SLABS

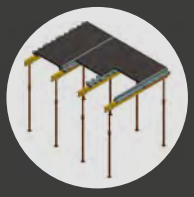
COMPLETE RANGE OF SLAB FORMWORK AND RELATED SOLUTIONS

NEW NAUTILUS

SKYDOME

SKYRAIL

AIRPLAST



GEOSKY

- ✔ SIMPLICITY
- ✔ LIGHTNESS
- ✔ SUSTAINABLE

THE COMPANY

HISTORY

Since its foundation in the early 1970s, Geoplast has been designing and manufacturing innovative recycled plastic products. We create sustainable solutions with high added value that offer excellent performance and a useful life cycle in line with construction industry standards.
Year after year we have improved our expertise in the strategic sectors in which we operate such as construction, stormwater management, urban green and landscape, always distinguishing ourselves as a reliable and efficient partner.
Geoplast products are available worldwide thanks to an extensive network of distributors, including two 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 roofed;
- 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 foundation of the of the company.

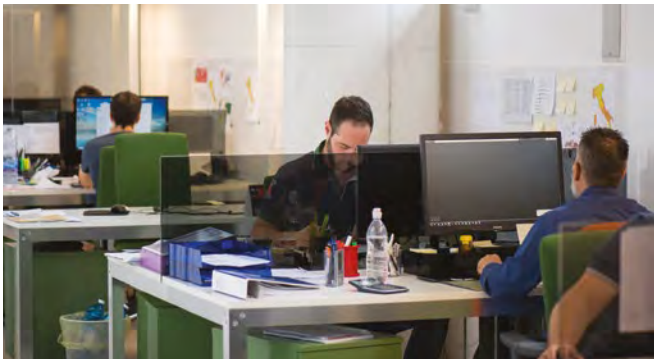
Almost all of our products are made from recycled plastic from post-consumer and industrial scrap: this way waste material is transformed into a valuable resource and ultimately into into new, intelligent applications.

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.

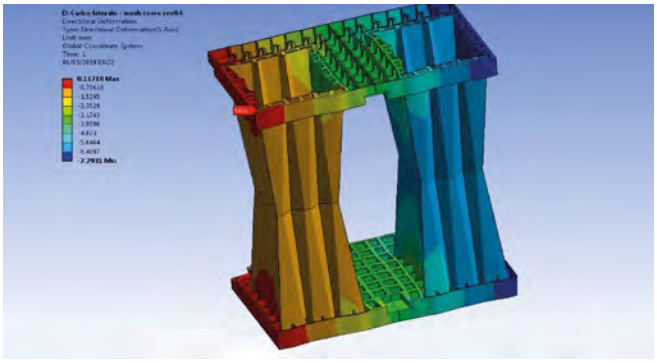
Knowledge sharing and distribution are essential, and take the form of digital tools, webinars and publications.



INNOVATION

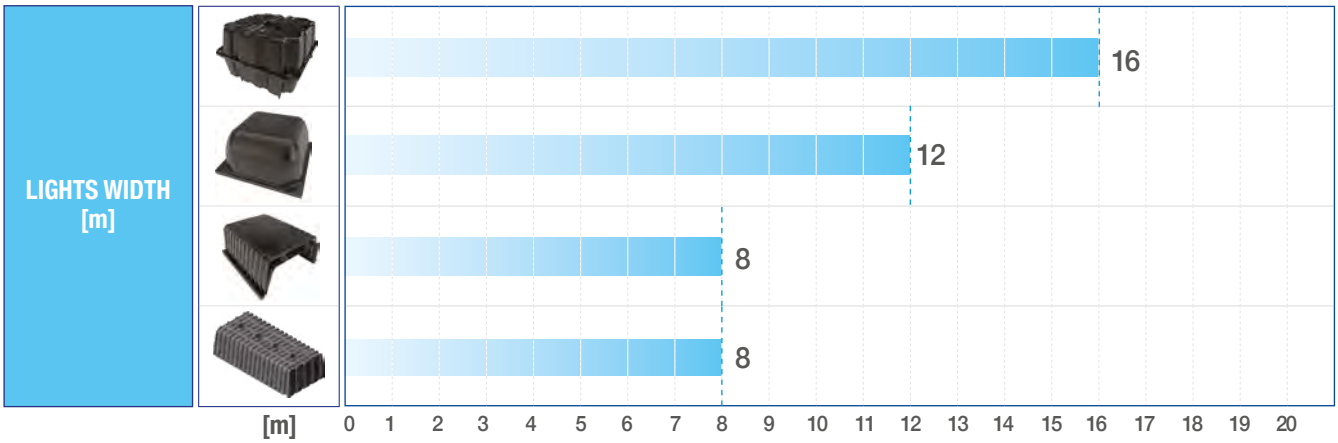
A team of 10 engineers dedicated to the research and development of new solutions and materials has produced over 40 patents registered worldwide, as well as more than 50 trademarks.

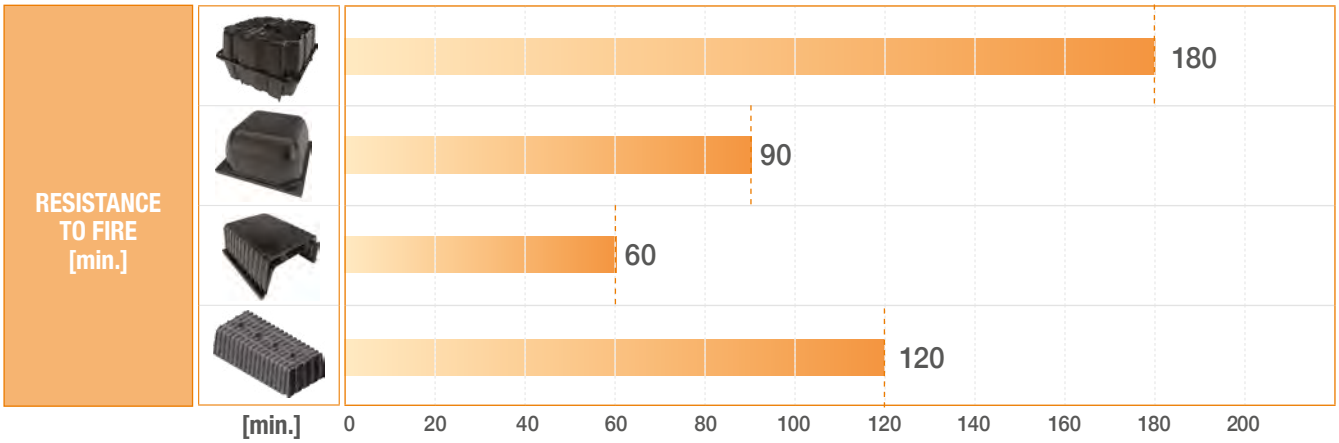
Geoplast's philosophy is that there are always intelligent, sustainable and cost-effective solutions around the corner, and that it is up to us to discover them.

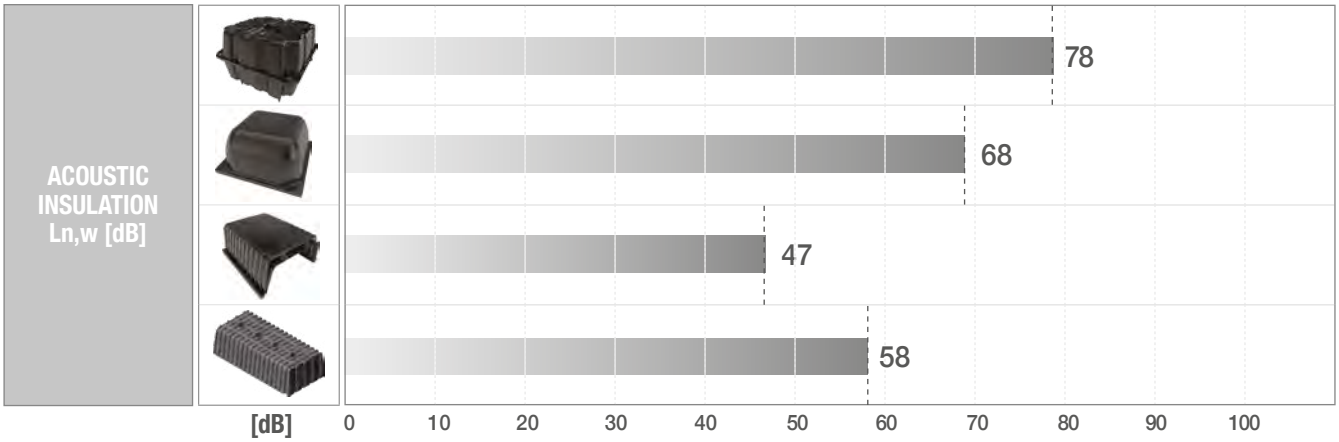


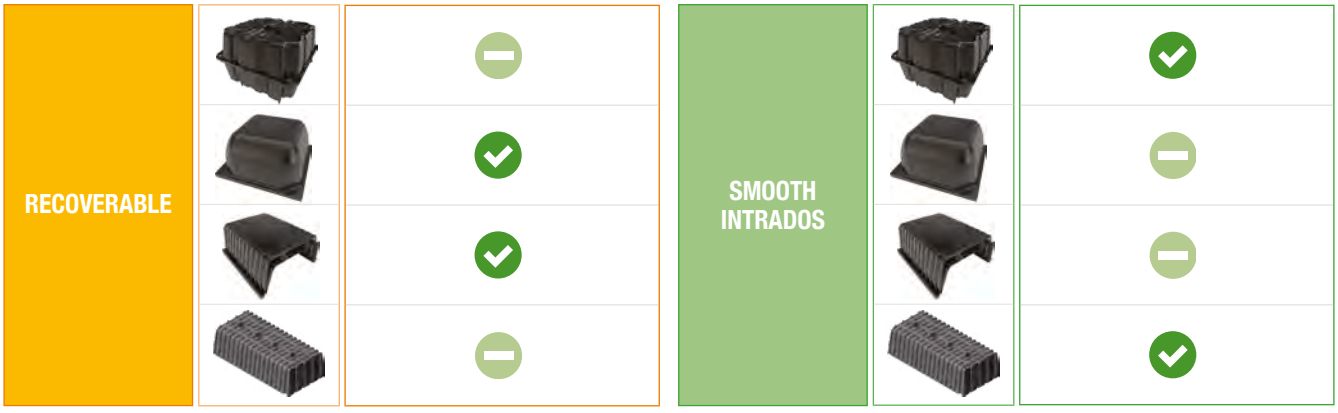
COMPARISON OF FLOOR SOLUTIONS

The Geoplast range consists of various systems with which it is possible to give the building the desired performance characteristics in terms of living comfort, use of interior spaces and safety.









INDIX
COMPLETE RANGE OF FORMWORK FOR SLABS

NEW NAUTILUS

Lightening system for reinforced concrete slabs.

NEW NAUTILUS EVO

Lightening system for reinforced concrete slabs.

SKYDOME

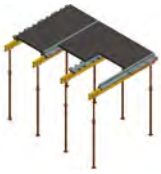
Reusable technopolymer formwork for bidirectional lightened slabs.

SKYRAIL

Reusable technopolymer formwork for one-way lightened slabs.

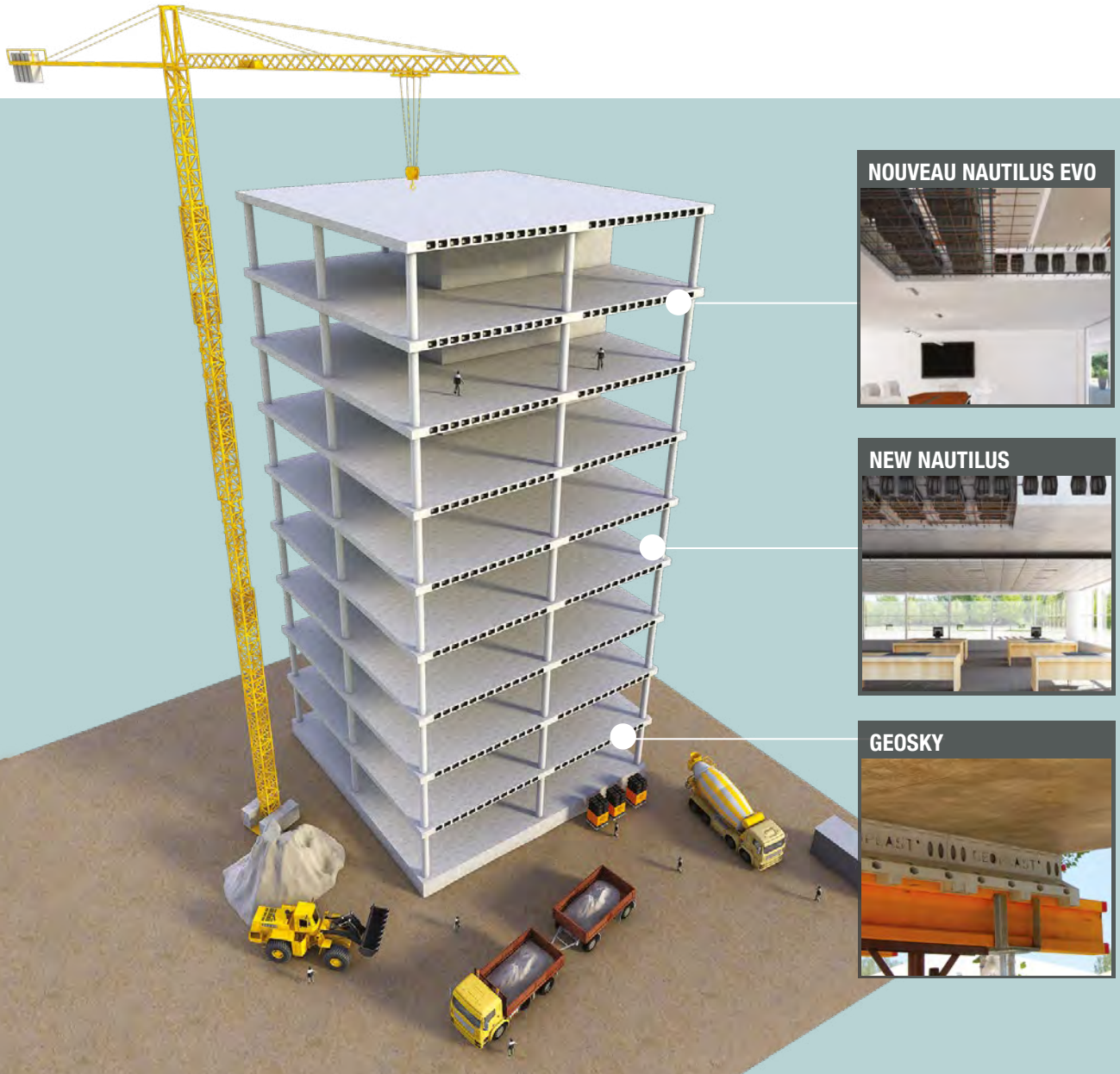
AIRPLAST

System for lightening one-way lat soffit floors.



GEOSKY

Reusable formwork for flat floors.



SLABS

We are deeply convinced that in the current global context a company can only continue its development and innovation through a constant dialogue with the environmental and social system in which it operates.

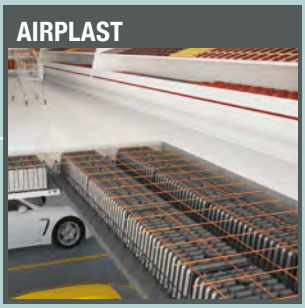
Each choice must take into account three main objectives: respect for the planet (Planet), the well-being of people (People) and profitability for operators (Profit).

In all the solutions that are part of the Solai Division, these 3 objectives find a clear meeting point: lighter buildings, able to respond better to seismic stress and therefore safer for people, construction methods that significantly reduce the use of materials that involve a production process with high emissions of pollutants into the environment and, finally, a reduction in construction costs thanks to the adoption of cheaper but equally performing materials.

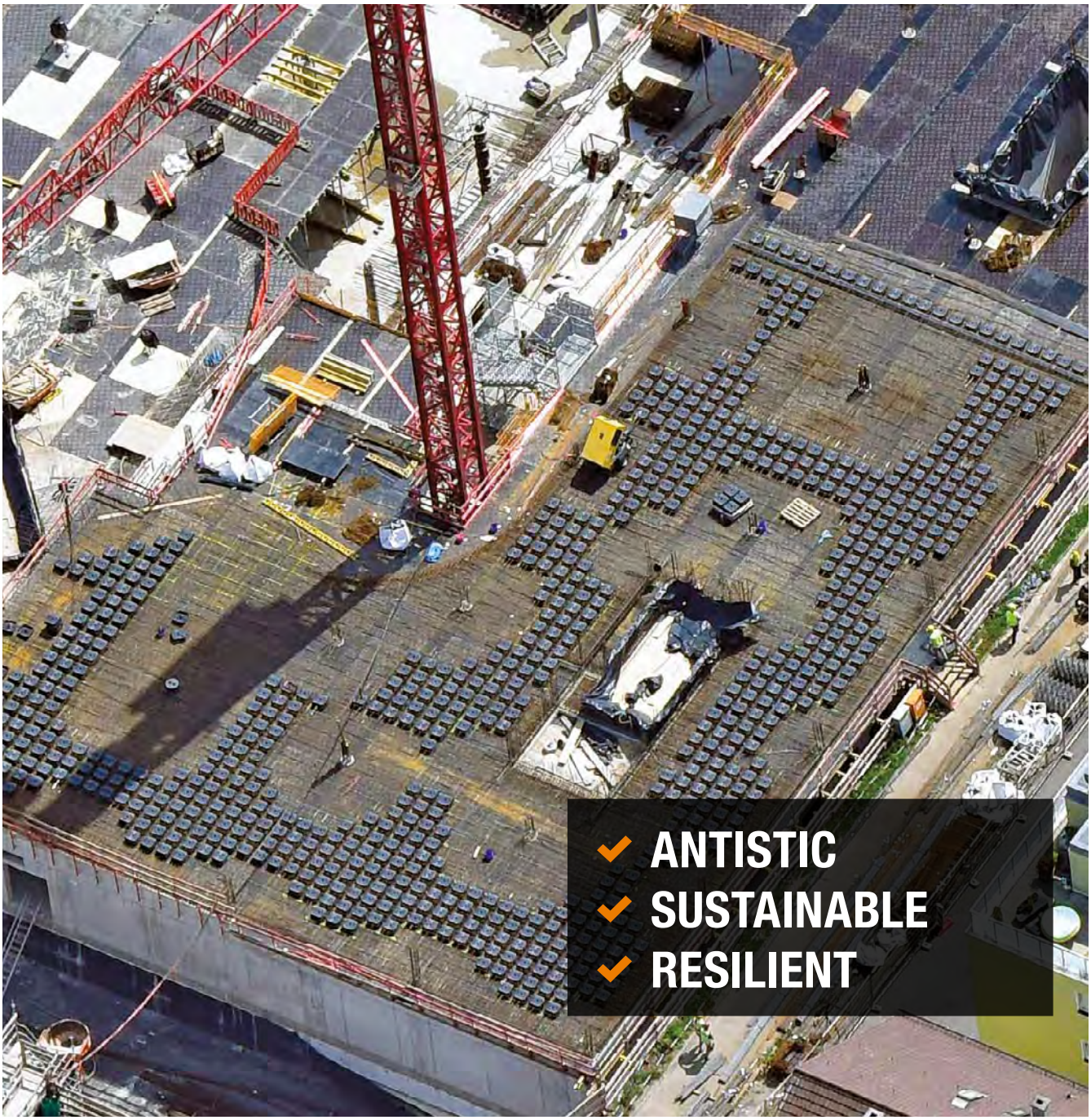
SKYDOME

SKYRAIL

AIRPLAST



NEW NAUTILUS - NEW NAUTILUS EVO



DI SYSTEM LIGHTENING FOR SLABS IN REINFORCED CONCRETE

THE SOLUTION

Recycled polymer lightening system for in-situ reinforced concrete slabs.

Reinforced concrete slabs are economical and simple to manufacture, allowing great architectural freedom and the elimination of extrados structures.

Their structural lightening makes it possible to reduce their own weight by 25-30%, with benefits that cascade throughout the structure, both in static and seismic conditions.

By using our regenerated polymer lightening system, it is possible to reduce the amount of reinforcement steel required by up to 15% and, due to the increased lightness, reduce the cross-sections and reinforcement of columns, partitions and foundations.

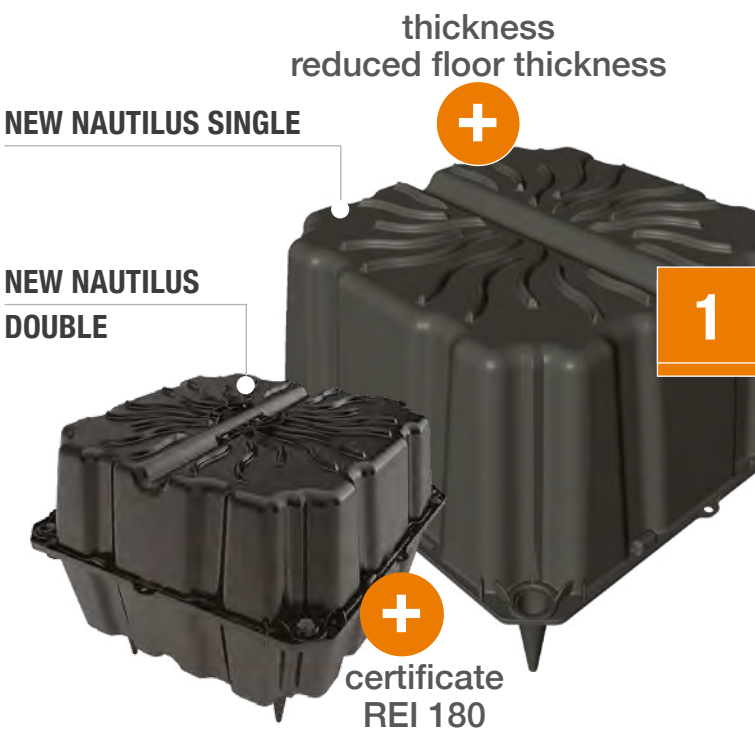
MULTI-STOREY RESIDENTIAL BUILDINGS

MULTI-STOREY CAR PARKS

TERTIARY BUILDINGS

COMMERCIAL BUILDINGS

HOSPITALS



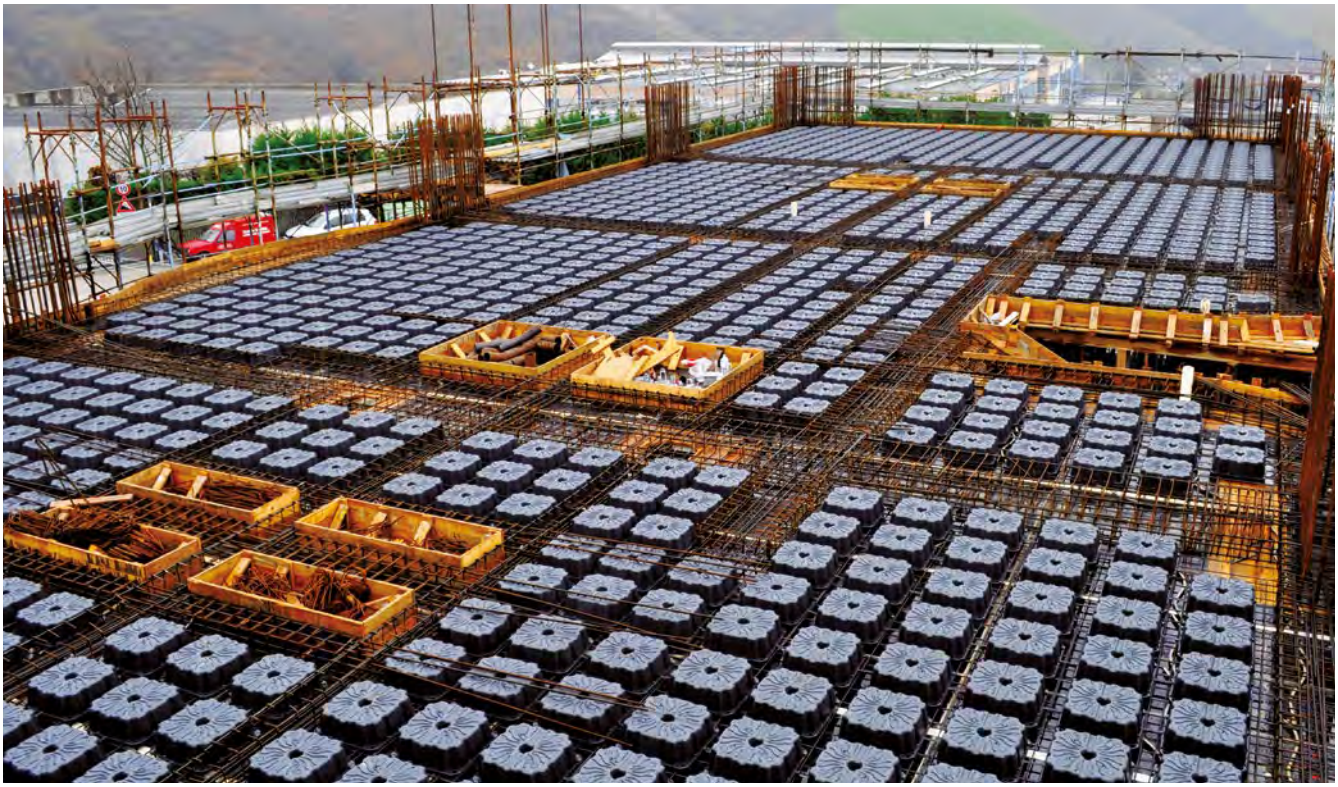
15% more economical
towards full slab

THE CENTRAL CONE

The central cone helps the operator to work well and with precision by guaranteeing:

- Visual check of the actual completion of the of the lower slab;
- Security of completeness of the structural section;
- Limitation of lifting during casting;
- Perfect and homogeneous finish of the soffit.

ADVANTAGES



Lightenings are placed where necessary, leaving the solid concrete areas where shear stresses are greatest.

FREEDOM ARCHITECTURAL

The architecture of the building is not compromised by the use of the lightening elements; on the contrary, the technical value of the work is reinforced.

The slabs lightened with our elements allow a great deal of freedom in the arrangement of vertical structures and make it possible to achieve greater spans than with traditional slabs.

LIGHTNESS

Lightening elements reduce the consumption of concrete in the span where it works less efficiently.

In the support areas, the lightening elements are inserted at a suitable distance from the areas where higher shear resistance is required.

Overall, the effect of lightening reduces concrete consumption and the weight of the floor itself.

OPTIMISATION

The lower weight of the decks makes it possible to reduce the sections and reinforcements of the vertical structures and foundations and consequently reduces the seismic forces in play, thus benefiting the structure as a whole.

The reduction in reinforcement and cross-sections of vertical structures and foundations can be up to 15% compared to structures with other slab technologies.

2009 TO TODAY...

Since 2009, we have contributed to building in a more sustainable way.
Projects carried out with our lightweighting systems have saved raw materials and natural resources and contributed to the reduction of greenhouse gas emissions into the atmosphere.

ANTISTIC

The reduction of seismic forces in play in some cases can be up to 30% compared to structures with other slab technologies.

SUSTAINABILITY PROFITABLE

Our lightweighting system allows a reduction of up to 30% in concrete on decks and up to 15% on verticals and foundations.
The reduction of reinforcing steel can be up to 15% overall.

Reducing the use of CO_2-intensive raw materials not only contributes to achieving decarbonisation targets by 2030, but also results in direct profit for builders and contractors.

VERSATILITY

Our lightening system is very versatile not only in application but also in laying.

The designer has the possibility to organise the interior spaces in a very flexible way while the builder benefits from the lightness of the elements.

ADVANTAGES OF LIGHTENING SYSTEMS

LOWER SEISMIC RISK
A lighter structure has better seismic behaviour.

LOGISTICAL ADVANTAGES
Saving steel and concrete allows for optimisation of the construction site.

REI 120 CERTIFICATE
Laboratory certification of fire resistance up to 180'.

LOWER CONCRETE CONSUMPTION
Reduction in concrete consumption of up to 25%.

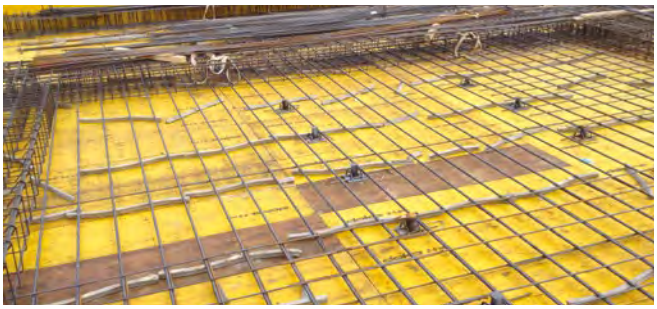
LOWER STEEL CONSUMPTION
Optimisation of steel consumption with a reduction of around 15%.

LESS LOAD ON FOUNDATIONS
Possibility of reducing the size of the structure's foundations.

UP TO 30% CHEAPER COMPARED TO A SOLID FLOOR
The sum of the advantages described above results in considerable cost savings.

INSTALLATION

① PREPARATION OF THE BASE



② LAYING OF LOWER REINFORCEMENT AND FULL ZONES

③ LAYING NEW NAUTILUS

④ COMPLETION OF LAYING ARMOUR

⑤ FIRST PHASE CASTING

⑥ WAITING BETWEEN FIRST AND SECOND JET PHASE

⑦ JET SECOND PHASE

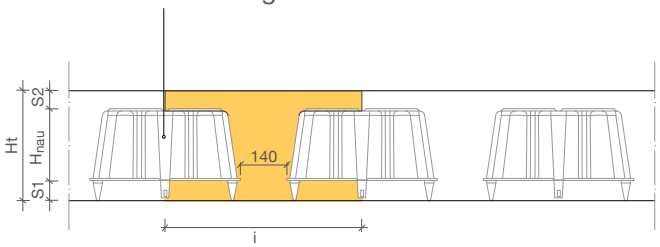
⑧ SCASSERO

PRE-DIMENSIONING

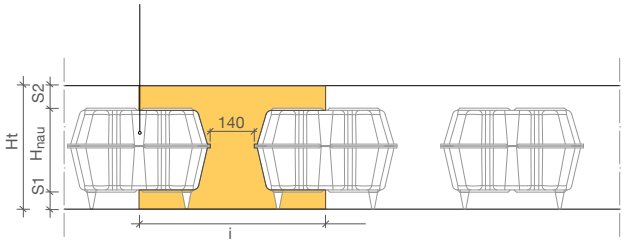
With the help of the table below you can get a complete overview of the possibilities offered by our technical solution. Scan the QR code to access the online calculator for customised pre-dimensioning.

Frame the QR code to display the slab calculator page.

New Nautilus Evo Single



New Nautilus Evo Double



Centre distance pillars L_x x L_y	Overloads $G'_k + Q_k$	Proposed Thickness Ht	S_1	H_{nau}	S_2	Insole inertia lightened J_{nau}	Insole inertia full J_{full}	Weight own insole lightened P_{nau}	Weight own insole full P_{full}	Economy weight/ concrete	Riduction loads/ steel
[m]	[kN/m²]	[cm]	[cm]	[cm]	[cm]	[cm⁴]	[cm⁴]	[kN/m²]	[kN/m²]	%	%
5	5.00	20	5	10	5	60821.26	66666.67	3.63	5.00	-27.4	-13.0
6	5.00	23	5	13	5	88537.95	101391.67	4.15	5.75	-27.8	-14.2
7	5.00	25	6	13	6	117362.62	130208.33	4.65	6.25	-25.6	-13.6
8	5.00	28	6	16	6	158952.73	182933.33	5.18	7.00	-26.0	-14.5
9	5.00	32	7	20	5	226197.71	273066.67	5.78	8.00	-27.8	-16.4
10	5.00	34	7	20	7	280664.38	327533.33	6.28	8.50	-26.1	-15.8
11	5.00	36	7	24	5	307772.12	388800.00	6.38	9.00	-29.1	-18.0
12	5.00	40	8	24	8	452305.45	533333.33	7.38	10.00	-26.2	-16.8
13	5.00	44	8	28	8	581150.55	709866.67	7.98	11.00	-27.5	-18.2
14	5.00	50	7	36	7	779649.39	1041666.67	8.48	12.50	-32.2	-22.3
15*	5.00	58	10	41	7	1236413.18	1625933.33	9.98	14.50	-31.2	-22.5
16*	5.00	64	8	48	8	1561851.26	2184533.33	10.73	16.00	-32.9	-24.4
17**	5.00	68	10	48	10	1997584.59	2620266.67	11.73	17.00	-31.0	-23.4
18**	5.00	72	10	52	10	2317962.12	3110400.00	12.43	18.00	-30.9	-23.6
19**	5.00	74	10	56	8	2386739.39	3376866.67	12.65	18.50	-31.6	-24.3
20**	5.00	76	10	56	10	2668006.06	3658133.33	13.15	19.00	-30.8	-23.8

*Recommended high performance concrete. **Recommended post-tensioning..

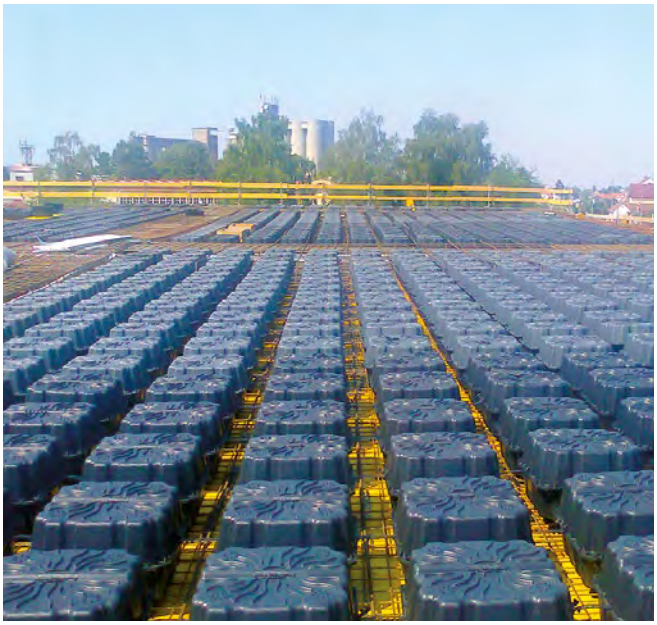
GEOPLAST TECHNICAL ASSISTANCE

Our engineers are on hand to support you during all phases of the project:

Modelling FEM of your floor	**Assumptions of dimensioning and layout**	**Analysis of costs**	**Design executive**	**Assistance during installation on site**	**Training and Formation**

LARGE SPANS AND SEISMIC RESPONSE

The lightness guaranteed by the New Nautilus system makes it possible to create slabs with high structural qualities.
It is possible to obtain spans of up to 20 metres and reduce the weight of the floor by more than 30%. This characteristic, together with the rigidity of the bidirectional behaviour of the floor, is a winning feature in the design of structures to be built in the most demanding seismic areas.



PARKING

When constructing underground and multi-storey car parks, it is essential to obtain as many parking spaces as possible. With bi-directional slabs, lightened with New Nautilus, it is possible to achieve greater spans than with traditional solutions, and to optimise the positioning of the pillars, creating more space for parking, and also increasing the manoeuvring areas.

MULTISTOREY BUILDINGS

The use of the New Nautilus system is particularly suitable for the construction of multi-storey buildings; compared to a solid solution it is possible to reduce the consumption of concrete, and therefore the weight of the floor, by up to over 30%. This reduction, replicated for all the floors, makes it possible to limit the loads acting on the pillars and foundations, contributing to a significant reduction in costs.

SCHOOL BUILDING

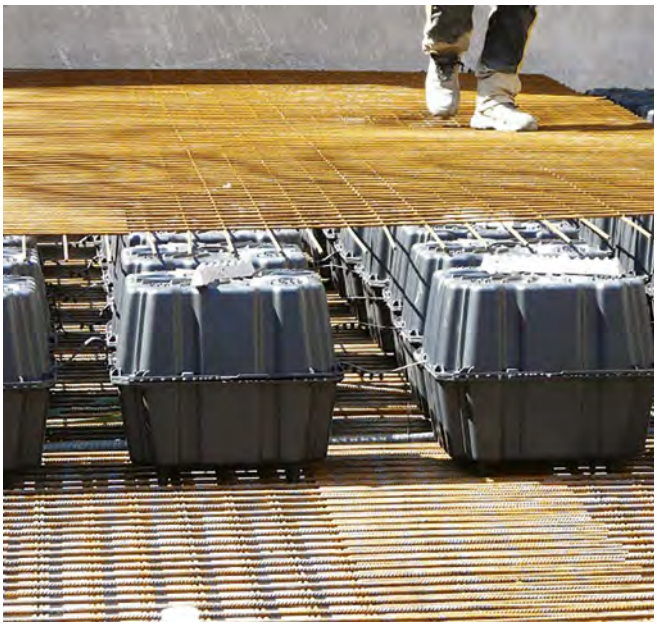
Schools are places where prevention and safety must always be guaranteed, as well as the availability of ample space for students. The New Nautilus system allows the creation of floors with excellent structural performance, thanks to the bidirectional configuration, and with excellent seismic behaviour. It is also possible to create large spans for better management of internal spaces.

HEALTHCARE FACILITIES

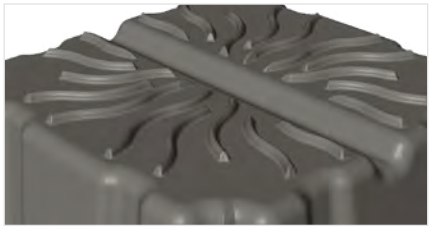
Hospitals are structures that must guarantee the highest seismic standards to protect the people inside. New Nautilus is the perfect way to give a building good structural performance. In addition, it allows the structure to be lightweight while maintaining optimum performance under high loads.

FOUNDATION RAFTS

To build in soils with low bearing capacity, expensive and complicated foundation piles are usually used. With the use of New Nautilus it is possible to obtain foundation rafts with high rigidity and capable of distributing the load over a large area. This creates a structure consisting of a grid of beams enclosed between two slabs that avoid differential settlements.



TECHNICAL SPECIFICATIONS



THE UPPER SPACERS

polypropyleneThe upper part of the formwork is fitted with evenly distributed 8 mm thick spacer elements. These elements allow the upper reinforcement to be placed directly on the formwork, ensuring that it is adequately covered with concrete.

THE SIDE TAB

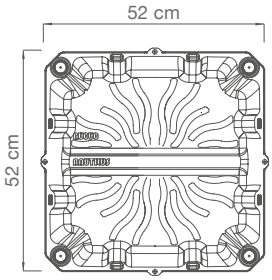
The formworks are equipped with lateral spacers that allow the correct positioning of the elements according to the width of the joists calculated at the design stage.
The elements, preset from 100 to 200 mm, are hooked into the side slots.

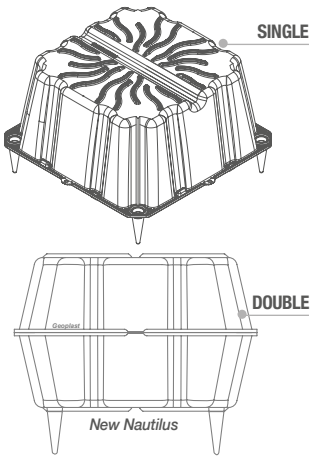
THE LOWER FOOT

They are moulded at the same time as the rest of the formwork and allow the creation of the bottom slab of the thickness assessed during the design phase.
The feet vary in height from 40 to 100 mm.

TECHNICAL DATA NEW NAUTILUS

	NEW NAUTILUS EVO SINGLE	NEW NAUTILUS EVO DOUBLE
Foot H (cm)	0 - 4 - 5 - 6 - 7 - 8 - 9 - 10	
Spacer (cm)	10 - 12 - 14 - 16 - 18 - 20	
Packing size (cm)	110 x 120 x H250	

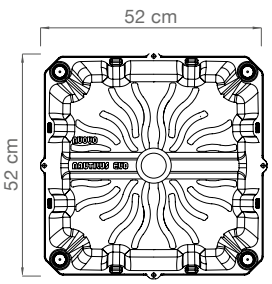


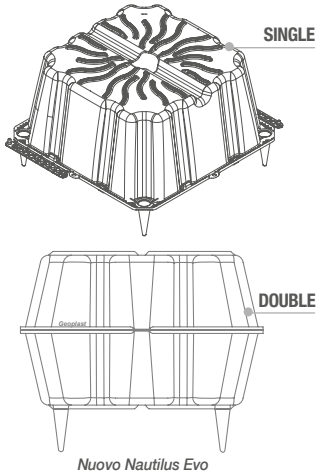


TECHNICAL DATA NEW NAUTILUS EVO

	NEW NAUTILUS EVO SINGLE	NEW NAUTILUS EVO DOUBLE
Foot H (cm)	0 - 4 - 5 - 6 - 7 - 8 - 9 - 10	
Spacer (cm)	10 - 12 - 14 - 16 - 18 - 20	
Packing size (cm)	110 x 120 x H250	

Piece volume may vary depending on model, see data sheet for details.





DIMENSIONAL TABLES

NEW NAUTILUS SINGLE*



	Material	Size actual (cm)	Weight (kg)	Width joist (cm)	Incidence formwork (pz./m²)	Consumption CLS (m³/m²)	Volume formwork (m³/pz.)
H16 SINGLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H16	1.32	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.074 0.079 0.084 0.089 0.093 0.096	0.033
H20 SINGLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H20	1.43	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.096 0.102 0.108 0.113 0.118 0.123	0.040
H24 SINGLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H24	1.54	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.118 0.125 0.132 0.138 0.144 0.149	0.047

*Packaging size: 110 x 120 cm, 400 pieces. Available feet: 0,4,5,6,7,8,9,10 cm

NEW NAUTILUS DOUBLE**





	Material	Size actual (cm)	Weight (kg)	Width joist (cm)	Incidence formwork (pz./m²)	Consumption CLS (m³/m²)	Volume formwork (m³/pz.)
H32 DOUBLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H16+H16	2.64	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.148 0.159 0.168 0.177 0.185 0.193	0.066
H36 DOUBLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H20+H16	2.75	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.170 0.182 0.192 0.202 0.211 0.219	0.073
H40 DOUBLE	Graplene (Polypropylene Recycled Compound)	520 x 52 x H20+H20	2.86	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.192 0.205 0.216 0.227 0.237 0.246	0.080
H44 DOUBLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H24+H20	2.97	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.214 0.228 0.240 0.252 0.262 0.272	0.087
H48 DOUBLE	Graplene (Polypropylene Recycled Compound)	52 x 52 x H24+H24	3.08	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.235 0.251 0.264 0.277 0.288 0.299	0.094

**Packaging size: 110 x 120 cm, 200 pieces. Available feet: 0,5,6,7,8,9,10 cm

EXAMPLE CALCULATION OF CONSUMPTION

For a 70+160+70 mm floor slab with 160 mm joist, the concrete consumption will be 0.091 (NEW NAUTILUS H16) + 0.07 (lower slab) + 0.07 (upper slab), giving a total of 0.231 m³/m² for a weight of 577.50 kg/m².

DIMENSIONAL TABLES

NEW NAUTILUS EVO SINGLE*

	Material	Real size (cm)	Weight (kg)	Width joist (cm)	Incidence formwork (pz./m²)	Consumption CLS (m³/m²)	Volume formwork (m³/pz.)
H10 SINGLE	Graplene (Polypropylene Recycled compound)	52 x 520x H10	1.23	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.038 0.041 0.045 0.048 0.051 0.054	0.024
H13 SINGLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H13	1.30	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.057 0.062 0.066 0.069 0.073 0.076	0.028
H16 SINGLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H16	1.38	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.077 0.082 0.087 0.091 0.095 0.098	0.032
H20 SINGLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H20	1.49	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.099 0.105 0.110 0.116 0.120 0.125	0.039
H24 SINGLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H24	1.60	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.120 0.128 0.134 0.141 0.146 0.151	0.046
H28 SINGLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H28	1.71	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.142 0.151 0.158 0.166 0.172 0.178	0.053

***Packaging size: 110 x 120 cm, 400 pieces. Available feet: 0,4,5,6,7,8,9,10 cm**

** in view of the remanufactured material, measurements should be considered with a tolerance of ± 1.5%.*

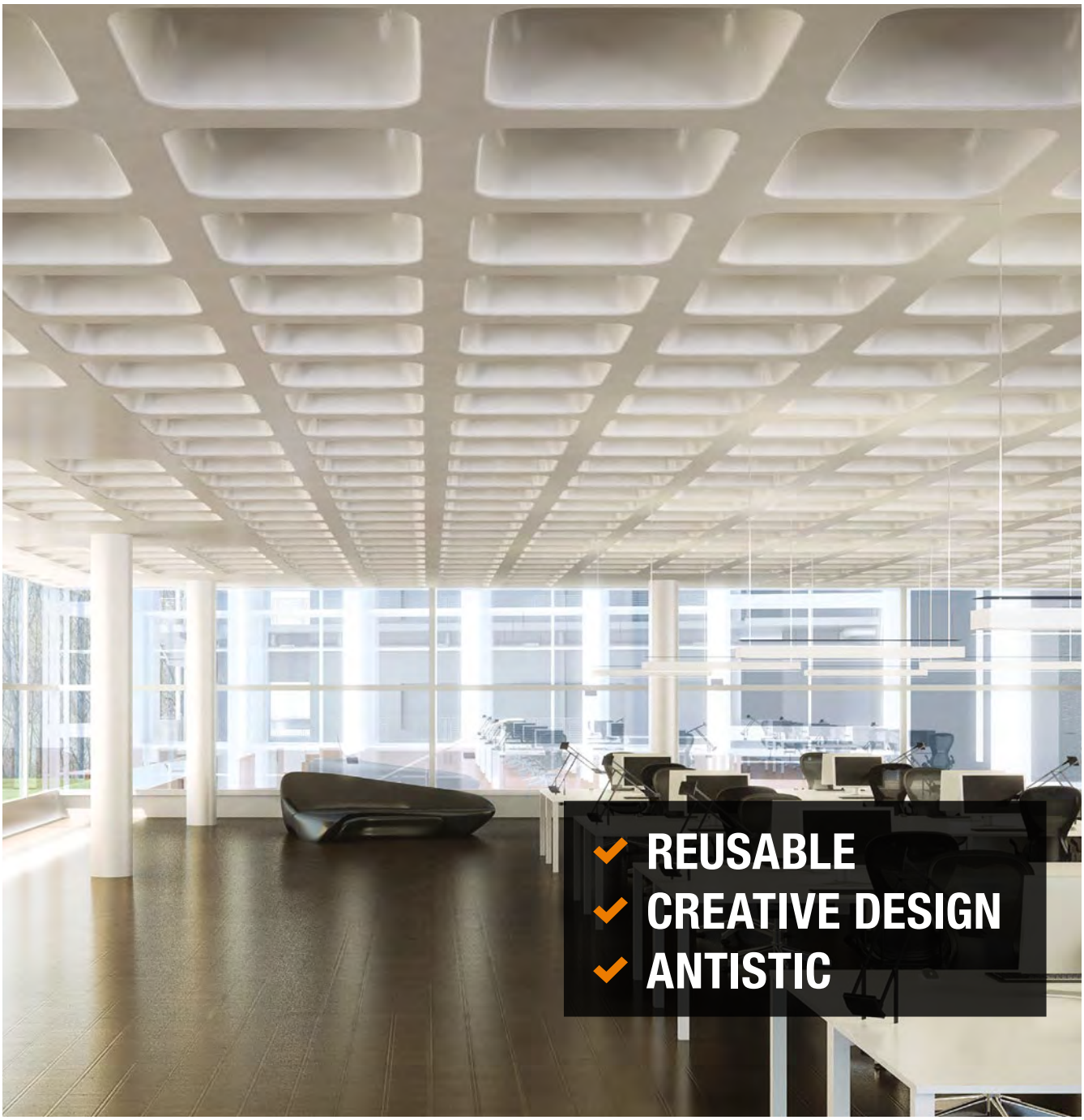
NEW NAUTILUS EVO DOUBLE**

	Material	Real size (cm)	Weight (kg)	Width joist (cm)	Incidence formwork (pz./m²)	Consumption CLS (m³/m²)	Volume formwork (m³/pz.)
H13 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H3	1.84	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.055 0.059 0.063 0.067 0.071 0.074	0.029
H14 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H4	1.87	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.059 0.064 0.069 0.073 0.077 0.080	0.031
H15 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H5	1.90	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.067 0.072 0.077 0.081 0.085 0.088	0.032
H16 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H3	2.01	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.074 0.079 0.084 0.089 0.093 0.096	0.033
H17 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H4	2.04	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.079 0.085 0.090 0.094 0.099 0.102	0.035
H18 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H5	2.07	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.086 0.092 0.097 0.102 0.107 0.111	0.036
H19 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H16+H3	2.14	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.094 0.100 0.105 0.110 0.114 0.119	0.037
H20 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H10	2.17	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.099 0.105 0.110 0.116 0.120 0.125	0.048
H21 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H16+H5	2.20	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.106 0.112 0.118 0.123 0.128 0.133	0.040
H23 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H13	2.53	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.095 0.103 0.111 0.118 0.124 0.130	0.052
H24 DOUBLE	Graplene (Polypropylene Recycled compound)	52 x 52 x H20+H4	2.22	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.120 0.128 0.134 0.141 0.146 0.151	0.046

		Materiale	Dimensione reale (cm)	Peso (kg)	Larghezza travetto (cm)	Incidenza casseri (pz./m²)	Consumo CLS (m³/m²)	Volume cassero (m³/pz.)
	**H25 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H20+H5	2.25	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.128 0.135 0.142 0.148 0.154 0.159	0.047
	**H26 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H13	2.60	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.114 0.123 0.131 0.139 0.146 0.152	0.056
	**H27 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H24+H3	2.44	10 12 14 16 18 20	2.60 1.45 1.53 1.60 1.66 1.72	0.137 0.145 0.153 0.160 0.166 0.172	0.051
	**H28 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H24+H4	2.47	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.142 0.151 0.158 0.165 0.172 0.178	0.053
	**H29 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H16	2.67	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.134 0.144 0.152 0.160 0.168 0.174	0.060
	**H30 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H20+H10	2.72	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.136 0.146 0.155 0.164 0.171 0.178	0.063
	**H31 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H28+H3	2.54	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.159 0.168 0.177 0.185 0.192 0.198	0.058
	**H32 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H16+H16	2.75	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.154 0.164 0.173 0.182 0.189 0.197	0.064
	**H33 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H20	2.78	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.156 0.166 0.176 0.185 0.193 0.201	0.067
	**H34 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H24	2.83	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.158 0.169 0.179 0.189 0.197 0.205	0.070
	**H36 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H16+H20	2.86	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.175 0.187 0.197 0.206 0.215 0.223	0.071
	**H37 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H24	2.89	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.177 0.189 0.200 0.210 0.219 0.227	0.074
	**H38 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H10+H28	2.94	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.180 0.192 0.203 0.213 0.223 0.231	0.077
	**H40 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H20+H20	2.97	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.197 0.210 0.221 0.231 0.241 0.250	0.078
	**H41 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H13+H28	3.00	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.199 0.212 0.224 0.235 0.245 0.254	0.081
	**H44 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H20+H24	3.08	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.219 0.232 0.245 0.256 0.267 0.276	0.085
	**H48 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H24+H24	3.19	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.241 0.255 0.269 0.281 0.292 0.303	0.092
	**H52 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H24+H28	3.30	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.262 0.278 0.293 0.306 0.318 0.329	0.099
	**H56 DOUBLE**	Graplene (Polypropylene Recycled compound)	52 x 52 x H28+H28	3.41	10 12 14 16 18 20	2.60 2.44 2.30 2.16 2.04 1.93	0.284 0.301 0.317 0.331 0.344 0.356	0.106

**Packaging size: 110 x 120 cm, 200 pieces. Available feet: 0,4,5,6,7,8,9,10 cm

SKYDOME



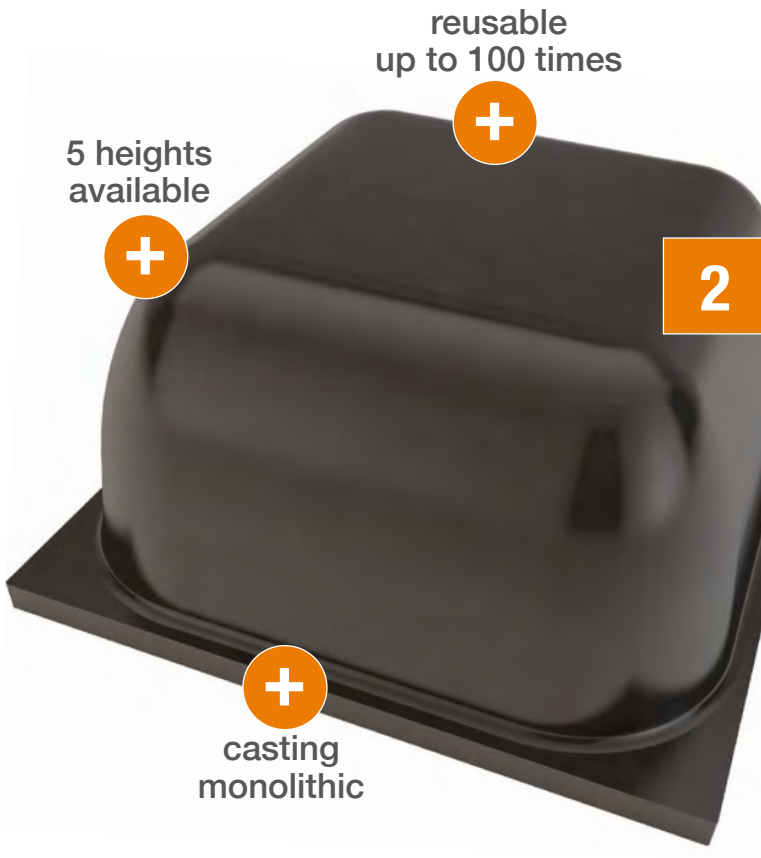
REUSABLE WAFFLE SLAB FORMWORK IN ABS TECHNOPOLYMER

THE SOLUTION

Reusable formwork system made of gratene (recycled ABS compound) for the construction of bidirectional cast-in-place slabs.
Designed to lighten concrete slabs, it enables large deck spans to be obtained.

Depending on the spans to be covered and the loads to be designed, Skydome offers a range of available heights to suit any type of coffered floor.
Skydome can be used to form architecturally impressive ceilings.

Thanks to the material it is made of, Skydome can be reused for more than 100 concrete castings and is resistant to footfall. Skydome also offers reverberation reduction in very large spaces such as open spaces, where the problem of acoustics can be solved with this type of coffered floor.



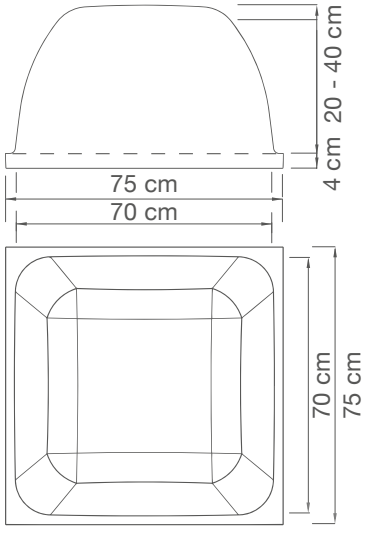
BI-DIRECTIONAL SLABS CASSETTE

These are the elements that make up the dome's support grid: light and easy to handle, they are easy to install on 20 h strong and reusable wooden beams.
Made of Gratene (recycled ABS Compound), they can be reused after simply being cleaned with water.

JOIST AND CUBE

TECHNICAL DATA

	H200	H250	H300	H350	H400
Dimensions (cm)	75 x 75				
Packing size (cm)	75 x 150 H231	75 x 150 H236	75 x 150 H240	75 x 150 H250	75 x 150 H255
Material	Gratene (Recycled ABS Compound)				
Piece weight (kg)	4,54	4,87	5,36	5,78	6,84
No. of pieces / pallet	100	100	100	100	100



STRUCTURAL ADVANTAGES

Reusable formwork system for the construction of coffered ceilings with bidirectional configuration and large spans. Skydome offers significant structural and architectural advantages.

ANTISTIC

Skydome makes it possible to reduce the floor mass, with considerable advantages in terms of seismic behaviour.

The inclusion of the Skydome coffered ceiling results in a reduction of at least 30% in structural mass and 10% in shear stress at the base.

ARCHITECTURE

The coffered finish is aesthetically pleasing and can be left exposed.

The design of the coffered ceiling helps the building to look good by making the ceiling a true work of architecture.

Loved by many architects and studios, Skydome offers a solution that is not only structurally efficient but also architecturally valuable.

GREAT LIGHTS

The Skydome system makes it possible to create floors with a span of up to 14 m, without over-hanging beams or protruding elements. In fact, the coffered floor creates a strong T-section, perfect for buildings with large spans.

For feasibility analyses and customised pre-planning please contact the Geoplast Spa Technical Departmen

ADVANTAGES IN IMPLEMENTATION

Reusable formwork system for the construction of large-span, bi-directionally configured coffered ceilings. Skydome offers significant advantages in terms of lightness and reuse.

REUSE

The ABS formwork is very robust and impact-resistant as well as resistant to trampling, and is capable of supporting fresh concrete castings many times over.

Skydome can be reused for more than 100 floor castings, a versatile and useful solution for contractors and builders.

LIGHTNESS

The elements that make up the system are very light and can be easily moved and installed.

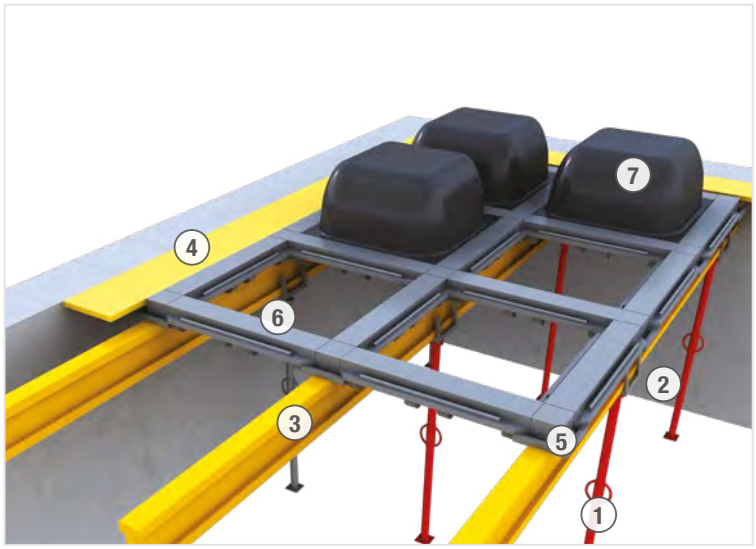
The lightness and ease of installation that distinguishes Skydome allows savings in terms of construction time and in the use of lifting equipment that slows down installation and increases costs.

ACUSTICS

The shape of the domes provides an excellent acoustic performance by limiting the reverberation effect of sound waves.

The effect of reverberation is in fact reduced by the fact that the shape of the coffered ceiling dampens the sound waves by bouncing them inside the domes.

COMPONENTS AND ACCEPTORS



The Skydome system consists of the following accessories when the floor is suspended from a beam system I and props.

1. SUPPORT PROP
2. ACCOMMODATION FORK
3. WOODEN BEAM
4. WOODEN COMPENSATION
5. CUBO SKYDOME
6. SKYDOME JOIST
7. SKYDOME DOME

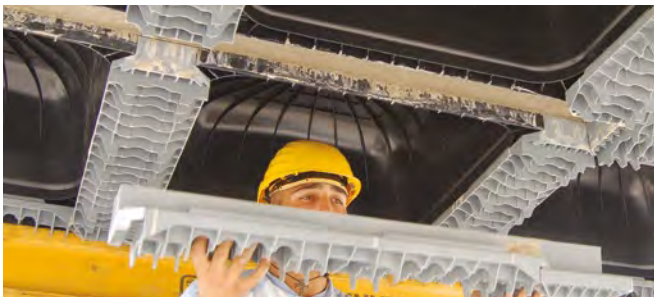
SKYDOME FORMWORK

① BEAM AND CUBE LAYING

Once the support system (props + yellow beams) has been created, the beams), the joist and cube elements are laid to create a regular elements are laid in order to create a regular grid for housing the domes. Once the lattice is created, the domes are laid at the same time.

② INSTALLATION SKYDOME

Always working from below, therefore in extreme safety, the Skydomes are laid by inserting them into the within the previously created grid. created. Once laying is complete, the system can be walked on dry.



③ DISMANTLING THE JOIST AND CUBE

6 to 7 days after casting, it is possible to start the Skydome system by removing in sequence removing props, yellow beams, ABS cubes and joists in sequence.
The operation is always carried out from below, working in total safety.

④ DISARMAMENT OF SKYDOME

Remove the first two rows of joists and cubes, the Skydomes can be removed.
Once this operation has been completed, the immediately and maintain the shoring until the until the 28th day of casting curing.

PRE-DIMENSIONING ANALYSIS

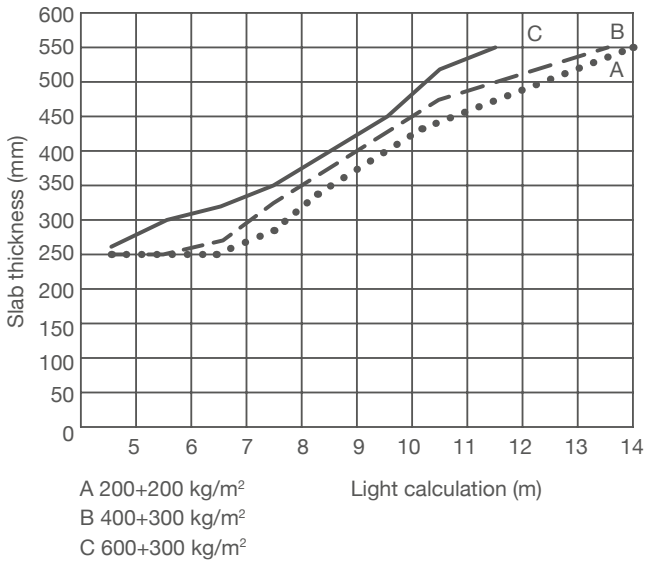
THICKNESS EVALUATION

For the pre-dimensioning of a floor created with Skydome, the table opposite shows the thickness as a function of the calculation span and the design loads of the floor.

EXAMPLE

For a load of 600+300 kg/m² (accidental + permanent) and spans (distance between pillars) of 8 m, the thickness in first approximation will be 350 mm (dome + slab).

For special constraints or loads, we recommend that ad hoc modelling be carried out and that you contact Geoplast's Technical Department.



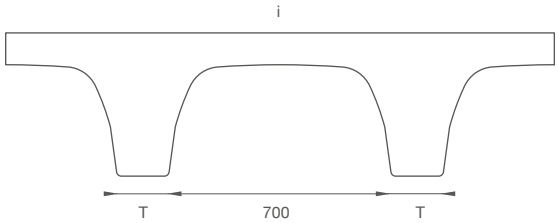
CONCRETE CONSUMPTION

Product	Beam width (T) mm	Beam spacing (I) mm	CLS volume flush m³/m²	Slab concrete volume m³/m²		
				Hood thickness H1 = 50 mm	Hood thickness H1 = 100 mm	Hood thickness H1 = 150 mm
SKYDOME H200	120	820	0.080	0.130	0.180	0.230
	160	860	0.091	0.141	0.191	0.241
	200	900	0.100	0.150	0.200	0.250
SKYDOME H250	120	820	0.099	0.149	0.199	0.249
	160	860	0.113	0.163	0.213	0.263
	200	900	0.125	0.175	0.225	0.275
SKYDOME H300	120	820	0.123	0.173	0.223	0.273
	160	860	0.139	0.189	0.239	0.289
	200	900	0.153	0.203	0.253	0.303
SKYDOME H350	120	820	0.151	0.201	0.231	0.301
	160	860	0.169	0.219	0.269	0.319
	200	900	0.185	0.235	0.285	0.335
SKYDOME H400	120	820	0.185	0.235	0.285	0.335
	160	860	0.205	0.255	0.305	0.355
	200	900	0.222	0.272	0.322	0.372

The table opposite can be used to calculate the concrete consumption and consequently the weight of the floor depending on the height of the dome and the width of the joist chosen.

EXAMPLE

Per un solaio 300+50 mm (300 mm di cupola + 50 mm di soletta superiore) con travetto da 160 mm, il consumo di calcestruzzo sarà pari a 0.189 m³/m² per un peso di 472.50 kg/m².



GEOPLAST TECHNICAL ASSISTANCE

Our engineers are on hand to support you during all phases of the project:

Modelling FEM of your floor	**Assumptions of dimensioning and layout**	**Analysis of costs**	**Design executive**	**Assistance during installation on site**	**Training and Formation**

FLAT SYSTEM

The FLAT version of Skydome can be installed directly on flat decks. The end result will be the same as with the standard Skydome: a two-way coffered ceiling.
All elements are easy to uninstall and, after a simple cleaning, are ready for a new use.

BIG LIGHTS

Skydome makes it possible to create bi-directional formwork slabs, significantly reducing the consumption of concrete, which in turn reduces the weight of the slab. The Skydome system consists of a reusable plastic formwork on which the concrete is cast. Once the casting has hardened and the Skydome plastic system has been removed, a bi-directional ribbed slab is obtained which can be left exposed due to its smooth and architecturally pleasing finish. The system makes it possible to obtain floors with large spans while reducing the weight of the structure as a whole.

MULTILEVEL CAR PARKS

The lightness provided by the Skydome system makes it possible to eliminate out-of-thickness elements (low beams and protruding pulvinos) in almost all cases.

This makes the soffit completely flat, eliminating all obstacles to the passage of pipes, plumbing and all systems, making their installation easier and more economical.

MULTI-STOREY BUILDINGS

A key advantage of the Skydome lightweight floor system is that it reduces the weight of the floor by up to 30%. This significantly reduces the mass that is moved during an earthquake, reducing the stresses on the structure. In addition, the reduction of the weight of the floor slab provides design and cost advantages for the entire concrete structure.

ACOUSTIC PERFORMANCE

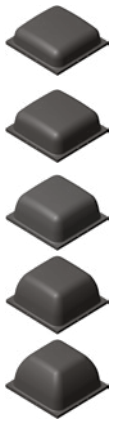
The special dome shape of the Skydome coffered ceiling ensures excellent room acoustic behaviour. This is particularly important in environments such as schools or classrooms, where noise would otherwise tend to reverberate, reducing speech understanding and making the environment less suitable for learning.

BUILDING RENOVATION

The Skydome system is a winning solution for renovation work. Its bi-directional configuration is perfect for floor constructions because it allows an even distribution of the load on all existing walls, limiting their stress.

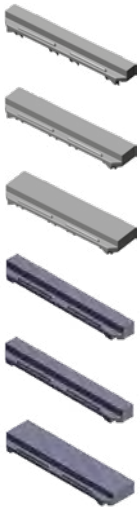
DIMENSIONAL TABLES

SKYDOME



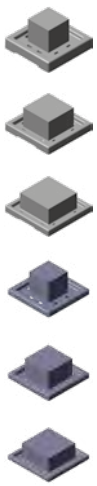
	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
SKYDOME H200	75 x 75 x H20	Gratene (Recycled ABS Compound)	4.54	75 x 150 x H231	100
SKYDOME H250	75 x 75 x H25	Gratene (Recycled ABS Compound)	4.87	75 x 150 x H236	100
SKYDOME H300	75 x 75 x H30	Gratene (Recycled ABS Compound)	5.36	75 x 150 x H240	100
SKYDOME H350	75 x 75 x H35	Gratene (Recycled ABS Compound)	5.78	75 x 150 x H250	100
SKYDOME H400	75 x 75 x H40	Gratene (Recycled ABS Compound)	6.84	75 x 150 x H255	100

TRAVET



	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
T120	14 x 75 x H10	Gratene (Recycled ABS Compound)	1.54	75 x 120 x H216	200
T160	18 x 75 x H10	Gratene (Recycled ABS Compound)	2.06	75 x 120 x H218	120
T200	22 x 75 x H10	Gratene (Recycled ABS Compound)	2.51	75 x 120 x H219	100
FLAT TF120	14 x 75 x H10	Gratene (Recycled ABS Compound)	0.99	75 x 120 x H236	200
FLAT TF160	18 x 75 x H10	Gratene (Recycled ABS Compound)	1.18	75 x 130 x H235	120
FLAT TF200	22 x 75 x H10	Gratene (Recycled ABS Compound)	1.46	75 x 120 x H241	100

CUBE



	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
C120	15 x 15 x H10	Gratene (Recycled ABS Compound)	0.40	75 x 120 x H210	500
C160	19 x 19 x H10	Gratene (Recycled ABS Compound)	0.59	100 x 120 x H210	500
C200	23 x 23 x H10	Gratene (Recycled ABS Compound)	0.78	100 x 120 x H220	300
FLAT CF120	15 x 15 x H10	Gratene (Recycled ABS Compound)	0.30	75 x 120 x H160	500
FLAT CF160	19 x 19 x H10	Gratene (Recycled ABS Compound)	0.40	75 x 120 x H220	500
FLAT CF200	23 x 23 x H10	Gratene (Recycled ABS Compound)	0.49	120 x 120 x H220	300

SKYRAIL

FORMWORK REUSABLE FOR LIGHTWEIGHT SLABS ONE-WAY

THE SOLUTION

Gratene formwork (regenerated ABS compound) reusable for the construction of one-way slabs for civil and commercial use.

The advantages of using the system are varied and can be seen in the different phases of floor construction. From a structural point of view, Skyrail allows the creation of extremely light and efficient slabs, as the use of bricks is not necessary. This feature also allows the exploitation of the formed cavity as a technical compartment for the passage of systems.

Depending on the spans to be covered and the design loads, Skyrail offers a range of available heights to suit all types of one-way slabs.
The material it is made of allows the system to be reused for more than 100 castings and makes it dry walkable.

ONE-WAY SLABS

Skyblock is the closing element made of Gratene (regenerated ABS compound) that guarantees the unique casting of beams and floors. Lightweight and easy to handle, it compensates for partitioning, is durable and reusable, and can be simply cleaned with water before reuse.

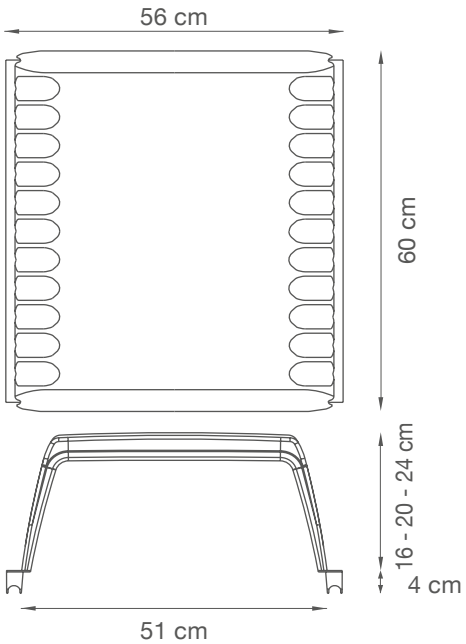
SKYBLOCK

TECHNICAL DATA SKYRAIL

	H16	H20	H24
Dimensions (cm)	56 x 60		
Packing size (cm)	110 x 125 H230	110 x 125 H232	110 x 125 H235
Material	Gratene (Recycled ABS Compound)		
Weight of piece (kg)	2,14	2,52	2,98
No. of pieces / pallet	208	204	200

TECHNICAL DATA SKYBLOCK

	H16	H20	H24
Dimensions (cm)	50,4 x 37 x H13	50,4 x 37 x H17	50,4 x 37 x H21
Packing size (cm)	100 x 120 H230	100 x 120 H233	100 x 120 H235
Material	Gratene (Recycled ABS Compound)		
Weight of piece (kg)	1,11	1,23	1,46
No. of pieces / pallet	420	420	420



STRUCTURAL ADVANTAGES

Reusable formwork system for the construction of floors with a one-way configuration. Skyrail offers significant advantages in terms of technology and mass reduction.

TECHNOLOGY

Easy to handle and extremely versatile, Skyrail is the formwork for one-way slabs that makes it easier for the builder to carry out the work.

The reclaimed ABS formwork provides excellent strength and durability.

REUSE

Skyrail is manufactured from regenerated ABS, a material that allows easy and quick removal without the use of release agents.

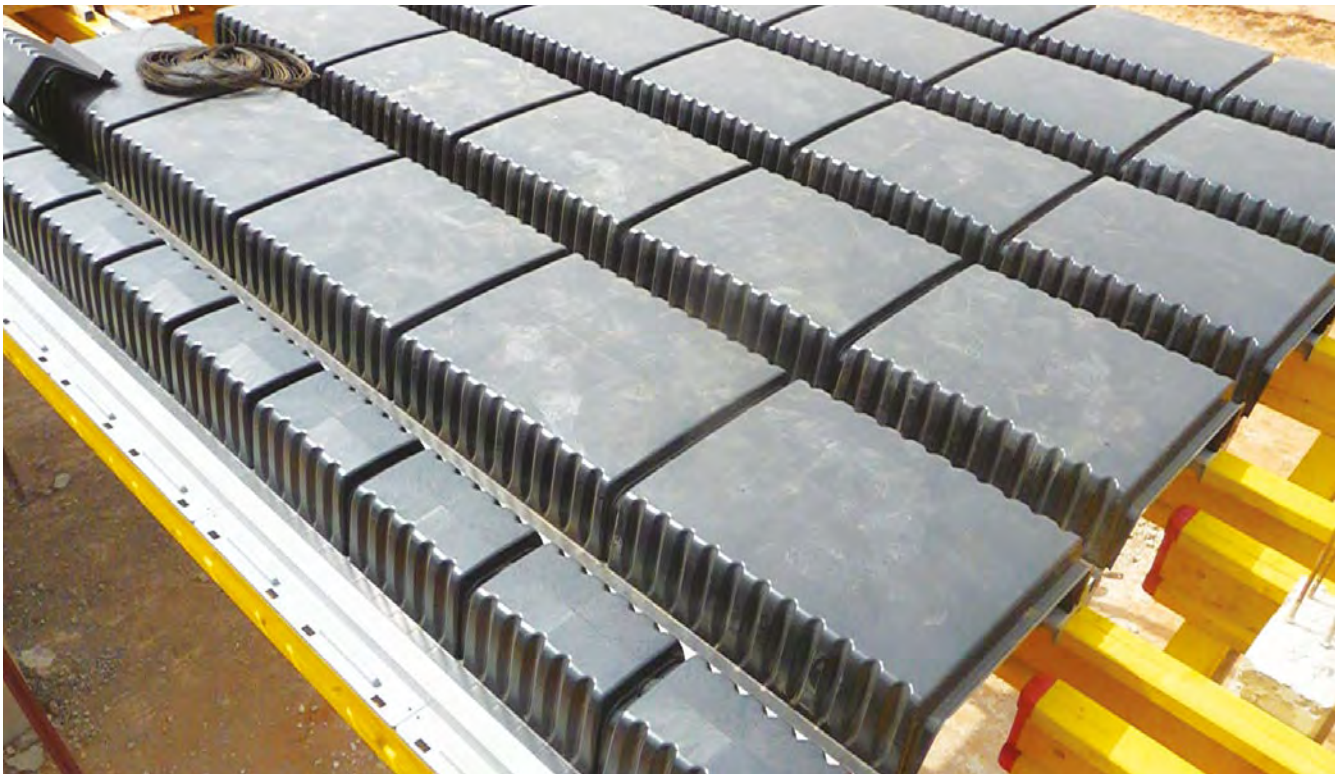
After a quick clean using just water, Skyrail can be reused for over 100 jets.

ANTISTIC

The elimination of brick elements makes it possible to reduce the dead weight of the floor, with enormous advantages in terms of seismicity.

Reducing the slab mass has considerable advantages from a seismic point of view.
It benefits the structure as a whole, and it is also possible to reduce the cross-sections of vertical structures and foundations.

ADVANTAGES OF USE



Reusable formwork system for the construction of floors with a one-way configuration and the creation of a technical void. Skyrail is the formwork that offers considerable advantages in terms of handling and lightness.

EMPTY TECHNICAL

The lightening void in the structure created with Skyrail can be used as a technical compartment for the positioning of systems.

In fact, between one joist and the next, the formwork forms a rectilinear space useful for housing the systems of all types of construction, especially in office and commercial buildings.

LIGHTNESS

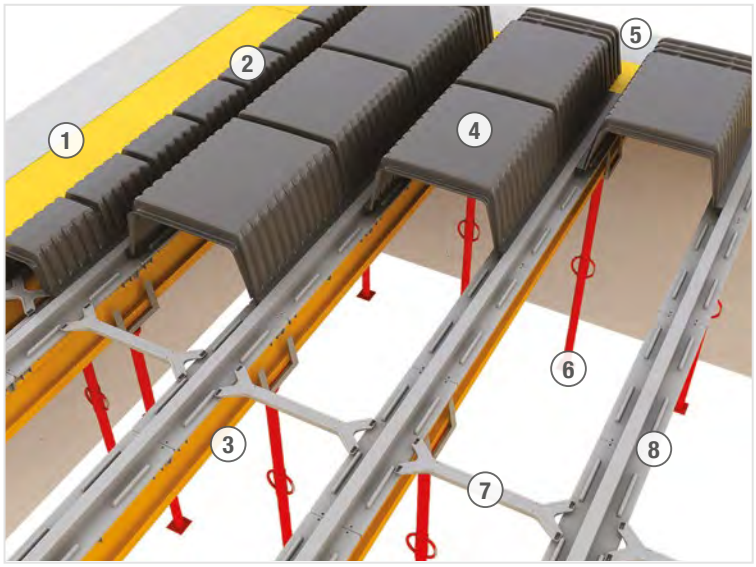
Thanks to the reduced use of iron and concrete for the construction of the floor, Skyrail makes it possible to achieve an overall lighter structure, as the cross-section of the pillars, support beams and the thickness of the foundation slab can be reduced.

HANDLING

The elements that make up the system are very light and easy to handle, which also benefits the safety of the workers.

This allows the work to be carried out while significantly reducing the completion time required by traditional solutions.

COMPONENTS AND ACCEPTORS



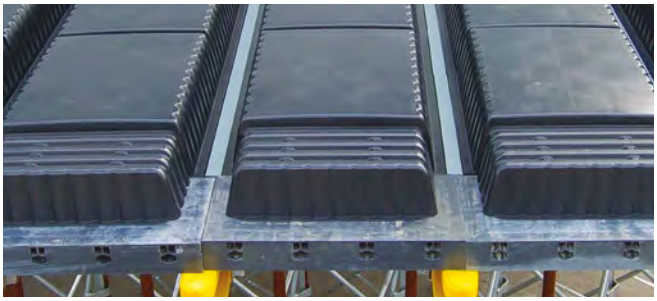
Skyrail is a complete system capable of covering all site requirements.
Thanks to a complete range of accessories, it allows both lateral and longitudinal compensation.
Shoring is extremely simple with the use of props and rigging beams.

1. WOODEN COMPENSATION
2. MINISKYRAIL + MINISKYBLOCK
3. WOODEN BEAM
4. SKYRAIL DOME
5. SKYRAIL CAP
6. SUPPORT PROP
7. SPACER
8. SKYRAIL BEAM

SKYRAIL FORMWORK

1 LAYING BEAMS AND SPACERS

Once the support system (props + yellow beams) has been created, the beams), the joist and cube elements are laid to create a regular grid for housing the domes.



2 SKYRAIL INSTALLATION

Always working from below, and therefore in extreme the Skyrail domes and Skyblock closing accessories and Skyblock closure accessories are installed.
Once installation is complete, the system can be dry walkable.

3 SKYRAIL DISMANTLING

6 to 7 days after casting, it is possible to begin the the Skyrail system, removing props, yellow beams and props, yellow beams and ABS joists.
The operation is always carried out from below, working safely.

4 DISMANTLING PROPS

After removing the first two rows of ABS beams, the Skyrail and Skyblock domes can be removed. the Skyrail and Skyblock domes can be removed.

Once this operation has been completed, the immediately and maintain the shoring until the the 28th day of casting curing.

PREDIMENSIONING ANALYSIS

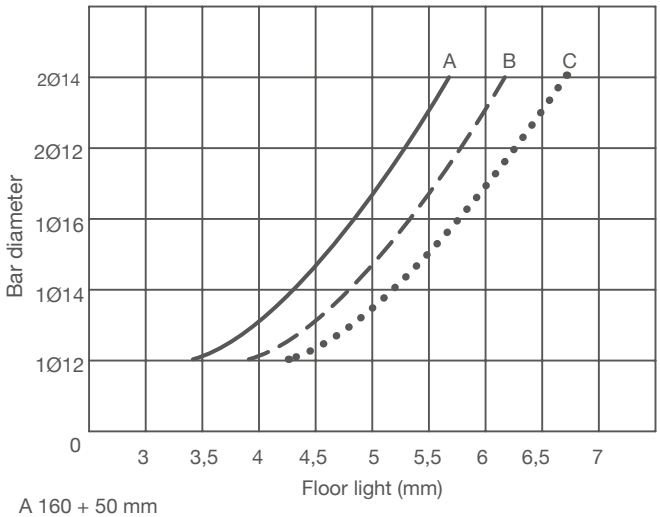
THICKNESS ASSESSMENT

For the pre-dimensioning of a floor created with Skyrail, it is possible to calculate the minimum thickness and reinforcement to be inserted in the joists according to the calculation span and the loads acting on the floor.

EXAMPLE

For a load of 200+200 kg/m² (accidental + permanent) and spans (distance between beams) of 6 m, the thickness as a first approximation will be 240+50 mm (dome + slab) with a minimum reinforcement of 2Ø12.

For special constraints or loads it is advisable to carry out ad hoc modelling and contact the Geoplast Technical Office.



A 160 + 50 mm
B 200 + 50 mm
C 240 + 50 mm

3

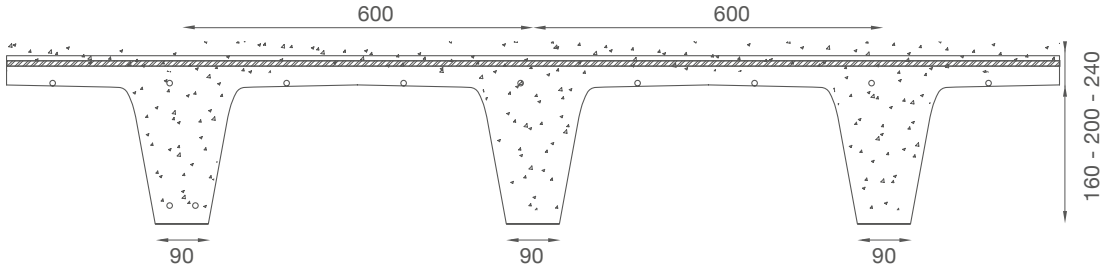
CONSUMPTION OF CONCRETE

Product	Concrete consumption at formwork level m³/m²	Slab (mm)	Total concrete consumption m³/m²	Floor weight kg/m²
SKYRAIL H16	0.037	40	0.077	192.50
		50	0.087	217.50
		60	0.097	242.50
SKYRAIL H20	0.055	40	0.095	237.50
		50	0.105	262.50
		60	0.115	287.50
SKYRAIL H24	0.064	40	0.104	260.00
		50	0.114	285.00
		60	0.124	310.00

The table opposite can be used to calculate the concrete consumption and consequently the weight of the floor depending on the height of the dome and the width of the joist chosen.

EXAMPLE

For a 240+50 mm floor (240 mm dome + 50 mm top slab), the concrete consumption will be 0.114 m³/m² for a weight of 285 kg/m².



GEOPLAST TECHNICAL ASSISTANCE

Our engineers are on hand to support you during all phases of the project:

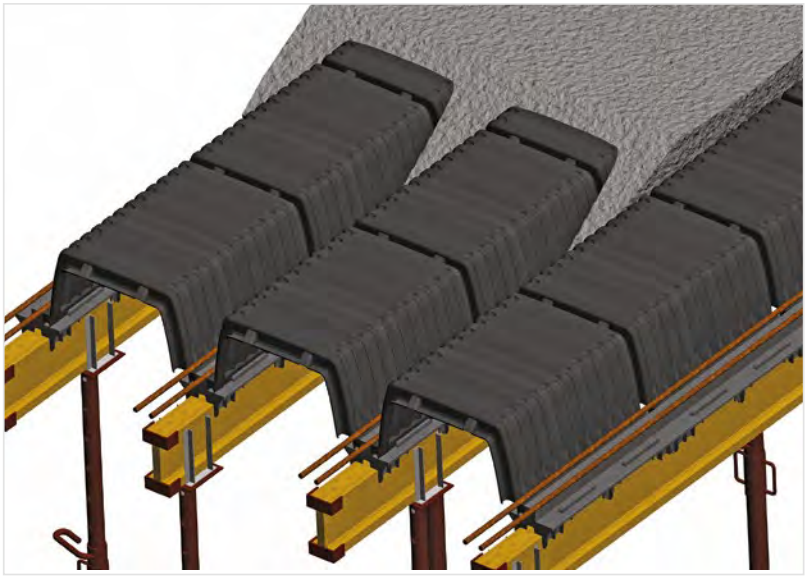
Modelling FEM of your floor	**Assumptions of dimensioning and layout**	**Analysis of costs**	**Design executive**	**Assistance during installation on site**	**Training and Formation**

COMPARISON WITH CONVENTIONAL SYSTEM

SKYRAIL

Reusable formwork for creating one-way slabs.

VS



LATERO CEMENT

System for the creation of one-way slabs involving the positioning of brick blocks on the beams.

PREDALLES WITH EPS

Lightening system for one-way slabs with expanded polystyrene (EPS) elements.

FULL

Creation of concrete slabs without lightening elements.

	SKYRAIL	LATERO CEMENT	PLANTERS WITH EPS	FULL
LIGHTNESS OF FLOOR	✓	✗	✓	✗
SEISMIC MASS REDUCTION	✓	✓	✓	✗
LOAD REDUCTION ON VERTICAL STRUCTURE	✓	✗	✓	✗
CREATION OF A TECHNICAL COMPARTMENT	✓	✗	✗	✗
SIMPLICITY OF ASSEMBLY	✓	✗	✓	✓
LAYING FROM BELOW	✓	✗	✗	✗
REUSABLE	✓	✗	✗	✗
SMALL FOOTPRINT ON SITE	✓	✗	✗	✓
NOT AFRAID OF BAD WEATHER	✓	✗	✗	✓

TECHNICAL ROOM

In the void created by the Skyrail system it is possible to house the pipes for the underground services (plumbing and electrical systems). The soffit must be suspended in order to obtain a flat finish; the suspended ceiling makes it possible to simplify and modify the positioning of the lighting points to one's liking in order to make it easier to replace or repair the systems.

SEISMIC MASS REDUCTION

The fundamental advantage of the Skyrail lightweight slab system is that it reduces the weight of the slab by up to 30%. This reduction significantly reduces the mass that is stressed during an earthquake and therefore also the risk of structural failure. In addition, it is possible to dimension the vertical structure of the building in a less onerous manner.

DIMENSIONAL TABLES

SKYRAIL AND SKYBLOCK

		Real dimension (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
	**SKYRAIL H16**	56 x 60 x H16	Gratene (Recycled ABS Compound)	2.84	110 x 125 x H230	208
	**SKYRAIL H20**	56 x 60 x H20	Gratene (Recycled ABS Compound)	2.94	110 x 125 x H232	204
	**SKYRAIL H24**	56 x 600 x H24	Gratene (Recycled ABS Compound)	3.05	110 x 125 x H235	200
	**SKYBLOCK H16**	50,4 x 37 x H13	Gratene (Recycled ABS Compound)	1.31	100 x 120 x H230	420
	**SKYBLOCK H20**	50,4 x 37 x H17	Gratene (Recycled ABS Compound)	1.42	100 x 120 x H233	420
	**SKYBLOCK H24**	50,4 x 37 x H21	Gratene (Recycled ABS Compound)	1.52	100 x 120 x H235	420

ACCESSORIES

		Real dimension (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
	**MINI SKYRAIL**	26 x 30 x H16	Gratene (Recycled ABS Compound)	0.67	80 x 120 x H230	650
	**MINI SKYBLOCK**	14,4 x 20,8 x H13	Gratene (Recycled ABS Compound)	0.27	100 x 120 x H233	650
	**SKYRAIL TRAVET T**	16 x 60 x H12,4	Gratene (Recycled ABS Compound)	1.70	100 x 120 x H220	300
	**SPACER SK30**	30	Gratene (Recycled ABS Compound)	0.06	Bag	
	**SPACER SK60**	60	Gratene (Recycled ABS Compound)	0.16	Bag	

REFERENCES

SKYRAIL, RESIDENTIAL BUILDINGS, SALAVAT, RUSSIA

Construction of the intermediate floors in a residential complex. The presence of Skyrail combined with the false ceiling allowed the creation of compact floors that could also be used as technical rooms for the passage of installations.

SKYRAIL, RESIDENTIAL DISTRICT, DAKAR, SENEGAL

As a viable alternative to traditional hollow core slabs, Skyrail has enabled significant savings in time and materials, while also giving interiors an unmistakable architectural style and a feeling of high quality.

AIRPLAST

SYSTEM FOR LIGHTENING OF ONE-WAY SLABS WITH FLAT SOFFIT

THE SOLUTION

Safe and advanced system for the construction of semi-prefabricated slabs (predalles) and in-situ cast slabs with one-way behaviour and flat soffit.

Airplast is the innovative alternative to polystyrene lightening, a material typically used in these floors.

ONE-WAY CEILINGS FOR CIVIL AND COMMERCIAL USE

Geosol is a special alternative solution to Airplast for the construction of one-way slabs directly on site.
The slightly smaller size of the formwork and the different heights available make the use of Geosol effective in all those cases where the use of Airplast may not be easy.

GEOSOL

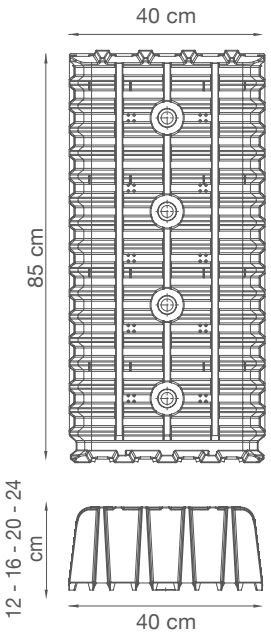
TECHNICAL DATA AIRPLAST

	H12	H16	H20	H24
Dimension (cm)	85 x 40			
Packing size (cm)	85 x 120 H232	85 x 120 H236	85 x 120 H250	85 x 120 H260
Material	Graplene (Recycled polypropylene compound)			
Piece weight (kg)	1,75	1,86	2,01	2,23
No. of pieces / pallet	300	300	300	300

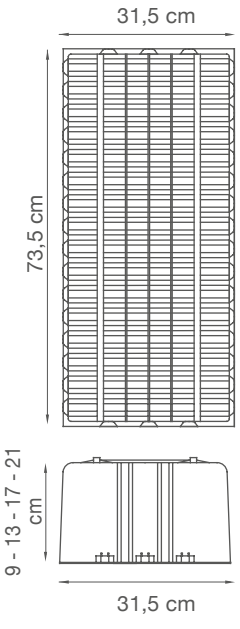
GEOSOL TECHNICAL DATA

	H19	H13	H17	H21
Dimension (cm)	73,5 x 31,5			
Packing size (cm)	100 x 120 H240	100 x 120 H240	100 x 120 H240	100 x 120 H240
Material	Graplene (Recycled polypropylene compound)			
Piece weight (kg)	1,20	1,25	1,30	1,35
No. of pieces / pallet	350	350	350	350

AIRPLAST



GEOSOL



ADVANTAGES

Airplast is a viable and sustainable alternative to the use of conventional lightweighting for predalles.
Its shape is its main strength, giving it several advantages. Its use allows the structure to achieve excellent performance in case of fire and seismic response, while maintaining a simple design and construction approach, typical of one-way slabs.

STORAGE

Thanks to its stackability, Airplast can be stored on site taking up very little space, where space for stacking material is sometimes very difficult to find compared to normal EPS lightweighting.

Its shape and stackability make this product an excellent substitute for normal methods of lightening in predalles. In addition, thanks to its high strength, Airplast pre-installed in predalles Airplast is pre-installed in the predalles and guarantees the stacking of up to 5 sheets.

SPEED

Installation is extremely quick and easy, and the lower coupling feet allow perfect fixing to the still fresh concrete.

The insertion of Airplast ensures accuracy in locating the voids created, unlike normal EPS which tends to shatter.

CALPESTY

Airplast offers a greater guarantee against impact than normal EPS, as it remains intact at all times thanks to its remarkable resistance, due to the composition of the material with which it is produced.

This allows operators to work safely and quickly without element breakage requiring costly repairs.

TECHNICAL ADVANTAGES

w

NO BONDING

The compact nature of the polypropylene that makes up Airplast makes the product totally watertight.

This characteristic makes Airplast immune to the problem of soaking of the fillers during laying or storage on site, a drawback that is instead found with traditional methods and that in the medium and long term can deteriorate the work.

NO BLOWERS

Airplast, unlike polystyrene, does not contain harmful gases such as styrene and therefore does not need vents to evacuate the air.

As well as simplifying installation, this avoids the possibility of such gases under pressure exploding and damaging the slab.

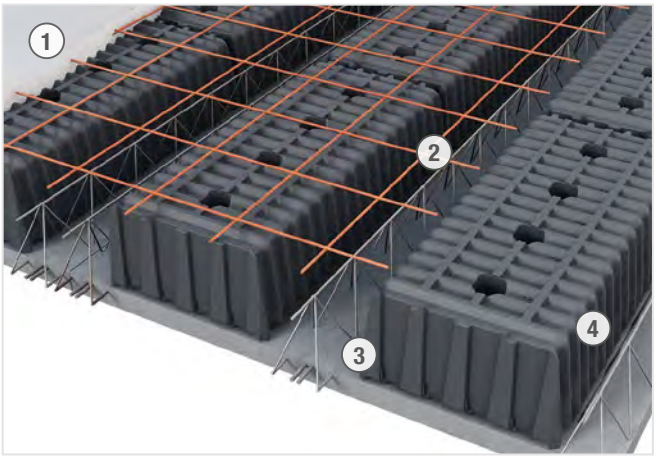
FINISH

The impermeability to water and the absence of vents gives considerable advantages to the finished work.

Specifically, the predalles slabs made with Airplast can count on a high-quality, long-lasting finish on the underside.

In addition, as polypropylene is a compact and resistant material, Airplast offers a guarantee of lightening and avoids the classic crumbling or actual detachment of lightening as happens with EPS.

AIRPLAST LAYING PHASES



The Airplast formwork is ideally suited for use with precast slabs.
The elements are placed on the fresh concrete in the factory and the slabs are transported to the construction site ready to be laid.
Compared to EPS, it retains the same operability.

1. COMPLETION CAST NERVATURE
2. ELECTROWELDED MESH
3. BOTTOM SLAB
4. AIRPLAST FORMWORK

AIRPLAST, THE VERSATILE FORMWORK

The cones act as a restraining element and prevent the formwork from buckling when stepped on.

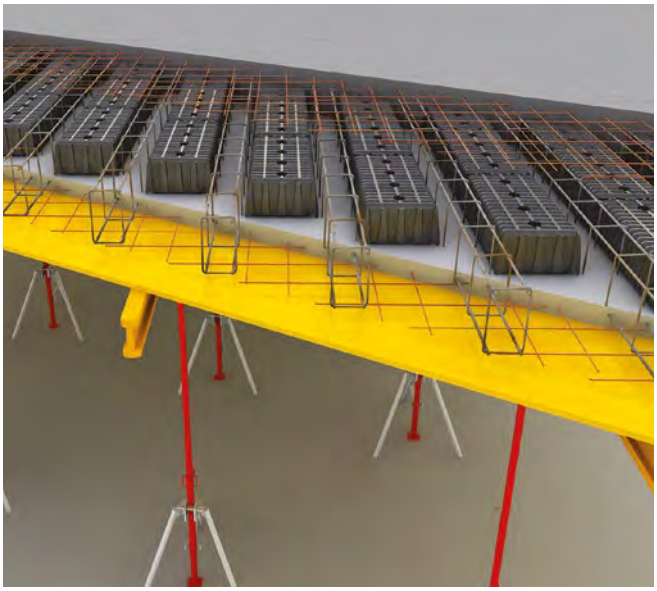
A. CENTRAL THROUGH CONES

B. LATERAL STIFFENERS

C. FEET

LIGHTENING IN PLACE

Airplast is also suitable for the construction of in-situ slabs; it is possible to create one-way slabs with large spans. The high footfall resistance and impermeability of Airplast formwork make construction work easier and ensure a perfect floor.



KERBING AND LATERAL COMPENSATION

Airplast can be cut very easily and quickly to obtain the necessary compensation.
At the top, the formwork is marked at the point where the cut is to be made in order to achieve the correct overlap. Cuts in different sizes also allow for a very precise follow-up of inclinations.

LENGTH 85 cm	LENGTH 104 cm	LENGTH 124 cm	LENGTH 143 cm
			

WHY AIRPLAST INSTEAD OF EPS?

AIRPLAST ADVANTAGES

- FULL WATERPROOF
- BEST ADHESION TO CLS
- PERFECT FINISH OF THE SOFFIT
- STACKABLE AND EASY TO STORE

10 trucks of EPS

VS

1 truck of Airplast

PREDALLES PREFABRICATION WITH AIRPLAST

① FORMWORK PREPARATION

The manufacture of precast slabs begins with the with the preparation to size of the metal formwork for making the concrete base.
concrete base.

② CONCRETE CASTING

The concrete is then poured to the required thickness of the project and subsequent mechanical vibration to eliminate the air present in the cement inside the cement matrix.

③ POSITIONING TRUSSING AND REINFORCEMENT

The basic reinforcement of the slab is placed above the spacers.
In order to ensure the necessary concrete cover, the then the trusses of the rafters and the longitudinal of the rafters and the longitudinal calculation bars of the of the predalles.

④ POSITIONING AIRPLAST FORMWORK

Before the concrete has set, the Airplast formwork is positioned at the height indicated in the project. The presence of the notching the lower edge of the formwork ensures optimum the formwork ensures optimal anchorage of the attachment element to the predalles.
To the predalles, making the whole assembly integral without the risk of detachment.

⑤ PREDALLES

Floor screeds made with Airplast have characteristics of rapid installation, typical of the technology, while increasing the safety and cleanliness of the floor during positioning of the additional positioning of the additional reinforcement.

DIMENSIONAL TABLES

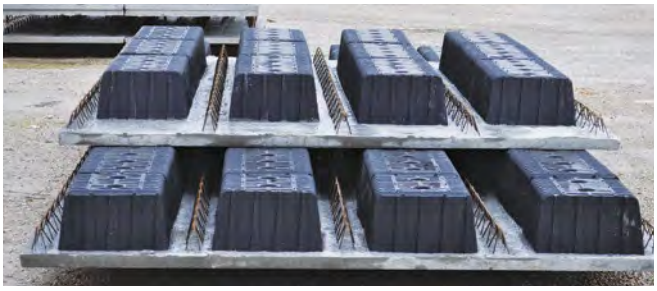
AIRPLAST

	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
 **AIRPLAST H12**	85 x 40 x H12	Graplene (Polypropylene Recycled compound)	1.75	85 x 120 x H232	300
 **AIRPLAST H16**	85 x 40 x H16	Graplene (Polypropylene Recycled compound)	1.86	85 x 120 x H236	300
 **AIRPLAST H20**	85 x 40 x H20	Graplene (Polypropylene Recycled compound)	2.01	85 x 120 x H240	300
 **AIRPLAST H24**	85 x 40 x H24	Graplene (Polypropylene Recycled compound)	2.23	85 x 120 x H244	300

GEOSOL SERIES

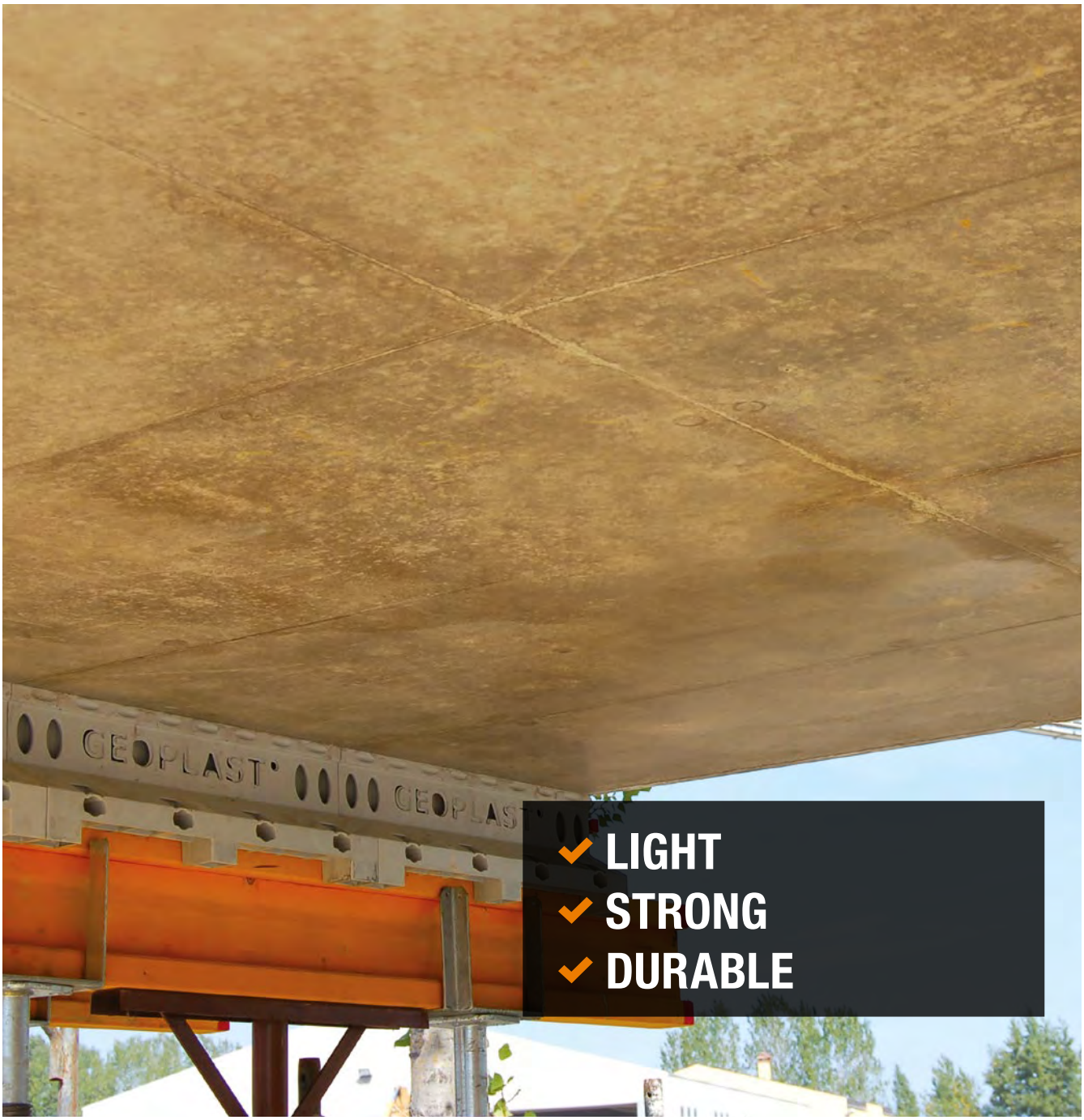
	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
 **GEOSOL H9**	73,5 x 31,5 x H9	Graplene (Polypropylene Recycled compound)	1.20	100 x 120 x H240	350
 **GEOSOL H13**	75 x 32,5 x H13	Graplene (Polypropylene Recycled compound)	1.25	100 x 120 x H240	350
 **GEOSOL H17**	75 x 32,5 x H17	Graplene (Polypropylene Recycled compound)	1.30	100 x 120 x H240	350
 **GEOSOL H21**	75 x 32,5 x H21	Graplene (Polypropylene Recycled compound)	1.35	100 x 120 x H240	350

APPLICATION OF PREFABRICATED SLABS

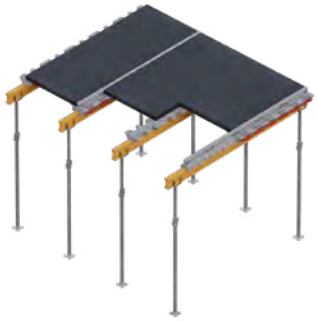


The slab commonly referred to as 'predalle' is defined as semi-prefabricated in that one part (usually consisting of the base slab, reinforcement trusses and fillers) is made in the factory while the completion, consisting of the top reinforcement and finish, is made directly on site.

GEOSKY



FORMWORK REUSABLE FOR FLAT FLOORS



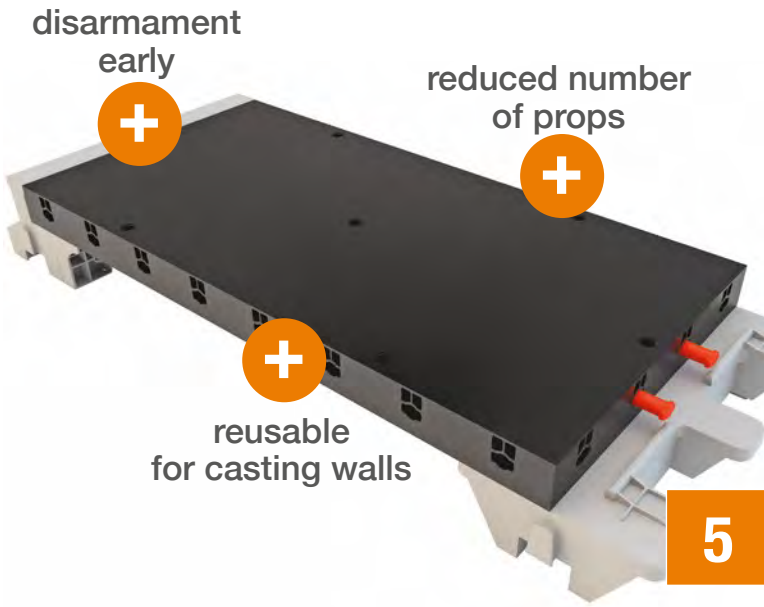
THE SOLUTION

Geosky is a reusable modular system designed for flat soffit formwork.
With Geosky it is possible to create both solid and lightweight concrete slabs, as well as classic joisted concrete slabs.

Geosky allows for early stripping, immediately re-covering part of the material used to use it for other projects on the site, without waiting for the casting to fully cure.

The material from which it is made guarantees a high number of uses without the need for release agents.

FORMWORK FOR FLAT DECKS



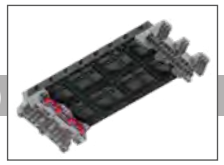
SOLUTION GEOSKY

The Geosky system offers two different installation methods. Geosky H+Y offers advantages in the event of early decommissioning, while the GEOSKY HS solution is optimal for practicality where speed of installation and reduced costs are preferred.

TECHNICAL DATA

SYSTEM ELEMENTS		PANELS
Material	Gratene (Recycled ABS Compound)	
Elements of the system	Dimensions nominal (cm)	Dimensions nominal (cm)
GEOSKY TRAVET Y	19,1 x 60,5 x H20	120 x 60
GEOSKY TRAVET H	31 x 60,5 x H12,1	15 x 60 20 x 60
GEOSKY TRAVET HS	13 x 60,5 x H5,8	25 x 60
CUNEO GEOSKY	16 x 60,5 x H11,8	30 x 60 35 x 60
TWIN ANGLE	30,3 x 30,3 x H10	40 x 60

GEOSKY H+Y (EARLY DECOMMISSIONING)



GEOSKY HS (STANDARD DISMANTLING)

ADVANTAGES

Modular and reusable formwork system for the construction of formwork floors for the casting of flat soffit slabs.

DISARMAMENT EARLY

Geosky allows partial or total early removal in complete safety and speed, without changing the shoring system

Geosky can be completely disassembled and stored even in wet locations for reuse many times.

MODULARITY

The Geosky system is used in combination with the Geopanel system. Geopanel is the only panel on the market that allows for both flat decks and walls.

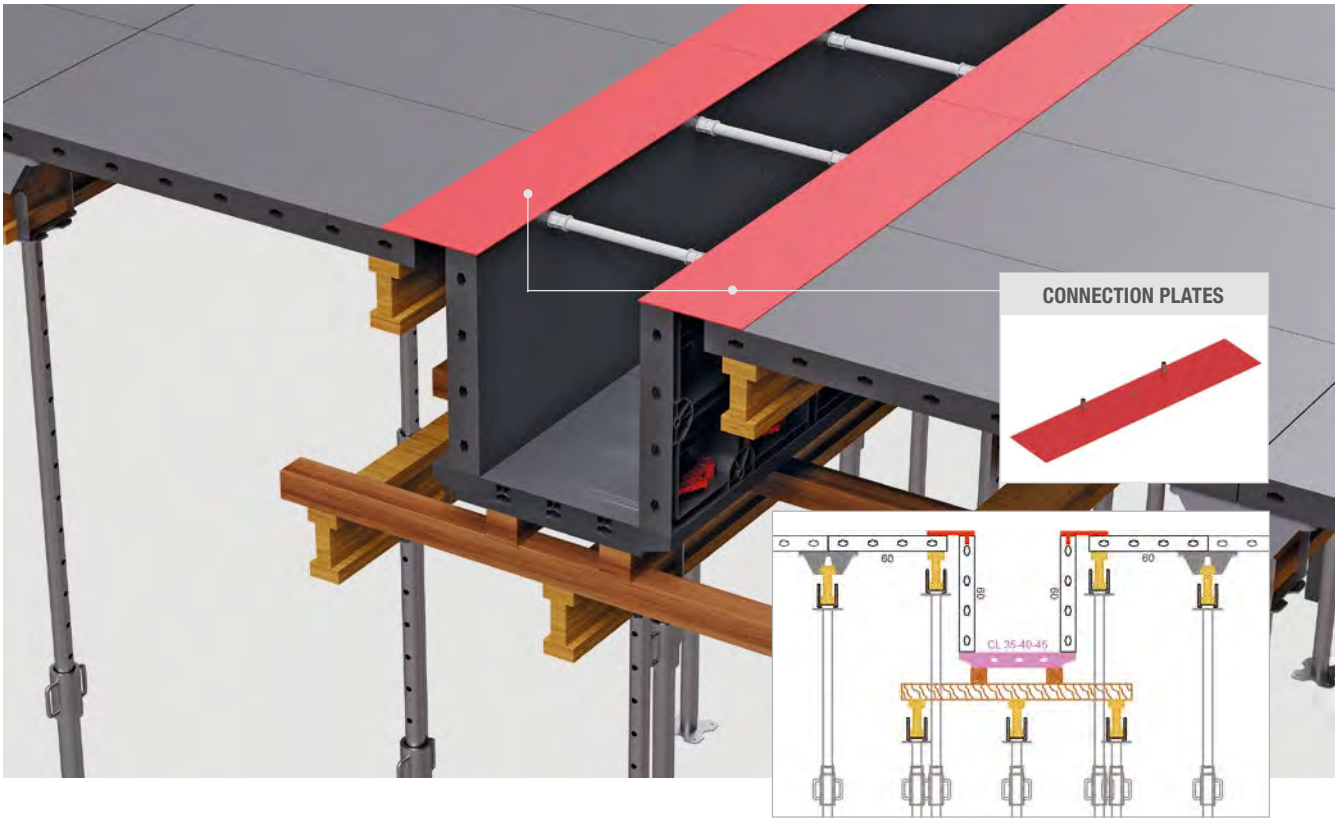
Thanks to the design of the elements, decks of any shape can be produced very easily and quickly.

NO DISARMANTS

The Geosky system consists of ABS elements that do not require the use of release agents.

The concrete does not adhere to the plastic, allowing easy dismantling and quick cleaning without the use of special cleaning agents, but only with a little water.

FORMWORK FOR EXTRA-THICK BEAMS



Connecting plates to connect the floor formwork to the beam formwork.

SINGLE WALL AND FLOOR CASTING

In cases where you choose to cast wall and slab simultaneously (see: monolithic casting) the Geopanel Twin Angle panel is used for the connection between the corner of a wall formwork with Geopanel and the corner of the slab formwork with Geosky.

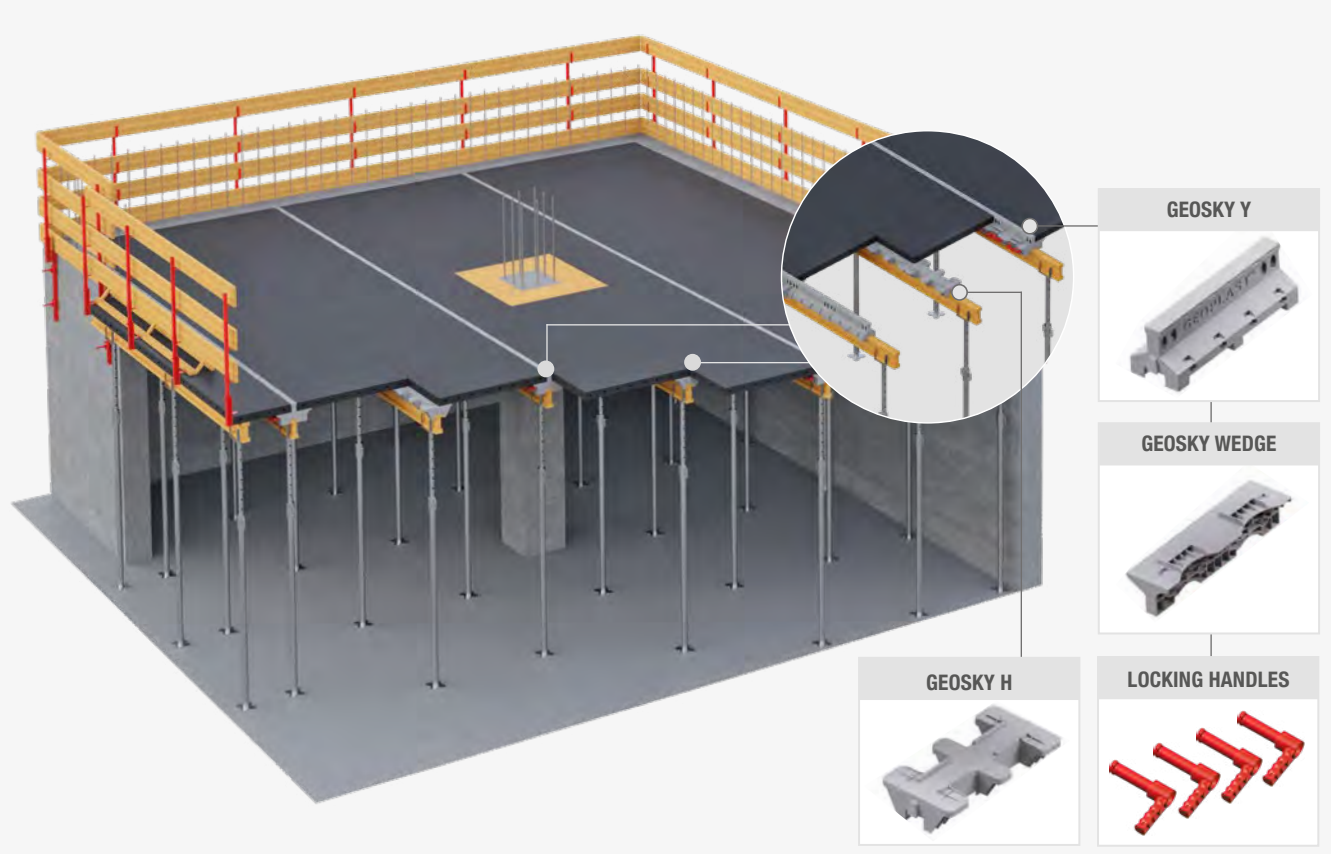
CONNECTION PLATES

The connecting slabs are available in models from 0.60 m to 1.20 m in length to interface with any side of Geopanel 120x60, for horizontal adjustments of up to 10 cm.

EXPANSION PLATES

Formwork with a large surface area and without interruptions, in the presence of high ambient temperature conditions, requires the management of thermal expansion of the formwork. Geosky expansion plates have this function, and are available in two lengths 120 cm and 60 cm, ensuring dimensional compatibility with Geopanel in both directions.

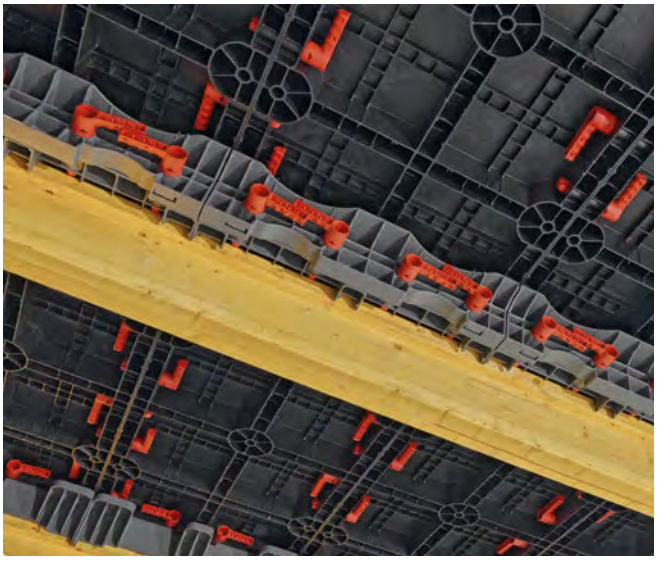
EARLY RELEASE



GEOSKY: GEOPANEL FOR ROOF SLABS

Geosky is a series of accessories which turn Geopanel into an horizontal roof slab formwork system. Various options are available, depending from the priority of the construction site: the “Y+H” option allows for shorter waiting time before partial formwork dismantling, while the “HS” option caters for slower but more investment-sensitive formwork rotation time.

After dismantling the Geopanel elements can be used again for another roof slab or for vertical applications such as walls or foundations, making the system even more flexibile in its applications.



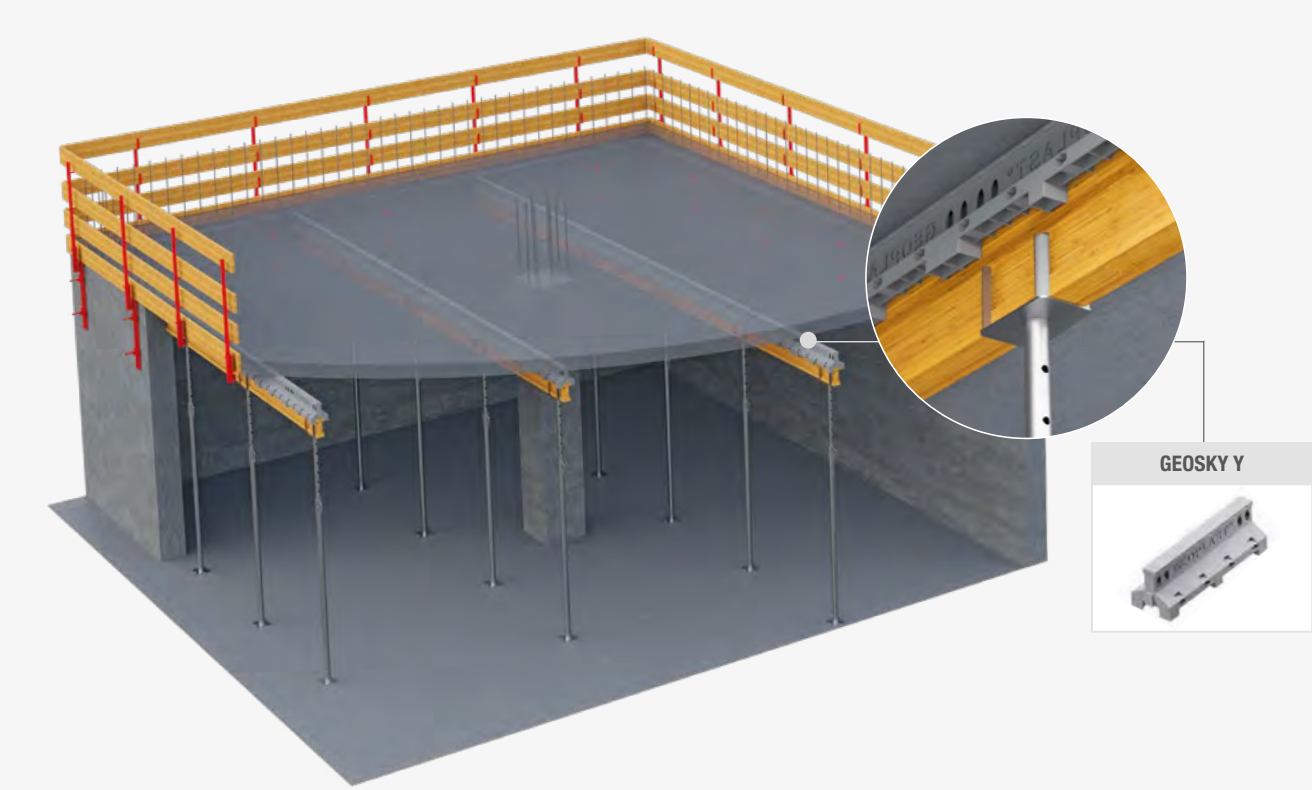
EARLY DISMANTLING

DUAL-USE

LIGHT AND SAFE

Element	Dimensions (mm)	Contact surface (m^2)	Weight (kg)
GEOSKY Y	191 x 605 x 200	0.036	2.67
GEOSKY WEDGE	160 x 605 x 118	-	2.67
GEOSKY H	310 x 605 x 121	-	2.69
GEOSKY HS	130 x 605 x 40	-	0.62
TWIN ANGLE	303 x 303 x 100	0.152	3.96

FIXED FORMWORK SOLUTION



EARLY DISMANTLING

When the early dismantling (Y+H) option is chosen, Geopanel is supported by alternating Geosky H-Beams and Geosky Y-Beams with two Geosky Wedges attached. The H-Beams and the Wedges form panel-holding ledges.
When the Geosky Wedges and H-Beams are removed it is possible to remove the Geopanel elements too, leaving the sole Geosky Y-Beams to support the slab until concrete is fully cured.

Geosky HS-Beams work the same way as Geosky H-Beams, but are lighter and have a smaller contact surface. All the Geosky Beam elements rest on standard H-20 timber beams. For further technical details refer to the Geosky user manual.

FORMWORK FOR SLABS

The elements of the system are very light and can be easily moved and installed, reducing construction time. Weighing just 11 kg, Geosky can be moved quickly around the site without the need for cranes or mechanical equipment.

GEOPANEL INVENTS ATTIC

Geosky is a reusable plastic formwork system for making flat decks for laying slabs. Its innovative system allows, thanks to the main beam with sliding wedge, fast assembly and dismantling with a reduction in the time needed to turn the formwork material on site and a consequent increase in the speed of the casting phases. The system is made up of Geopanel 120X60 panels (with a maximum weight of 11 kg) and 3 plastic joists to be suitably positioned above the traditional H20 wooden beams that allow for early stripping.

EARLY DECOMMISSIONING

Geosky, thanks to its system of accessories, allows early stripping of the floor. Early stripping consists in removing most of the elements that make up the system before the canonical 28 days of concrete curing have been reached. This operation is facilitated by the Travetto Y + Cuneo system, which allows the Geopanel panels to be removed while leaving the floor propped up, thus avoiding deformation of the floor itself.

GEOPANEL FLOORS & WALLS

The Geopanel panel that makes up the Geosky system is the only panel that can be used to build both walls and floors. Being made of Gratene (recycled ABS Compound) it is very resistant (reusable more than 100 times) and light, guaranteeing handling without mechanical means. With a single system it is therefore possible to carry out several operations, vertical structures and horizontal structures, on the same site.

GEOSKY H+Y (EARLY DISMANTLING)

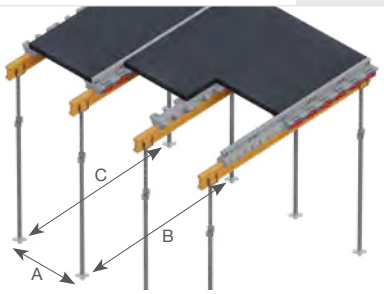
	Slab thickness (mm)					
FORMWORK INSTALLATION: PROPPING LAYOUT	≤100	110÷150	160÷200	210÷250	260÷300	310÷400
A - Max distance between the reinforcement Beams [A] (m)	1.24	1.24	1.24	1.24	1.24*	0.635
B - Max distance between the props on Y-Beams [B] (m)	2.00	1.60	1.40	1.30	1.80	1.40
C - Max distance between the props on H-Beams [C] (m)	1.80	1.80	1.80	2.20	1.80	1.60

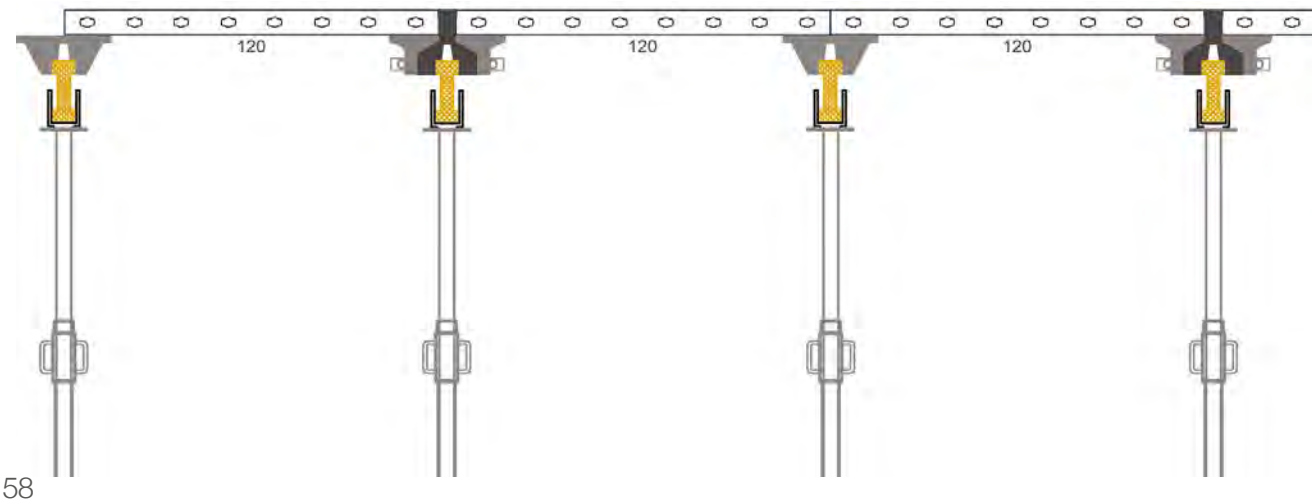
POST-PROPPING REQUIREMENTS	≤100	110÷150	160÷200	210÷250	260÷300	310÷400
A - Max distance between the support Beams [A] (m)	2.48	2.48	2.48	2.48	2.48	1.24
B - Max distance between the props on Y-Beams [B] (m)	2.00	1.60	1.40	1.30	1.80	1.40
C - Max distance between the props [C] (m)	3.60	3.30	3.30	2.80	3.30	2.80

* insert the crossbar with props spaced 2.2 m

NOTE: Dismantling time at 20÷30°C 7 days for Geosky H-Beams and Geopanel, 28 days for Geosky Y-Beams.
By temperature >30°C waiting time reduced to 6 days.

- Assumed props type B (EN 1065) extended to 3 m, Q1300 kg.
- Assumed H20 Wooden Beam (EN 13377).





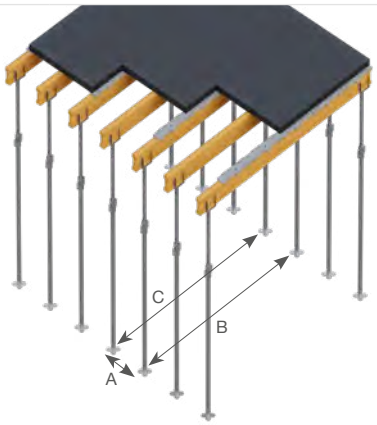
GEOSKY HS (STANDARD DISMANTLING)

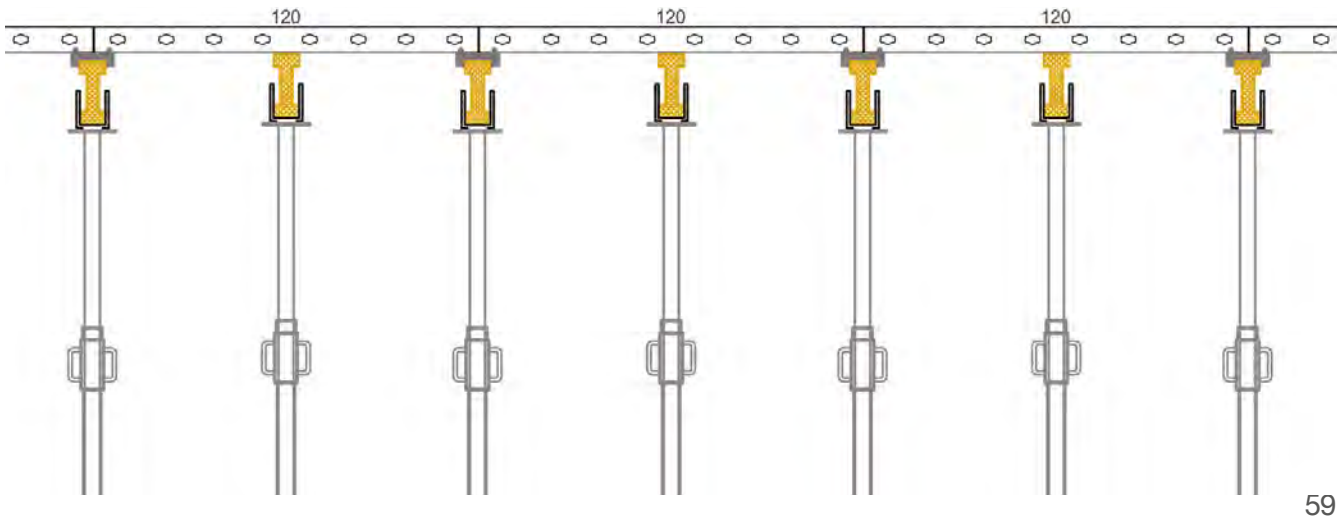
	Slab thickness (mm)					
PROPPING	≤100	110÷150	160÷200	210÷250	260÷300	310÷400
A - Max distance between the reinforcement Beams [A] (m)	0.605	0.605	0.605	0.605	0.605	0.605
B - Max distance between the props on HS-Beams [B] (m)	3.60	3.30	2.70	2.40	2.10	1.70
C - Max distance between propping of intermediate H20 Beams [C] (m)	3.60	3.30	2.70	2.40	2.10	1.70

POST - PROPPING	≤100	110÷150	160÷200	210÷250	260÷300	350÷400
Max surface per prop (m^2)	5.60	4.60	3.70	3.20	2.80	2.20

NOTE: Dismantling time at 20÷30°C 7 days for Geosky HS-Beams and Geopanel.
By temperature >30°C waiting time reduced to 6 days.

- Assumed props type B (EN 1065) extended to 3 m, Q1300 kg.
- Assumed H20 Wooden Beam (EN 13377).





INSTALLATION METHODS

CASSERATURE

1 LAYING TRAVELLETS Y + C

2 LAYING TRAVELLETS H

3 LAYING GEOPANEL PANELS

CAST REINFORCEMENT

4 LAYING ARMOUR

5 CLS JET

EARLY STRIPPING

6 H JOIST REMOVAL

7 WEDGE REMOVAL

8 GEOPANEL PANELS

DIMENSIONAL TABLES

TRAVI

		Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
	**TRAVETTO Y**	19,1 x 60,5 x H20	Gratene (Recycled ABS Compound)	2.89	100 x 121 x H216	140
	**WEDGE**	16 x 60,5 x H11,8	Gratene (Recycled ABS Compound)	1.89	75 x 120 x H190	204
	**TRAVETTO H**	31 x 60,5 x H12,1	Gratene (Recycled ABS Compound)	2.96	120 x 124 x H196	120
	**TRAVETTO HS**	130 x 605 x H58	Gratene (Recycled ABS Compound)	0.63	750 x 1210 x H2280	594

GEOPANEL

	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
GEOPANEL 120 x 60	121 x 60,5 x H8	Gratene (Recycled ABS Compound)	11.03	75 x 121 x H258	38
GEOPANEL 20 x 60	20,2 x 60,5 x H8	Gratene (Recycled ABS Compound)	2.36	77 x 12,1 x H235	204
GEOPANEL 25 x 60	25,2 x 60,5 x H8	Gratene (Recycled ABS Compound)	2.73	77 x 1210 x H2400	166
GEOPANEL 30 x 60	30,3 x 60,5 x H8	Gratene (Recycled ABS Compound)	3.05	77 x 121 x H240	140
GEOPANEL 35 x 60	35,3 x 60,5 x H8	Gratene (Recycled ABS Compound)	3.47	75 x 121 x H235	118
GEOPANEL 40 x 60	40,4 x 60,5 x H8	Gratene (Recycled ABS Compound)	3.68	77 x 121 x H240	104

ACCESSORIES

	Real size (cm)	Material	Weight (kg)	Size packaging (cm)	Number of pieces per pallet
 **GEOPANEL WP**	61 x 605 x H80	Gratene (Recycled ABS Compound)	1.40	80 x 120 x H245	450
 **HANDLE**	-	NYLON	0.1	200 (bag)	

PROJECTS

Geoplast slab division projects have made it possible to construct lighter buildings with a better seismic response, limiting the use of iron and concrete with consequent benefits for the environment (less greenhouse gas emissions into the atmosphere) and for the economy of the site.

AIRPLAST
EDF Europe Training and Research Centre
SACLAY, FRANCE

SKYDOME
Office Building
CLUJ NAPOCA, ROMANIA

NEW NAUTILUS EVO
Bosch Engineering Centre
CLUJ-NAPOCA, ROMANIA

SKYDOME
Business Centre
NOVOSIBIRSK, RUSSIA

NUOVO NAUTILUS EVO
Duale Hochschule
STOCCARDA, GERMANY

SKYDOME
Le Nuage
MONTPELLIER, FRANCE

NEW NAUTILUS EVO
Marmara Tower
ISTAMBUL, TURKEY

SKYRAIL
Residential Area
DAKAR, SENEGAL

Geoplast
Building beyond together

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