



WATERPROOFING

HOW TO CHOOSE AN EXPANSION JOINT?



WALLS

FOUNDATIONS

PARKING DECKS

BRIDGES

ADDITIONAL EXPERTISE

The structure of a building is subjected to different forces, permanent or variable over time, the extent of which can vary considerably. These can be differential settlements of the soil, shrinkage and creep of materials, earthquakes, vibrations, etc. Therefore, in addition to preventing and minimizing the risks of damage due to movement, expansion joints should be used during the construction of buildings to absorb the repeated effects of structural movements and thus limit the risks of the waterproofing system cracking.

WHAT IS AN EXPANSION JOINT?

An expansion joint, sometimes called a movement joint, ensures the complete waterproofing of the junction between two elements of roofing, walls, foundations, parking decks and other civil engineering works.

Therefore, its flexibility allows to absorb variations in material dimensions as well as the movements of the upper part of the building in reaction to ground movements in order to reduce deformations and to protect the structure.

The expansion joint allows movement in all three (3) axes (horizontal, vertical and shear) synchronously.

WHAT ARE THE POINTS TO CONSIDER WHEN CHOOSING AN EXPANSION JOINT?

1- ANTICIPATED MOVEMENTS OF THE BUILDING

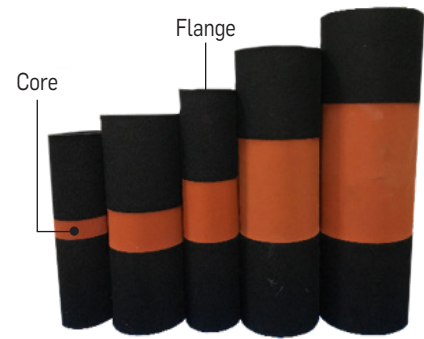
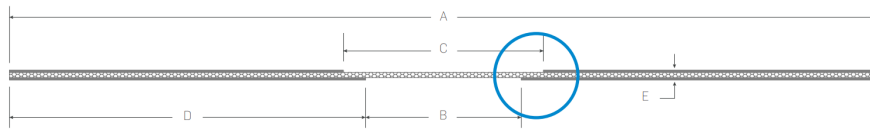
Under the effect of compound actions, horizontal, vertical and shear movements generate tensile and compressive forces. The expansion joints allow to absorb the stresses induced by these movements so that the materials do not reach the breaking limit. Shear is the most restrictive value to take into consideration when designing a building, as it is likely to cause the most risk of damaging the structure. This calculation can be carried out by a structural engineer.

2- THE WIDTH OF THE EMPTY SPACE BETWEEN THE TWO PARTS OF THE STRUCTURE

Designers must incorporate empty spaces into the building structure to allow materials to contract and expand. These empty spaces will prevent and reduce the risk of damage due to expansion. Expansion joints are used in several situations. Here are a few examples:

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

Expansion joints are composed of a flange and a core. The width of the flange is identical; only the width of the core varies. The polyacrylonitrile weave (flange) is wider on the underside in order to offset the tension point imposed on the core.



3- THE TYPE OF INSTALLATION

Expansion joints can be installed in several ways; they can be installed using torch-applied or self-adhered membranes, cold adhered with adhesive (solvent free) or adhered with hot bitumen, or applied using liquid membranes. Before the installation, it is important to consider the requirements related to flames, solvents and odours, since these will determine the installation method to be used.

4- WATERPROOFING

The infiltration of humidity and especially water can cause significant damage to building components. Water can penetrate through an expansion joint located above or below ground level. It is essential to choose an expansion joint that will ensure the continuous waterproofing of the entire structure, and this, for the entire life of the building. Thanks to an assembly process by vulcanization, SOPRAJOINT PLUS are monolithic, ensuring the continuous waterproofing regardless of the configuration. This safe and reliable process allows for uniform elongation by eliminating the use of adhesive or sealant for joint assembly.

THE SOPRAJOINT PLUS PRODUCT OFFERING

SOPRAJOINT PLUS is a monolithic expansion joint made of EPDM-based synthetic rubber consisting of two (2) flanges coated on the surface and underface with a woven oxidized and stabilized polyacrylonitrile, with an expandable core

It can be adapted to various configurations and can fit in 90-degree, angled, cross, T-shaped and curved transitions, as well as continuously in other directions thanks to an assembly process by vulcanization.

PRODUCTS	DIMENSIONS*			SIMULTANEOUS MOVEMENTS IN THE THREE AXES		
	TOTAL WIDTH	FLANGE WIDTH	CORE WIDTH	HORIZONTAL	VERTICAL	SHEAR**
SOPRAJOINT PLUS 20	355 mm (14 in)	160 mm (6.3 in) each	55 mm (2.2 in)	± 30 mm (1.2 in)	± 25 mm (1 in)	± 20 mm (0.8 in)
SOPRAJOINT PLUS 40	390 mm (15.4 in)	160 mm (6.3 in) each	90 mm (3.5 in)	± 60 mm (2.4 in)	± 50 mm (2 in)	± 40 mm (1.6 in)
SOPRAJOINT PLUS 75	435 mm (17.1 in)	160 mm (6.3 in) each	135 mm (5.3 in)	± 100 mm (4 in)	± 85 mm (3.4 in)	± 75 mm (3 in)
SOPRAJOINT PLUS 100	500 mm (19.7 in)	160 mm (6.3 in) each	200 mm (7.9 in)	± 150 mm (5.9 in)	± 125 mm (5 in)	± 100 mm (4 in)
SOPRAJOINT PLUS 125	560 mm (22 in)	160 mm (6.3 in) each	260 mm (10.2 in)	± 200 mm (7.9 in)	± 170 mm (6.7 in)	± 125 mm (5 in)

* Expansion joints must be custom-made.

**Shear stress is the principal force that must be considered when designing a building or a structure. This calculation must be carried out by a structural engineer.



BENEFITS

- Quick and easy to install
- Compatible with many substrates, such as concrete, steel and wood
- UV-ray and weather resistant
- Resistant to tearing and elongation
- Resistant to chemicals, such as alkaline products, acids, saline solutions, alcohols and acetone
- Compatible with all types of installation
- Part of a product line offering a wide variety of movements

WHAT IS THE SOPRAJOINT PLUS SERVICE?

SOPREMA's technical team is accessible and available, and works in synergy with the sales team from the design to the completion of your project. We offer measuring services from plans, on-site evaluations, estimates, and technical support.

To ask questions or to request a quote, contact us: soprajoint_plus@soprema.ca.

