Quality Technical Bulletin

Building Expansion Joint—Descriptions

Issue 60 079500 05-20-2021

Typical Exterior Fire EJ that should be drawn in Isometric:

- Roof to Roof
- Roof to Parapet
- Roof to Wall
- Wall to Waterproofing
- Different Angle Changes

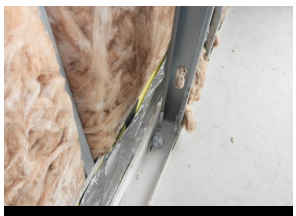
Typical Interior Fire EJ that should be drawn in Isometric:

- Floor to Floor
- Floor to Wall
- Wall to Ceiling
- Ceiling to Ceiling
- Wall to Roof
- Different Angle Changes

Int Floor & Ext Wall Joint — Different Manufacturers

Roof Fire Blanket Joint

Exterior sidewalk joint with weep tubes in the fire blanket



Floor joint within a wall

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 fire rated 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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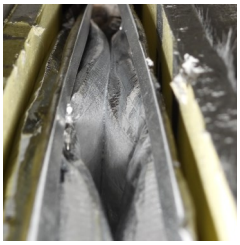
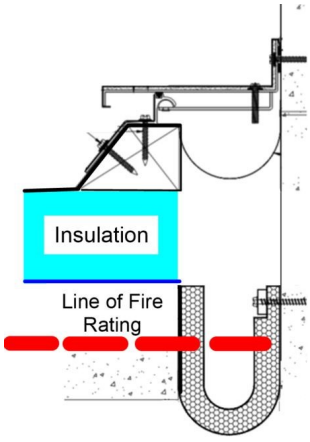


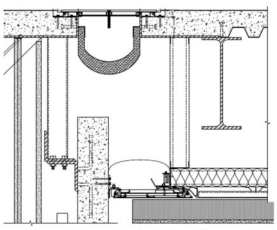
Joints are typically managed with different materials that need to connect to other materials.
Different types of systems that need to manage these joints are:
Weather, Air Barrier, Vapor Retarder, Waterproofing, Roofing, Fire, smoke, etc.
We will review the "FIRE" connection with this Bulletin

- Fire rated expansion joints are both at interior and exterior. Both types have similar complexity with regard to connections, continuity, and making sure that the fire rated membrane is maintained.
- Exterior fire rated expansion joints are typically more difficult to install because of installation requirements and placement of the fire blanket.
- First step in installing a fire rated expansion joint is to determine and verify the fire rated portion of the adjacent construction.
- The fire containment material must be in-line with the building fire membrane lines. For example, if the concrete roof is rated, the fire blanket will likely need to be at the concrete, which creates a challenge for installation because of the sequencing of the trades. *The EJ contractor will need to get in and install the fire blanket, then the carpenter will need to install a curb, and the roofer is to install the roof, and the EJ contractor will install the remainder of their material and then possibly the metal contractor will complete the installation.*



- **The coordination of the installation of a roof expansion joint will typically mean that the expansion joint will need to be bought, submittal approved, meetings coordinated, and installation of the expansion joint before the roof or temporary roof installation unless a portion of the roof is held back for the future expansion joint installation.**
- Fire expansion joints must connect to each other vertical and horizontal. Making sure that the connection is compatible is key and typically requires the same manufacturer with the same type of fire containment to make that connection. Mixing manufacturers or systems might make it difficult to properly connect the systems, although, sometimes it will be necessary.
- When the fire expansion joints located on the exterior, there will likely need to be a water and/or air barrier connection as well. This might NOT be part of the manufactured expasnion joint and will need to be designed. The material for the waterproofing/ air barrier needs to be reviewed for the ability to connect to the systems and the joints of the materials must be properly sealed.
- Obtain 3D isometric drawings showing the connections, change in direction, and transitions form the Manufacturers ASAP. I suggest to add this to any Expansion Joint Scope of Work.
- Many manufactures have pre-manufactured corners or change of direction. Specifying these pre-manufactured joints will save time and provide for a more confident installation.
- Request the tested assembly documentation from the Manufacturer as well as the installation instructions. This will allow Pepper to verify construction and give the Contractor a better understanding of the installation.
- Make sure that the installation instructions are on site and discussed at the Pre-Installation meeting. These instructions might show secondary requirements for proper installation that will likely need to be installed prior to the installation of the expansion joints.
- Exterior sidewalk or roadway expansion joints that are fire rated will likely need a means to control water getting on the interior of the structure. Fire rated premanufactured drains might be needed, along with a means to control the water at those drains in the fire blanket. Installing a gutter or closed drain needs to be considered as part of the overall expansion joint installation.

Fire Rated Floor Joint



Non-Rated Ceiling Joint

- MEP-FP items should never go through the expansion joint materials.
- MEP-FP items need to be designed to go through building expansion joint spaces with the proper movement capabilities (Such as a Building Expansion joint wall in a building (not the actual expansion joint material). This will typically take a fire stopping Engineering Judgement, as the movement might be in two directions or a direction not typically tested by the fire stopping manufacturer.

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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