FOUNDATION

LIGHTWEIGHT INFILL SOLUTIONS

MODULO

NEW ELEVETOR

SKYNET

BIOMODULO

MATRIX

DEFENDER

- ✔ COST-EFFECTIVE
- ✔ TIME SAVING
- ✔ SUSTAINABLE

THE COMPANY

HISTORY

Since its founding in the early 1970s, Geoplast has been designing and manufacturing innovative recycled plastic products.
We create sustainable solutions with high added value and offering excellent performances, in compliance with construction industry standards.
Over the years we have improved our expertise in the strategic sectors in which we operate, such as construction, stormwater management, urban green areas and landscaping, always making us a reliable and efficient partner.
Geoplast products are present all over the world thanks to a widespread network of distributors, also including subsidiaries in South Africa and the USA.

MANUFACTURING

- 3 plants covering a total area of 40,000 m^2, 10,000 m^2 of which are covered;
- 28 production lines: 2 plastic regeneration lines and 26 high-tonnage injection moulding machines;
- more than 20 million items produced per year;
- annual processing capacity of more than 25,000 tonnes of material.

OUR KNOW-HOW

SUSTAINABILITY

We at Geoplast firmly believe that the environment and industry can coexist and support each other.
This has been our main motivation since the founding of the of the company.

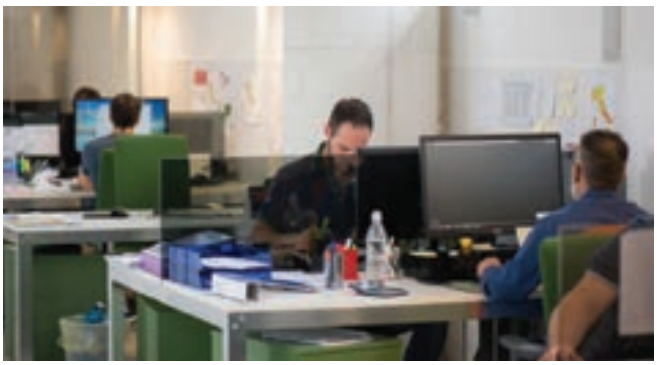
All our products are made with recycled plastic coming from post-consumer and industrial waste: in this way the plastic waste is transformed into a valuable resource for new solutions.

SERVICES & CONSULTING

The requirements of clients, designers and companies are supported by the technical expertise of a dedicated team of skilled specialists.

The services provided by Geoplast range from assistance on site, technical feasibility analyses, preliminary and executive plans.

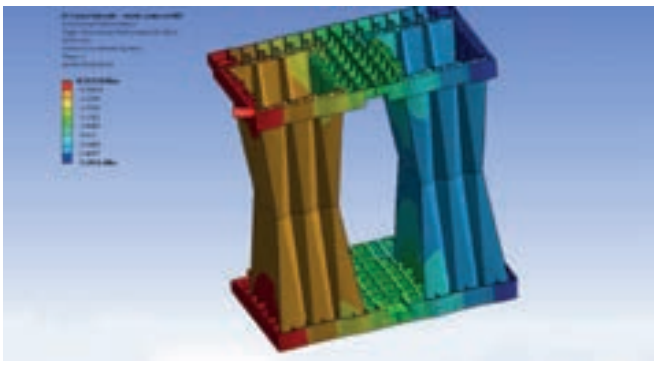
Knowledge sharing and distribution are essential, and take the form of digital tools, webinars and publications.



INNOVATION

The search for intelligent, sustainable and economically advantageous solutions is the goal that we have always set ourselves.

To date our Research and Development Team has registered more than 40 patents and 50 trademarks worldwide.



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FOUNDATION

Sustainability and respect for the environment, living comfort for people and profitability for operators in the sector: all our solutions, including those dedicated to Foundations, are designed to combine these three objectives, which can and must be met.

Thanks to our technology, we are able to transform plastic waste into construction systems with a low environmental impact, which significantly limit the use of expensive and polluting materials, such as steel and concrete, limiting handling and transport to the construction site and significantly reducing construction time.

CHOOSE YOUR APPLICATION

	PAGE	APPLICATION	MODULO AND MULTIMODULO	NEW ELEVETOR AND SKYNET	BIOMODULO	DEFENDER	MATRIX
							
LIGHTWEIGHT VOID FILL	34	STRUCTURAL VOID FILL	✓	✓			
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	53	EXPANSIVE SOIL	✓	✓			✓
	73	CONCRETE RAISED FLOORS					✓

MAXIMUM FLEXIBILITY

The use of Geoplast formworks is extraordinarily flexible, covering a very wide range of applications. In each case it replaces less performing or more expensive conventional construction techniques.

The range of formwork extends from 30 mm to 3 m in height, responding to the most different needs of the designer and the construction site.
Geoplast formworks are designed to have minimal environmental impact: made from 100% recycled and recyclable material, they are stacked on pallets in very compact packaging, reducing at each step the amount of CO_2 incorporated in the process.

LIGHTWEIGHT VOID FILL

There are numerous situations where design conditions limit the permissible weight of the infill material. With Geoplast formwork, the designer can calculate the weight of the void-fill with great accuracy.
At the same time, the designer has great flexibility in using the empty space under the raised floor created by the formwork.

ADVANTAGE: a void fill made with Geoplast formworks is very light, thanks void ratio that can exceed 90%.

SURFACE MODELING

The concrete structure created with Modulo and New Elevetor is extremely strong and can withstand very high loads, as for example those of firefighter access areas. The wide range of models and the flexibility of installation allow the creation of ramps for disabled people or vehicle access.

ADVANTAGE: ramps, steps, elevations, surface modeling great flexibility in shaping urban environments.

VENTILATED CRAWL SPACES

By creating a ventilated crawl space with a natural ventilation, Modulo and New Elevetor are the solution for managing harmful gases emitting from the soil, such as radon and methane.

ADVANTAGE: a ventilated crawl space with Modulo is extremely efficient, reducing harmful gas infiltration into buildings.

WATER MANAGEMENT

Modulo and New Elevetor allow the creation of concrete tanks for stormwater detention and harvesting.

ADVANTAGE: a concrete tank is designed for more 50 years of service with the capacity to support any type of load.

SPECIAL APPLICATIONS

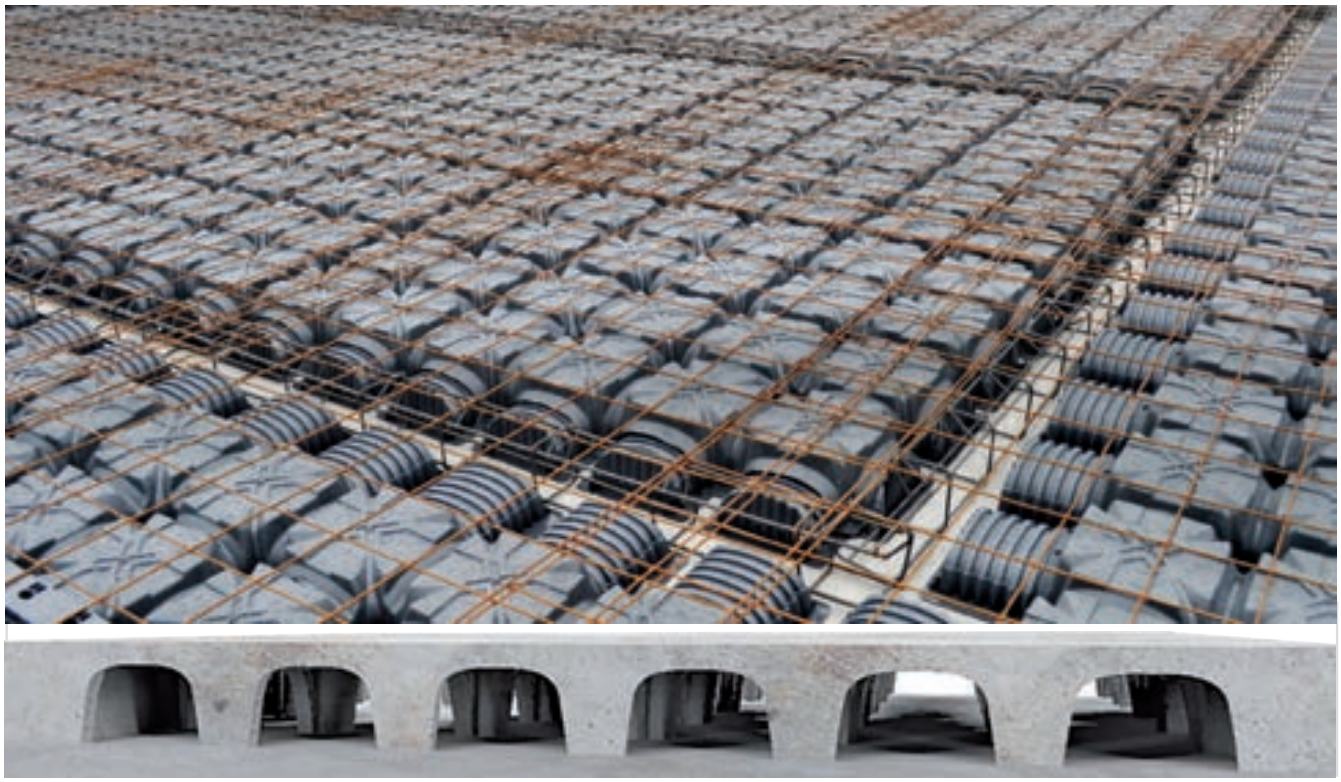
MEP installations, clay soil management and concrete raised floors are some of the applications that Geoplast formwork improve on.

ADVANTAGE: Geoplast's Technical Department is always available for new solutions.

THE VENTILATED CRAWL SPACE

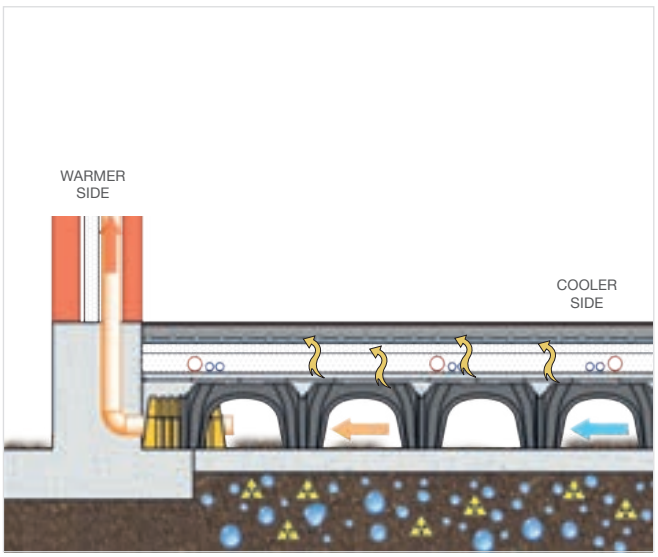
A crawl space created with the Modulo sacrificial formwork, when properly ventilated, eliminates rising damp and radon gas.

Thanks to its special shape, Modulo produces a reinforced concrete structure consisting of a raised floor and a series of columns placed at regular intervals, able of distributing loads over the entire surface and thus offering excellent static and dynamic load-bearing capacity.



HOW DOES THE VENTILATION WORK

Modulo makes good use of the “chimney effect” principle.
This is achieved by placing ventilation openings on the cooler side of the crawl space (north or east) at an altitude close to ground level, and on the warmer side (south or west) at a higher altitude. To ensure uniform ventilation, all zones of the crawl space must be connected to each other, allowing the flow of warmer air to rise upwards and escape from the building, reducing rising damp and radon gas.



STRUCTURAL VOID FILL

The wide range of products and sizes share the same characteristic: they create at the same time an efficient reinforced concrete structure and an empty volume, open in all directions, suitable for any purpose.
This particular setup creates a structural void that offers great resistance to applied loads combined with low weight and an efficient use of building materials.

SUSTAINABILITY

In designing a new product we never lose sight of the needs of the environment: for this reason we have developed technologies able to transform plastic waste that spoil our planet into high performance construction solutions.
Through our Solutions we propose to design community innovative construction methods that allow limiting the use of pollutants and materials harmful to the environment, reducing at the same the time and cost of construction.

MODULO AND MULTIMODULO

FORMWORK FOR VENTILATED CRAWL SPACES AND VOID FILL

THE SOLUTION

Modulo and Multimodulo are sacrificial formworks made of Graplene (100% recycled polypropylene compound).

The reinforced concrete slab created by casting over Modulo is much slimmer than a conventional suspended slab and will rest on a matrix of short columns (or “legs” of the system).

The formwork will only have to support the weight of the wet concrete. Once dry, the arched structure created will be self-supporting.

The empty space created underneath the suspended floor can be used for many purposes: MEP installation, ventilation to reduce rising damp or harmful gases, or more simply for the creation of a light and strong void fill structure.

LIGHTWEIGHT VOID FILL

LANDSCAPING

VENTILATED CRAWL SPACES

STORMWATER MANAGEMENT

MEP INSTALLATION

ADVANTAGES

STACKABLE

Modulo and Multimodulo offer several logistic advantages in terms of both shipping and storage.

For example, one truck of Modulo h 50 cm can fill the same volume as 50 trucks of traditional infill materials.

FAST INSTALLATION

Modulo allows for up to an 80% faster installation time compared with conventional methods and materials.

STRONG

Thanks to the special shape of the raised floor resting on columns and domes, Modulo and Multimodulo are able to withstand high loads.
The efficient structure that is created saves steel and concrete, reducing CO_2 emissions.

ACCESSORIES

GEOBLOCK H13-70

GEOBLOCK FOR MODULO	GEOBLOCK FOR MULTIMODULO

Geoblock is an adjustable extension that acts as the inner side of the ground beam formwork and allows for the creation of the slab, fill and surrounding beam or curb in a single pour.

- **STRUCTURAL CONTINUITY:** single-pour operation of the crawl space and foundation beams.
- **NO CUTS:** compensation with Geoblock eliminates the need to cut Modulo elements.
- **CONSTRUCTION SITE SAFETY:** the whole Modulo formwork surface can be safely stepped on, as all elements are whole and connected to each other.
- **SIMPLER GROUND BEAM FORMWORK:** Geoblock acts as an internal formwork for the ground beams.
- **COMPENSATION AND ADJUSTMENT:** The compensation length is adjustable.

FERMAGETTO H13-H40

FOR MODULO H13-40

Lateral closing element for Modulo from 13 to 40 cm. Reduces formwork laying time by 80%.

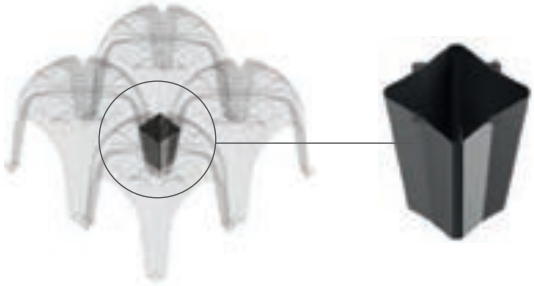
FERMAGETTO PLATE H13-H70

FOR MULTIMODULO H13-40	FOR MODULO H45-70

Lateral closing element and concrete stop for Multimodulo height 13 to 40 cm and for Modulo height 45 to 70 cm.

FAST LEG H50-H70

FOR MODULO H50-70



Element to be placed in the Modulo legs to increase the pouring speed.

RING H65-H70

FOR MODULO 65-70

Recycled polypropylene retaining ring for Modulo H65 and H70, alternative to Fast Leg.

MODULO AND GEOBLOCK INSTALLATION

① PREPARATION

Make a concrete laying surface for the installation of the external formwork and the reinforcements of the beams.

② MEP SYSTEMS

Installation of the MEP systems and ventilation tubes for radon and moisture mitigation if designed.

③ FORMWORK INSTALLATION

Install Modulo as shown on the top of the formwork.

④ GEOBLOCK INSTALLATION

Installation of the accessories for the lateral closing between formworks and beams or walls.

⑤ STEEL MESH

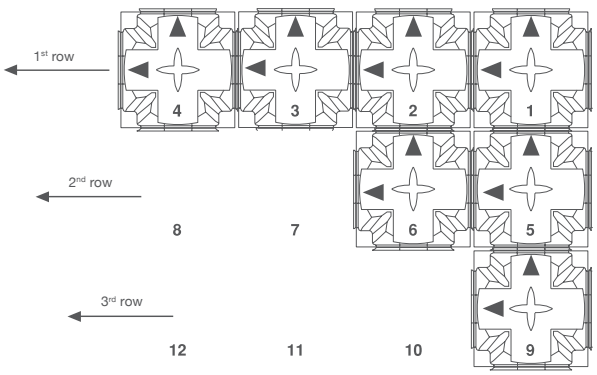
Laying of the wire mesh directly of the formwork.

⑥ POURING

Proceed with the pouring following the instructions shown in the manual.

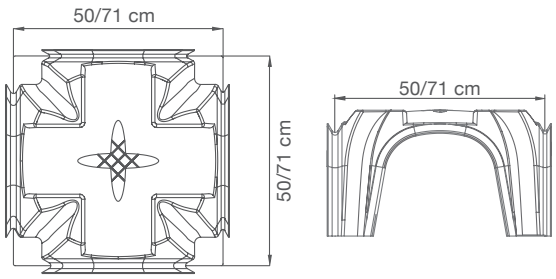
Modulo must be installed
RIGHT TO LEFT and
FROM TOP TO BOTTOM,
the arrows on the formwork
must be positioned pointing upwards.

IT IS ESSENTIAL TO CHECK THE CORRECT INTERLOCKING OF THE FEET!



TECHNICAL DATA MODULO

MODULO H3-70



Material: Graplene (Polypropylene Compound) - 100% recycled

	Dimensions (cm)	Packaging dimensions (cm)	Surface per Packaging unit (m^2)	No. of pieces	Piece weight (Kg)	Product code
MODULO H3	50 x 50	102 x 102 H220	180	720	0.66	EMODULO5003
MODULO H6	50 x 50	102 x 102 H220	180	720	0.84	EMODULO5006
MODULO H9	58 x 58	102 x 120 H240	240	720	1.03	EMODULO5809
MODULO H13	50 x 50	102 x 102 H235	90	360	1.01	EMODULO5013
MODULO H15	50 x 50	102 x 102 H240	90	360	0.97	EMODULO5015
MODULO H17	50 x 50	102 x 102 H235	90	360	1.03	EMODULO5017
MODULO H20	50 x 50	102 x 102 H240	90	360	1.06	EMODULO5020
MODULO H25	50 x 50	102 x 102 H235	90	360	1.14	EMODULO5025
MODULO H27	50 x 50	102 x 102 H235	75	300	1.28	EMODULO5027
MODULO H30	50 x 50	102 x 102 H240	75	300	1.29	EMODULO5030
MODULO H35	50 x 50	107 x 107 H230	75	300	1.32	EMODULO5035
MODULO H40	50 x 50	107 x 107 H230	75	300	1.47	EMODULO5040
MODULO H45	71 x 71	151 x 151 H230	150	300	2.83	EMODULO7145
MODULO H50	71 x 71	151 x 151 H230	150	300	3.25	EMODULO7150
MODULO H55	71 x 71	151 x 151 H225	120	240	3.34	EMODULO7155
MODULO H60	71 x 71	153 x 153 H230	120	240	3.53	EMODULO7160
MODULO H65*	71 x 71	153 x 153 H230	120	240	3.58	EMODULO7165
MODULO H70*	71 x 71	153 x 153 H240	120	240	3.81	EMODULO7170

CONCRETE CONSUMPTION

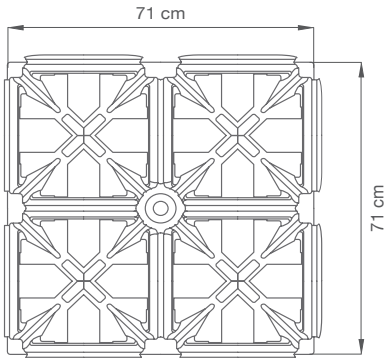
	Flush to the formwork (m^3/m^2)		Flush to the formwork (m^3/m^2)
MODULO H3	0.004	**MODULO H30**	0,044
MODULO H6	0.009	**MODULO H35**	0,052
MODULO H9	0.010	**MODULO H40**	0,056
MODULO H13	0.028	**MODULO H45**	0,064
MODULO H15	0.030	**MODULO H50**	0,076
MODULO H17	0.035	**MODULO H55**	0,078
MODULO H20	0.037	**MODULO H60**	0,079
MODULO H25	0.038	**MODULO H65***	0,084
MODULO H27	0.040	**MODULO H70***	0,083

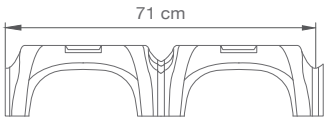
GEOBLOCK EXTENSION

	Geoblock extension (cm)		Geoblock extension (cm)
MODULO H3	n.d.	**MODULO H30**	0 ÷ 25
MODULO H6	n.d.	**MODULO H35**	0 ÷ 26
MODULO H9	n.d.	**MODULO H40**	0 ÷ 26
MODULO H13	0 ÷ 25	**MODULO H45**	0 ÷ 36
MODULO H15	0 ÷ 25	**MODULO H50**	0 ÷ 37
MODULO H17	0 ÷ 25	**MODULO H55**	0 ÷ 39
MODULO H20	0 ÷ 25	**MODULO H60**	0 ÷ 38
MODULO H25	0 ÷ 25	**MODULO H65***	0 ÷ 39
MODULO H27	0 ÷ 25	**MODULO H70***	0 ÷ 39

TECHNICAL DATA MULTIMODULO

MULTIMODULO H13-40





Material: Graplene (Polypropylene Compund) - 100% recycled

	Dimensions (cm)	Packaging dimensions (cm)	Packaging (m^2)	No. of pieces	Piece weight (Kg)	Product code
MULTIMODULO H13	71 x 71	151 x 151 H225	180	360	1.73	EMMDULO7113
MULTIMODULO H15	71 x 71	151 x 151 H225	180	360	1.75	EMMDULO7115
MULTIMODULO H17	71 x 71	151 x 151 H226	180	360	1.85	EMMDULO7117
MULTIMODULO H20	71 x 71	151 x 151 H250	150	300	2.06	EMMDULO7120
MULTIMODULO H25	71 x 71	151 x 151 H235	180	360	2.07	EMMDULO7125
MULTIMODULO H27	71 x 71	151 x 151 H235	180	360	2.14	EMMDULO7127
MULTIMODULO H30	71 x 71	151 x 151 H250	150	300	2,32	EMMDULO7130
MULTIMODULO H35	71 x 71	151 x 151 H240	180	360	2.45	EMMDULO7135
MULTIMODULO H40	71 x 71	151 x 151 H265	150	300	2.77	EMMDULO7140

CONCRETE CONSUMPTION

	Flush to the formwork (m^3/m^2)		Flush to the formwork (m^3/m^2)
MULTIMODULO H13	0.020	**MULTIMODULO H27**	0.035
MULTIMODULO H15	0.027	**MULTIMODULO H30**	0.042
MULTIMODULO H17	0.028	**MULTIMODULO H35**	0.045
MULTIMODULO H20	0.032	**MULTIMODULO H40**	0.050
MULTIMODULO H25	0.033		

GEOBLOCK EXTENSION

	Geoblock extension (cm)		Geoblock extension (cm)
MULTIMODULO H13	0 ÷ 23	**MULTIMODULO H27**	0 ÷ 24.5
MULTIMODULO H15	0 ÷ 23	**MULTIMODULO H30**	0 ÷ 25
MULTIMODULO H17	0 ÷ 23	**MULTIMODULO H35**	0 ÷ 25
MULTIMODULO H20	0 ÷ 23,5	**MULTIMODULO H40**	0 ÷ 26
MULTIMODULO H25	0 ÷ 24		

MODULO AND MULTIMODULO LOAD CHARTS

MODULO H3 - H9

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Reinforcement* (mm) / (cm)	Slab on grade thk. (cm)	Subgrade thk. (cm)	Pressure on ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	5	-	0,24
Areas susceptible to crowding [Cat. B e C]	500 - 1,000	5	Ø6 / 20x20	5	-	0,44
Commercial [Cat. D]	1,000 - 2,500	6	Ø6 / 20x20	8	-	0,50
Industrial and warehouses [Cat. E]	2,500 - 5,000	6	Ø6 / 20x20	10	-	0,66
> 5,000 kg/m²	To be evaluated contacting Geoplast's technical dept.					

MODULO H13 - H40

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Reinforcement* (mm) / (cm)	Slab on grade thk. (cm)	Subgrade thk. (cm)	Pressure on ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	5	-	0,73
Areas susceptible to crowding [Cat. B e C]	500 - 1.000	5-6	Ø6 / 20x20	5	-	1,20
Commercial [Cat. D]	1.000 - 2.500	7	Ø6 / 15x15	10	-	1,30
Industrial and warehouses [Cat. E]	2.500 - 5.000	8	Ø8 / 15x15	10	15	1,33
> 5.000 kg/m²	To be assessed, please contact Geoplast's technical dept.					

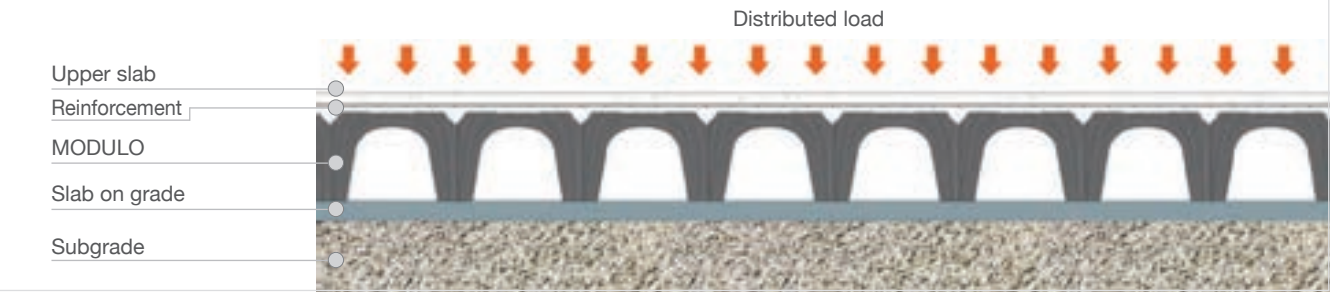
MODULO H45 - H70

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Reinforce-ment* (mm) / (cm)	Slab on grade thk. (cm)	Subgrade thk. (cm)	Pressure on ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	5	-	1,21
Areas susceptible to crowding [Cat. B e C]	500 - 1,000	6-7	Ø6 / 15x15	5	-	1,97
Commercial [Cat. D]	1,000 - 2,500	8	Ø8 / 15x15	10	-	2,21
Industrial and warehouses [Cat. E]	2,500 - 5,000	9-12	Ø8 / 15x15	10	15	1,86
> 5,000 kg/m²	To be assessed, please contact Geoplast's technical dept.					

MULTIMODULO H13 - H40

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Reinforcement* (mm) / (cm)	Slab on grade thk. (cm)	Subgrade thk. (cm)	Pressure on ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	5	-	0,54
Areas susceptible to crowding [Cat. B e C]	500 - 1,000	5	Ø6 / 20x20	5	-	0,92
Commercial [Cat. D]	1,000 - 2,500	5-6	Ø6 / 20x20	8	-	1,18
Industrial and warehouses [Cat. E]	2,500 - 5,000	8	Ø6 / 15x15	8	10	1,02
> 5,000 kg/m²	To be assessed, please contact Geoplast's technical dept.					

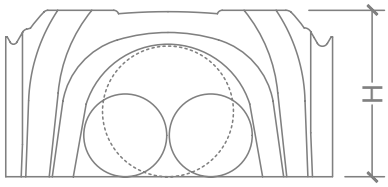
It is the designer's responsibility to establish that the soil is able to accept the pressure indicated for different heights of Modulo.
In the presence of concentrated loads or other variables, please contact Geoplast's technical office. The values shown in this table refer to fully cured concrete - 28 days.
** Minimum reinforcement calculated in relation to the maximum load value referred to the identified category.*
***The values shown, calculated in accordance with EN 1992-1-1, are purely indicative as strongly influenced by the mechanical characteristics of the soil. The actual sizing must be evaluated case by case by an engineer.*
For a more detailed specification, make reference to the techincal data sheets that show the most updated information.



CLEARANCE UNDERNEATH FORMWORK

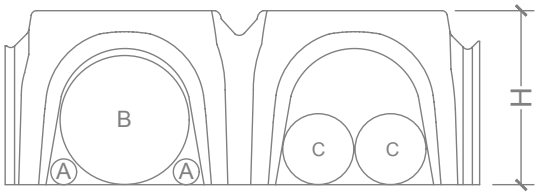
MODULO H3 - H70

Height (cm)	Max tube diameter (mm)	Height (cm)	Max tube diameter (mm)
H3	2 x Ø 20 mm	H30	1 x Ø 240 mm / 2 x Ø 140 mm
H6	1 x Ø 40 mm / 2 x Ø 24 mm	H35	1 x Ø 300 mm / 2 x Ø 150 mm
H9	1x Ø 60 mm / 2 x Ø 80 mm	H40	1 x Ø 290 mm / 2x Ø 160 mm
H13	1 x Ø 70 mm / 2 x Ø 50 mm	H45	1 x Ø 290 mm / 2 x Ø 160 mm
H15	1 x Ø 90 mm / 2 x Ø 70 mm	H50	1 x Ø 400 mm / 2 x Ø 220 mm
H17	1 x Ø110 mm / 2 x Ø 100 mm	H55	1 x Ø 440 mm / 2 x Ø 240mm
H20	1 x Ø 140 mm / 2 x Ø 120mm	H60	1 x Ø 400 mm / 2 x Ø 220 mm
H25	1 x Ø 200 mm / 2 x Ø 140 mm	H65	1 x Ø 460 mm / 2 x Ø 240 mm
H27	1 x Ø 200 mm / 2 x Ø 160 mm	H70	1 x Ø 460 mm / 2 x Ø 260 mm



MULTIMODULO H13 - H40

Height (cm)	Max tube diameter (mm)	Height (cm)	Max tube diameter (mm)
H13	A Ø 50 mm / B Ø 70 mm / C Ø 60 mm	H35	A Ø 40 mm / B Ø 220 mm / C Ø 110 mm
H15	A Ø 50 mm / B Ø 80 mm / C Ø 70 mm	H40	A Ø 40 mm / B Ø 230 mm / C Ø 110 mm
H17	A Ø 60 mm / B Ø 110 mm / C Ø 90 mm		
H20	A Ø 40 mm / B Ø 130 mm / C Ø 110 mm		
H25	A Ø 50 mm / B Ø 190 mm / C Ø 110 mm		
H27	A Ø 40 mm / B Ø 2000 mm / C Ø 110 mm		
H30	A Ø 40 mm / B Ø 200 mm / C Ø 110 mm		



NEW ELEVETOR

MODULAR FORMWORK FOR LIGHTWEIGHT VOID FILLS AND LANDSCAPING

THE SOLUTION

New Elevetor is a lost formwork system made of Graplene (100% recycled polypropylene compound) used for lightweight void fill in urban, industrial and landscaping projects.

It allows the construction of reinforced concrete raised floors up to 3 meters high, useful for vehicle access ramps, stepped surfaces and stormwater tanks.

New Elevetor is a cost-effective, technically reliable and fast alternative to conventional void-fill materials such as gravel, aggregates and polystyrene blocks.

LANDSCAPING

LIGHTWEIGHT VOID-FILL

STORMWATER MANAGEMENT

ADVANTAGES

STABLE AND SAFE

The formwork is fully accessible on foot, and after full concrete curing, it is possible to transit with vehicles up to the HGV load, depending on the dimensioning. The Max version also accepts larger diameter tubes (160 mm and 200 mm) to support even heavier loads with the same formwork height or to achieve greater height.

FAST INSTALLATION

Installation operations are made easier thanks to the shape of the Cuatro and Trio grids, designed and patented to guarantee the perpendicularity of the tubes and a precise base grid connections. The Max version features a larger span of 71 cm offering therefore a reduction in the number of pieces per square and a shorter installation time.

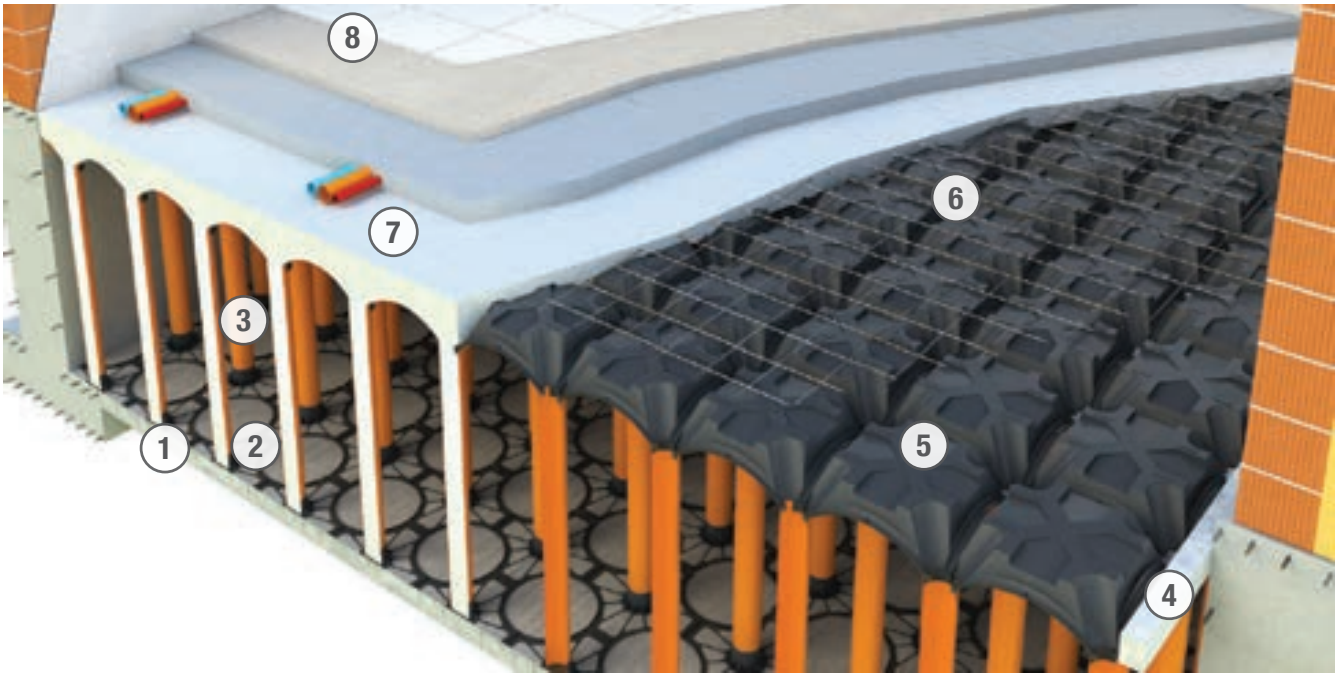
STRONG

The reinforced concrete structure guarantees high resistance to both dead and live loads.

The system can be designed for heavy vehicles with load classes up to SLW 60 / HGV 60.

THE SOLUTION

The Elevetor sacrificial formwork is a very useful void fill solution. The design is essentially a series of short slabs resting on columns. The illustration below shows the main elements that constitute the Elevetor system:



	NEW ELEVETOR		ELEVETOR MAX		
1 SLAB ON GRADE:	thickness from 5 to 15 cm.				
2 BASE GRID:	TRIO BASE for formwork 58 x 58 	CUATRO BASE for formwork 58 x 58 	MAX BASE + SPACER for formwork 71 x 71 		
3 TUBE (mm):	Ø 125		Ø 125	Ø 160	Ø 200
4 LISTEL (cm):	8 x 100 x H10		8 x 150 x H10	8 x 150 x H10	9 x 150 x H10
5 TOP DOME (cm):	FORMWORK 58 x 58 x H15 		FORMWORK 71 x 71 x H15 		
6 WIRE MESH:	Ø 5 - 6 - 8 -10 mm with mesh 15x15 o 20x20 (Please refer to the table in the data sheets for more precise information on the reinforcement to be used).				
7 CONCRETE SLAB:	thickness to be determined according to design loads, normally between 5 cm and 10 cm.				
8 FINISHING:	according to specifications.				

INSTALLATION

① PREPARATION

Creation of the slab on grade and perimeter walls.

② BASE

Install the Base Grids, essential to ensure the verticality of the tubes and the structural strength of the system.

③ TUBES

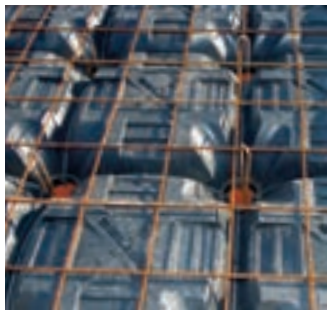
Installation of the PVC tubes, which are inserted in the special seats of the Base grid.

④ FORMWORK INSTALLATION

Laying of the formwork from right to left paying particular attention to the connection with the tube.

⑤ LISTEL

On the starting sides, where the formworks rest on the retaining wall, the polystyrene strips prevent the concrete from leaking under the formwork.



⑥ STEEL MESH AND REINFORCEMENT

Installation of the wire mesh according to design specifications. Install the U shaped rebar in the legs is so required.

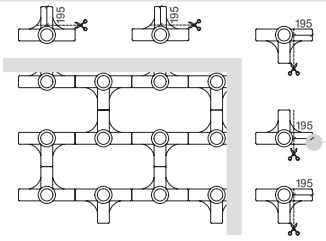
⑦ POURING

Proceed with the placing of concrete following the instructions shown in the Product Technical Manual.

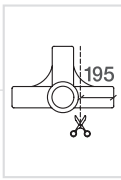
⑧ FINISHING

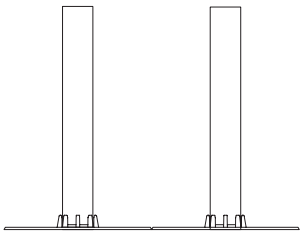
The job is now done and ready for the next phases.

TRIO INSTALLATION INSTRUCTIONS



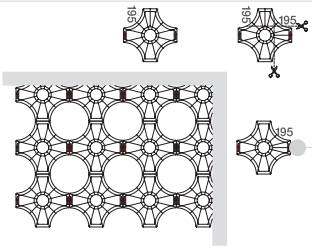
① Cut the bases as shown in the diagram and position the first row placing it against the wall. Proceed with the installation from right to left and from top to bottom.



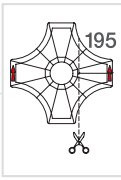


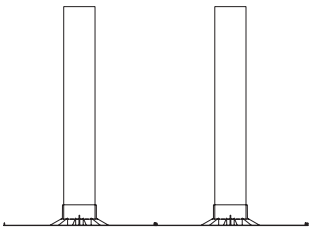
② Fit the PVC tubes into the bases by applying some pressure on the top of the tubes in order to have a perfect coupling.

CUATRO INSTALLATION INSTRUCTIONS



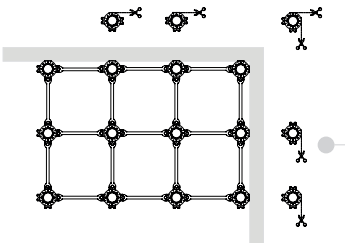
① Cut the bases as shown in the diagram and position the first row placing it against the wall. Proceed with the installation from right to left and from top to bottom.



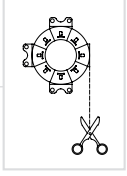


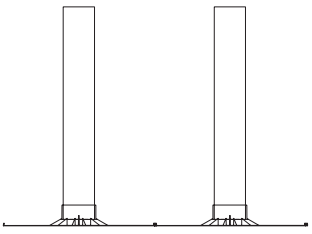
② Fit the PVC tubes into the bases by applying some pressure on the top of the tubes in order to have a perfect coupling.

MAX INSTALLATION INSTRUCTIONS



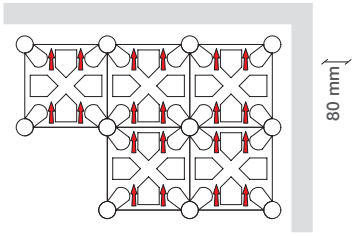
① Cut the bases as shown in the diagram and position the first row placing it against the wall. Proceed with the installation from right left and from top to bottom.



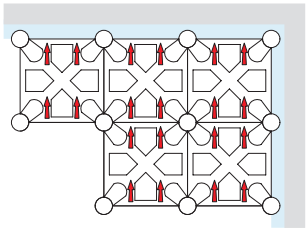


② Fit the PVC tubes into the bases by applying some pressure on the top of the tubes in order to have a perfect coupling.

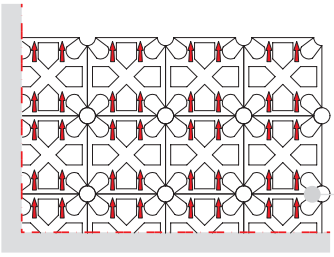
TUBES AND FORMWORKS INSTALLATION INSTRUCTIONS



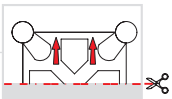
③ Install the New Elevetor forms making sure that they are perfectly coupled. Installation must be done from right to left and from top to bottom keeping the arrows marked on the formwork upwards.

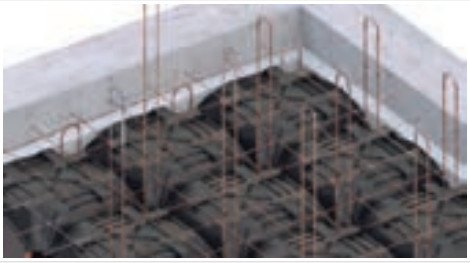


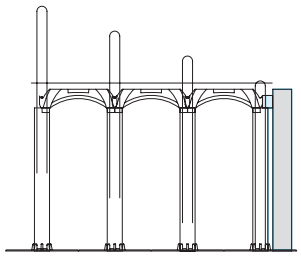
④ Fit the polystyrene strips between the existing concrete walls and the forms.



⑤ Place the last row of New Elevetor forms against the walls and, if necessary, trim them to length.

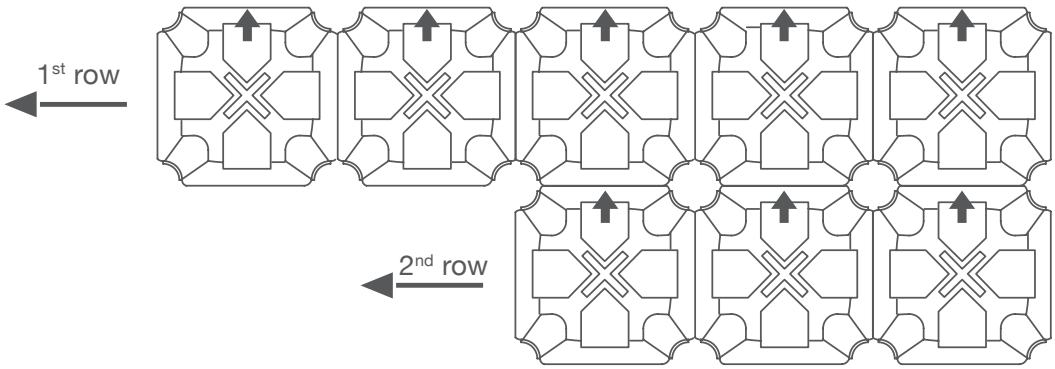




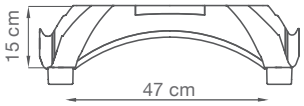


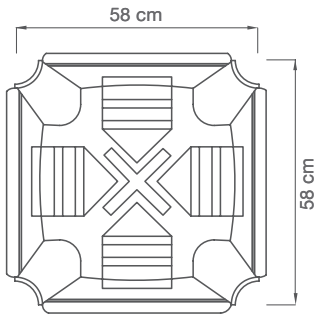
⑥ Lay the welded mesh reinforcement and the rebar in the legs, if required.

FORMWORK LAYING SEQUENCE



TECHNICAL DATA NEW ELEVETOR

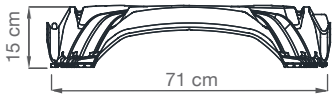


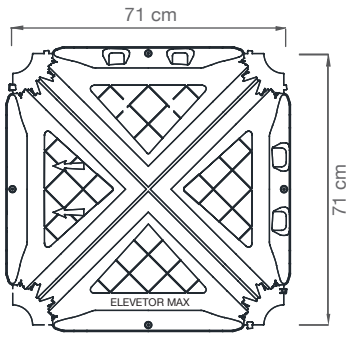


NEW ELEVETOR FORMWORK

Dimensions (cm)	58 x 58 x H15
Material	Graplene
Packaging dimensions (cm)	120 x 120 x H265
N° pieces per pallet	225
Product Code	EELEVEN858

TECHNICAL DATA ELEVETOR MAX





FORMWORK ELEVETOR MAX

Dimensions (cm)	71 x 71 x H15
Material	Graplene
Packaging dimensions (cm)	150 x 150 x H255
N° pieces per pallet	560
Product Code	EELEMAX7171

THE ELEVETOR FORMWORK RANGE

NEW ELEVETOR TRIO BASE

NEW ELEVETOR CUATRO BASE

ELEVETOR MAX

SYSTEM COMPONENTS

TRIO BASE
only for 58 x 58 cm formwork

Dimensions (cm)	60 x 40
Material	Graplene
Packaging dim. (cm)	80 x 120 x H245
N° pieces per pallet	560
Product Code	EELBAST5858

CUATRO BASE
only for 58 x 58 cm formwork

Dimensions (cm)	58 x 58 x H2,5
Material	Graplene
Packaging dim. (cm)	110 x 110 x H250
N° pieces per pallet	325
Product Code	EELBASE5858

MAX BASE
for formwork only 71 x 71

	Dimensions Ø 125 mm	Dimensions Ø 160 mm	Dimensions Ø 200 mm
Material	Graplene		
Packaging dim. (cm)	100 x 120 x H250		
N° pieces per pallet	560		
Product Code	EBASEMA7171	EBASEMA7171	EBASEMA7171

TUBE

	Ø 125 mm Thickness 1,8 / 2,0 mm	Ø 160 mm Thickness 2,1 / 2,4 mm	Ø 200 mm Thickness 2,5 / 2,8 mm
Dimensions (cm)	75>200	75>200	75>200
Material	PVC		
Product Code	EELTUBO0000	EELTUBS0000	EELTUBD0000

SPACER
only for Max 71 x 71 cm formwork

Dimensions (cm)	50 x 7
Packaging dim. (cm)	80 x 120 x H170
N° pieces per pallet	4400
Product Code	EDISTEM7171

LISTEL
Trio, Cuatro and Max Bases

For Ø Tube (mm)	Ø 125 - Ø 160	Ø 200
Dimensions (cm)	8 x 150 x H11	9 x 150 x H11
Materials	EPS	
Product Code	EELLISS0150	EELLISD0150

LOAD CHARTS NEW ELEVETOR

NEW ELEVETOR TRIO / CUATRO

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Min. reinforcement* (mm) / (cm)	Tube Reinforce-ment (cm)	Slab on grade thk. (cm)	Subgrade thk. (SLU) (Kg/cm²)**	Pressure on ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	4 Ø6	5	-	1.05
Areas susceptible to crowding [Cat. B e C]	500 - 1,000	6	Ø6 / 20x20	4 Ø6	5-8	-	1.07
Commercial [Cat. D]	1,000 - 2,500	6-8	Ø6 / 15x15	4 Ø6	8-10	0-10	1.20
Industrial and warehouses [Cat. E]	2,500 - 5,000	8-10	Ø8 / 15x15	4 Ø8	10-15	10-15	1.40
> 5,000 kg/m²	> 5,000	To be assessed, please contact Geoplast's technical dept.					

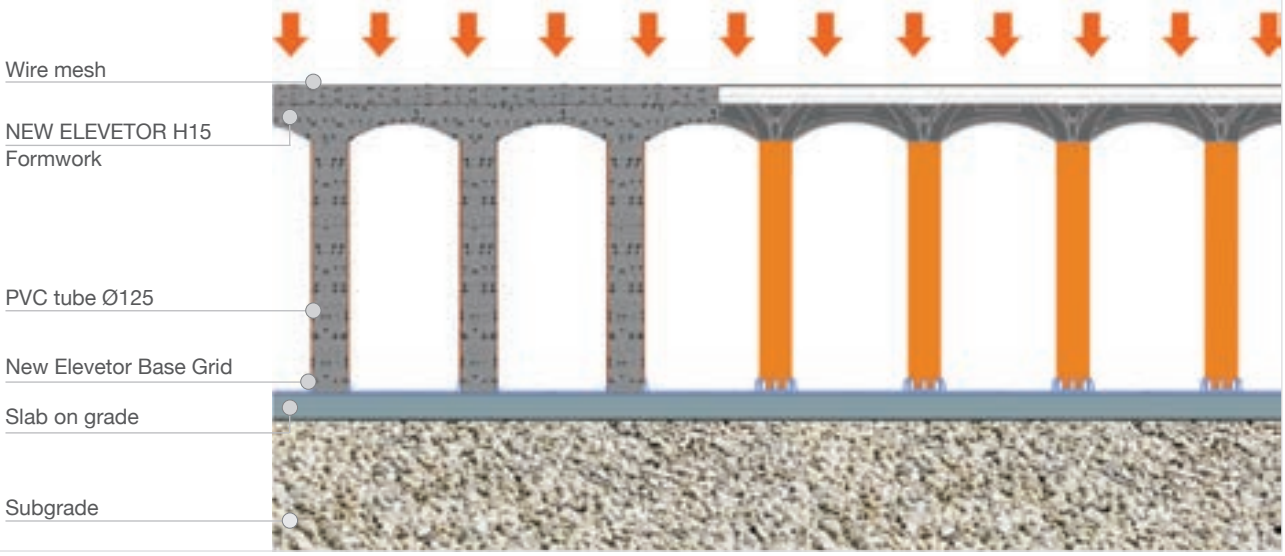
It is the designer's responsibility to establish that the soil is able to accept the pressure indicated for New Elevetor h 200 cm ((height of the formwork). In the presence of concentrated loads or other variables, please contact Geoplast's technical office. The values shown in this table refer to fully cured concrete - 28 days.

** Minimum reinforcement calculated in relation to the maximum load value referred to the identified category.*

***The values shown, calculated in accordance with EN 1992-1-1, are purely indicative as strongly influenced by the mechanical characteristics of the soil. An engineer must evaluate the actual sizing case by case.*

Concrete consumption flush to the formwork (m^3/m^2): $[A \times Elevetor\ system\ height\ (m) - 0.15] + C\ (m^3/m^2)$

Product	Ø Tube mm	*A*	*C* (m^3/m^2)
New Elevetor (58 x 58 cm)	125	0.037	0.030
Elevetor Max (71 x 71 cm)	125	0.025	0.036
	160	0.040	0.036
	200	0.063	0.036



LOAD CHARTS ELEVETOR MAX

ELEVETOR MAX Tube Ø 125 mm

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Min. reinforcement* (mm) / (cm)	Tube Reinforce-ment (cm)	Slab on grade thk. (cm)	Subgrade thk. (SLU) (Kg/cm²)**	Pressure on the ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	4 Ø6	5	-	1.60
Areas susceptible to crowding [Cat. B e C]	500 - 1.000	6	Ø6 / 15x15	4 Ø6	5-7	0-5	1.42
Commercial [Cat. D]	1,000 - 2,500	6-8	Ø8 / 15x15	4 Ø6	7-10	5-15	1.45
Industrial and warehouses [Cat. E]	2,500 - 5,000	8-12	Ø10 / 20x20	4 Ø8	10-15	15-20	1.71
> 5,000 kg/m²	> 5,000	To be evaluated contacting Geoplast's technical dept.					

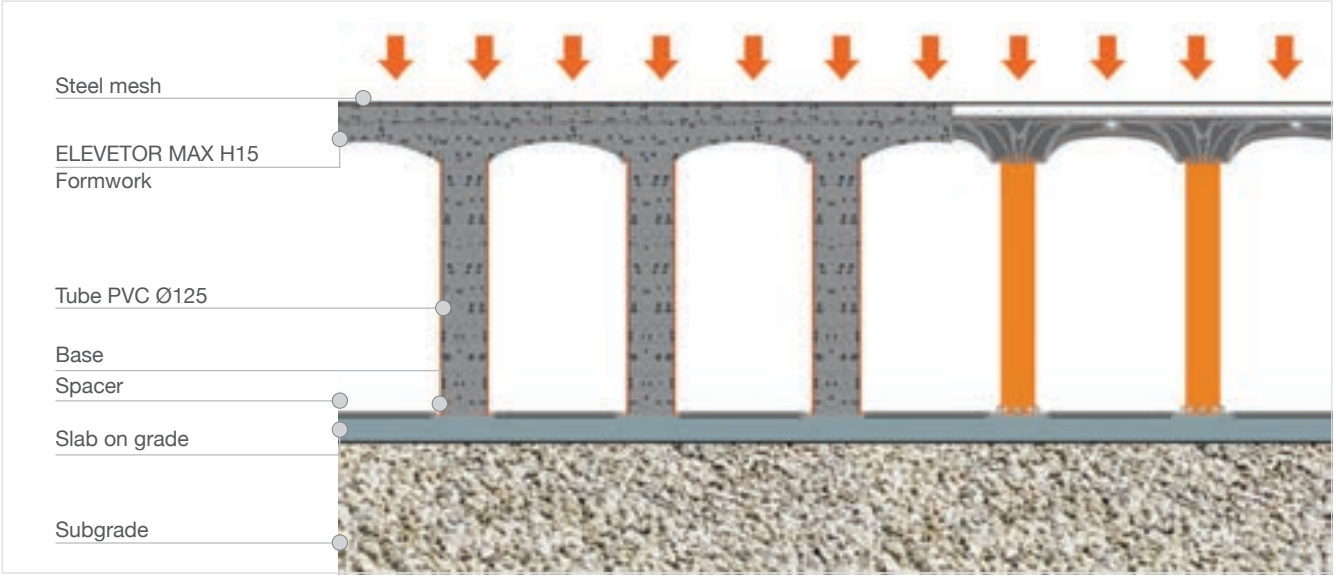
ELEVETOR MAX Tube Ø 160 mm

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Min. reinforcement* (mm) / (cm)	Tube Reinforce-ment (cm)	Slab on grade thk. (cm)	Subgrade thk. (SLU) (Kg/cm²)**	Pressure on the ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	4 Ø6	5	-	1.18
Areas susceptible to crowding [Cat. B e C]	500 - 1,000	6	Ø6 / 15x15	4 Ø6	5-7	-	1.42
Commercial [Cat. D]	1,000 - 2,500	6-8	Ø8 / 15x15	4 Ø6	7-10	5-10	1.59
Industrial and warehouses [Cat. E]	2,500 - 5,000	8-12	Ø10 / 20x20	4 Ø8	8-12	10-15	1.84
> 5,000 kg/m²	> 5,000	To be evaluated contacting Geoplast's technical dept.					

ELEVETOR MAX Tube Ø 200 mm

Load class	Distributed load (Kg/m²)	Upper slab thk. (cm)	Min. reinforcement* (mm) / (cm)	Tube Reinforce-ment (cm)	Slab on grade thk. (cm)	Subgrade thk. (SLU) (Kg/cm²)**	Pressure on the ground (ULS) (Kg/cm²)**
Residential [Cat. A]	0 - 500	5	Ø6 / 20x20	4 Ø6	5	-	0.89
Areas susceptible to crowding [Cat. B e C]	500 - 1,000	6	Ø6 / 15x15	4 Ø6	5	-	1.42
Commercial [Cat. D]	1,000 - 2,500	6-8	Ø8 / 15x15	4 Ø6	5-8	0-5	1.60
Industrial and warehouses [Cat. E]	2,500 - 5,000	8-12	Ø10 / 20x20	4 Ø8	8-12	5-10	1.59
> 5,000 kg/m²	> 5,000	To be evaluated contacting Geoplast's technical dept.					

It is the designer's responsibility to establish that the soil is able to accept the pressure indicated for New Elevetor h 200 cm (height of the formwork). In the presence of concentrated loads or other variables, please contact Geoplast's technical office. The values shown in this table refer to fully cured concrete - 28 days.
** Minimum reinforcement calculated in relation to the maximum load value referred to the identified category.*
***The values shown, calculated in accordance with EN 1992-1-1, are purely indicative as strongly influenced by the mechanical characteristics of the soil. An engineer must evaluate the actual sizing case by case.*
N.B: The most up-to-date and complete source of technical data are the product data sheets. The following load classes are calculated considering a system height (formwork height) of 200 cm.



SKYNET

NEW

FORMWORK FOR VOID FILLS IN COMPLIANCE WITH BUILDING CODES

THE SOLUTION

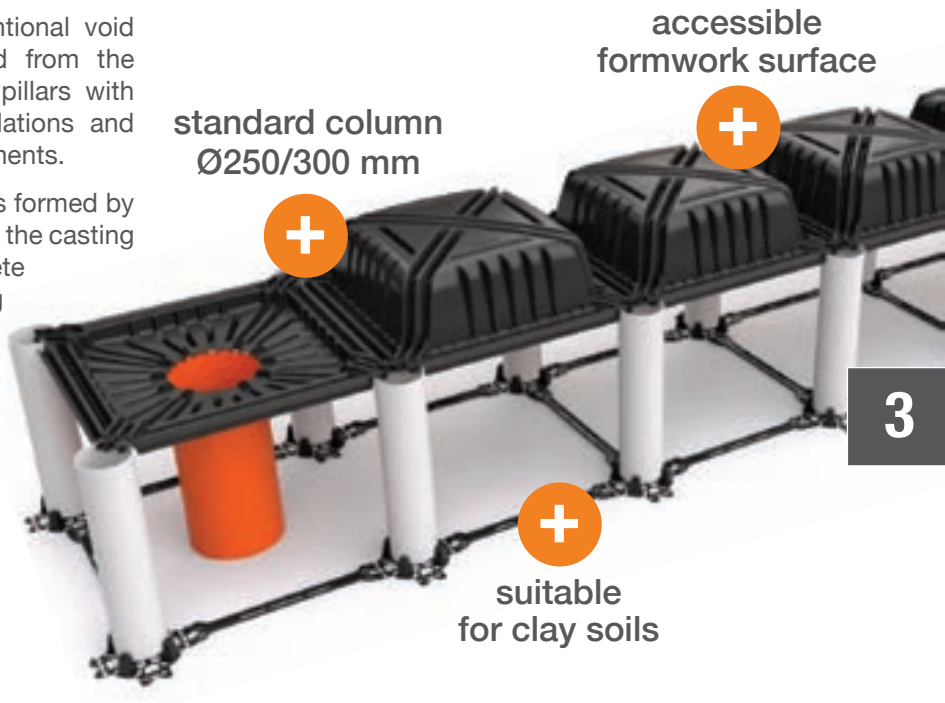
The Skynet system, compared to conventional void fill methods, forms a ribbed slab raised from the foundations or the ground by means of pillars with a diameter in accordance with the regulations and positioned according to the design requirements.

The system is very innovative: the shoring is formed by a series of Ø125 mm tubes left empty during the casting phase. This minimises the amount of concrete used and directs it only to the load-bearing structures of interest:

- the ribbed slab;
- Ø250 or Ø300 mm columns;

The upper ribbed slab is equal to a waffle slab with an internal height of 20 cm and a span between ribs of 70.8 cm.

Skynet can be used for:



FOOTINGS VOID FILL

RAMPS AND STEPS

PLAZA / AMENITY DECKS

CRAWL SPACES AND MEP ROUTING

EUROCODES
BUILDING THE FUTURE

Skynet, the innovative patented modular formwork system for forming raised ribbed slabs in compliance with Eurocode and American Concrete Institute (EC2, ACI318).

ADVANTAGES

BUILDING CODE COMPLIANCE

The ribbed slab created with Skynet is a standard suspended slab calculated in accordance with the main international standards.

CONCRETE SAVING

A two-way ribbed slab is a popular method of creating lightweight and strong structures: the savings in concrete compared to an equivalent solid slab are quite significant.

EASY INSTALLATION

Skynet is a permanent formwork that simplifies site operations by combining the great flexibility of classic crawl space formwork with an innovative technical solution.

EUROCODE AND ACI 318 COMPLIANCE

1

The system consists of a reinforced concrete structure comprising columns and a ribbed slab. The columns comply with the minimum dimensions required by the main international codes (250 mm, 300 mm). A grid formed by bases and spacers make it easy to locate the routing of any system to be installed, making it easier to lay any MEP installations and creating the base of the shoring system.

2

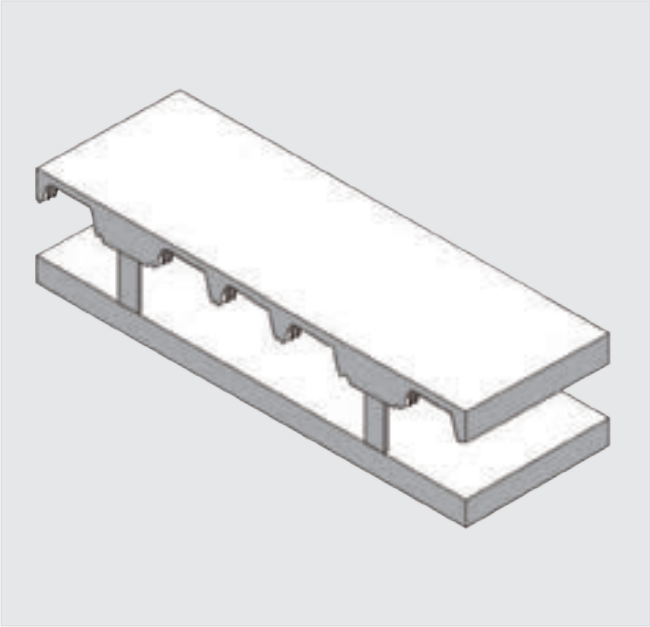
The elements that will form the load-bearing system are therefore the tubes Ø250 mm / Ø300 mm and the Skynet ribbed-slab formwork.

3

Once the concrete has cured, the load-bearing structure is a ribbed slab on columns, complying with the requirements of the EC2 and ACI318 standards.
The modularity of the system allows for flexibility in the span between the supports. The thickness of the ribbed slab will be designed to the project requirements, such as for example static and dynamic loads.

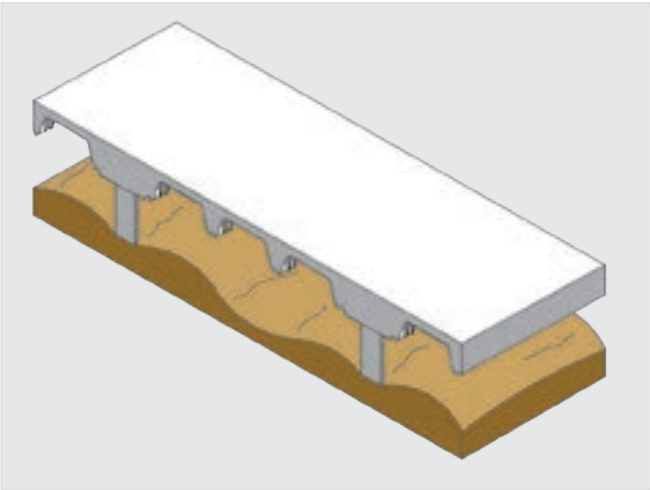
FIELDS OF APPLICATION

ABOVE FOUNDATIONS



- The only formwork for structural void fill that complies with worldwide standards.
- Compliance with regulations protects the designer, ensuring total reliability of the system during design and construction.
- Intuitive and easy to install, saves more than 80% time.
- Significant savings due to lower concrete consumption compared to conventional methods.
- It can reach significant heights (up to 3 m).
- High load-bearing capacity.
- The grid structure makes the installation of MEP systems easier.
- Can be used for ventilated crawl space.
- Environmentally sustainable, made of recycled materials.

OVER EXPANSIVE SOIL



- The void allows for expansion and contraction of the soil, ensuring stability.
- The remarkable elasticity of the Base Flex allows the structure to adapt to the movements of the ground.
- The Flex Base guarantees the integrity of the load-bearing structural elements.
- Dynamic behaviour of the Flex Base with respect to the ground.
- The Flex base acts as a sacrificial element, preventing deformation of the load-bearing structural elements.

FLEX BASE FOR EXPANSIVE SOILS

The Base Flex is a major innovation, making Skynet perform in all types of conditions, particularly in expansive soils.

Its operation is both very simple and ingenious.

The structure of the Base Flex is designed to provide support for the vertical tubes during the casting phase and at the same time provides flexibility to the system, by displacing any pressure from expanding soil through the tube. This allows the soil to expand without affecting the supporting structure.

LOAD CHARTS SKYNET

Load class	Distributed load (Kg/m²)	Distance between columns (m)	Reinforcement for ribbed slab (kg/m²)	Shear Reinforcement (kg/m²)	Punching shear reinforcement	Columns incidence (pcs./ m²)
Residential [Cat. A]	200	2.84	4	0	NO	0.12
		4.24	7	1,5	NO	0.06
		5.66	10	3	NO	0.03
Office load	400	2.84	6	0	NO	0.12
		4.24	10	2	NO	0.06
		5.66	16	4	NO	0.03
Light vehicle load	1,000	2.84	10	2	NO	0.12
		4.24	18	3	YES	0.06
Heavy vehicle load	2,000	2.84	12	4	NO	0.12
		4.24	20	5	YES	0.06

The values shown in the above table must be considered purely indicative and not suitable for structural dimensioning. For this purpose, contact Geoplast' s Technical dept.

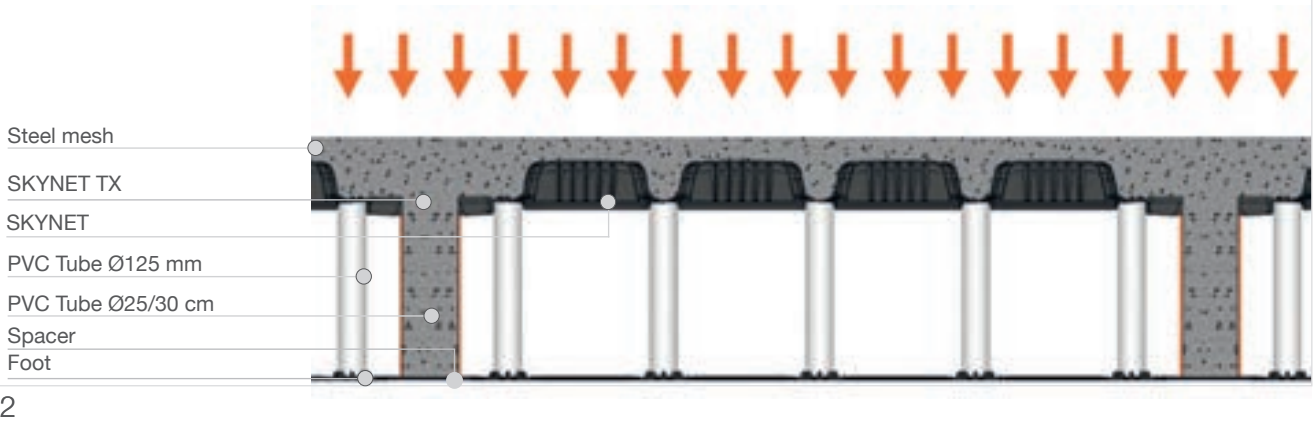
A permanent load of 3.00 kN/m² is considered on each case.
The above load classes are calculated considering a Skynet's height of 200 cm.

Concrete consumption calculation - column Ø 25 cm

$$Consumption\ \frac{m^3}{m^2} = \frac{(0{,}12 + 0{,}049\ x\ Column\ height\ )\ x\ n°column}{Area} + 0{,}095$$

Concrete consumption calculation - column Ø 30 cm

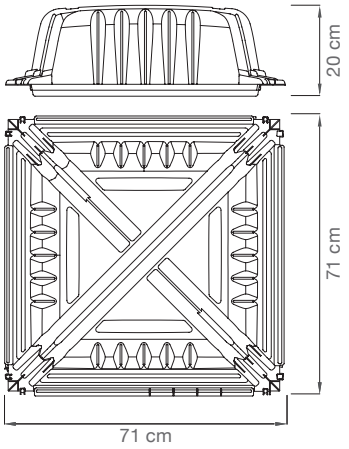
$$Consumption\ \frac{m^3}{m^2} = \frac{(0{,}12 + 0{,}07\ x\ Column\ height\ )\ x\ n°column}{Area} + 0{,}095$$



TECHNICAL DATA SKYNET

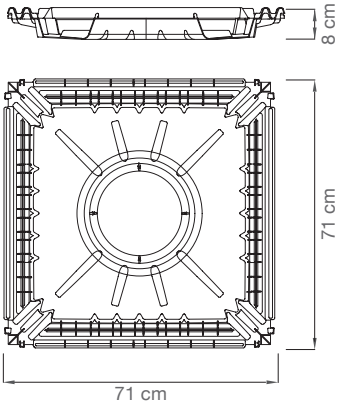
SKYNET

Dimensions (cm)	71 x 71 x H20
Material	Graplene
Packaging dimensions (cm)	150 x 150 x H255
N° pieces per pallet	540
Product Code	ESKYNET7171



SKYNET TX

Dimensions (cm)	71 x 71 x H8
Material	Graplene
Packaging dimensions (cm)	150 x 150 x H255
N° pieces per pallet	560
Product Code	ESKYNTX7171



SYSTEM COMPONENTS

BASE 125

FLEX BASE

Dimensions Ø int. 125 mm

Material	Graplene	Graplene
Packaging dim. (cm)	100 x 120 x H245	Variable
N° pieces per pallet	560	Variable
Product Code	EBASEMA7171	EPIEFLE0125

TUBE

	Ø 125 mm Thickness 1,8 / 2,0 mm	Ø 250 mm Thickness 2,5 / 2,8 mm	Ø 300 mm Thickness 2,5 / 2,8 mm
Dimensions (cm)	Variable	Variable	Variable
Material		PVC	
Product Code	EELTUBO0000	EELTUBS0000	EELTUBD0000

SPACER

Dimensions (cm)	50 x 7
Packaging dimensions (cm)	80 x 120 x H170
N° pieces per pallet	4400
Product Code	EDISTEM7171

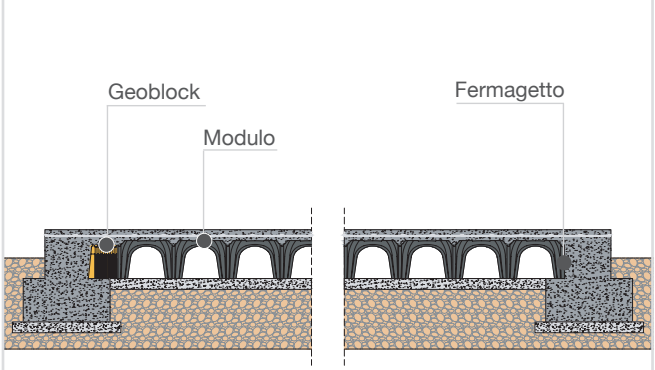
LISTEL

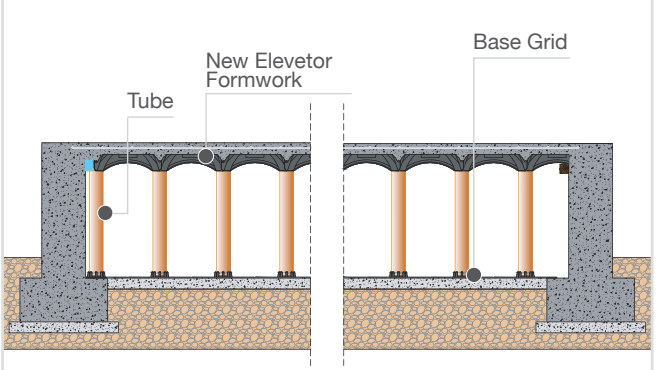
Dimensions (cm)	8 x 150 x H11
Material	EPS
Product Code	EELLISS0150

STRUCTURAL VOID FILL

Modulo and New Elevetor act as void fillers between the foundation level the floor level in all building types (residential, commercial, office, etc.). Geoplast's technical department is available for design assistance at any phase of the project.

ADVANTAGES: The installation is convenient, precise and tidy, and the handling is easy even without crane access.

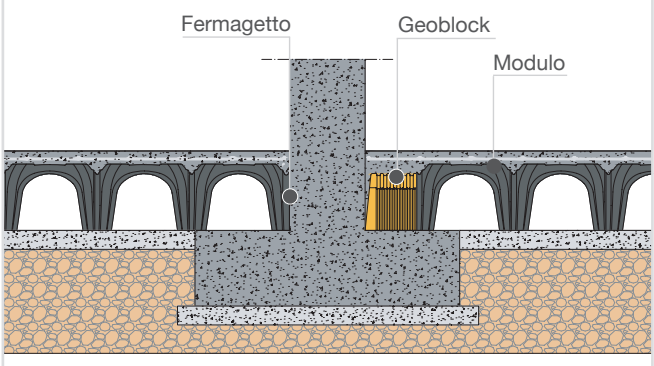


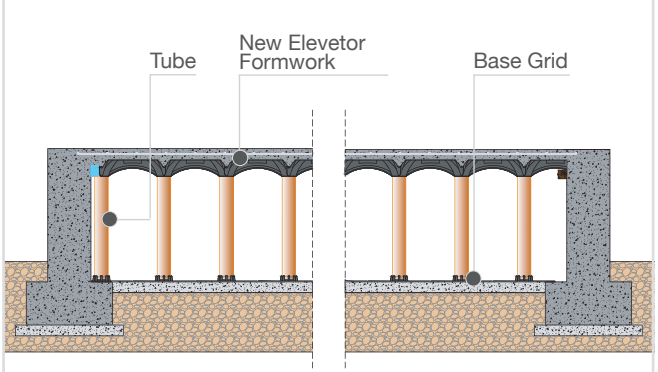


FOOTINGS VOID FILL

The vast size range provided by Modulo and the added flexibility given by cutting the tubes of New Elevetor to any custom length, make this formwork range a superb void-fill tool. The “legs” are filled with concrete and that provides great resistance to applied loads, such as in the case of heavy vehicles.

ADVANTAGES: New Elevetor’s Base Grid makes the installation of systems and MEPs very simple.



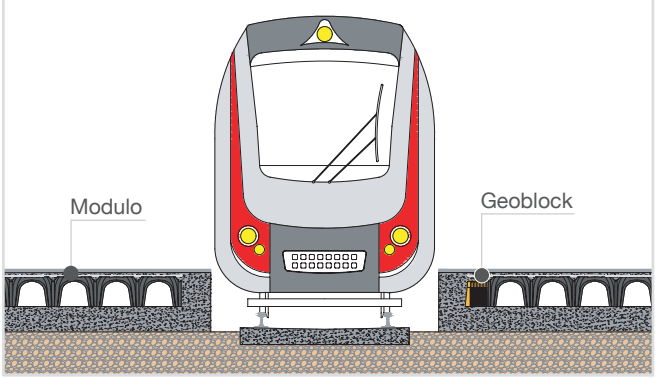


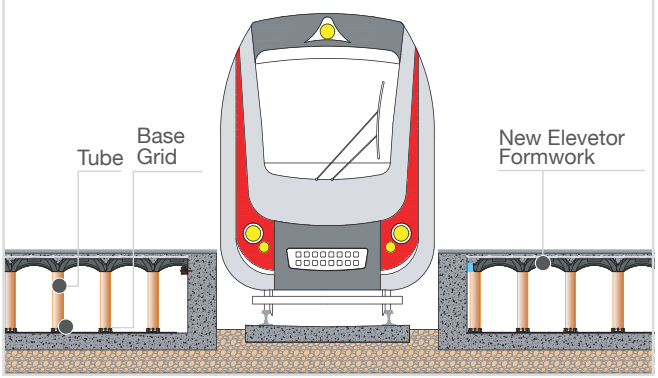
RAILWAYS PLATFORMS

Modern railway stations strive to remove all architectural barriers in order to allow full access to the services and to make the flow of passengers easier and faster: one of the most important issue is the elimination of steps to access the railway carriages. Thousands of stations must be adapted by raising the existing railway platforms: this must be done quickly, without hindering passengers or transit on the tracks.

FAST INSTALLATION: work must not disturb the station's activities: Geoplast formworks reduce installation time and occupy less space on the site.

STABILITY: Geoplast formworks create a strong and light structure that can be dimensioned to the expected service loads.

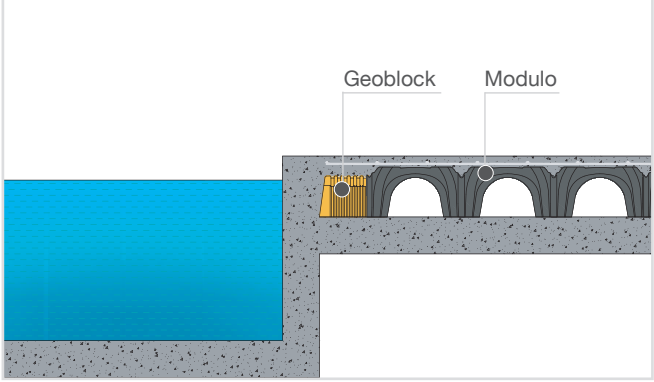


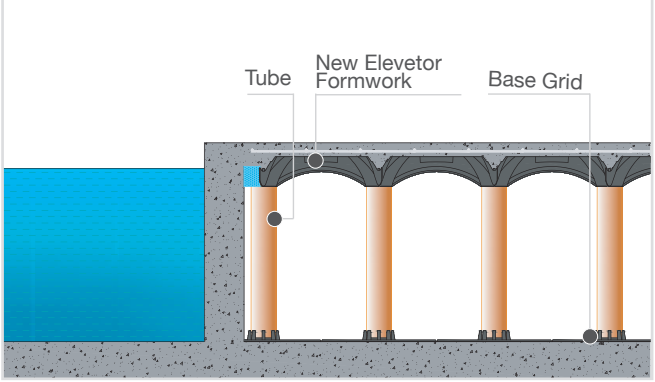


POOLS EDGE VOID FILL

In modern projects it is increasingly common to find pools on rooftops or amenity decks.
Pools are very often only partially embedded in the roof slab, and the area surrounding them must necessarily be elevated, preferably without adding unnecessary extra weight to the structure.

ADVANTAGES: Geoplast solutions are easy and fast to install. The void-fill mass is reduced by up to 95%, and the formwork is also used to shape the different levels within the pool.



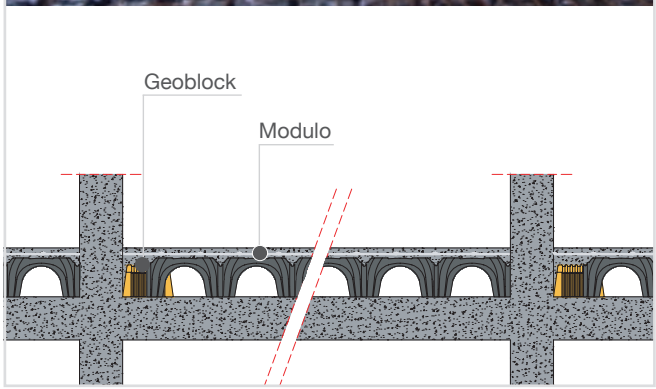


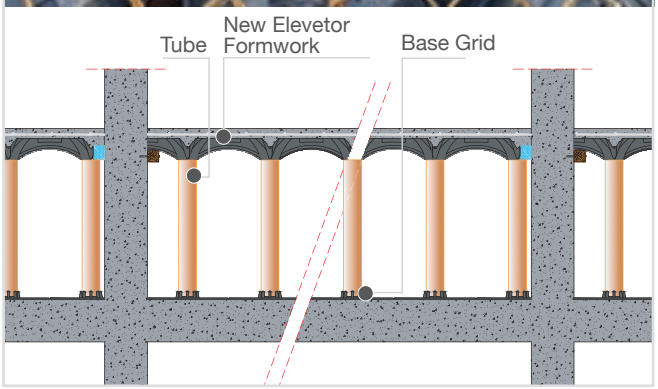
VOID FILL ON EXISTING SLABS

Geoplast solutions also offers significant benefits in terms of load reduction, effectively replacing other heavier, bulkier or polluting materials.
By reducing the weight of the slabs it is possible to reduce their thickness and consequently the total load on the building's frame and foundations.

SPACE SAVING: 2 pallets of Elevetor are equals to one truck of polystyrene: the opportunities for logistic savings are huge.

TIME SAVING: installation time is up to 100 m^2 hour/worker, allowing the work to progress very quickly.



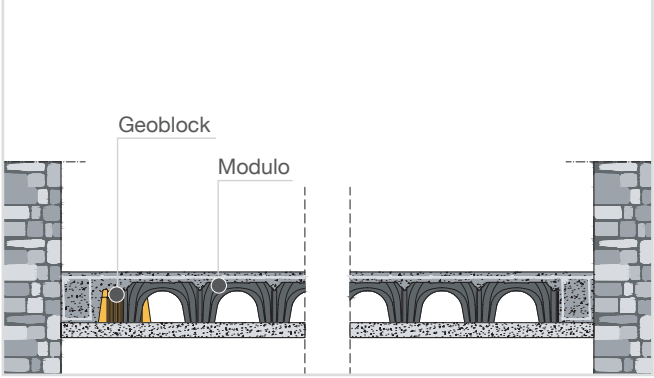


RENOVATIONS

The renovation or transformation of existing buildings involves greater constraints and complexity than demolition and new construction. In particular, it is often necessary to raise existing levels, or to act in order to manage moisture, rising damp or gas infiltration from the ground.

REDUCTION OF JOBSITE NOISE: the formwork installation is a clean process that does not produce dust or any particular noise.

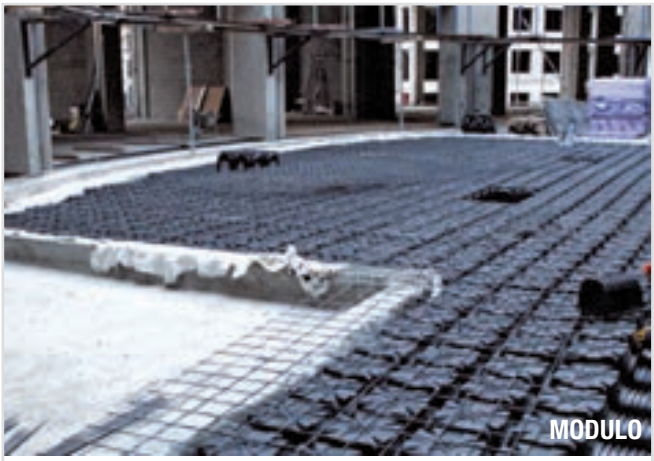
EASE OF INSTALLATION: Modulo and Elevetor are very fast and easy to install, ensuring speed, precision and safety.

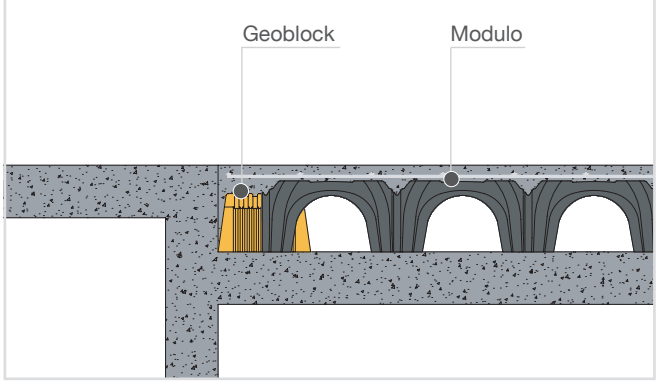


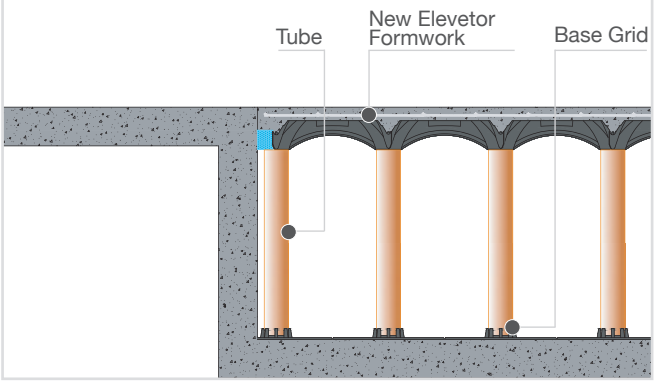
PLAZA / PODIUM / AMENITY DECKS

It is more and more common for contemporary urban and residential design to incorporate vegetation, amenity and recreation areas, usually found at the ground floor level or between buildings and most often above underground car parks. The simultaneous presence of vegetation, including tall trees, MEP installation, walkways and vehicle traffic areas, considerably increases the technical complexity of the project.

ADVANTAGES: the precise placing of the Modulo and New Elevetor elements makes it possible to precisely calculate the amount of concrete to be placed. As the formwork does not absorb water, the resulting load won't change over time.



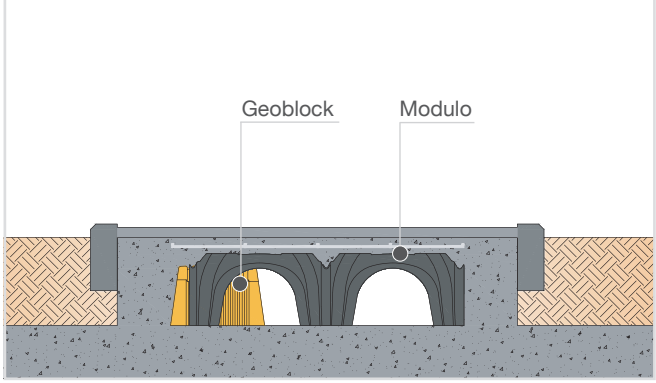


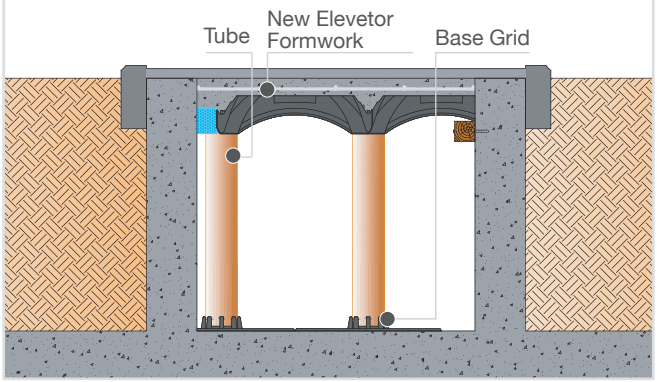


GREEN ROOFS

Contemporary urban architecture is giving more and more importance to vegetation and gardens as an integrated element in buildings. This creates significant technical challenges, not least in the management of weights and installations.
Modulo and New Elevetor are an effective solution for the creation of walkways and various passages in green areas on floors or slabs.

ADVANTAGES: creating lightweight sub-bases for walkways or roads with Geoplast formworks saves weight and guarantees a clean and accurate.



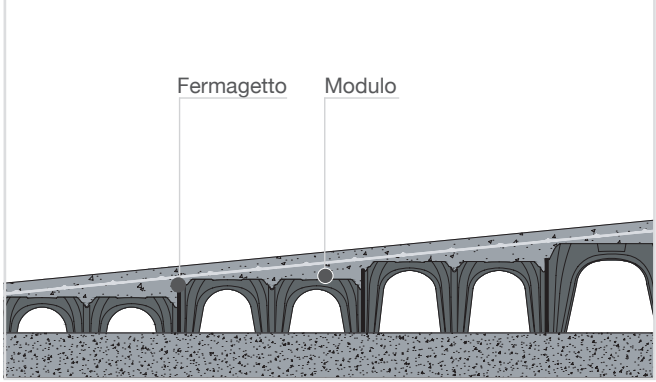


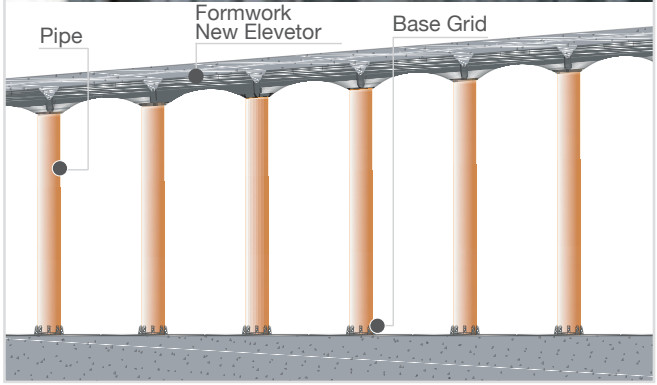
RAMPS

In some cases, ramps and stairs are difficult to achieve due to weight limitations to the infill materials, or limits of accessibility to the site with bulky or loose materials.
Modulo and Elevetor provide a perfect lightweight void fill solution, the wide height range is used to model ramps.

EASY TO INSTALL: using formworks of different heights saves concrete and reduces the volume of materials transported on site.

HIGH STRENGTH: ramps are dimensioned for vehicle loads, facilitating the construction and reducing further maintenance of the structure.



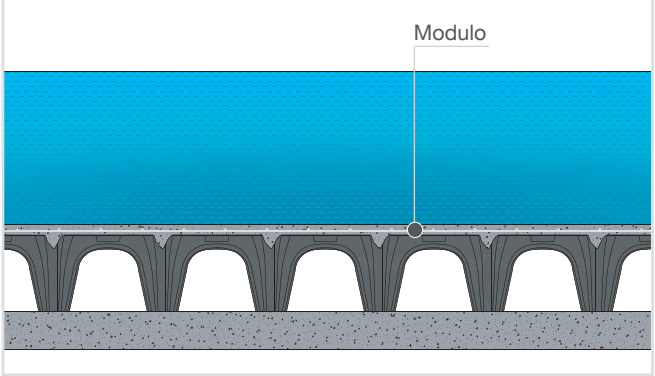


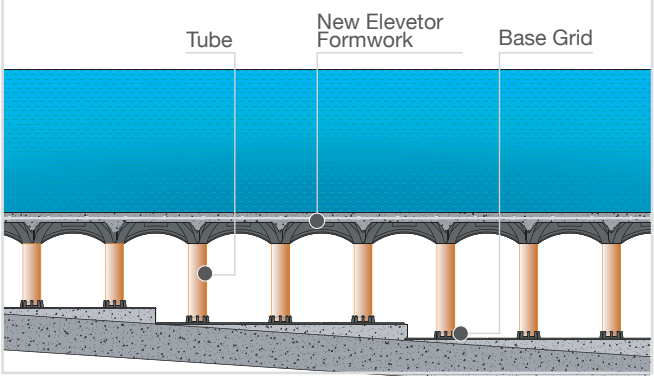
POOL BOTTOM RAISING

Over time it has been realized that shallower pools result in lower operating costs (lower volume of water to treat and heat) and greater safety for users. Reducing the depth of an old swimming pool is a much simpler operation with Modulo and New Elevetor, thanks to their flexibility, precision and simplicity.
It is possible to create a sloping pool bottom, even with incline and orientation different from the original one.

QUALITY EXECUTION: the reinforced concrete structure is not subject to setting, protecting the liner from potential damage.

SMART: the void below the new pool bottom is used for installations, and can be inspected without any interruption to pool operations.



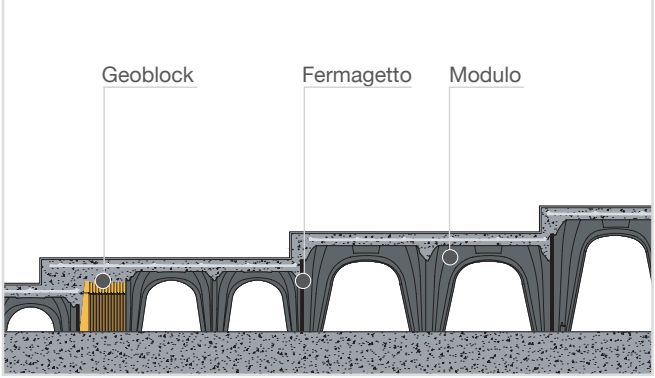


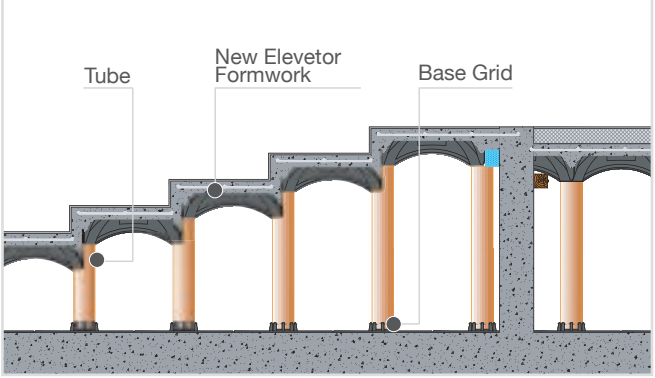
STEPPED SURFACES

Modeling a stepped surface can be laborious if done while building the main concrete frame.
Constructing the steps later is often advantageous for the site management, as it avoids creating obstacles to other phases of the job.

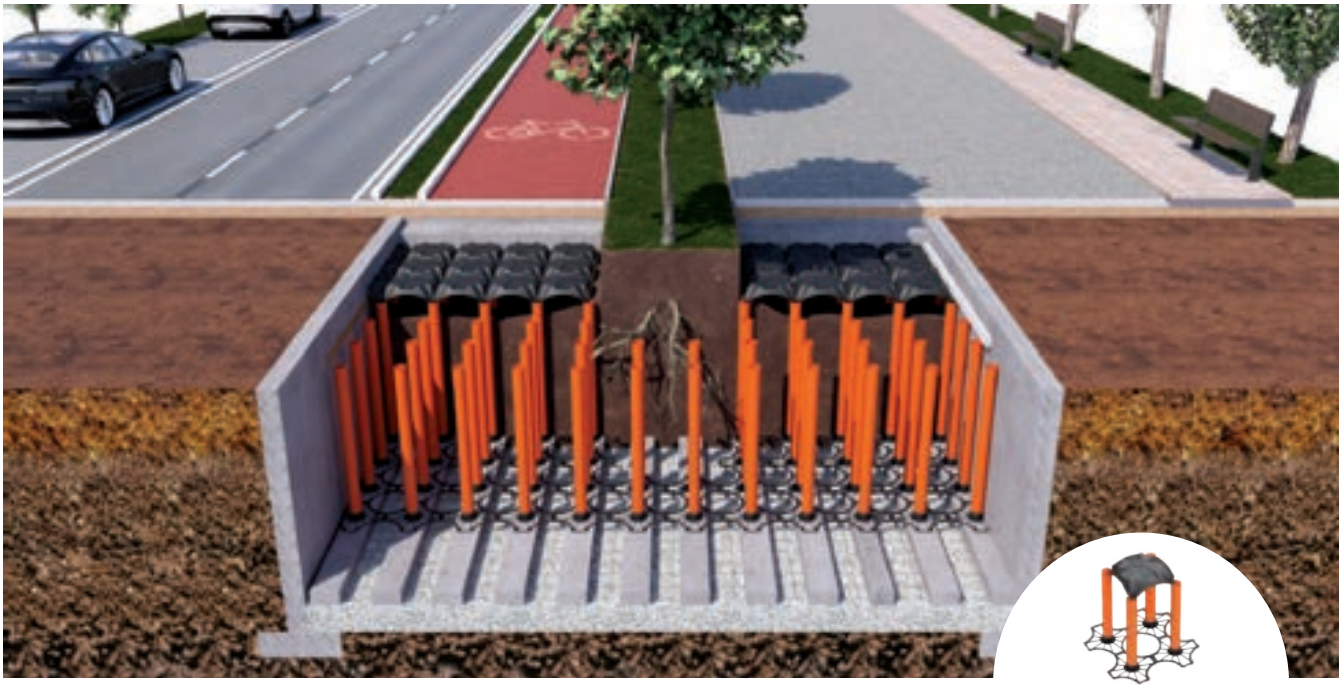
EASY TO INSTALL: delivered in compact packaging, The coupling method is safe and intuitive to use.

ACCURATE: Geoplast formwork are very easy to use, producing accurate results.
It is flexible and adaptable to situations diverging from plan.





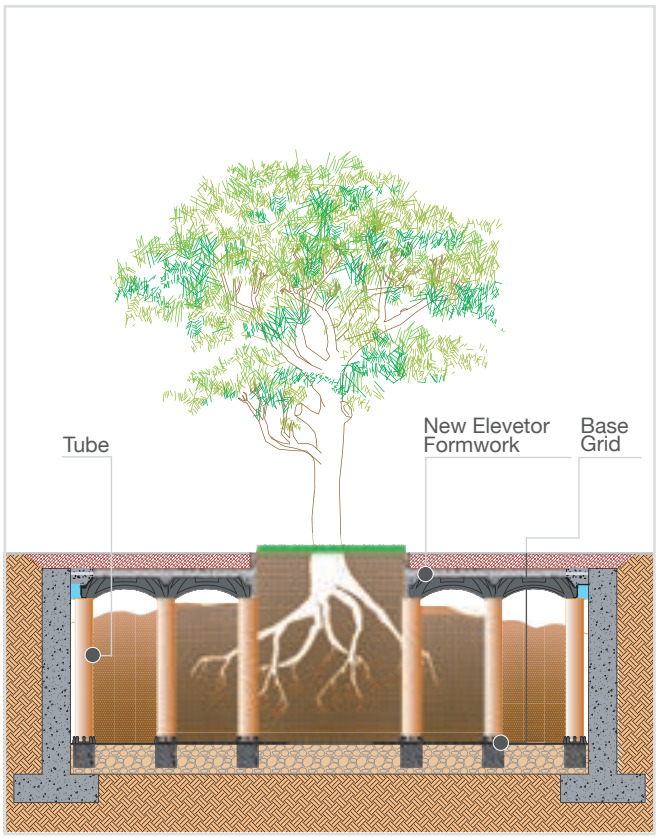
ROOT MANAGEMENT



Modern cities appreciate tall trees for their aesthetic and practical advantages.
However, their roots need to be controlled to avoid intrusion into underground infrastructures or deformation of the surface of roads, cycle paths or walkways.

STRENGTH: a concrete system made with New Elevetor is strong and can be designed according to the project requirements, including road loads.

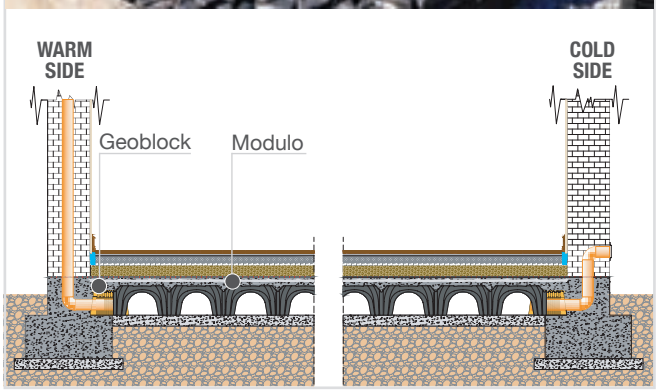
FLEXIBILITY: New Elevetor formwork has no limits on shape or size, even different ones within the same project.

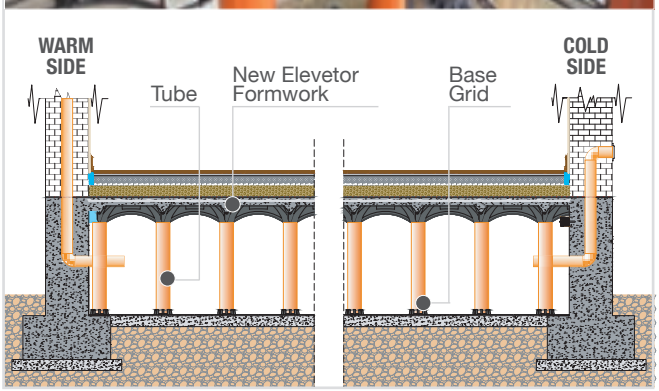


VAPOR INTRUSION MITIGATION

Creating a ventilated crawl space does not only help to reduce rising damp. Many soils in fact naturally emit radon gas, radioactive and carcinogenic, others methane or other toxic gases.
Thanks to the natural ventilation that is triggered in the under-floor cavity, Modulo and New Elevetor create a natural barrier that prevents these gases from entering the building. The only requirement is to provide for ducts of air in- and outflow.

ADVANTAGES: as opposed to radon membranes, which can be damaged during installation or become permeable over time, the ventilation obtained with Geoplast lost formworks maintains its properties throughout the life of the building.



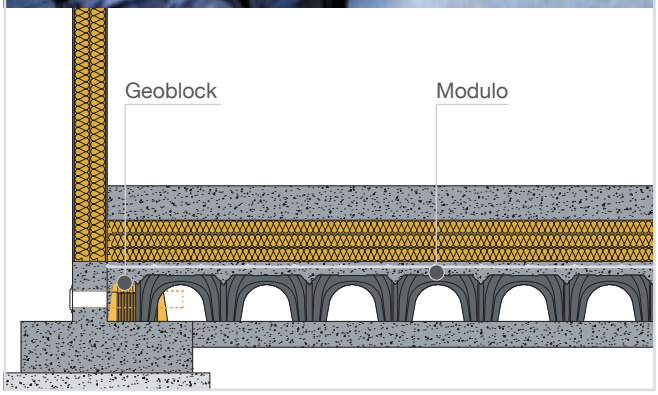


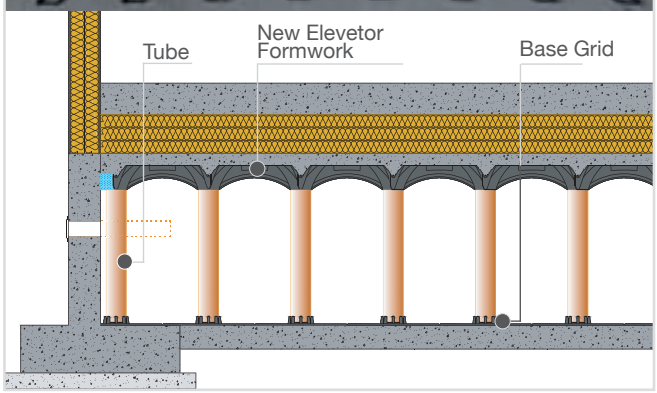
COLD STORAGE FACILITES

Cold storage facilities are essential in the food industry. No matter how effective the insulation to the ground, if not prevented, frost will eventually spread to the soil, bringing it to temperatures below freezing.
This will cause a phenomenon is called frost heaving: the water in the soil freezes, and as it expands upwards it damages the floor of the cold storage room, even significantly.
A Geoplast ventilated under-floor cavity is an economical and effective way to avoid this phenomenon.

STRONG: the Modulo or New Elevetor crawl space is adaptable to any load situation inside the cold room.

COST-EFFECTIVE: a Geoplast crawl space is more economical and effective than competing systems, and quicker to implement.



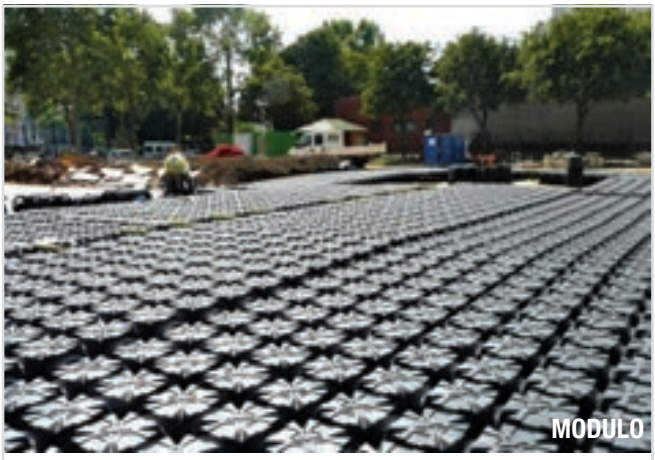


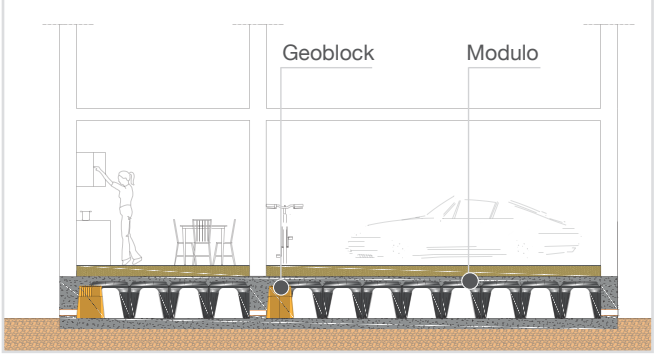
BUILDINGS IN FLOODPLAINS

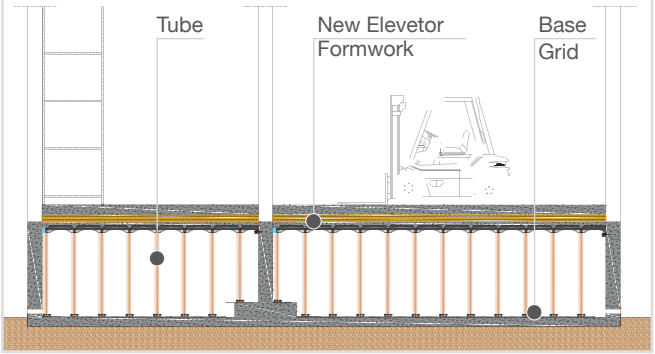
Experience in recent years has shown that rivers and streams must be allowed to flow wider during floods: the alternative is an unacceptable risk of catastrophic flooding downstream.
The new philosophy is that buildings in flood-prone areas should be built in such a way that flood waters can flow freely underneath them and then drain away at the end of the flood.

FLEXIBILITY: the wide range Modulo and Elevetor allows to adapt to all cases, making it possible to raise the zero level of the building quickly and easily.

TECHNICAL ASSISTANCE: our technical department is available to assist in the design phases in order to identify the right solution and correct concrete dimensioning.





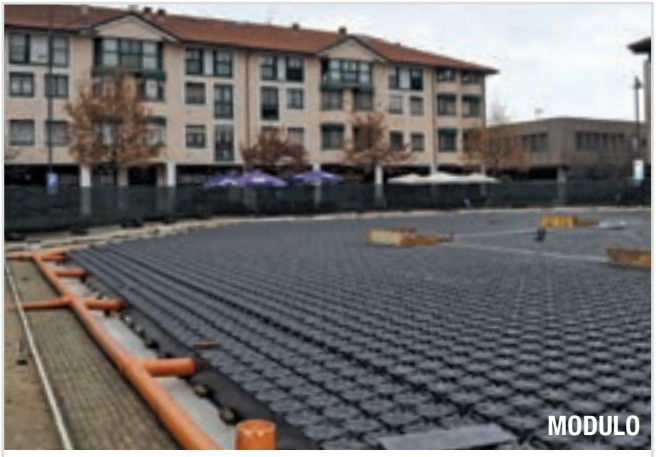


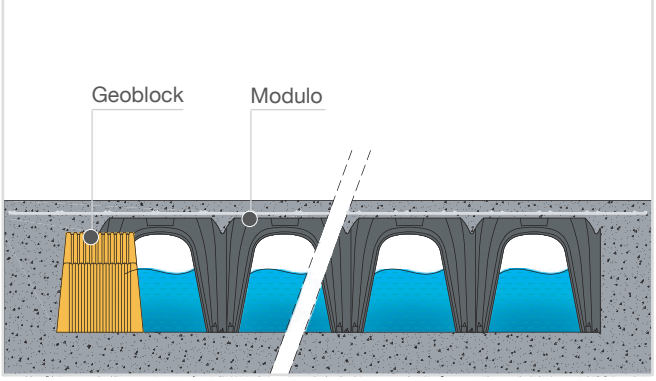
STORMWATER DETENTION AND HARVESTING

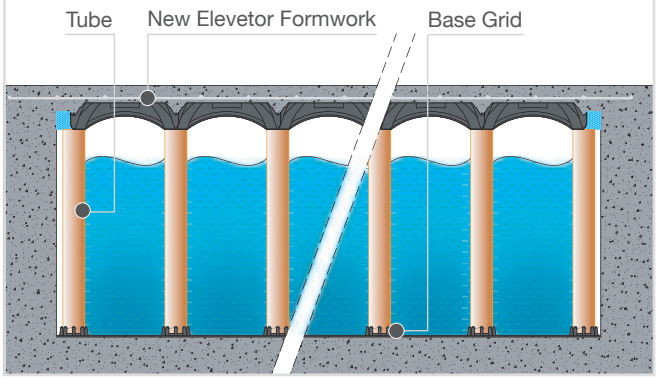
Modulo and Elevetor allow to create cast in situ concrete tank avoiding a conventional column and beam frame saving time in the shoring works. This solution is ideal when a geocellular tank is not allowed and the site conditions do not allow the use of pre-cast tank.

STRENGTH: the tank is built to specific design loads and the concrete structure guarantees performance over time.

COST EFFECTIVE: Modulo and Elevetor allow great savings in material handling and logistics, ensuring maximum flexibility.





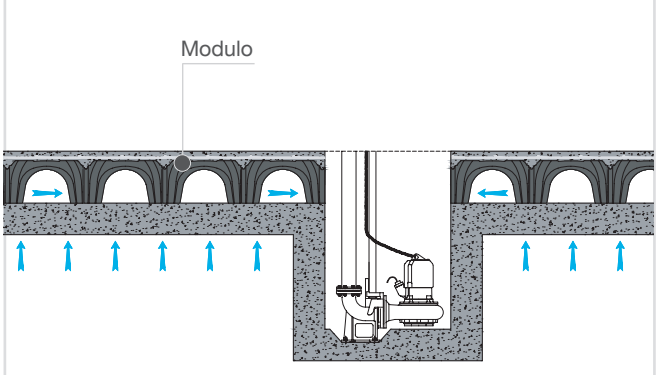


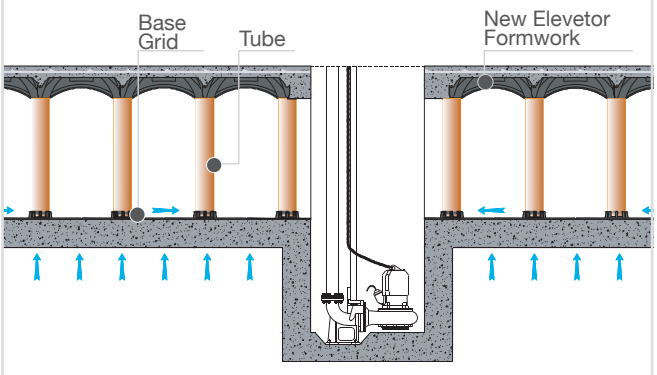
GROUND SLAB DRAINAGE

In the case of foundations subject to groundwater pressure, a drainage layer must be put in place between the ground slab and the flooring in order to intercept any water infiltration and evacuate it by means of pumps.

HIGH EFFICIENCY: a Geoplast underfloor void is open in every direction, optimising drainage.

FLEXIBILITY: Modulo and Elevetor are installed independently from the main concrete work, taking place at the most advantageous time.



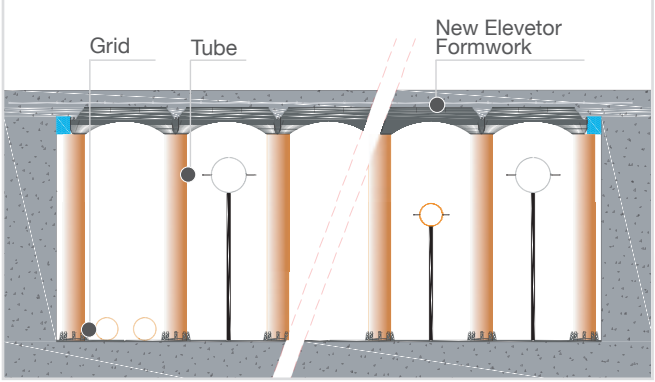


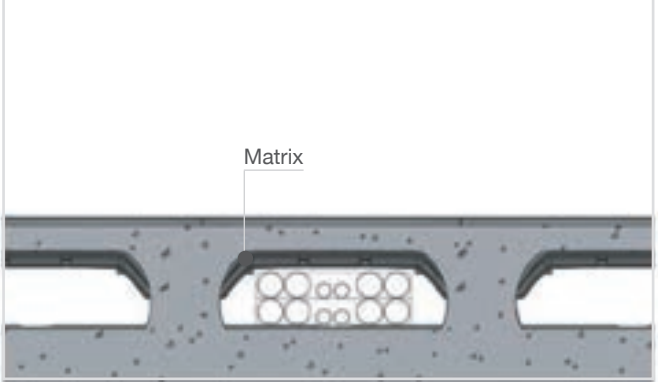
MEP INSTALLATIONS

Modulo, Matrix and New Elevetor create an underfloor void in which it is possible to run electrical and plumbing systems. The cables and pipes can be laid both before or after the concrete is poured.
In addition, this type of application facilitates maintenance.

MEP ROUTING: Matrix and New Elevetor allow accurate planning and routing of installations thanks to the Base Grid.

STRONG AND COST-EFFECTIVE: indoors, the Geoplast solutions offer an unbeatable combination of economy and high load capacity.



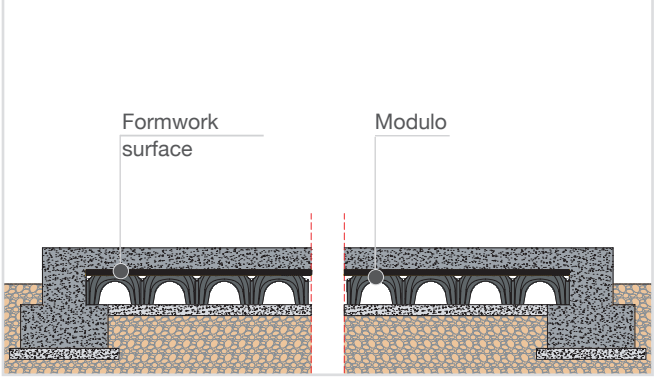


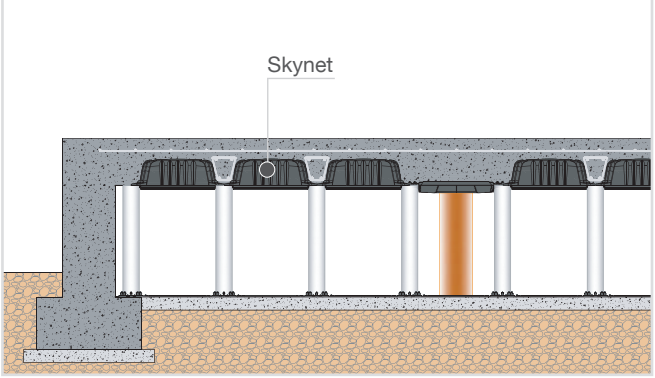
RAISING OF EXISTING SLABS

When a slab must be built in a situation where conventional formwork cannot be recovered, Modulo and Skynet can be used as shoring and permanent formwork. In this case the tubes are not filled with concrete, but capped with a material eonomical and strong enough to support the weight of the concrete.

COST-EFFECTIVE: Formwork for a suspended slab with Modulo or Skynet is an alternative to traditional shoring systems when access is difficult.

EASY AND FAST: with an installation speed of up to 100 m²/hour per man, Geoplast formwork makes it possible to progress very quickly with site activities.



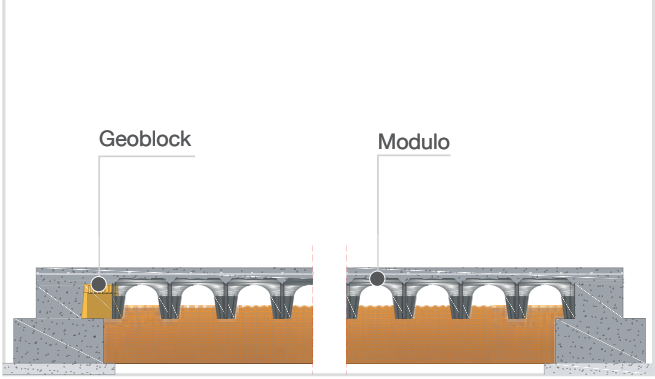


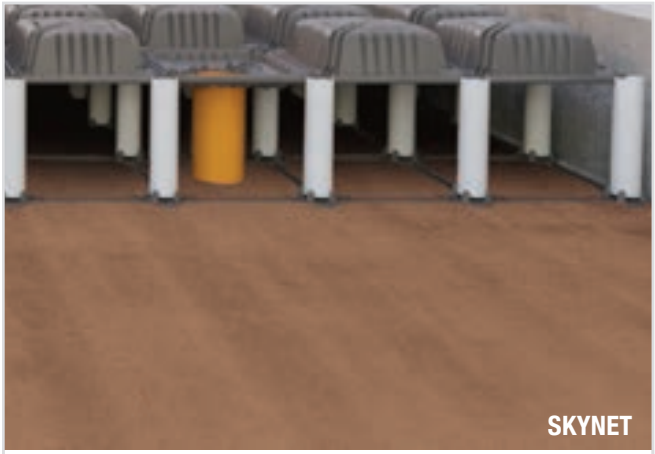
EXPANSIVE SOIL

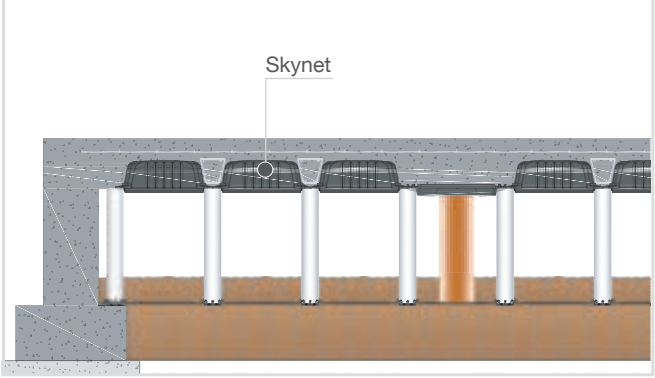
Expansive clay soils are found in many parts of the world and are a major problem for the long-term stability of buildings. The foundation system must be able to withstand differential soil movement without subsidence.

COST EFFECTIVE: casting at the same time the slab and the foundation beams reduces the time and the amount of material used.

STABLE: the empty space underneath the concrete structure allows the clay to expand freely.







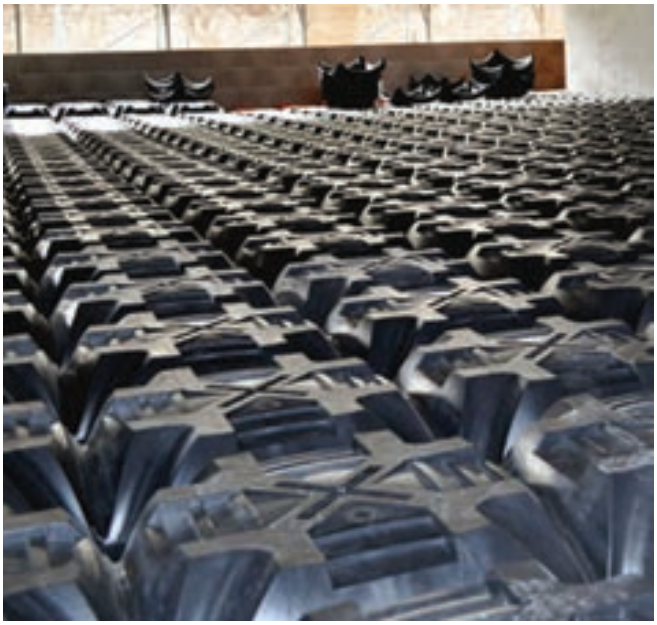
REFERENCES

MODULO - PANAMA CRUISE TERMINAL, PANAMA

The new cruise terminal in Panama is build on an artificial island and the foundation level needed to be raised to the road level, placed 50cm above. Modulo was used to fill this space, and the void between the legs for MEP equipment on a roofed surface of 8,500 m^2.

NEW ELEVETOR, EXPO 2020 DUBAI THEMATIC DISTRICT, DUBAI

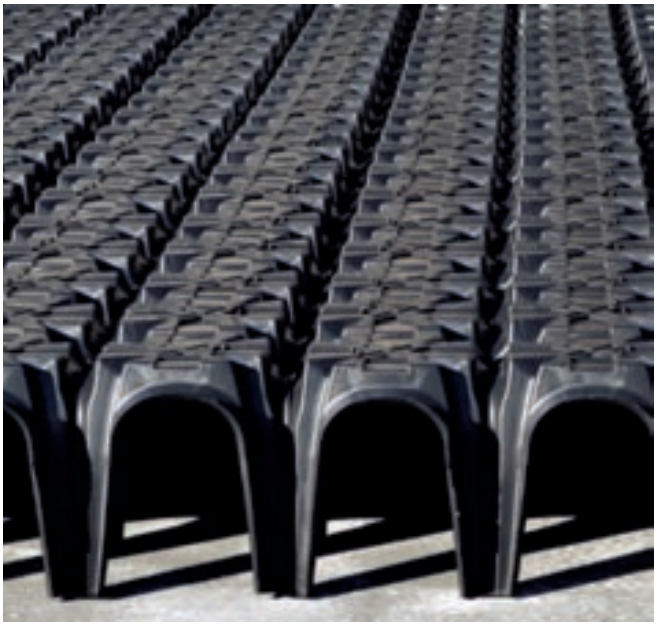
Geoplast participated in the construction of the structures for Expo 2020 Dubai, one of the worldwide largest projects built in 2019.
New Elevetor was used as lightweight void fill between the foundation systems of the various pavilions, enabling the construction of walkways and access roads; in addition, all MEP systems (irrigation, water disposal, lighting, etc.) were placed in the empty space created between the foundation slab and the floor.



REFERENCES

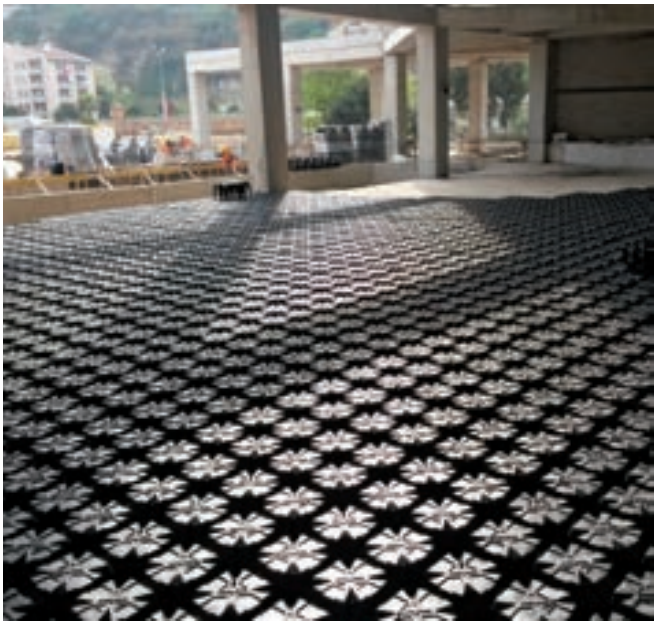
MULTIMODULO - PACIFIC CENTER, PANAMA

Being less than 500 m from the ocean, the building would have suffered from major problems of water infiltration. Using the Multimodulo, a drainage layer was created that collects and channels water into sumps from where it is pumped out.



MODULO,
SHERATON GRAND HOTEL SAMSUN, TURKEY

The slabs of the Sheraton Grand Hotel in Samsun, Turkey, have an upstanding beam structure. The void between these beams was filled with Modulo, in order to make the floors lighter and install the MEPs underneath.



REFERENCES

MODULO - MOROCCO MALL, CASABLANCA, MAROCCO

With a total area of 90,000 m² the Morocco Mall is the largest shopping centre in North Africa. This project adopted Modulo H45 to double as a void fill between the pile caps and a drainage layer above the ground slab.

MULTIMODULO - NEW UNIVERSITY CAMPUS PADUA, ITALY

Thanks to Multimodulo, the project designers were able to eliminate rising damp and the accumulation of radon gas in the basement and first floors, while at the same time creating technical space for the passage of MEPs.

REFERENCES

NEW ELEVETOR - H-FARM CAMPUS, TREVISO, ITALY

Designed and built according to the principles of energy self-sufficiency and minimal environmental impact, H-Farm is Europe's largest technology innovation centre. New Elevetor was the void fill material of choice for the whole project.

NEW ELEVETOR, COLD STORAGE WAREHOUSE IN TEOLO, PADOVA, ITALY

The low bearing capacity of the soil made it necessary to excavate the foundation at -125cm. The void fill to bring the foundations up to grade was carried out with Elevetor, making it technically and economically more advantageous than conventional materials.

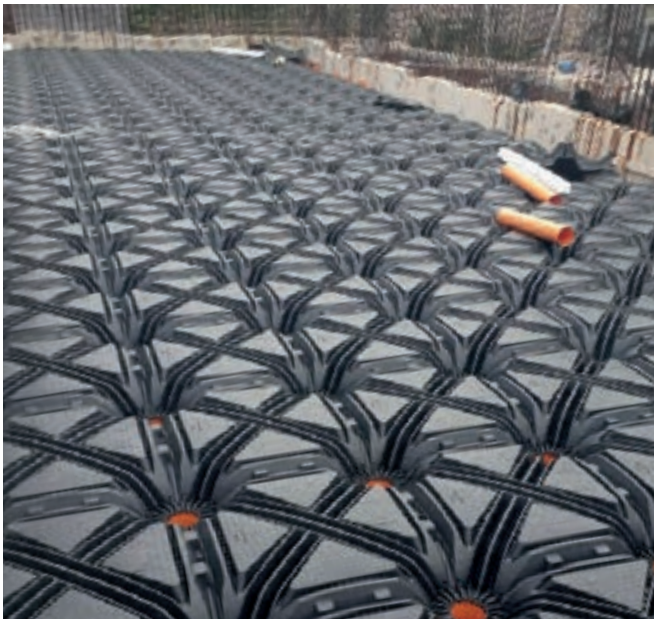
REFERENCES

NEW ELEVETOR SWIMMING POOL BOTTOM RAISING, BAZAS, FRANCE

New Elevetor was the key to the success of the renovation of the 1970s swimming pool, with the bottom of the pool reduced from the original 2.20-4.50 m depth to 1.50 m. The work halved the volume of the pool (-600 m3) with considerable savings in running costs, and without compromising on the quality and solidity of the bottom.

ELEVETOR MAX ADEN ABDULLE AIRPORT, MOGADISHU, SOMALIA

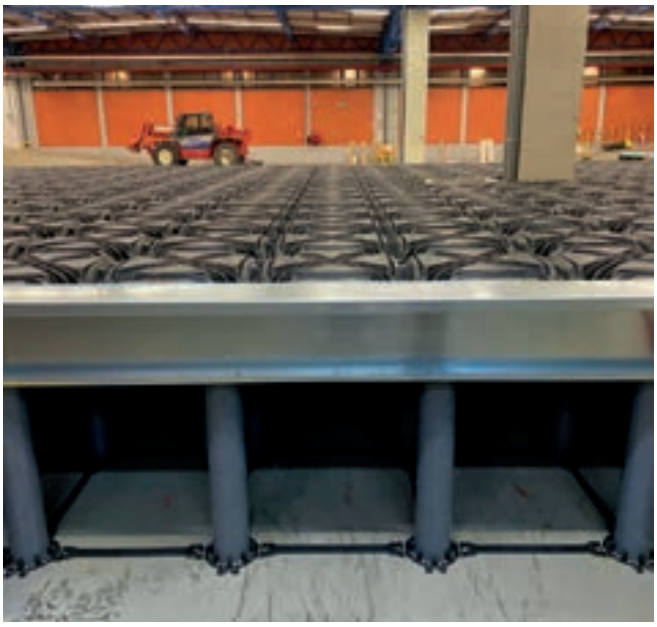
UNOCHA project for accommodation and office buildings for UN staff in the Amison protected area in Mogadishu. The Elevetor Max system was used the foundations of 4 buildings.



REFERENCES

ELEVETOR MAX
NEW AUTOMOTIVE INDUSTRY HUB, PORTUGAL

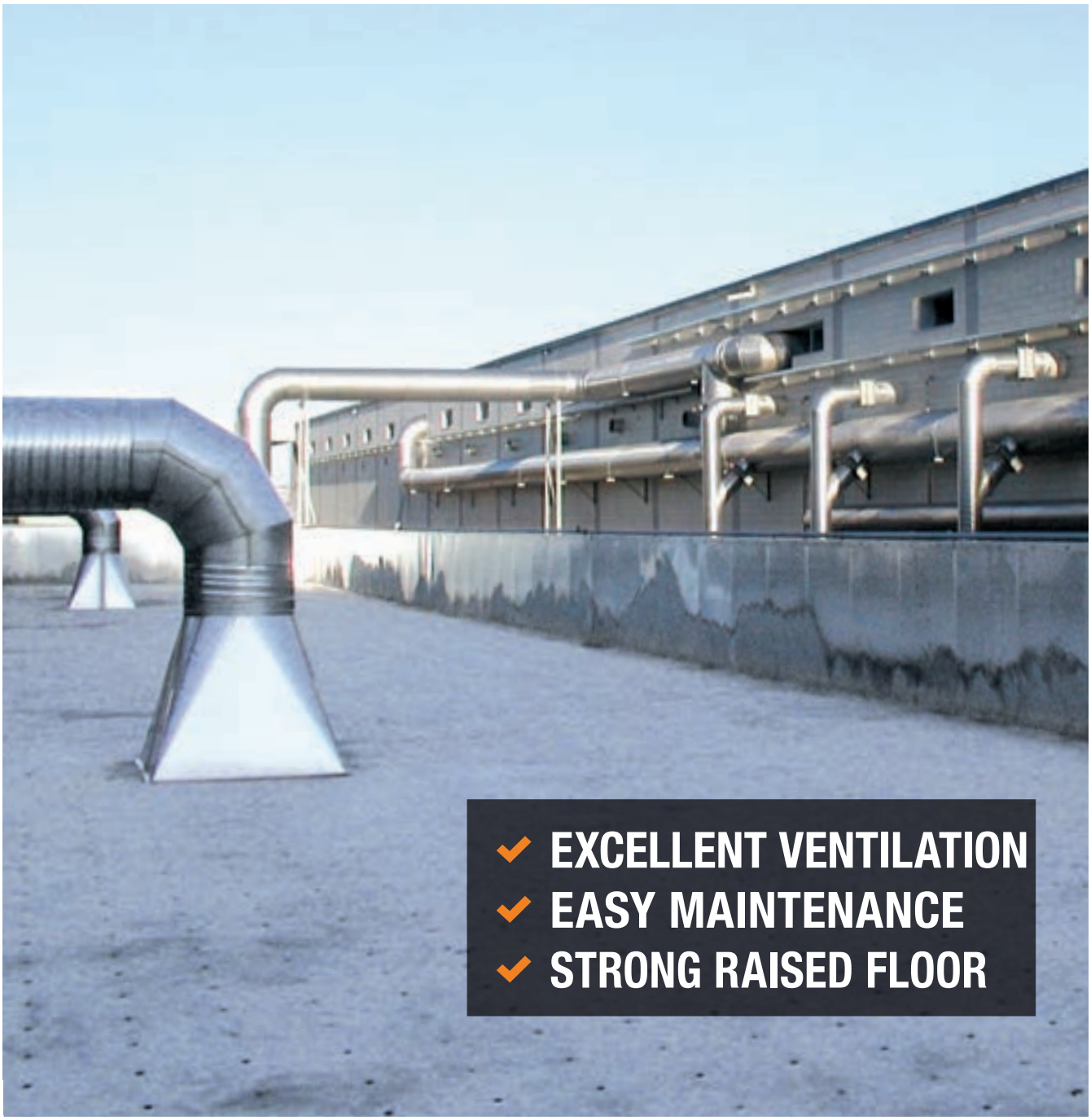
Elevetor Max was used to upgrade a number of areas in an industrial complex manufacturing electric car components in Portugal.



ELEVETOR MAX
STORMWATER DETENTION TANK, HEILBRONN, GERMANY

A major German industrial group is installing concrete detention tanks inside many production sites to collect water from the roof, upgrading and enhancing its real estate assets.
Elevetor Max was adopted because of its flexibility of application and the high resistance to loads of the concrete slab.

BIOMODULO



FORMWORK FOR THE CONSTRUCTION OF SELF-SUPPORTING AERATED RAISED-FLOORS

THE SOLUTION

Permanent formwork for the realization of self-supporting aerated floors for aerobic stabilisation in composting and biofiltration plants.

The Biomodulo allows oxygen to be distributed within closed biocells or lanes.

The air to be purified passes through the perforated Biomodulo floor, and thus arrives at the filter bed in a homogeneous way.

BIOFILTRATION PLANTS

COMPOSTING PLANTS

4

ADVANTAGES

EXCELLENT AERATION

Thanks to the regular distribution of the holes and the conformation of the nozzles, a homogeneous air distribution is obtained over the entire surface.

EASY MAINTENANCE

Biomodulo allows a direct access to the lower air chamber for cleaning and collection of liquids.

STRONG

A reinforced concrete raised floor made with Biomodulo ensures the transit of heavy vehicles for loading and unloading operations.

ACCESSORIES

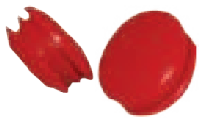
GEOBLOCK

Adjustable extension that acts as internal formwork for the ground beams and allows the concrete casting to be carried out in a single shot.

FERMAGETTO H13-40

Lateral closing element for Modulo from H13 to H40 cm.

CLOSING CAP



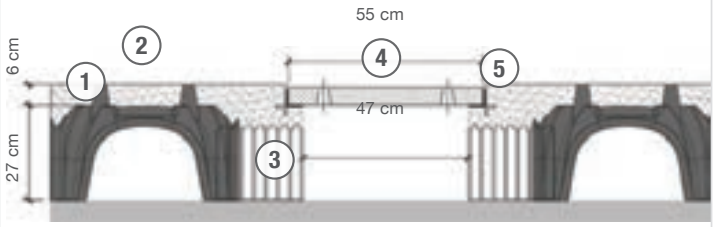
Cap used to close the nozzles during the pouring stage to avoid any concrete ingress into the void below Biomodulo. Once the concrete has set the caps will be removed in order to allow aeration.

PERFORATED PLATE

Recycled polyethylene channel cover.

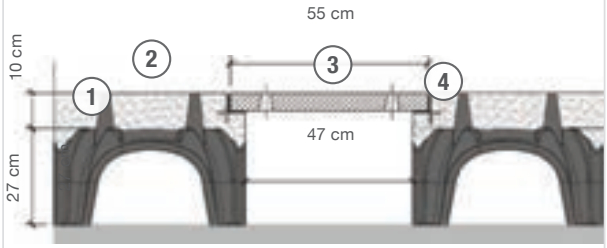
TYPICAL SECTIONS

BIOMODULO H6 NOZZLE



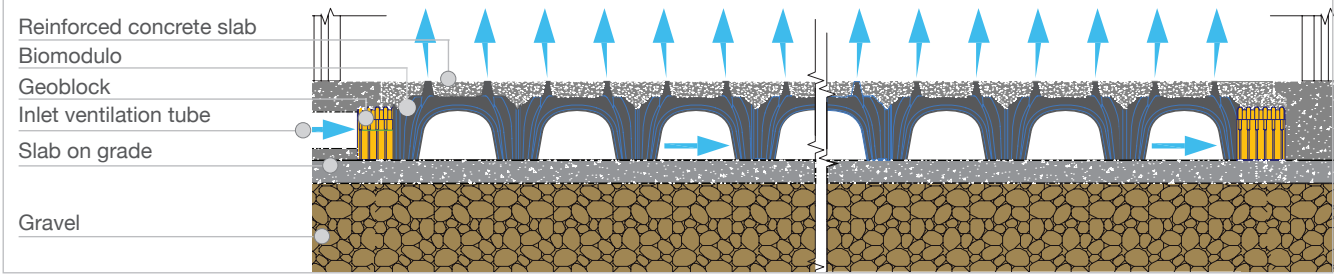
1. **BIOMODULO**
2. **CONCRETE**
3. **GEOBLOCK:** cut on both sides and fixed to the ground
4. **PERFORATED PLATE:** in regenerated PE 500
5. **L-SHAPED STEEL PROFILE:** 50x50x5 mm

BIOMODULO H10 NOZZLE

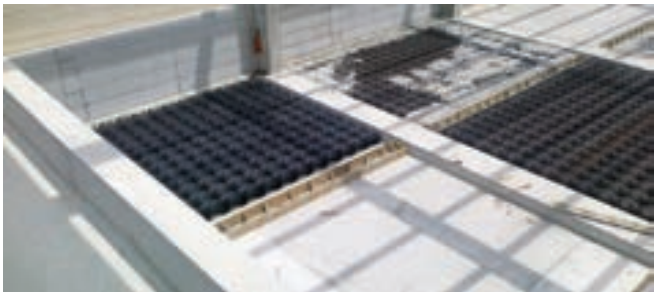


1. **BIOMODULO**
2. **CONCRETE**
3. **PERFORATED PLATE:** in regenerated PE 500
4. **L-SHAPED STEEL PROFILE:** 50x50x5 mm

INSTALLATION OF BIOMODULO

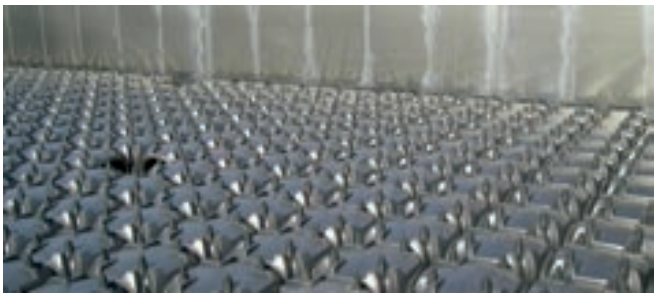


INSTALLATION



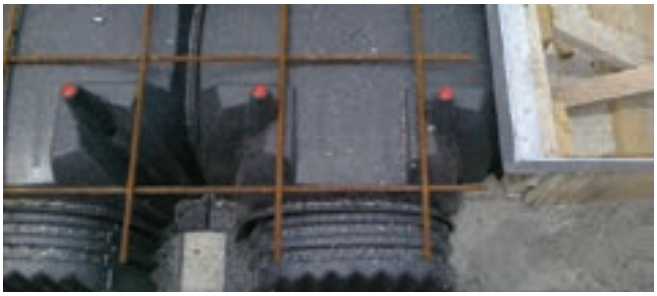
① SLAB ON GRADE

Sub-base of gravel and lean concrete, and an HDPE membrane (for compost plants).



② BIOMODULO INSTALLATION

Laying of Biomodulo with caps, Geoblock and Fermagetto. Creation of inspection channels.



③ STEEL MESH INSTALLATION

Install the reinforcements as per design spec.

④ POURING

Concrete pouring as per design spec.

⑤ CONCRETE LEVELLING

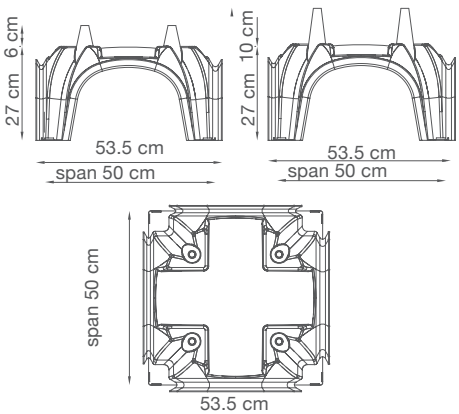
Level the concrete in order to obtain a uniform slab.

⑥ REMOVING THE CAPS

Remove the nozzle end caps to allow the air to flow into the system.

TECHNICAL DATA BIOMODULO

	BIOMODULO H6	BIOMODULO H10
Dimensions (cm)	50 x 50 x H27	50 x 50 x H27
Material	Graplene (Recycled polypropylene compound)	
Packaging dim. (cm)	103 x 103 x H245	103 x 103 x H255
No. of pieces per pallet	300	300
Product code	EBIOMOD2706	EBIOMOD2710

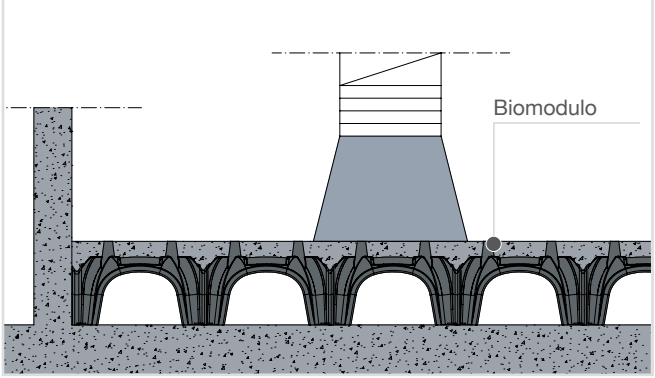


AIR BIOFILTRATION

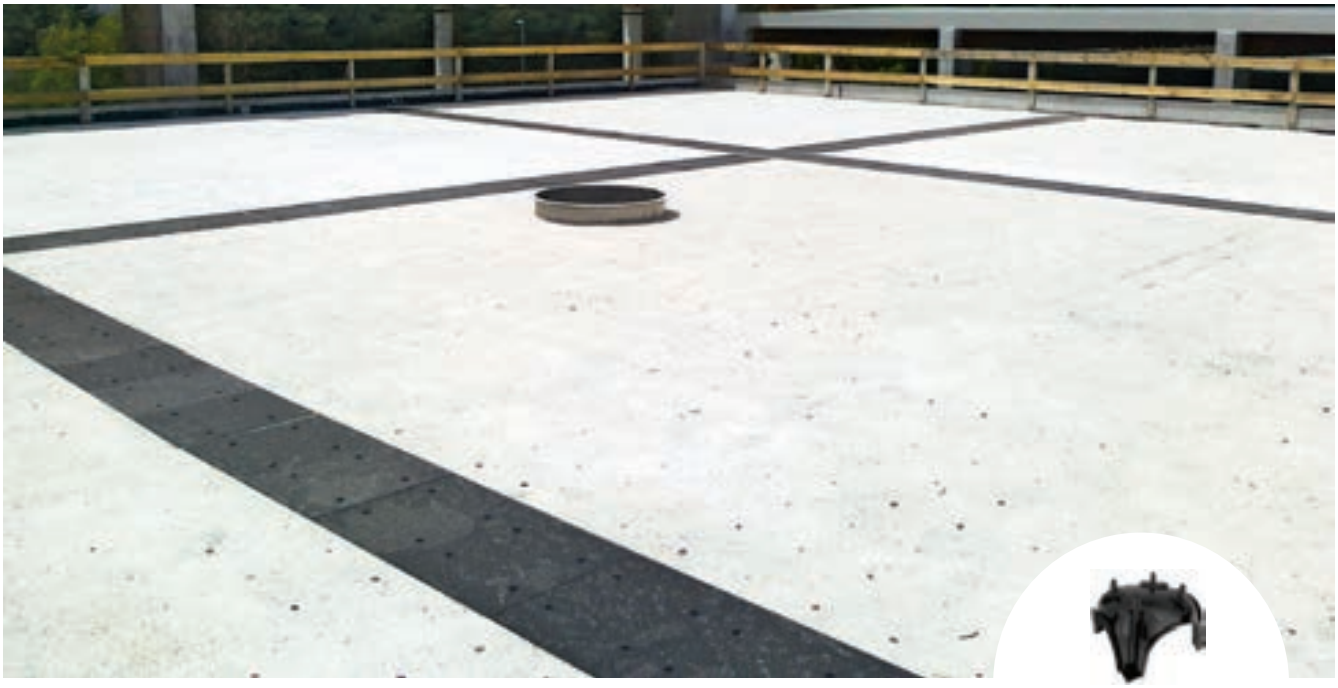
Air biofiltration is a gaseous emission purification treatment based on the process of biochemical oxidation. The gaseous pollutants, channeled through the cavities created by Biomodulo, reach the filtering bed (wood chips, peat, shell fragments), which acts as a natural remover of malodorous substances, returning clean air to the environment.

GREAT AREATION: the regular distribution of the holes and their shape ensure that the air is channeled evenly to the whole filter.

MODULARITY: Due to its modular nature, Biomodulo is much easier to install than conventional systems.



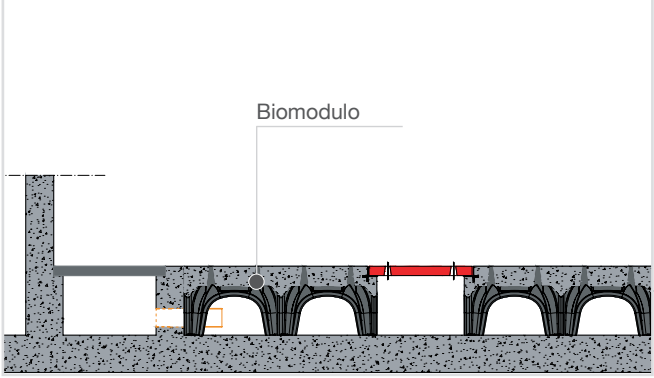
COMPOSTING FACILITIES



Air flow is of crucial importance in the composting process.
Biomodulo distributes the air evenly throughout the waste mass, thus ensuring proper degradation of the organic matter and quality compost.

EFFICIENCY: the quality of the compost produced is improved due to the efficiency that Biomodulo brings to the composting process.

GREAT AREATION: nozzles with 2 different heights (6 or 10 cm) ensure an excellent aeration to the flooring system.



MATRIX

CONCRETE RAISED FLOOR

THE SOLUTION

Is designed to produce load-bearing reinforced concrete raised floors.
The underfloor void allows the installation of MEP systems.

The preliminary laying of the Matrix base-grids facilitates routing during the installation of the systems, simplifying the laying of the cable ducts. Once the MEP systems are in place, the Matrix formwork is installed over them, followed by the steel reinforcement and finally the concrete pour.

Matrix is suitable for all large buildings requiring flexibility in the installation and management of MEP systems combined with a high load-bearing capacity.

HOSPITALS

AIRPORTS

DATA-CENTERS

CRUISE TERMINALS

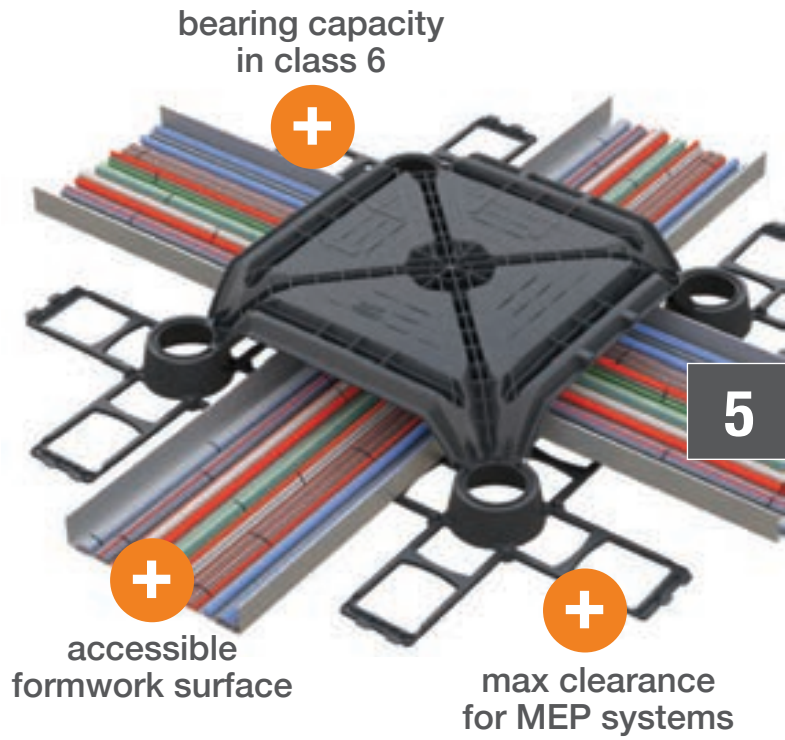
OFFICE BUILDINGS

SHOPPING CENTRES

METRO/RAIL STATIONS

WHITE ROOMS AND CONTROL ROOMS

REGENERATED PLASTIC MATERIAL



ADVANTAGES

SUITABLE FOR ANY FLOORING

Matrix is suitable for any kind of flooring: laminate, marble, wood, linoleum, etc. thanks to the uninterrupted support of the concrete surface.

HIGH STRENGTH

A Matrix concrete raised floor supports the transit of heavy vehicles, ensures seismic safety and avoids the risk of differential failure.
The formwork surface is accessible during installation.

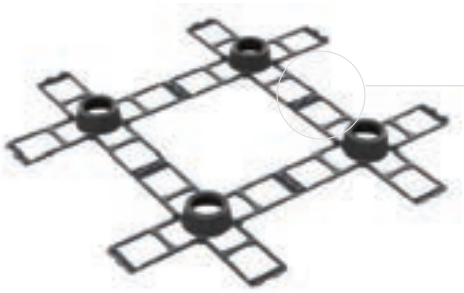
DESIGN FLEXIBILITY

Matrix is designed to meet the needs of all parties involved in the design, construction and management of the building, allowing high flexibility in the design phase as well during installation.

INSTALLATION

1 BASE GRID INSTALLATION

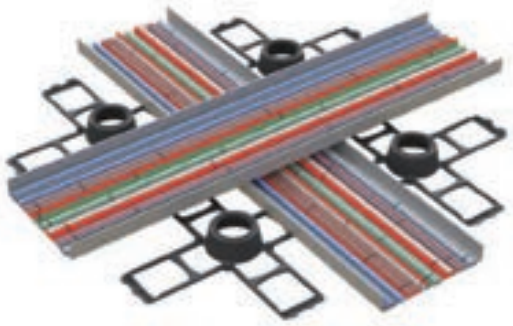
The Base Grid is installed quickly, without requiring any fastening to the ground, which slows down installation or can damage the supporting surface. The laid grids create a clear view of the areas available/useful for the installations routing. The grids are coupled to each other by means of a press-fit connector.



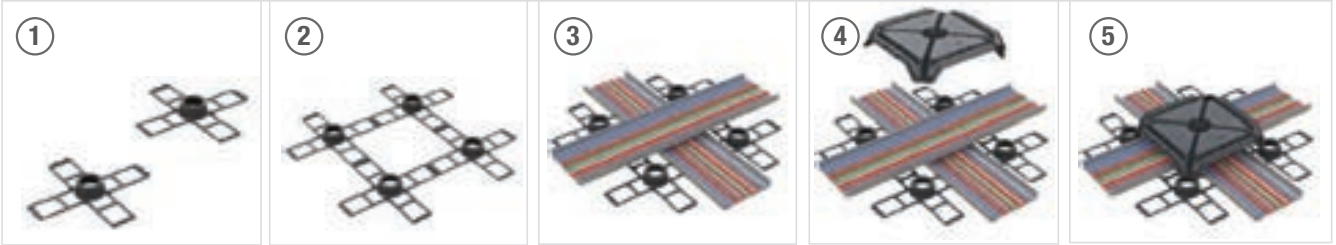
The Base Grid also performs an important function as a spacer, avoiding direct contact between the cable trays and the supporting surface. This prevents corrosion and helps to ensure the integrity and functionality of the systems over time.

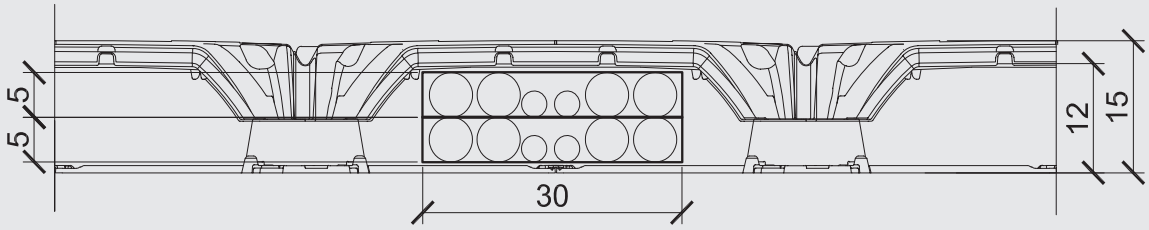
2 MEP INSTALLATION

Installation of systems in accordance with project requirements.



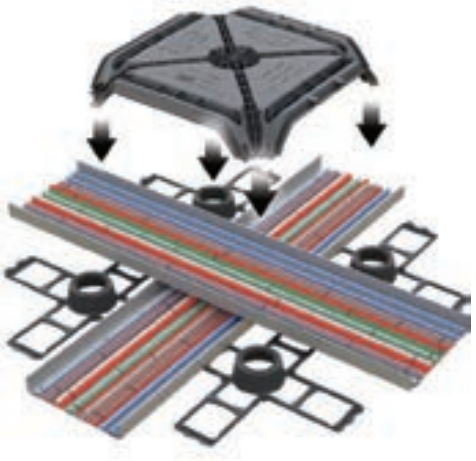
LAYING SEQUENCE WITH 2 OVERLAPPING CABLE DUCTS

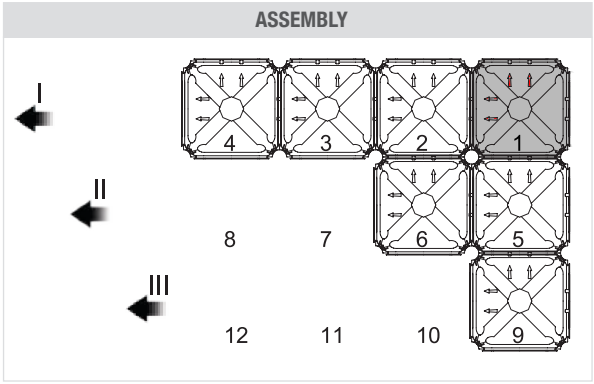




3 FORMWORK INSTALLATION

The formwork elements are placed very quickly, with up to 100 m² / hour of Matrix surface installed by a single worker.





4 CONCRETE CASTING

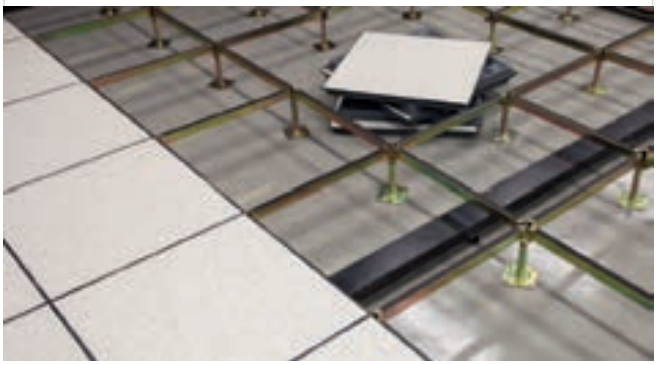
The concrete casting creates the raised floor structure with the load-bearing characteristics as designed.

MATRIX

Load-bearing capacity: constant CLASS 6

CONVENTIONAL RAISED FLOOR

Load-bearing capacity: variable



MONOLITHIC RAISED FLOOR

FAST AND ACCURATE INSTALLATION

The installation of Matrix is very simple and fast. Thanks to the grid created the installation of the systems is extremely easy and allows the connections to the utilities to be made at any point, thus providing for the positioning of the outlet columns and floor boxes.

The Matrix base-grid facilitates installation by clearly indicating the available routing for utilities.

Lay cable ducts, electrical tubes and pipes as per design requirements.

Simple and accurate installation of the formwork, no particular equipment is necessary during the process.

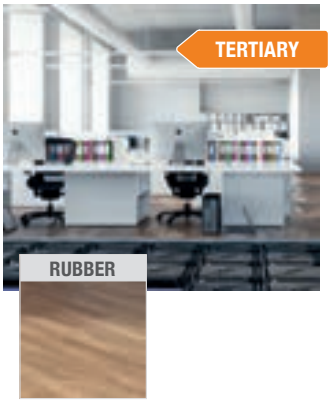
The monolithic concrete casting creates a continuous, high load bearing, fire resistant, reinforced concrete raised floor.

FLOORING

VERSATILE AND CUSTOMISABLE

The Matrix raised floor surface is compatible in any situation, even in the event of a change of use of the building. Matrix is suitable for the installation of market-standard raised-floor accessories such as distribution towers for electricity floor boxes, etc.

The result offers flexibility in the choice of finishes to the benefit of design aesthetics and customer requirements.



ACCESSIBLE UNDERFLOOR VOID

Matrix allows for the construction of in-situ floor boxes for access to the underfloor void created by the system.
The presence of manholes allows the installation of the main distribution towers available on the market.

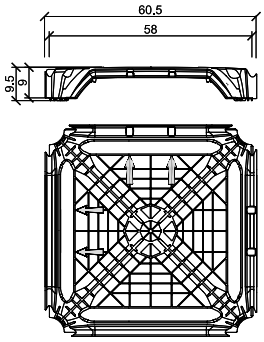
EXCELLENT ACOUSTICS

Elimination of footfall noise and rumble sound compared to conventional floating floors, which are known to be affected by reverberation from the underlying metal structure.

MATRIX TECHNICAL DATA

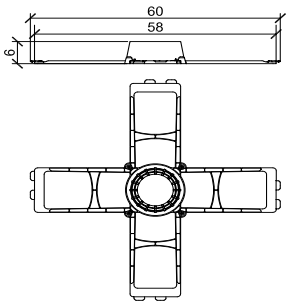
FORMWORK

Dimension (cm)	58 x 58 x H9
Material	Graplene (Recycled Polypropylene Compound)
Dim. packaging (cm)	122 x 122 x H253
No. of pieces per pallet	312
Product code	EELESMF5858



BASE GRID

Dimension (cm)	58 x 58 x 6
Material	Graplene (Recycled Polypropylene Compound)
Dim. packaging (cm)	100 x 140 x H253
No. of pieces per pallet	1135
Product code	EELESMG5858



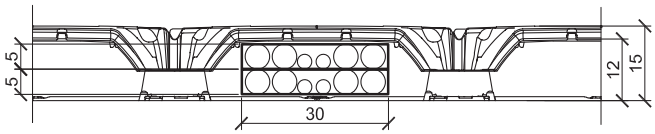
LOADS TABLE

Load category	Distributed load (Kg/m²)	Slab thickness (cm)	Reinforcement (mm)
Residential [Cat. A]	0 - 500	4	Ø 6 / 20 x 20
Medium crowded environments [Cat. B e C]	500 - 1,000	5	Ø 6 / 20 x 20
Commercial [Cat. D]	1.000 - 2,500	7	Ø 8 / 20 x 20
Industrial and warehouses [Cat. E]	2,500 - 5,000	8	Ø 10 / 20 x 20
Heavy loads	10,000	10	Ø 12 / 20 x 20
>10,000 kg/m²	>10,000	To be assessed on a case-by-case basis by consulting a qualified technician.	

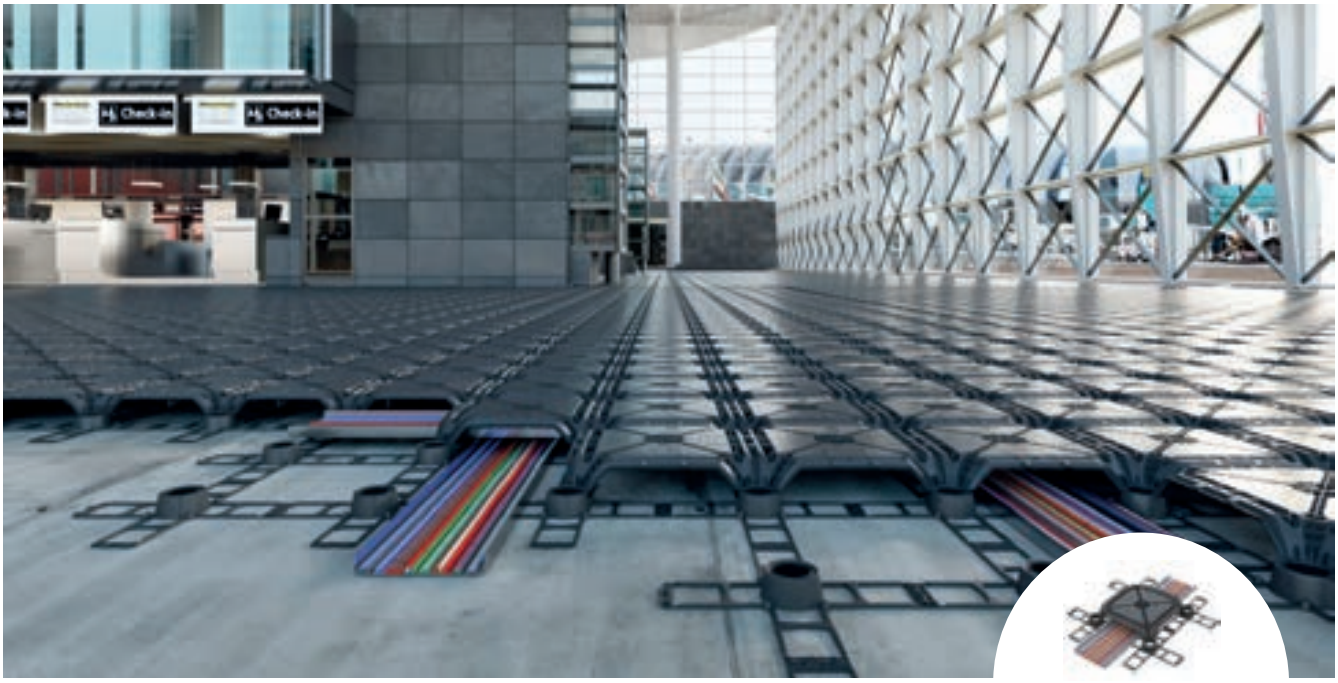
PLANT PASSAGE TABLE

MATRIX H15

Height (cm)	Dimensions (cm)
H15	Cable duct 1 x 400 mm x 60 mm / 2 x 300 mm x 50 mm



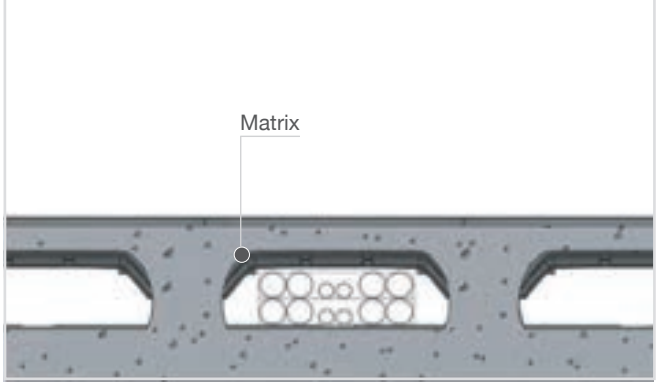
CONCRETE RAISED FLOORS



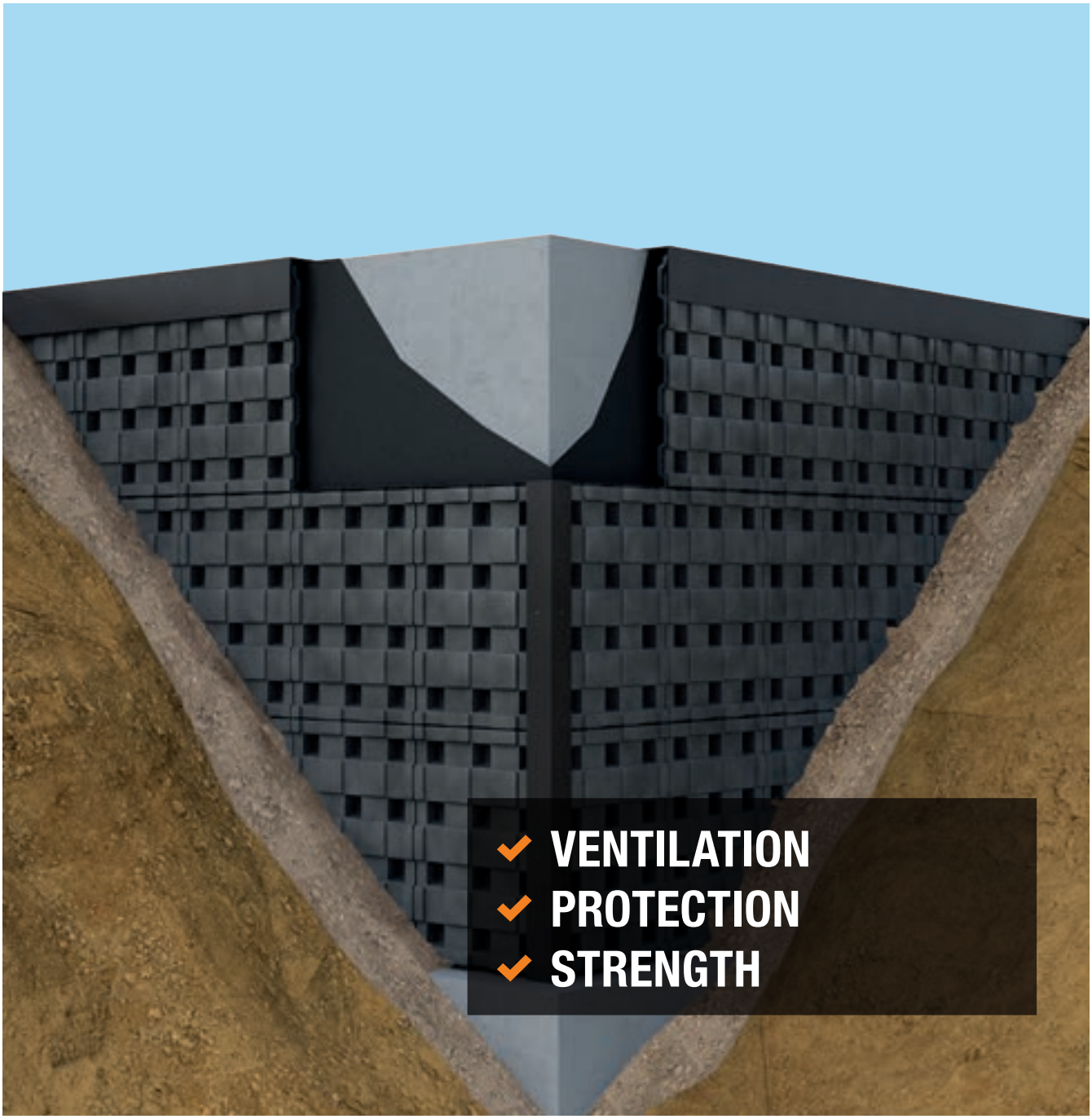
Modern architecture requires more and more space for installations and at the same time great flexibility in the reorganisation of spaces and uses. Floating floors are an excellent answer to both needs, but their intrinsic limitation is their low load-bearing capacity. Matrix was created as an alternative to floating floors, retaining all the characteristics of flexibility and at the same time guaranteeing high load-bearing capacity, even for concentrated loads.

FLEXIBLE: Matrix allows great design freedom in the organisation of interior spaces and in the redevelopment of buildings.

HIGH LIFT: Matrix is designed to withstand high loads and therefore allows for a wide range of space utilisation.



DEFENDER



MODULAR PANEL FOR RETAINING WALLS PROTECTION

THE SOLUTION

Defender is a panel made of Graplene (100% recycled Polypropylene Compound) for the protection of retaining and basement walls.
It creates a ventilated cavity between the waterproofing membrane wall and the ground.
The contact surface is large, flat and has rounded edges. It ensures optimal adherence to the supporting surface. The excellent mechanical strength and drainage capacity make it possible to avoid gravel, and simply backfill with the dig material.
Defender resists to an horizontal soil pressure of over 6000 kg/m².
The panels are easy to install and handle on site.

The main advantages of using this protection and drainage system are:

- the cavity created allows for a full aeration along the wall;
- elimination of rising damp;
- protection of the waterproofing membrane during backfilling operations and from the horizontal soil pressure;
- easy to cut to adapt to wall corners;
- excellent resistance to water thanks to the special overlapping connection along the edges of the panel.

PROTECTION OF THE WATERPROOFING MEMBRANE

DRAINAGE OF BASEMENT AND RETAINING WALLS

ADVANTAGES

VENTILATION

The aerated space obtained through the system creates better environmental conditions and reduces rising dampness.

DRAINAGE

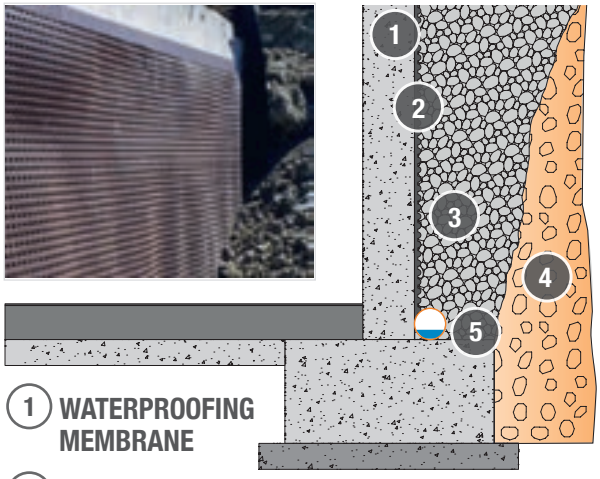
The 7 cm thickness provides excellent drainage to the wall, and efficiently feeds the drainage at the bottom of the wall.

STRENGTH

The high compressive strength (6000 kg/m²) means that the waterproofing is protected over time. It is weatherproof and can be stored and installed at any temperature from -30°C to +50°C.

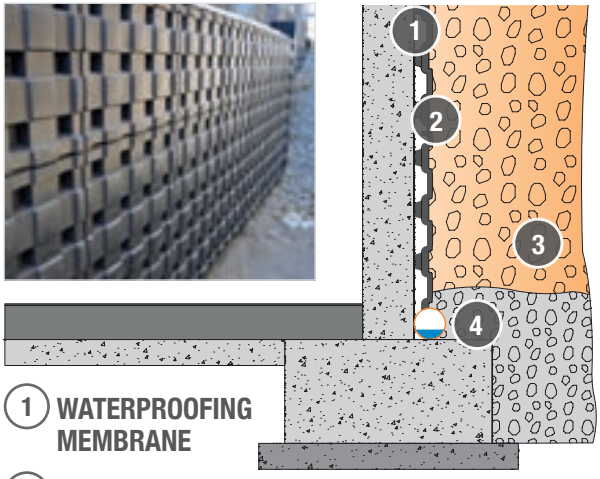
DRAINAGE OF GROUND WORKS

CONVENTIONAL SYSTEM



1. WATERPROOFING MEMBRANE
2. EMBOSSED MEMBRANE
3. GRAVEL (50/80 MM)
4. BACKFILLING WITH SOIL
5. DRAINAGE PIPE

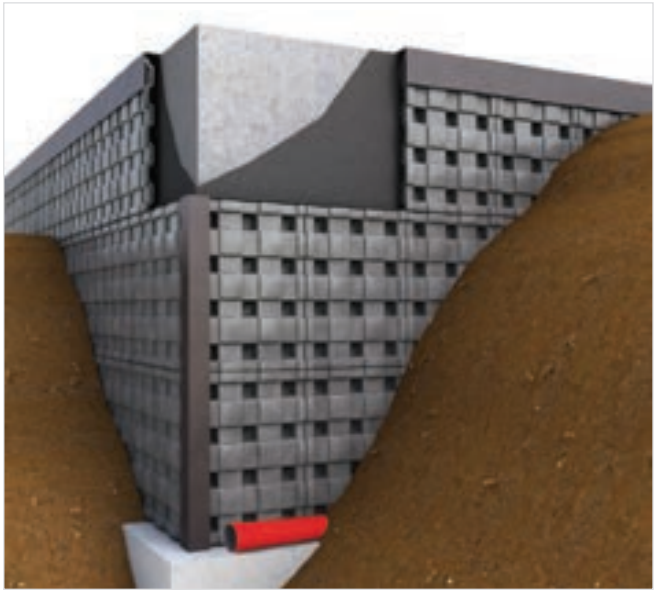
DEFENDER SYSTEM



1. WATERPROOFING MEMBRANE
2. DEFENDER
3. BACKFILLING WITH SOIL
4. DRAINAGE PIPE

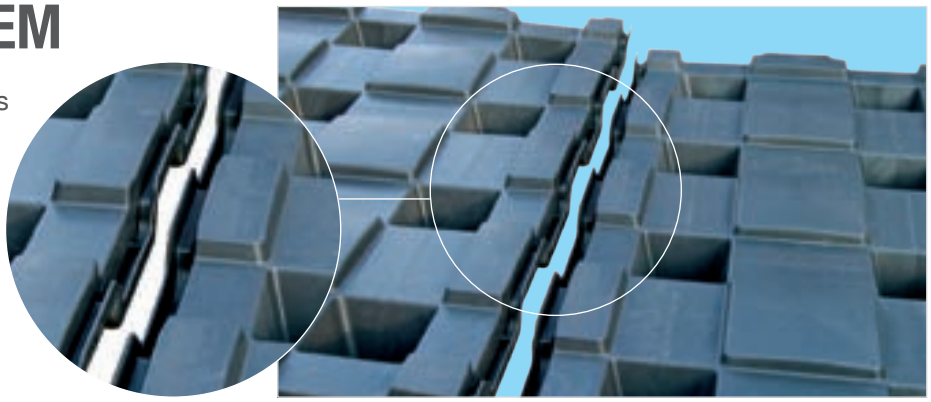
WALL PROTECTION

The waterproofing of basement and retaining walls must be designed and executed with particular care.
The waterproofing should be designed for a long service-life, as it is difficult to carry out repair work. A defective or missing waterproofing can cause serious damage to the building.
The choice of materials must therefore be directed towards products which maintain their waterproofing properties over time.



COUPLING SYSTEM

The innovative coupling facilitates installation and guarantees a perfect fit of the panels.
The overlapping edge of the panels prevents water from entering through these contact points.



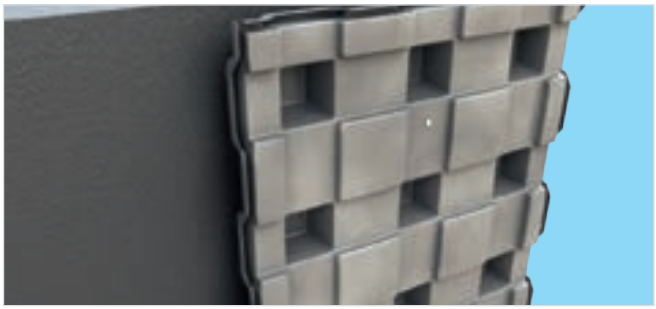
INSTALLATION

① PREPARATION

Creation of the concrete wall and laying of the waterproofing membrane to prevent water infiltration.

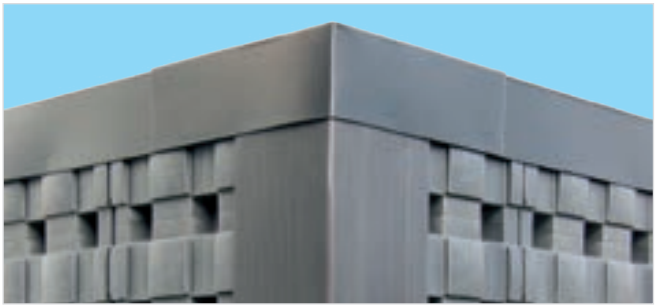
② INSTALLATION

Installation of the panels from right to left towards the left and using adhesives on the back of the panel.



③ INSTALLATION OF TOP ROW

In order to ensure adhesion to the wall, the top row of Defender panels must be fixed with chemical anchors (one per panel).



④ UPPER CLOSURES

The top row of Defender panels must be closed with a sheet of plastic board to protect the cavity from ingress of soil and other foreign material. Ensure that there is an overlap of at least 20 cm of the boards. Fix them with self-tapping screws or an adhesive.

⑤ CORNER CLOSING

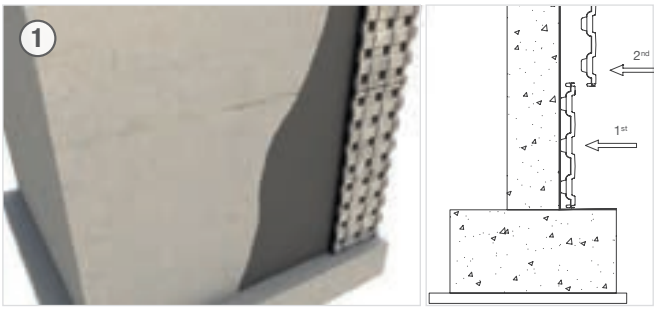
On the corners, apply a sheet of plastic board and fix it to the panels with 50 mm screws.

⑥ BACKFILLING

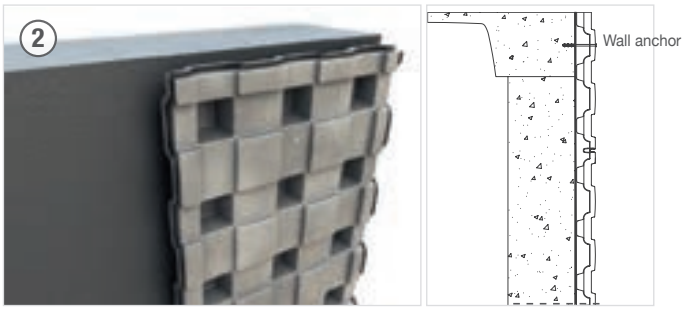
After having installed Defender lay a drainage pipe at the base of the wall; than proceed with the backfill, taking care that no panels are damaged during the process.

N.B. If necessary, especially near the edges and tops of walls, the Defender panels can be cut using a circular saw.

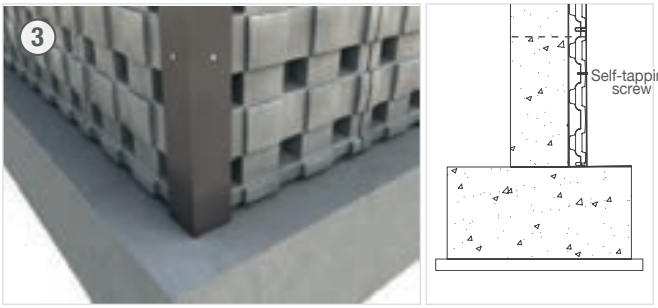
TECHNICAL DETAILS



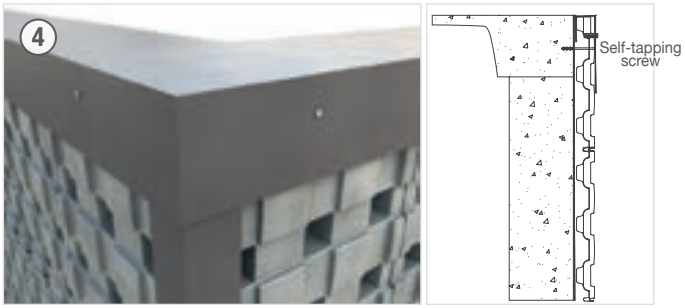
After laying the waterproofing membrane on the wall, start installing the Defender as shown in the pictures.



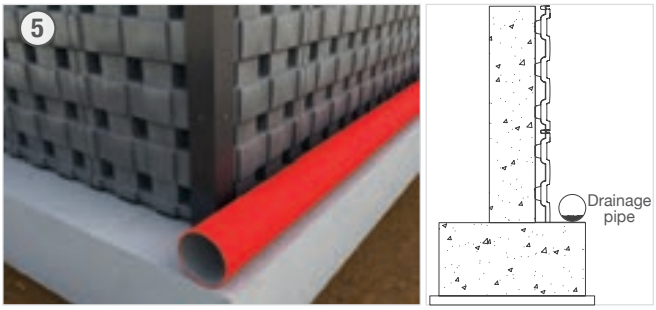
Near the top of the wall, fix the highest panel with a wall anchor (preferably chemical and not mechanical).



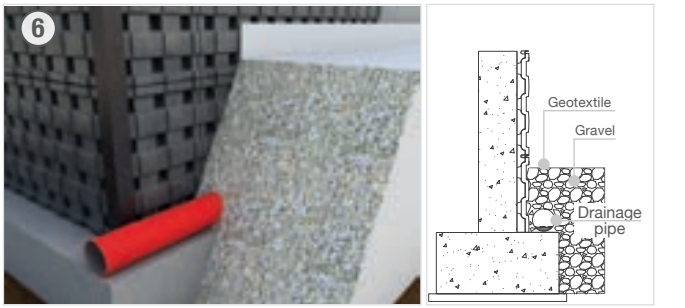
Apply a sheet of plastic cardboard over the corners and fix it to Defender using self-tapping screws no longer than 50 mm.



Place the plastic cardboard over the top row of Defender and fix it with self-tapping screws (in the case of other materials, use adhesives with a similar function).



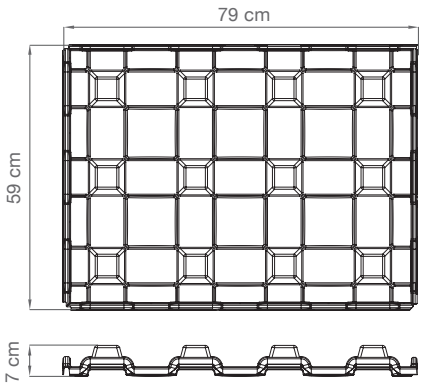
Install a drainage pipe around the perimeter of the building.



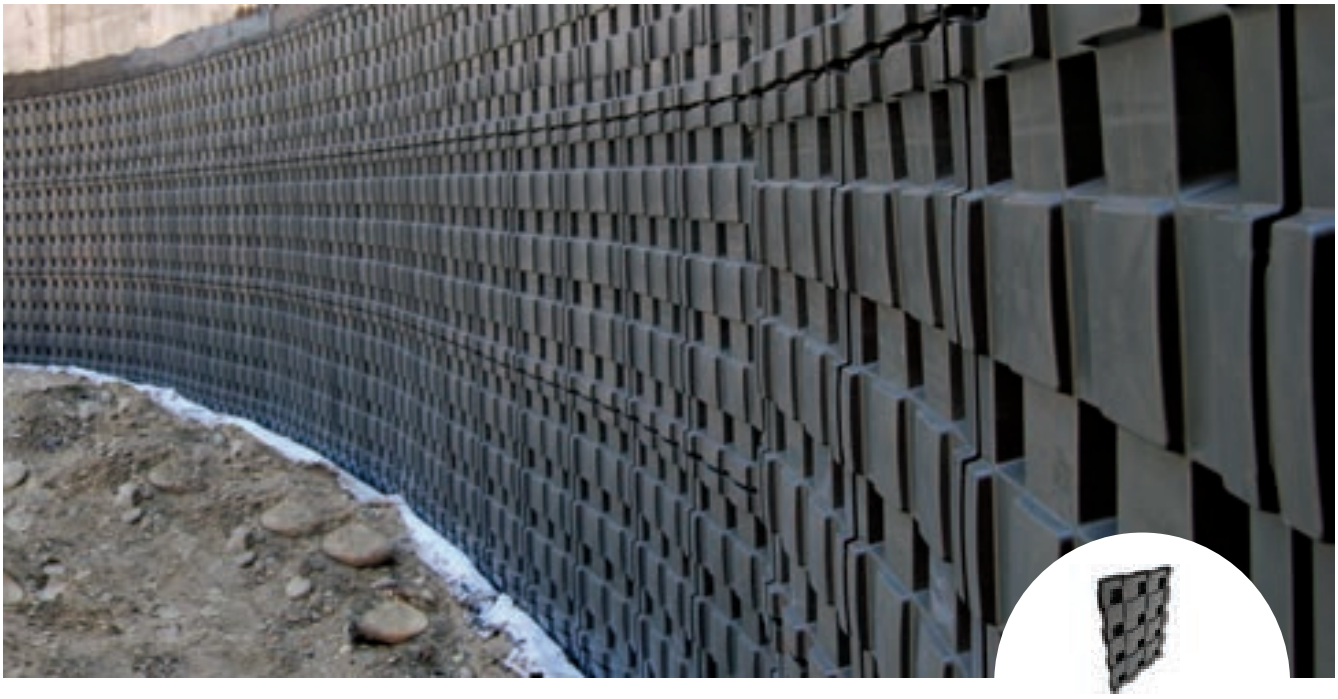
Before proceeding with the backfilling, cover the drainage pipe with gravel and then with a geotextile over it.

TECHNICAL DATA DEFENDER

	DEFENDER
Dimensions (cm)	79 x 59 x H7
Material	Graplene
Packaging size (cm)	80 x 120 x H233
No. of pieces per pallet	200
Product code	EDEFEND8060



PROTECTION OF RETAINING WALLS

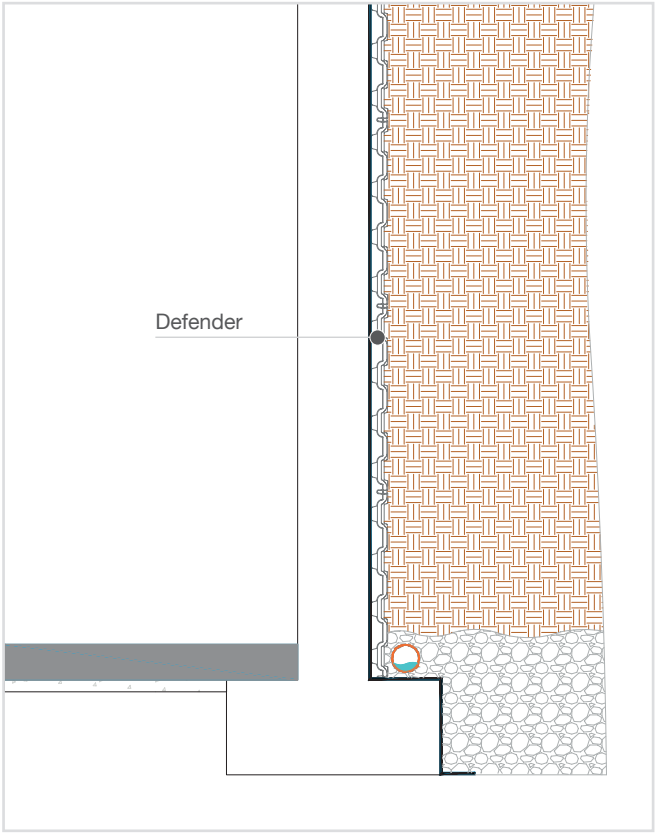


The waterproofing of underground structures must be designed and carried out with particular care, bearing in mind that a defective or damaged waterproofing can cause considerable economic damage.
The choice of materials must therefore be directed towards products that maintain their characteristics of impermeability to water and rising damp, are resistant to rot and maintain mechanical resistance over time, even under the action of construction site traffic.

COST-EFFECTIVE: Defender panels offer significant savings in terms of logistics and installation time.

SAFE: the handling of lightweight panels reduces the risk of accidents and injuries, improving site safety.

The full ventilation provided by the areated cavity produces better ambient conditions in basement rooms and reduces humidity problems.
Thanks to the 7 cm thickness, Defender provides excellent drainage at the bottom of the wall, maintaining properly drained. The void can also be used for the passage of pipes and installations.



REFERENCES

DEFENDER - LIBESKIND RESIDENCES, MILAN, ITALY

Defender was used for the construction of the premium Libeskind residences in Milan in order to create a protective barrier for the retaining walls and basements. With its high compressive and impact strength, Defender ensured the integrity of the waterproofing during backfilling and continues to contribute to its longevity by keeping it well drained.

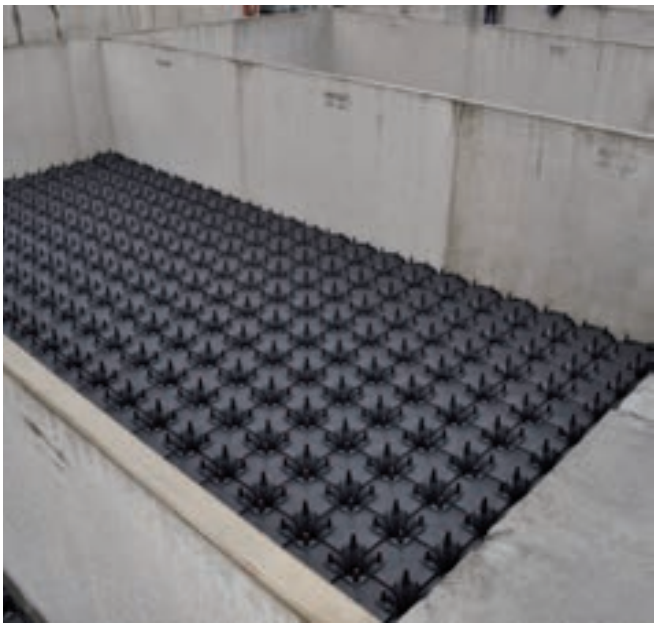
DEFENDER - LIDL STORE, FRASCATI, ITALY

The designers adopted Defender for this Lidl store in Frascati, with the aim of protecting the waterproofing of the basement walls, while at the same time ensuring effective drainage of rainwater.

OTHER REFERENCES

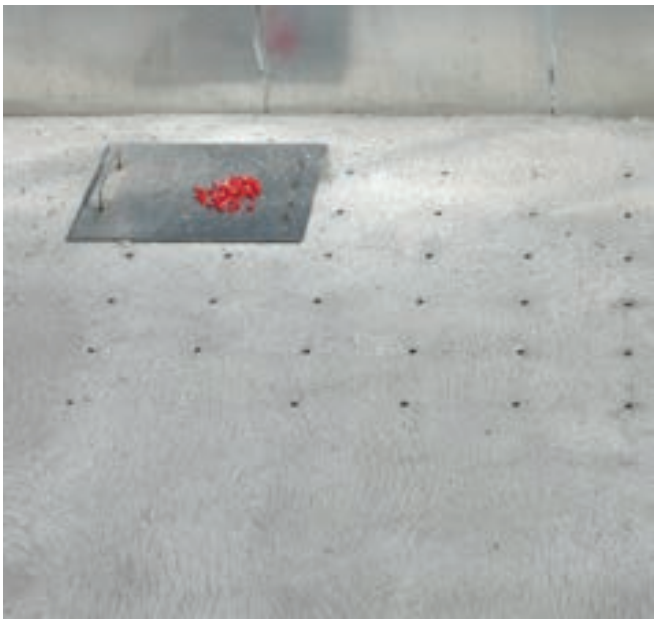
BIOMODULO - LOMBARDY, ITALY

A large composting facility was built in the Brescia area (Northern Italy). Biomodulo was used to build the 20 organic material composting zones. The combined use of Biomodulo and Geoblock allowed for an optimised, faster and more accurate construction.



BIOMODULO - NORTHERN ITALY

The aereation of the compost material in this facility in Norther Italy is ensured by a Biomodulo perforated concrete floor. The holes are simply opened by removing the red caps once the concrete has set.



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Via Martiri della Libertà, 6/8
35010 Grantorto (PD) - Italy

Tel +39 049 9490289
Fax +39 049 9494028

Geoplast@Geoplastglobal.com

GeoplastGlobal.com

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