MODERN
ROAD SURFACES IN STONE

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MAPEI®

ADHESIVES · SEALANTS · CHEMICAL PRODUCTS FOR BUILDING

THE "STRADA MAGGIORE" CONSTRUCTION SITE

THE STORY OF A ROAD
TOLD BY THE TOOLS WHICH BUILT IT

CANTIERE BOBO
BOLOGNA PER BOLOGNA

YOU NEED LOCKING UP

A MORTAR'S POINT OF VIEW

"**They say that I am seven times stronger than the concrete** used to make pillars that hold up buildings. They say that I have formidable resistance to aggressive salts and freezing weather. This all makes me seem like matter from another planet; as if I were that stuff that melts and then recombines that you can see in the movie Terminator. But all I am is mortar; okay, I am **Mapestone TFB 60** ultra high-strength super-mortar, but I am still only mortar, something that locks stone together. And you'd best not forget it.

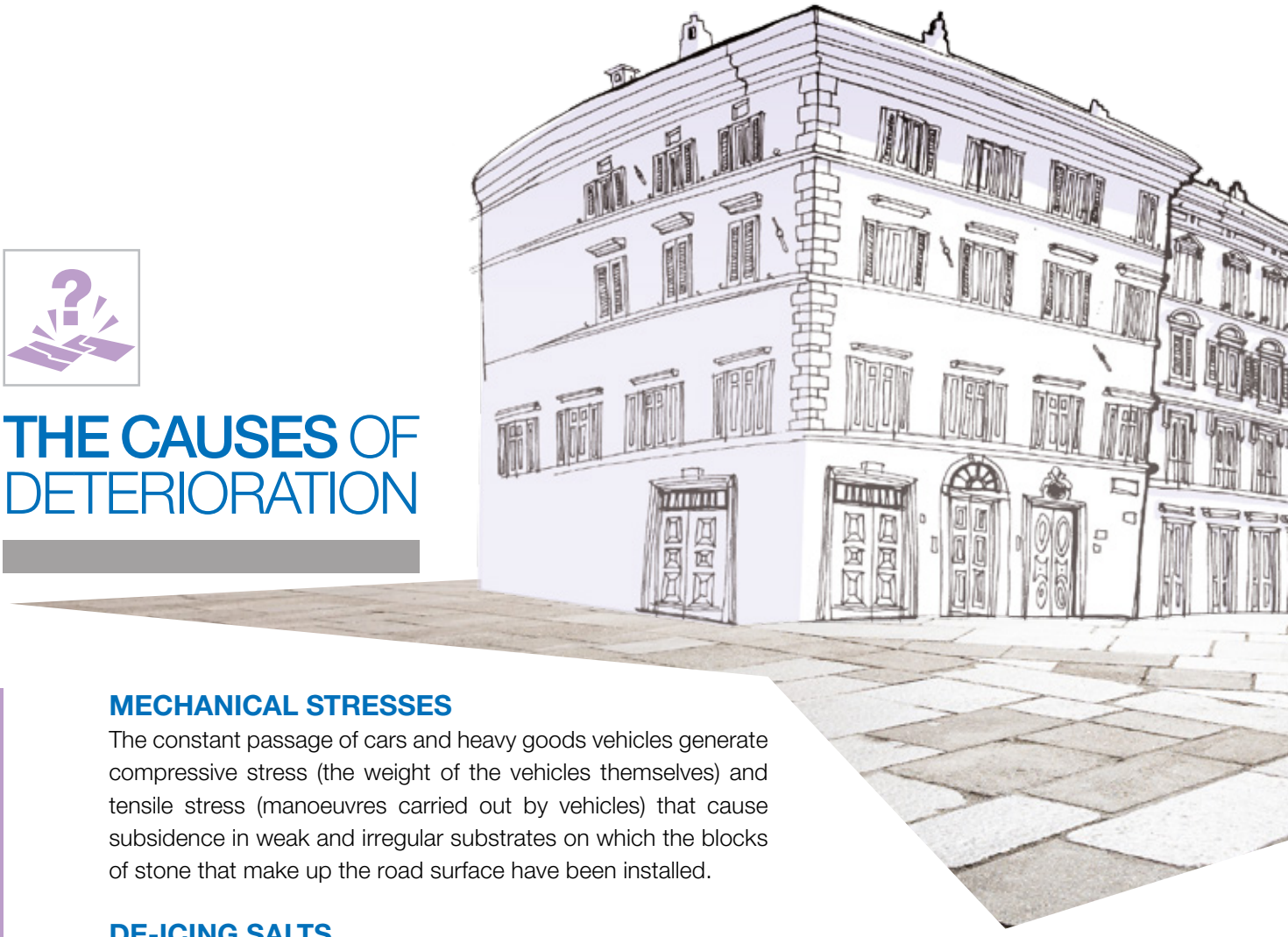
Anyway, if the ancient Romans had been able to use me to build their roads, nobody else would have got a look in. They have used me on the Bobo (Bologna for Bologna) construction site to get the maximum cohesion possible between one flagstone and another in Strada Maggiore, and I can hear the antique flagstones now as they whisper: "you make everything look so simple, little mortar", "your masters don't work as well as the Romans", "they manage to get by thanks to you", end even "of course it was all so different in the good old days, shame on you, it's a sacrilege…". Nasty little flagstones, ungrateful masochists, don't you remember how badly those Roman chisels treated you, strike

Comune di Bologna
Trasporto Passeggeri Emilia-Romagna
è Bologna

after strike, pushing one stone against the other, with just really tight, narrow joints to create a solid mass effect, forcing you to match as close as possible? Sand and river gravel were the weak points. The binder was the weak point. The Romans didn't have a really sound binder but, let's get to the point; the Italians are still the best in the world at constructing roads. And if today they can count on me, it means we have always been at the forefront, right back since ancient Roman times. The mallet blows will make you sink into the support of my cradle, my gums will rise up, the wheelbarrows will pour me into the gaps until they are filled, when the bonding slurry has dried out you will be tied to me forever, I will hold you tight in the heat and in the cold, in the rain and snow, even under the weight of the wheels of the trolley-buses and cars, from here you will never move again.
I am a super-mortar because you need locking up."

We thank the agency Jack Bluthardsky and TPER for kindly allowing us to use their pictures and texts

THE CAUSES OF DETERIORATION



MECHANICAL STRESSES

The constant passage of cars and heavy goods vehicles generate compressive stress (the weight of the vehicles themselves) and tensile stress (manoeuvres carried out by vehicles) that cause subsidence in weak and irregular substrates on which the blocks of stone that make up the road surface have been installed.

DE-ICING SALTS AND FREEZE/THAW CYCLES

There is a contrast between the high amount of heat generated when using de-icing salts (calcium and sodium chloride) and brusque cooling down due to low surrounding temperatures.
This alternation in temperatures, combined with freeze/thaw cycles (with stresses caused by water cooling down and turning into ice), causes contraction, expansion and crumbling, which in turn deteriorate the joints and substrate.

DESIGN AND INSTALLATION

Modern stone road surfaces must be developed and then designed as structures that are meant TO LAST over the years, similar to any other vertical structure. With this in mind, choosing the most suitable installation system is fundamental.
Also, using only expert workers qualified in the installation of stone is a key factor to ensure that this type of system is installed correctly. If unsuitable installation systems or methods are chosen, the service life of stone road surfaces will be shortened.

MAPESTONE SYSTEM

Mapestone System represents a "turnkey" solution to obtain durable, long-lasting work resistant to freeze-thaw cycles and to sea water. Mapei has specifically developed pre-blended cementitious products with exceptional physical-chemical characteristics suitable for areas exposed cyclically to wet and dry periods, as described in exposure class XF4 cementitious products which need only to be mixed with water, made from special binders and selected aggregates, to make architectonic stone flooring which is suitable for vehicles. **Mapestone TFB 60** is a pre-blended powder mortar, particularly suitable for making screeds and installing stone. **Mapestone PFS 2**, **Mapestone PFS 2 Visco** and **Mapestone PFS PCC 2** are pre-blended powder mortars for grouting joints. **The combined use of these products creates a long-lasting monolithic structure.**

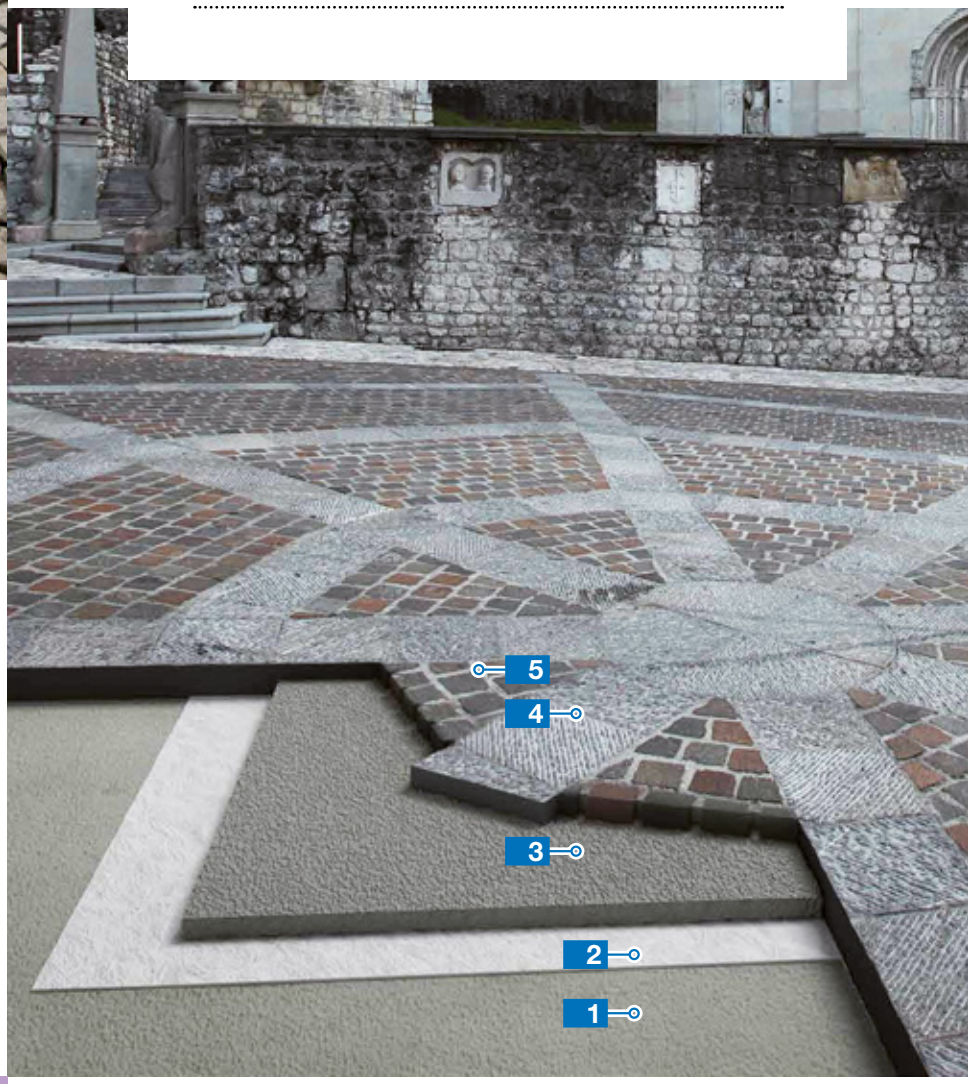
THE MAPEI **SOLUTION**

WHERE TO USE

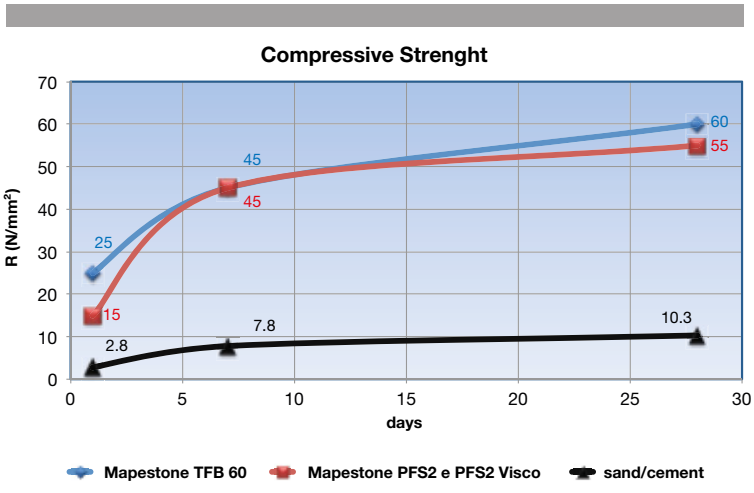
Mapestone System is used to make architectural stone floors (made from cubes, kerbstones, cobblestones, slabs and blocks). When it is not necessary to meet the requirements for exposure class XF4, joints may be quickly grouted with **Keracolor PPN**.

PRODUCT SYSTEM

1. Concrete
2. Non-woven fabric
3. Thick bed mortar **Mapestone TFB 60**
4. Porphyry and interlocking stone
5. Grout **Mapestone PFS 2**, **Mapestone PFS 2 Visco** or **Mapestone PFS PCC 2**



Strada Maggiore
Bologna - Italy



Public square
Volpedo, Alessandria - Italy

Piazza Duomo
Milan - Italy

Piazza Duomo
Milan - Italy

Public square
Zagabria - Croatia

NEUTRAL

NEW

DARK GREY

Colors available for **Mapestone PFS 2** and **Mapestone PFS 2 Visco**.

Due to the printing processes involved, the colours should be taken as merely indicative of the shades of the actual products

ADVANTAGES OF THE SYSTEM

SAFETY
Prevents wear and tear, often the cause of accidents.

DURABILITY
Withstands the rigours of the most intense rood traffic.

TECHNICAL ADVANTAGES

- High mechanical strength
- Homogenous, uniform product
- Resistant to freezing weather and de-icing salts

or

DURABLE, LONG-LASTING WORK

ECONOMIC ADVANTAGES

- Highly durable finished work
- Reduction in maintenance and/or repairs
- No waste of material
- Less time required for road works

SOCIAL ADVANTAGES

- Lower maintenance costs
- Less noise
- Less disruption for inhabitants
- Fewer accidents (due to falls from bikes, mopeds and broken heels)

LOGISTIC ADVANTAGES

- Reduction in amount of waste and obstacles due to road-works
- Low impact on the environment
- Easy to clean

SOME WORKS CARRIED OUT WITH MAPESTONE SYSTEM

Promenade
Arma di Taggia, Imperia - Italy

Public square
Nova Gorica - Slovenia

Piazza Gino Valle - Portello
Milan - Italy

Piazza Duca D'Aosta
Milan - Italy

Public square
Porcia, Pordenone - Italy

Public square
Prato di Resia, Udine - Italy

Danube Gate square
Gyor - Hungary

Piazza Trento Trieste
Ferrara - Italy

Public square
San Donà di Piave, Venice - Italy

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