

# EXPANSION JOINTS 101: WHAT YOU NEED TO KNOW

All buildings move, as soon as the first materials are installed during construction. Indeed, all materials can naturally contract and expand. It is therefore essential for architects and engineers to take account of these movements in the design of a building and to incorporate expansion joints.

This flyer summarizes all you need to know about expansion joints.



Look inside to  
learn more!



## EXPANSION JOINTS: WHERE AND WHY?

Building designers must incorporate voids in the building structure to allow materials to contract and expand. These voids will prevent and reduce the risk of damage due to expansion.

Expansion joints are used in many situations:

- In a connection between a new building and an existing one;
- In a connection between different materials (e.g., a steel structure attached to a concrete deck);
- In structural joints subject to movements between two surfaces, such as parking decks and tunnels.

Furthermore, they can be installed on various types of structures.



ROOFS



WALLS



FOUNDATIONS



PARKING DECKS



TUNNELS



PEDESTRIAN BRIDGES



## WHAT ABOUT WATERPROOFING?

Moisture penetration – particularly water ingress – can cause extensive damage to building components. Water may enter the interior of a building through an expansion joint located above or below ground level. **It is important to choose an expansion joint that ensures continuous waterproofing for the entire structure during the lifespan of the building.**



### THE VULCANIZATION METHOD

Thanks to a vulcanization assembly method, expansion joints are **monolithic**, providing a continuous seal regardless of the configuration. This safe and reliable method allows uniform elongation through elimination of the use of adhesive or sealant for the assembly of joints.

## A MATTER OF MOVEMENTS

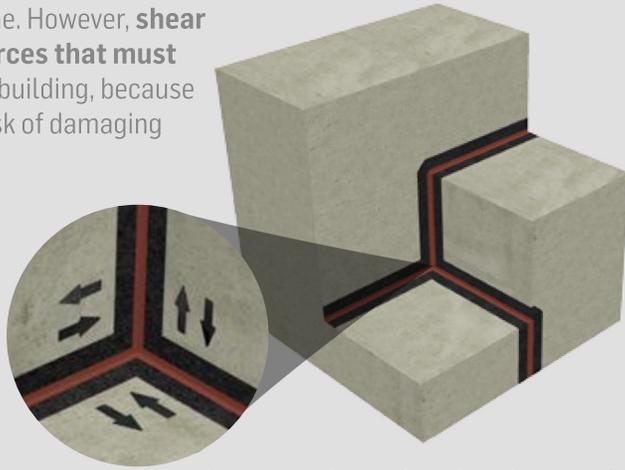
Building materials can be subject to three types of movements.

### Shear - Horizontal – Vertical

Expansion joints are designed to accommodate these three movements at the same time. However, **shear is the most important of the forces that must be considered** when designing a building, because it is likely to cause the greatest risk of damaging the structure.

## INSTALLATION

Expansion joints can be heat-welded, self-adhered, cold-adhered with adhesive or hot bitumen, applied using liquid membranes, etc. It is important to consider the constraints related to the use of flame, solvents and resulting odours before installation, as these will determine the installation method.



## PROTECTION OF EXPANSION JOINTS

Although not necessary, protecting expansion joints remains a highly recommended step. According to the surface stress requirements, it is possible to cover the joint with a cap sheet membrane, a steel or concrete plate, or other mechanical protection.



SOPRAJOINT PLUS expansion joints are composed of EPDM-based synthetic rubber and a woven oxidized and stabilized polyacrylonitrile, two highly heat-resistant materials.

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**THE SOPRAJOINT PLUS SERIES HAS BEEN DESIGNED TO ENSURE COMPLETE WATERPROOFING AT EXPANSION JOINTS OF BUILDINGS AND CIVIL ENGINEERING WORKS WHILE ADAPTING TO SIMULTANEOUS MOVEMENTS.**

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## HOW TO CHOOSE AN EXPANSION JOINT ?

Several criteria must be taken into account when selecting an expansion joint. Besides the three main functions (flexibility, waterproofing and mechanical strength), it is important to consider the following criteria, among others:

- Custom manufacturing;
- Ease and speed of installation;
- Compatibility with multiple substrates;
- Resistance to UV and weathering.

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**IN ADDITION, EXPANSION JOINTS ARE UNIQUE, CUSTOM-MADE PRODUCTS. MAKE SURE YOU CHOOSE A MANUFACTURER WITH A TECHNICAL TEAM WHICH IS ACCESSIBLE AND AVAILABLE FROM DESIGN TO COMPLETION OF YOUR PROJECT.**

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