of the movement might exceed the bond strength of the air barrier material to the substrate). Pepper Quality suggests a supported bellows sheet membrane or pre-cured silicone joint

Always have an Expansion Joint Pre-Installation Meeting with the Manufacturer. ***It is not uncommon to have multiple pre-installation meetings for Expansion Joints.***
Include: Quality Department, Architect, EJ Manufacturer(s), EJ installer, Adjacent Material trades, Substrate finish material(s) trades, Air Barrier, Waterproofing, and Roofing

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