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Technical Guide
Structural Joints System

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Expansion joints are free spaces incorporated into the design of buildings to enable their free movement as a result of stresses and movements due to heat variations, settling and earth movement, seismic movement, wind pressure, loads and traffic, and so on.

These joints must be designed and arranged pursuant to current standards, respecting dimensions and location from framing to final cladding, and be integrated both into structural and partition elements (floors/walls/ceilings). Furthermore, their movement and load capacity should be defined according to the project. This free space is required to enable the structure's movement. It is also a critical point in the event of fire, due to the passage of flames and smoke, as well as damp environments.

EMAC®, as part of its constant efforts to innovate and provide technical solutions to the market, presents its Structural Joints System, a proposal offering a comprehensive solution in structural expansion joint requirements.

What is a Structural Joints System and why install it?

The Structural Joints System is an assembly designed to be installed in structural expansion joints consisting of three independent elements:

1. Structural joint profile (Novojunta® Pro)

2.Novomembrana EPDM

3. Firestop cord

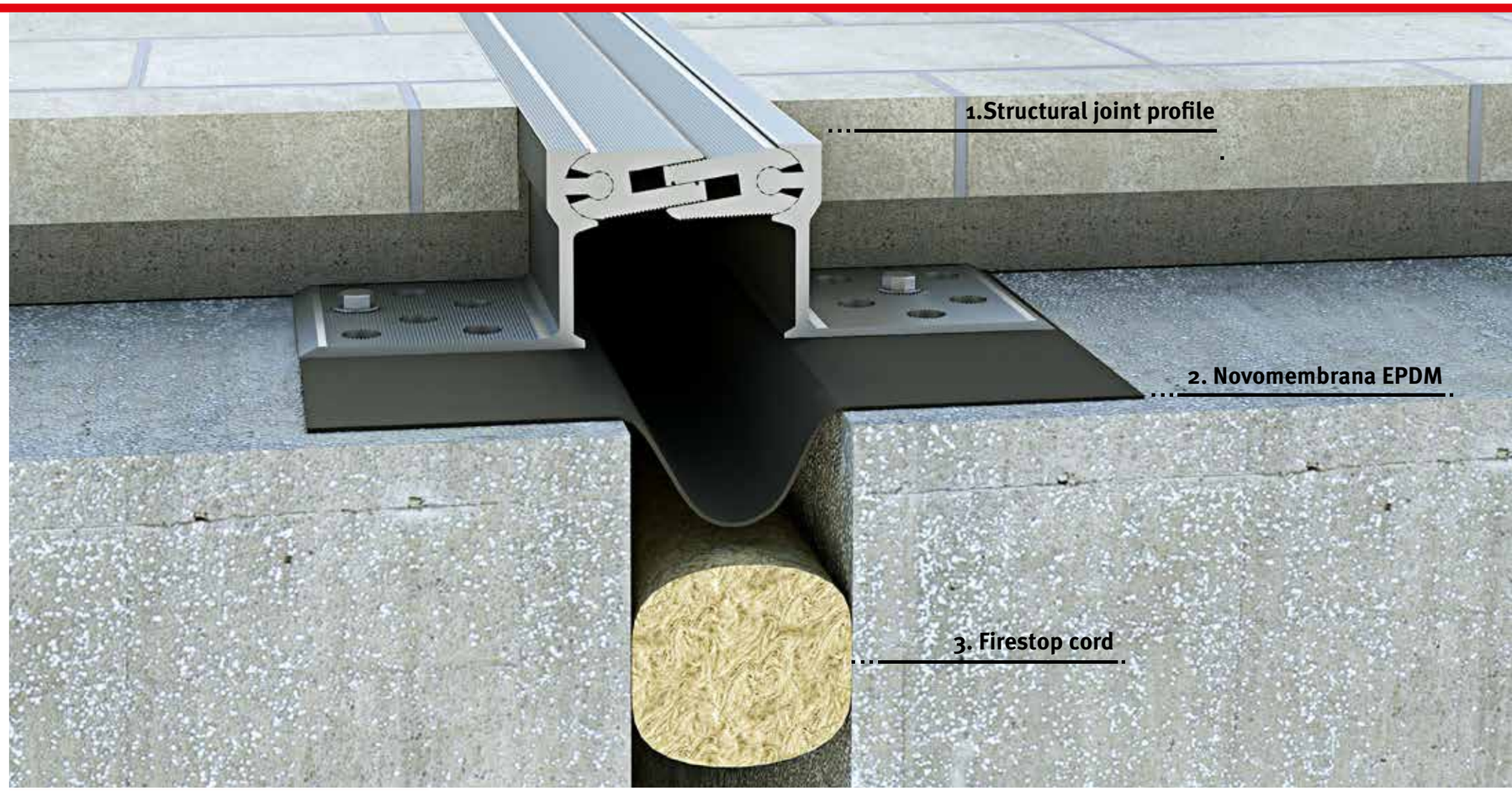
Its function is to resolve the joints in such a way that they are integrated into the building, enabling safe traffic, absorbing movements of the structure safely and protecting the installation against damp and the passage of flames in the event of fire.

Solving the structural joint using a suitable profile is a sound technical solution that will enable the building to move freely, thereby preventing the appearance of pathologies. Yet the passage of damp and steam, or the passage of flames and smoke in the event of fire can cause serious pathologies and even affect occupants' health. Not to take all such factors into account could mean that the most technical profile does not fulfil its function.

For this reason, it is recommended to install a complete Structural Joints System from the start, thereby helping to comply with safety regulations in the event of fire and preserving the state of the installation, avoiding the high costs of intervention or maintenance once the works have ended.

Where to install the Structural Joints System?

The EMAC® Structural Joints System can be installed in all types of project where structural joints are employed. It is an element that is typically present in large projects such as airports, shopping centres, hospitals, education centres, parking facilities, industrial buildings, etc.



Elements in the Structural Joints System

Installed as part of the System or even separately, each of the elements comprising the Structural Joints System possesses certain technical benefits and characteristics that define it.

1.Structural Joint Profile (Novojunta® Pro)

2.Novomembrana EPDM

3.Firestop cord

1. Structural joint profile (Novojunta® Pro)

The profile for the Structural Joints System is the principal, most visible element of the EMAC® Structural Joints System. Its main function is to cover the gap in the structural joint on the final cladding layer, accompanying the structure's movement to prevent the appearance of pathologies and guaranteeing usability and safe passage in the area. It is important to choose the right model from within the Novojunta® Pro range to comply with the project's technical requirements.

Technical characteristics:

- These are profile systems manufactured in either aluminium and rubber or fully in aluminium
- Models are available in many widths and heights, for traffic of different types and with distinct movement capacities
- There are flush mounted, pre-works or retrofit models – for when works are completed
- They are suitable for installing with a wide variety of claddings: porcelain, granite or marble
- They are installed in all types of project, especially in airports, shopping centres, hospitals, industrial environments and so on.

Get in touch and we will advise you on selecting the Structural Joints System for your project

To discover our full range of joints, visit www.emac.es, where you will find detailed technical information on each.

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2. Novomembrana EPDM

Novomembrana EPDM is the intermediate element in the Structural Joints System. This is a multi-purpose product with many uses, which can be installed independently or as part of the Structural Joints System. Its characteristics include:

- It acts as a barrier against the vapours that construction materials emit.
- It acts as a barrier against possible filtrations of water and damp, stopping water from accumulating in the joint (in exterior joints).
- It functions as a sealant for elements such as air on façades.
- It functions as a complement in waterproofing the support, likewise extending the life of waterproofing in the joint while respecting the structure's movement.

Technical characteristics:

- Manufactured in EPDM, a very high-quality elastomer.
- Resists extreme temperatures (-30ºC / 120ºC), with excellent endurance to weather.
- Waterproof and resistant to the attack of diluted or concentrate acids, vapours and hot water.
- Possesses great elasticity, absorbing multidirectional movements and accompanying the structure.
- Does not give off toxic smoke in the event of fire.
- Many measurements available to cover different joint widths.

material	width of membrane	wide board	color	nº	Code
EPDM rubber	140 mm	until 40 mm	black	10	MEMEST140
					MEMEST1401
	170 mm	until 60 mm	black	10	MEMEST170
					MEMEST1701

width of membrane	wide board	color	nº	Code
200 mm	until 80 mm	black	10	MEMEST200
				MEMEST2001
260 mm	until 120 mm	black	10	MEMEST260
				MEMEST2601

Novomembrana EPDM is not recommended for retrofit structural joint profiles, since its thickness may affect the profile's projection. More information on the product and its installation is available in its Technical File.

2. Novomembrane EPDM

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3. Firestop cord

The firestop cord is the System's most internal element. Its primary function is to act as a barrier against flames, smoke and hot or inflammable gases in the event of fire, stopping them spreading to the rest of the installation.

This is especially important if the joint lies between fire compartments, where fire regulations demand that such compartments are totally insulated and compartmented, confining fire and smoke inside. In these cases, any opening between compartments, such as structural joints, must be sealed and comply with the required degree of fire resistance.

Sealing with firestop cord will also be applicable to joins with curtain walls or the edges of framing, in firestop walls, in technical duct through-holes and any element that must be sealed to stop fire from spreading.

The firestop cord can be installed independently, though it is an important component and the perfect complement of the structural joint. It is always recommendable to install it alongside the other elements in the System, acting as a safety system that will protect the installation and occupants' health.

Technical characteristics:

- Composed of fireproof, non-biodegradable, mineral fibres, covered in a network of fibreglass hairs. Does not contain asbestos or give off toxic smoke in the event of fire.
- Strongly resists the usual aggressive chemical agents and damp.
- Possesses an operating temperature of 780ºC.
- Has undergone trials in accordance with European standards, obtaining a fire resistance classification of Mo / A1 S1 (fireproof) (EN 13501:2:2016), and fire resistance of 240 minutes (EN 1366-4).
- It is available in several diameters to cover differing joint widths.

material	cord diameter*	joint width
Mineral + glass fibers	30 mm	16-20 mm
	40 mm	21-30 mm
	50 mm	31-40 mm

cord diameter*	joint width
60 mm	41-50 mm
70 mm	51-60 mm
90 mm	61-80 mm

cord diameter*	joint width
120 mm	91-100 mm
150 mm	110-130 mm
180 mm	150-160 mm

EMAC® firestop cord is simple to install both separately and as part of the system. More information on the product and its installation is available in its Technical File.

Thank you for having EMAC®

EMAC® is a leading company in profiles and trims for wall and floor tiles, and structural joints and expansion joints for large projects. We offer more than 3.000 references in stock and excellent service, with solutions for floors, walls, facades and urban pavements. We are present in over 110 countries with subsidiaries in USA and Italy.

PROJECTS

In the last 20 years, hundreds of projects worlwide have chosen our profiles for resolving their structural joint challenges. We present a few of them here:

Dublin Airport (Ireland), United Nations Communications Centre in Valencia (Spain), Algarve Race Circuit (Portugal), King Juan Carlos I University in Madrid (España), "La Aurora" Airport (Guatemala), Ikea shopping center in A Coruña (Spain), Jumeirah Beach Residence in Dubai (United Arab Emirates), Kitchens of University Hospital of Getafe (Spain), Ágora Building in City os Arts and Sciences of Valencia (Spain).

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T echnical Entrance Mats | Universal Accessibility & Safety

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