## FORMWORK SOLUTIONS

- LIGHT
- **✓** REUSABLE
- SUSTAINABLE

**MODULAR FORMWORK FOR WALLS, PITS, SLABS AND COLUMNS** 



#### 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.

## **ABOUT ALLCON**

Allcon Group, (formerly Allcrete Industries) entered the market in 1987 with a revolutionary new product - the plastic bar chair. This innovative product was quicker, better and easier than conventional steel bar chairs and made the life of the contractor easier.

Since then, our focus has been on making concrete construction easier by introducing innovative products and solutions.

In 2016, Allcon acquired the exclusive rights to the distribution of Geoplast formwork products in Australia.

#### **MANUFACTURING**

- 3 plants covering a total area of 40.000 m², 10,000 m² 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.

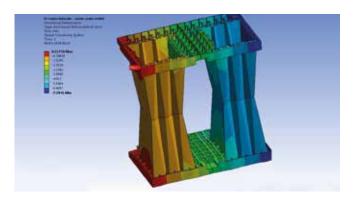
Knowledge sharing and distribution are essential, and take the form of digital tools, webinars and publications.



#### **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.







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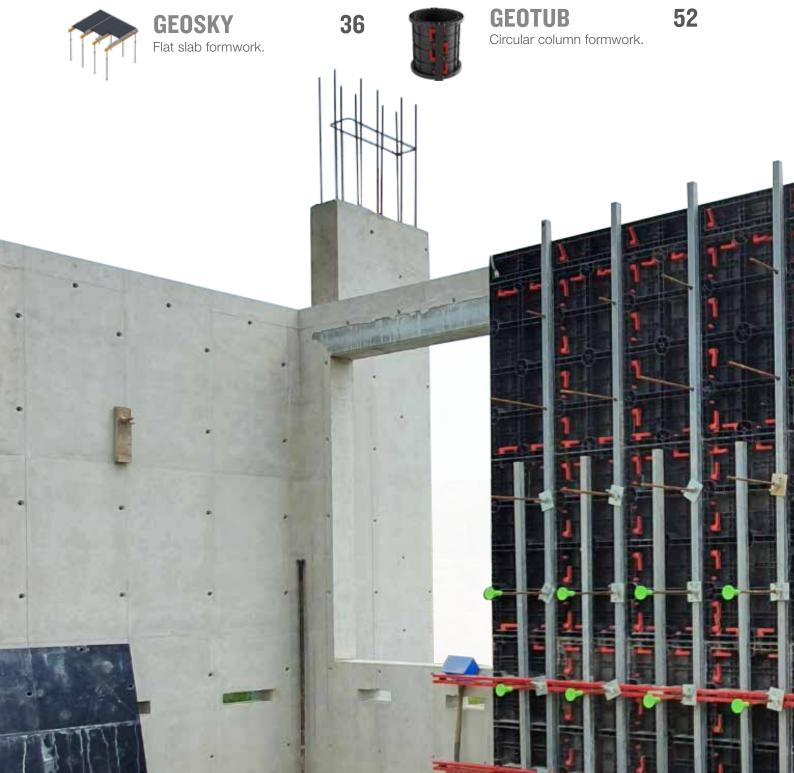
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Square and rectangular column formwork.



## THE CONCEPT

The Geoplast universal formwork system is designed for designed to be easy to use.

Simple to assemble and move, it increases productivity, improves working conditions and reduces the impact on the environment.

All panels are reusable for multiple castings, and very simple to keep clean.





## **LIGHT AND ERGONOMIC**



Plastics are extremely versatile materials and are now used in every sector of activity. Choosing the right polymer and skilfully engineering, the product will lead to amazing results. Since 2003 Geoplast offers the construction industry all the advantages of ABS formwork.

#### LIGHT



User-friendly tools are safer, easier to use and more productive.

It is a fact that repeated lifting of heavy equipment causes fatigue and injury. Geoplast formwork weighs on average 15 kg/m² with no single element heavier than 11 kg: this means that the whole system can always be used by hand, in any situation.

Crane operation is not a must anymore, giving construction sites much greater flexibility without any compromise on health and safety.

#### **FAST**



A well-engineered formwork is simple and fast to use.

Geoplast formwork uses injection moulded ABS in a clever way, doing the job with as few components as possible.

Low weight and simplicity improve the speed of use.

Formwork elements of different shape and size will be easily assembled and used together with limited use of infill timber.

#### **HANDLING**

Low weight and modular design make the storage and logistics of the Geoplast system formwork really simple.

Moisture and water will not affect the panels in any way, dry storage conditions are not necessary.

The low weight of the system means that no crane or truck with crane is necessary to handle the formwork, greatly simplifying logistics.

#### SIMPLE AND PRODUCTIVE



Productivity is an important issue wherever concrete is poured. Whenever manual operation is the better option, the light and fast Geoplast formwork greatly improves speed and productivity compared both to metal formwork and traditional timber shuttering.

#### **STRENGTH**



ABS is a very strong polymer, impact and abrasion resistant. Geoplast formwork resists to a pressure of up to 80 kN/m<sup>2</sup>.

The excellent temperature stability of ABS is key to the usefulness of the formwork in both hot and cold climates.

The experience of many years has shown that a properly handled Geoplast formwork will be used for well over 100 cycles.

#### **MODULAR**



The elements of the Geoplast system formwork are modular, designed to fit together in a large number of combinations to fit the exact requirements of each construction site.

The panels are precise in size and shape and fully interchangeable, and share a common fastening method to reduce the overall number of elements needed to create the formwork.

#### **DISMANTLING**



Concrete does not stick to the slick surface of ABS, making the Geoplast system formwork very easy to keep clean simply by cleansing with water, without requiring any detergent.

While releasing agents are not strictly required, it is possible to use water-based form oil. Fast cleaning means a fast turn-around of equipment.

Time is the most precious commodity on a construction site: the Geoplast system formwork optimises the concrete production cycle.



#### THE PERFORMANCE OF ABS

ABS (Acrylonitrile Butadiene Styrene) is well known for its impact resistance and toughness, and has excellent stability under load. It tolerates a wide range of temperatures and generally has useful characteristics from -20°C to +80°C, and particularly impact resistance does not fall off rapidly at lower temperatures.

These properties make ABS the perfect material for the tough environment of construction sites, as proven by the Geoplast professional-grade formwork. Additionally, ABS is known for being hard, glossy and non-porous, providing an excellent surface finish to concrete.

Plastic injection moulding is an ideal process for products where parts need to be strong. Geoplast formwork is produced this way: complex, highly engineered parts where each gram of ABS is designed to contribute to the overall performance of the product. Injection moulding is also very accurate, producing panel after panel of exactly the same size.



Characteristic	Specification
Material	Acrylonitrile Butadiene Styrene (ABS)
CAS Number	9003-56-9
Density	1.04-1.06 g/cm <sup>3</sup>
Thermal conductivity (k)	0.1W/m <sup>-1</sup> K <sup>-1</sup>
Linear thermal expansion	0.14 mm/m/°C
Operating temperature range	-20°C to +80°C
Typical flexural modulus	2.1 GPa
Typical surface hardness	RR 96
Soluble in water	NO
Corrosion resistance:	Strong acids: GOOD Diluted acids: EXCELLENT Alkalis: EXCELLENT

#### **SUSTAINABLE**

A responsible environmental approach to product design is very important: ABS is not down-recycled, so Geoplast's strong and long-lasting formwork was designed using recycled polymer. Even better, at the end of its useful lifetime Geoplast formwork will be processed 100% into a product of the same high quality in its next life cycle, thus avoiding plastic waste. Because of its low weight, less energy is used during the logistics and handling of Geoplast system than traditional formwork, reducing the amount of CO<sub>2</sub> emissions.

Replacing timber shuttering with the Geoplast system formwork means cutting drastically the amount of wood waste due to cutting and trimming on the construction site.



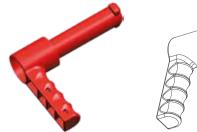
#### THE LOCKING HANDLE

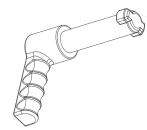
#### THE UNIVERSAL FIXING ELEMENT FOR ALL GEOPLAST FORMWORK

Nobody wants to waste time on their job. Geoplast developed its formwork system with a very clear and simple concept in mind: use as few different elements as possible. The use of polymers gave the chance to create an easy, light, yet very strong locking method using one simple, clever shape.

The polymer chosen for the locking handles is a high resistance variant of the PA66 polymer (usually known as "Nylon"), one of the strongest commercially available plastics.

Characteristic	Specification	
Material	PA66 Polyamide (Nylon)	
CAS Number	32131-17-2	
Density	1.32 g/cm <sup>3</sup>	
Operating temperature range	-20°C to +80°C	
Typical flexural modulus	7200 MPa	
Typical surface hardness	RR 90	
Soluble in water	NO	
Corrosion resistance:	Diluted acids: GOOD Organic solvents: EXCELLENT Alkalis: GOOD	





- Firmly locks with a simple 90-degree turn.
- Light, just 0.1 kg.
- Intuitive to use, very little training needed.
- Used by hand in full safety.
- No hammer needed, reduces the noise on site. Important for operations within cities, especially at night.

#### IT'S ALL ABOUT GOOD ENGINEERING

A formwork system is only as strong as its locking elements. Each Geoplast locking handle has a final tensile strength of 1.2 tons: this outstanding performance makes the formwork system robust and very reliable. The locking handles are also designed for implicit safety:

- a simple 90 degree turn in any direction will lock the panels;
- the red colour contrasts with the black panels making visual check of presence and correct locking very easy and straightforward;
- no hammer is needed, reduces risk of injury.

#### **LOCKING HANDLE IN USE**

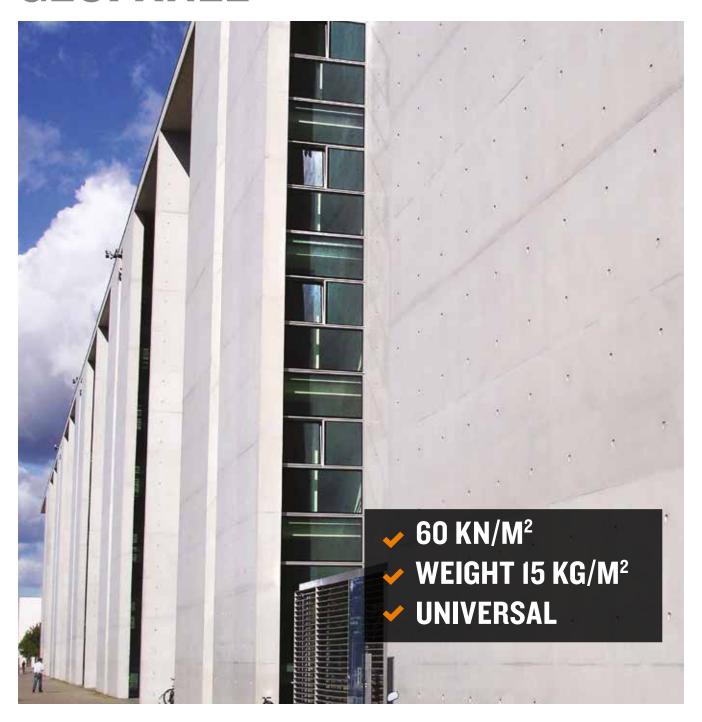








## **GEOPANEL**



FORMWORK SYSTEM FOR WALL



## THE SOLUTION

The whole idea behind Geopanel is simplicity.

#### **NO CRANE**

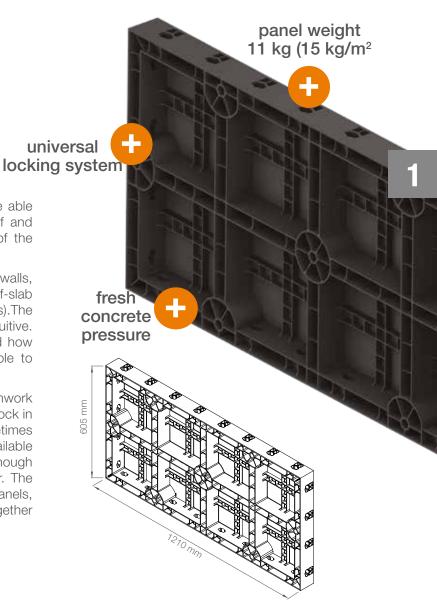
#### **SELF-LEARNING**

#### **WIDE RANGE OF APPLICATIONS**

The concept is that one single person should be able to use formwork safely even working by himself and without a crane: that's why no single element of the Geopanel system weighs more than 11 kg.

Geopanel is made to be versatile and it is used for walls, foundations, shafts, shear walls, as well as a roof-slab formwork (in combination with Geosky elements). The working of a formwork must be simple and intuitive. It literally takes just a few minutes to understand how Geopanel works: even unskilled personnel is able to start using it virtually right away.

The Geopanel 120x60 is at the heart of a formwork system where a whole range of components interlock in a vast number of combinations and shapes. Sometimes blueprints and shop drawings are simply not available for the site and the formwork must be simple enough to set up in a logical, easy and effective manner. The Geopanel series includes corners, stop-end panels, compensations and accessories which all together make this task simple and straightforward.



Element	Nominal size (m)	Actual size (mm)	Contact surface (m²)	Weight (kg)
GEOPANEL 120X60	1.20 x 0.60	1210 x 605	0.732	10.38
GEOPANEL 40X60	0.40 x 0.60	404 x 605	0.244	3.85
GEOPANEL 35X60	0.35 x 0.60	353 x 605	0.214	3.53
GEOPANEL 30X60	0.30 x 0.60	303 x 605	0.183	2.82
GEOPANEL 25X60	0.25 x 0.60	252 x 605	0.152	2.59
GEOPANEL 20X60	0.20 x 0.60	202 x 605	0.122	2.29
GEOPANEL 15X60	0.15 x 0.60	150 x 605	0.091	2.04
GEOPANEL 5X60	0.05 x 0.60	50 x 605	0.030	0.75
GEOPANEL 4X60	0.04 x 0.60	40 x 605	0.024	0.69
GEOPANEL 3X60	0.03 x 0.60	30 x 605	0.018	0.62
GEOPANEL WP	0.10 x 0.60	100 x 605	0.036	1.31
<b>GEOPANEL CL 20-25-30</b>	0.46 x 0.60	460 x 605	0.182	4.92
GEOPANEL CL 35-40-45	0.61 x 0.60	610 x 605	0.272	6.14
GEOPANEL TWIN ANGLE	0.30 x 0.30 x 0.10	303 x 303 x 100	0.152	3.96
GEOPANEL INTERNAL CORNER	0.30 x 0.10 x 0.60	303 x 100 x 605	0.244	3.86
GEOPANEL EXTERNAL CORNER	0.25 x 0.60	252 x 605	0.152	2.99



## **LIMITLESS VERSATILITY**

The Geopanel hand-held formwork panels have an almost infinite range of applications, providing best value when cranes or heavy-lifting equipment are not available.

Whether renovating an historical building in the congested centre of a capital city, building the new home of a young family, casting the foundations of an industrial estate in a developing country or shuttering shear walls in a high riser, Geopanel is the useful tool that every building company, small or large, will find infinitely useful.

WALLS, SHEAR WALLS ELEVATOR SHAFTS

LINTELS AND RING BEAMS ENCASING WALLS

FOUNDATIONS BASEMENTS SAFE ROOMS AND BUNKERS

BRIDGE REPAIR PITS AND MANHOLES

RENOVATION TANKS AND IRRIGATION STRUCTURES

HEMPCRETE RAMMED EARTH BUILDINGS SWIMMING POOL

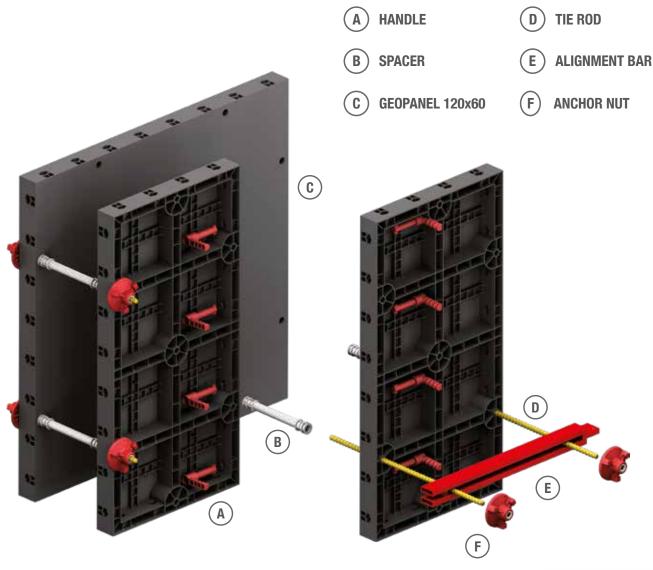
Formwork sections can be pre-assembled on the ground, as well as removed and handled without exceeding manual operation weight limits.

The same way, dismantling does not require disassembling the whole formwork but rather is done by splitting it in sections composed by multiple panels, which can be easily shifted by hand.

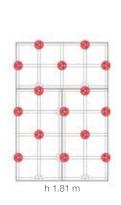


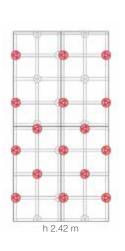
## THE SIMPLE WAY GEOPANEL WORKS

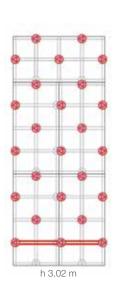
Geopanel elements are connected by the universal locking handle. Opposite panels are connected using market-standard ø15/17 mm steel ties. Also available are lightweight, high-strength steel+PA66 anchor nuts to complete the set-up of the Geopanel hand-held formwork system.

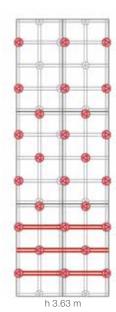


Geopanel 120x60 easily forms walls at 0.6 m increments up to 3.6 m. The other panels in the Geopanel family allow for small and precise height adjustments.









#### **CORNER CONFIGURATION**

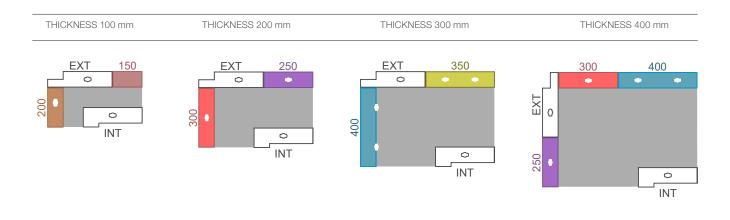
Corners are easily formed with Geopanel as the system includes dedicated internal and external corner panels, which work together with different sized small Geopanel elements.

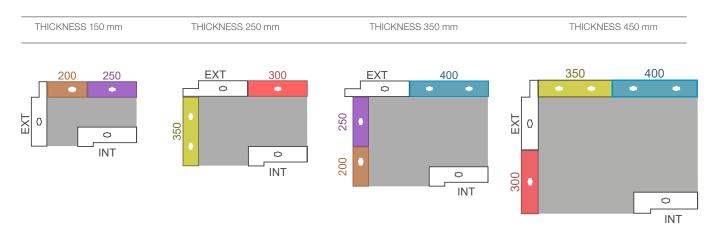
The standard Geopanel corner assemblies support forming of walls of thickness of 100 mm and greater, with increments of 50 mm and are available in height increments of 605 mm. Geopanel 120x60 elements - the standard building block of the formwork system - are always placed opposite one another to form walls and are aligned to allow tie-rods to pass through them.

As the relative position of the internal and external corner varies with the wall thickness of the wall, different-sized small Geopanel elements are used to fill the gap between the external corner panel and the closest Geopanel 120x60 element.

Possible combinations of wall sizes are numerous, the quick reference guide in this page is integrated by the Geopanel technical manual for more in-depth detail. Geopanel corner formwork uses alignment bars to achieve greatest strength and precision. Details about the position and amount of alignment bars are also shown in the technical manual.







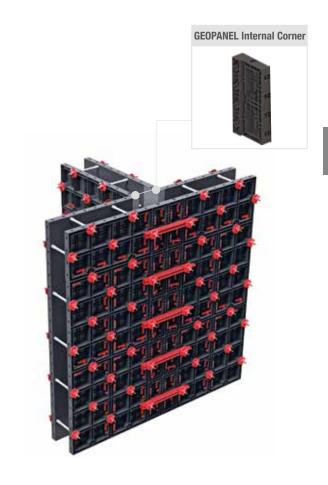
#### T-INTERSECTIONS

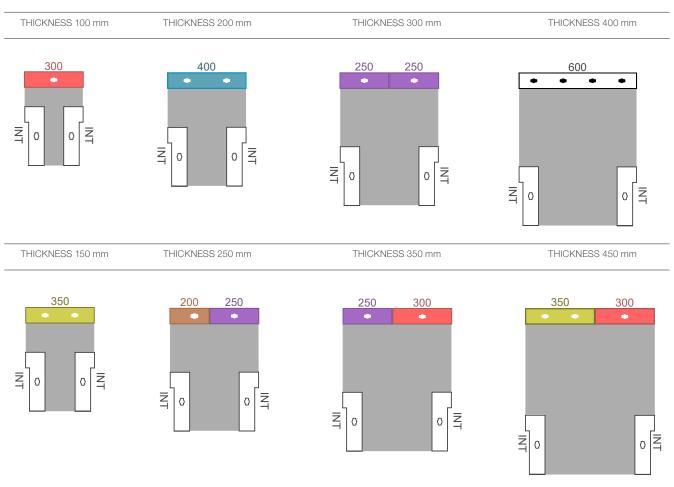
Forming the intersection of two walls of any thickness is very simple and straightforward with Geopanel.

Two internal corner panels are used to define the intersecting wall, while standard Geopanel elements are used to form the opposite wall surface. The standard Geopanel T-intersection wall formwork assemblies support forming of walls of thickness 100 mm or greater, with increments of 50 mm, and are available in height increments of 605 mm.

Possible combinations of wall sizes are numerous, the quick reference guide in this page is integrated by the Geopanel technical manual for more in-depth detail. Geopanel T-intersection formwork uses alignment bars to enhance the precision of the concrete. Details about the position and amount of alignment bars are also shown in the technical manual.

In some cases corners and T-intersections may be placed close to one another with very little room for alignment bars and require tight compensations. The Geopanel accessories and compensation panels will become particularly useful to solve these cases.



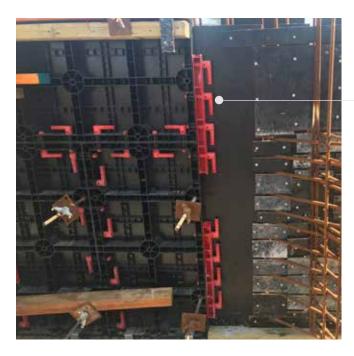




### **GEOPANEL WP INTERFACE WITH WOOD**

Geopanel is a fully ABS formwork that is also capable of interfacing efficiently with timber shuttering elements. Geopanel WP is an easy, no-headache interface element, available to suit conventional 17mm form ply.

The standard locking handles are used to connect Geopanel WP to other Geopanel formwork elements, while plywood is easily joined to Geopanel WP using wood screws.

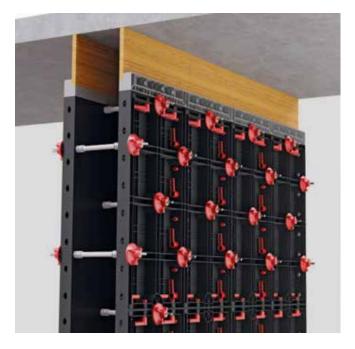




#### WALLS UNDER EXISTING BEAMS OR SLABS

Geopanel provides an excellent shuttering solution for concrete walls to be poured indoors, under existing beams or slabs.

Its flexible set-up and low weight allow manual operation without the often complex, expensive or potentially dangerous use of lifting machines within confined spaces and no access from above.



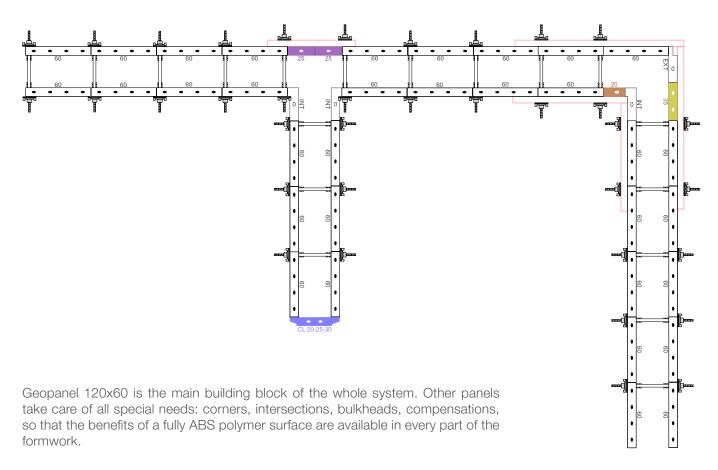


## **GEOPANEL WALLS**



A wall formwork needs to be versatile and practical, because no wall is the same. Geopanel is a hand-held system formwork allowing a pour height of up to 3.6 m in a single lift.

Geopanel includes corners and fill-in panels that are light, practical and fast to set-up, strip and clean.





### **SHEAR WALLS**





Shear walls are built to counter the effects of the lateral loads such as wind or earthquakes that act on structures. Geopanel makes shear wall forming an easy task: its range of sizes and ease of use add the necessary flexibility to site operations.

Geopanel CL bulkhead panels are particularly useful at the end of walls, or as short-side formwork of shear walls (or long columns) formed with Geopanel, avoiding timber and keeping all the advantages of a system formwork. In some cases they are used in combination with Geopanel internal corners to form columns protruding from a wall. Geopanel CL elements are adjustable in size to accommodate for wall thickness of 200 to 450 mm, with increments of 50 mm.

The sizes are available to cater for different wall widths are: Geopanel CL 20-25-30 for wall thickness 200 to 300 mm. Geopanel CL 35-40-45 for wall thickness 350 to 450 mm.



### **ELEVATOR SHAFTS AND STAIRWELLS**

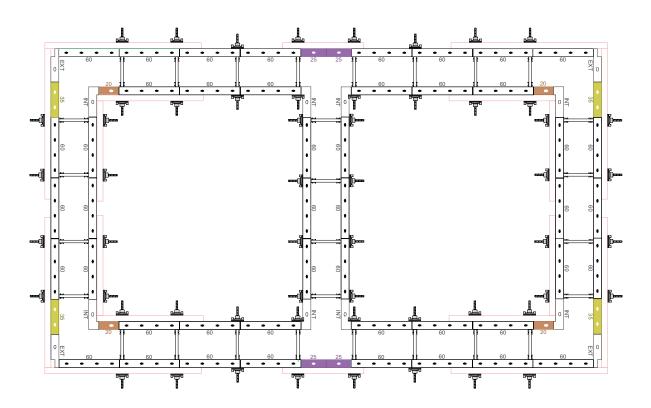
The precise dimensions of concrete achieved with Geopanel are important to make the later installation of the elevator faster and smoother. The low weight of the panels allow for safe operations, avoiding the risky handling of heavy elements by crane within confined spaces.





The Geopanel system is ideal for constructing stairwells and elevator shafts. The lightweight design of the panels allows carpenters to easily install and dismantle the formwork, giving them the option to quickly repeat the same process throughout various floors of the building.

The range of panels and accessories included in the system make it easy to form corners and wall intersections without the need of timber fill-in elements.





### **DOOR AND WINDOW FRAMES**

Door and window frames, box-outs and electrical boxes are placed within a Geopanel formwork using the tie-rods and the reinforcements as reference and anchoring points.

In case an element needs to be fixed to the formwork in can very simply be screwed onto the panels from the outside of the formwork. The flat and smooth surface of Geopanel means that junction boxes and other elements will be fastened very precisely to the panels. The objects will be perfectly flush with the concrete surface after formwork removal.





### **FOUNDATIONS**

Geopanel is the perfect formwork for strip footing, tie beams, pile caps and plinths. During the initial phases of a construction site no crane is available: a hand-held system formwork is ideally suited to do the job quickly and safely, with no compromise on the quality and precision of the concrete.





Geopanel is very simply a great foundation formwork: whether it's strip footings, pile caps, plinths, Geopanel will be up to the job. As ABS polymer is not affected at all by water, it's simple to set-up a Geopanel formwork even in wet and muddy conditions. The panels will not suffer any damage and will be very easy to keep clean.

A whole series of accessories provides multiple ways to support and prop the panels. Easy interface with timber is also provided for maximum flexibility on site.





## **TANKS AND IRRIGATION STRUCTURES**

Water irrigation projects and irrigation tanks for water treatment and storage are infrastructural projects often situated in rural areas, where logistics can be complicated and often expensive.

The lightness of Geopanel material, its ease of handling and assembly even in challenging situation, make it the ideal solution for water/irrigation control structures, dams, drainage pits, headwalls, culverts, stormwater tanks, and more. The flexibility in use of this modular system and the unlimited combinations it permits in future uses allow for a fast recovery of the investment made.









## **BRIDGE CONSTRUCTION**

The Geopanel wall formwork is also ideal for bridge construction for forming bridge abutments, footings, retaining walls, headstocks and other structural elements. The light-weight geopanels are fast and easy to install and elimintate the need to crane in the formwork.

By combining Geopanel wall formwork with Geotub Round formwork, oval shaped bridge piers can achieved quickly and easily removing the need to procure custom made formwork.













## **SWIMMING POOLS**

Using the large range of panels and accessories it is possible to create infinite custom variations of size and shape. Geopanel will work perfectly with the complex equipment of the pool. It is also possible to create sloping floors, thus creating diving areas and relax zones.



#### THE LOGISTIC ADVANTAGE

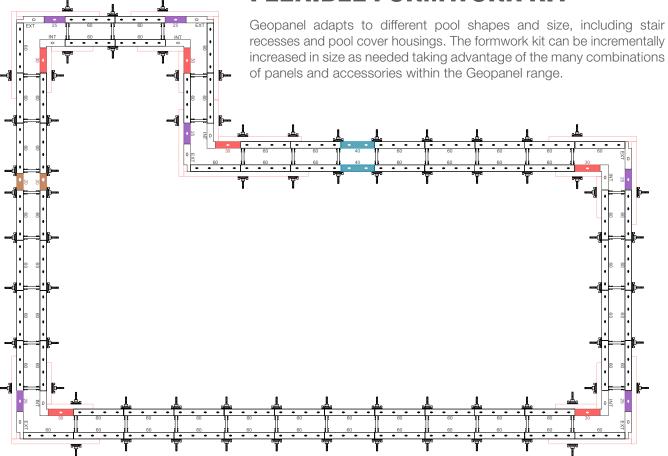
Swimming pools are often built when the house is already lived-in and using the available garden surface.

Accessibility of the future pool site is not always granted to machines, in the worst case materials and tools need to be carried though the house. A low-weight formwork solution is a great advantage in any case and absolutely essential in the most challenging situations: Geopanel ticks all the boxes.





#### **FLEXIBLE FORMWORK KIT**



#### **POOL ACCESSORY INSTALLATION**

The Geopanel forms can easily be adapted to hold pool accessories such as lights and skimmers. The precise and smooth finish of the panels means for example that light boxes will always be perfectly flush with the concrete surface.

As Geopanel is a system formwork the adapted panels will place accessories in a well defined and consistently precise position, with very little room for error.







### **RETAINING WALLS**

With a growing number of panel sizes, Geopanel formwork is a quick and easy way of forming retaining walls and can be configured to incude internal and external corners. The light-weight panels make it easy to form walls up to 3.6m in height and can be poured in a single pour.

Direction changes less than or greater than 90° can be accommodated by transitioning to conventional formwork using the compensation brackets.









## **SLAB SETDOWNS**

In the past, setdowns on residential house slabs have involved stacking heavy LVL timbers to height, then bracing with more timbers and hoping that it supports the weight of the concrete. Geopanel formwork is a perfect solution for set downs being easy and quick to assemble and simple to brace using the strong back brackets or push pull props.





## WIND TURBINE BASES

Formwork for wind turbine bases has traditionally used custom formed metal shutters which are heavy and need to be craned in to position.

Geopanel formwork is light weight making it quick and easy to setup and eliminates the need for a crane to lift into position.





## **HOUSE BUILD PROJECTS**

The use of off-form concrete walls in residential homes has increased in popularity in designer homes with architects exploring new textures and and styles. Furthermore, concrete is a fantastic thermal mass making it ideal for low energy living.

Off-form walls are often also more cost effective than conventional methods and thanks to the durability of concrete, these walls become virtually maintenance free.

Geopanel is an excellent option for forming such walls, with a large range of panel sizes, walls of virtually any length can be formed quickly and easily. Geopanel can also be reused providing further cost savings.

















#### **HEMPCRETE FORMWORK**

In-situ cast hempcrete is most conveniently formed using Geopanel formwork as it is modular, lightweight and the panel sizes are ideally suited to this construction material.

In-situ cast Hempcrete is mainly used in conjunction with timber-frame. Wet hempcrete is placed in the formwork in layers of 100 to 150 mm and then compressed by tamping.

Formwork is generally removed after 24 hours and the low weight of Geopanel makes it extremely practical as it requires limited external support and is very easy to handle without lifting equipment.

As the pressure on the formwork is very low, the Geopanel elements will last indefinitely when used with hempcrete.





#### WHAT IS HEMPCRETE

Hempcrete (also known as Hemp-lime) is a mixture of hemp hurd and lime used as a lightweight, low-carbon

construction and an insulation material. Hemp is a fast-growing plant, reaching a height of 3-4 m at harvest with no need for pesticides or herbicides after planting. While growing it absorbs CO<sub>2</sub> from the atmosphere, retaining carbon



and releasing oxygen. In fact, up to 165 kg of carbon per cubic meter can be stored in hempcrete, making it an extremely sustainable construction material.

Hempcrete is easier to work with than traditional lime mixes, and provide exceptional thermal performance and comfort; it also very effectively manages humidity and moisture in buildings. As it is a very light material it reduces the load to the foundations and is well suited for the construction of buildings in seismic areas.

Hempcrete creates zero waste, as previously mixed material can be added in controlled quantity to new mixes, or otherwise used in landscaping.

Hemp is naturally resistant to pests, so no pesticides and fungicides are used during cultivation. This means that hempcrete does not contain any potentially harmful chemicals that may be released into the house, nor will mould grow in the wall.

### RAMMED EARTH FORMWORK

Rammed earth is an ancient construction material that in recent years has been rediscovered as it is far more sustainable than conventional modern materials. The production method basically consists in filling a formwork with a layer of 100 mm to 250 mm of damp soil mixture (generally subsoil with a clay content between 5% and 15%) compressed by tamping.

Once the earth is sufficiently compressed the formwork may be removed. Power tools such as pneumatic tampers reduce the labour time during construction, and Geopanel drastically cuts the forming time compared to traditional timber formwork. The size of Geopanel makes it very easy to increase the height of the formwork incrementally, always maintaining excellent accessibility with the tamper to the earth within.





#### WHAT IS RAMMED EARTH

The rammed earth technique is as old as mankind and has many benefits, and it has historically been used in every continent and climate condition: it is simple to manufacture even with unskilled labour, it is relatively inexpensive, non-combustible, thermally massive, strong, and durable. Rammed earth is a very environmentally considerate material as buildings made this way usually use locally available subsoil (conserving the topsoil for agriculture); it

also has low embodied energy and generates very little

waste.

The high thermal mass of rammed earth is a significant benefit: as it absorbs heat during daytime and releases it during the cooler hours of the night, it moderates daily temperature variations and reduces the need for air conditioning and heating.

Unclad rammed earth walls containing clay exposed to an internal space will also effectively regulate humidity in a range between 40% and 60%. Well-cured walls accept nails and screws easily, and can be patched or repaired with the same material used to build them.

Modern engineering applied to rammed earth make it a great material which, reinforced with rebar, wood or bamboo, can resist to earthquakes or heavy storms.



#### **GEOPANEL ART**



#### PANELS FOR TEXTURED WALLS

This is a reusable and modular high-resistance formwork panel used to create textured reinforced concrete walls. Made of ABS, Geopanel Art is used in combination with Geopanel. The two elements are assembled to create a high-productivity mold for the production of textured concrete.

The concrete surface receives the decoration from the panels and the result is a wall ready to be painted or further decorated in order to achieve an even more realistic and creative look. Replicating the stones of a mountain stream, the River Stone panel is pleasantly shaped to obtain a very realistic effect.

The Geopanel Art pattern was modelled on real river stones and is absolutely true to the size and feel of the original materials. Well vibrated concrete can be left like this, also after removing the formwork for a satisfactory texture.

For a fully realistic result the pattern can be painted with natural-looking colours, or for a more daring or artistic look unconventional colour combinations can be chosen. Geopanel Art creates a canvas on which to unleash your creativity.

Element	Geopanel Art
Nominal size (m)	1.20 x 0.60
Actual size (mm)	1210 x 605 x 28
Surface (m²)	0.732
Weight (kg)	4.25

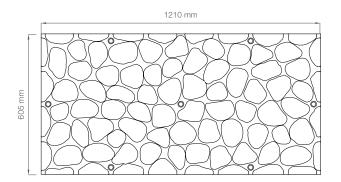


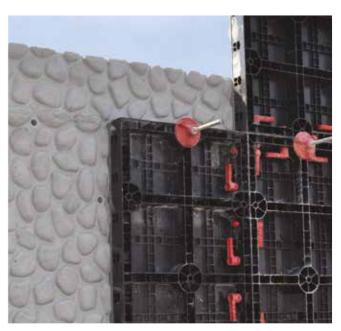


### **GEOPANEL ART ADVANTAGES**

Simple and easy to use, Geopanel Art helps to save time and money. Results are immediate and no further actions are needed on the decorated wall. It is also light and easy to handle, that's why it offers an excellent benefit-cost ratio.

### **IMMEDIATE RESULT HIGH QUALITY CONCRETE FINISH** REUSABLE





#### **HOW TO ASSEMBLE**

Geopanel Art panels are clipped onto the Geopanel 120x60 panels using the tie rods holes as latching points. Standard tie rods and anchor nuts are used to hold them tightly in position.

Plastic spacer sleeves are inserted between the panels and remain in the concrete pour. The panels can be assembled in any combination without interrupting the decorative texture. Geopanel Art is easy to handle and can be simply removed from Geopanel after use, and subsequently cleaned just with water.



## **STORMWATER & SERVICE PITS**

Due to the modularity of Geopanel, it is a perfect canidate for forming a range of pits including storm water pits, retention pits, electrical pits, service pits, lift overruns and more

Using Geopanel ABS forms, pit formwork can be installed at a fraction of the time of conventional formwork, can be configured for different pit sizes and can be used time and time again.

Both internal and external pit formwork can be configured to form walls from 100mm thick to virtually any thickness in 50mm increments. Pipe penetrations can also be catered for by transitioning to conventional form ply using compensation brackets.

Most of the common pit sizes can be formed using only four different panel sizes all locking together with the Geoplast locking handles.













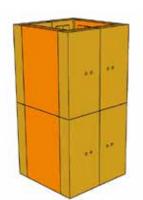




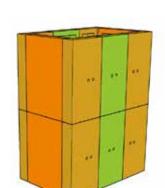


# INTERNAL PIT FORMWORK 6 x 6 Pit 6 x 9 Pit

600mm x 600mm x 1200mm



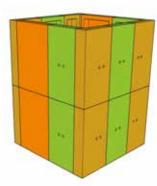
- 8 x Internal Corner Panels
- 4 x 400mm Panels



- 600mm x 900mm x 1200mm
  - 8 x Internal Corner Panels
  - 4 x 400mm Panels
  - 4 x 300mm Panels

## 9 x 9 Pit

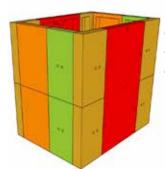
900mm x 900mm x 1200mm



- 8 x Internal Corner Panels
- 4 x 400mm Panels
- 8 x 300mm Panels

## 9 x 12 Pit

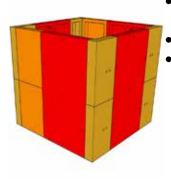
900mm x 1200mm x 1200mm



- 8 x Internal Corner Panels
- 4 x 400mm Panels
- 4 x 300mm Panels
- 2 x 1200mm Panels

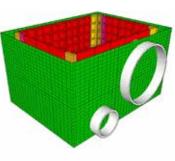
## 12 x 12 Pit

1200mm x 1200mm x 1200mm



- 8 x Internal Corner Panels
- 4 x 400mm Panels
- 4 x 1200mm Panels





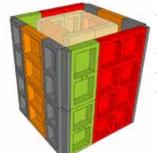
With over 14 different panel sizes we can practically form any size pit incorporating thickening walls, precast segments and penetrations.

## **EXTERNAL PIT FORMWORK**

All drawnings below are configured for a 150mm wall thickness

## 6 x 6 Pit

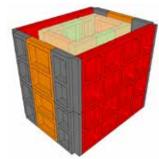
600mm x 600mm x 1200mm



- 8 x External Corner Panels
- 4 x 400mm Panels
- 4 x 300mm Panels
- 2 x 1200mm Panels

## 6 x 9 Pit

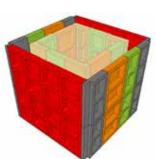
600mm x 900mm x 1200mm



- 8 x External Corner Panels
- 4 x 400mm Panels
- 4 x 1200mm Panels

## 9 x 9 Pit

900mm x 900mm x 1200mm

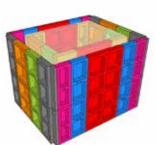


- 8 x External Corner Panels
- 4 x 400mm Panels
- 4 x 300mm Panels
- 4 x 1200mm Panels

## 9 x 12 Pit

900mm x 1200mm x 1200mm

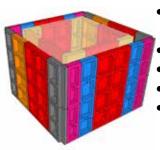
**CUSTOM** 



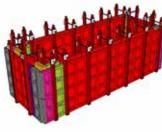
- 8 x External Corner Panels
- 4 x 400mm Panels
- 4 x 300mm Panels
- 2 x 1200mm Panels
- 8 x 250mm Panels
- 8 x 200mm Panels

## 12 x 12 Pit

1200mm x 1200mm x 1200mm



- 8 x External Corner Panels
- 4 x 400mm Panels
- 4 x 1200mm Panels
- 8 x 250mm Panels
- 8 x 200mm Panels



With over 14 different panel sizes we can practically form any size pit incorporating thickening walls, precast segments and penetrations.



Internal Corner



External Corner



200mm Panel



250mm Panel



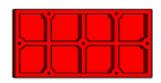
300mm Panel



350mm Panel



400mm Panel



1200mm Panel



## **GEOSKY**



#### **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 (m²)	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



## **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.







# **GEOSKY H+Y (EARLY DISMANTLING)**

Slab	thickness	(mm)
------	-----------	------

					· · ·	
FORMWORK INSTALLATION: PROPPING LAYOUT					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

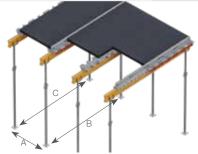
POST-PROPPING REQUIREMENTS						310÷400
A - Max distance between the support Beams [A] (m)	2.48	2.48	2.48	2.48	2.48	1.24
B - Max distance between the props on Y-Beams [B] (m)	2.00	1.60	1.40	1.30	1.80	1.40
C - Max distance between the props [C] (m)	3.60	3.30	3.30	2.80	3.30	2.80

 $_{\star}$  insert the crossbar with props spaced 2.2 m  $\,$ 

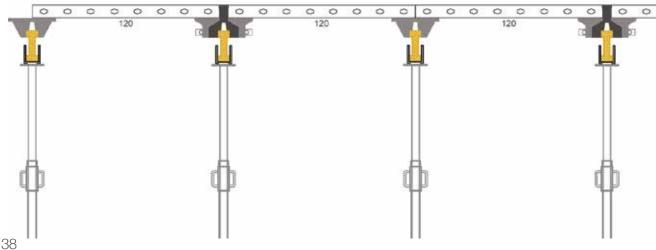
NOTE: Dismantling time at 20÷30°C 7 days for Geosky H-Beams and Geopanel, 28 days for Geosky Y-Beams.

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)**

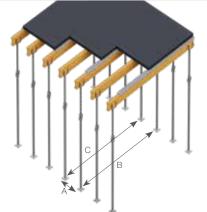
Slab thickness (mm)

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

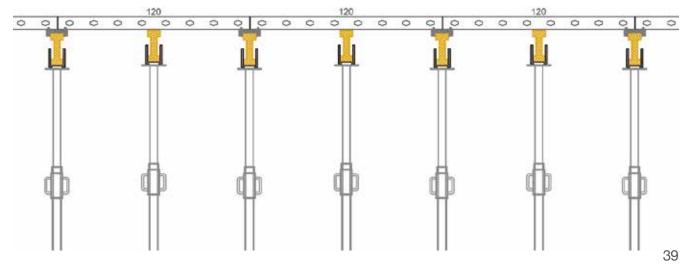
POST - PROPPING						
Max surface per prop	5.60	4.60	3.70	3.20	2.80	2.20

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).







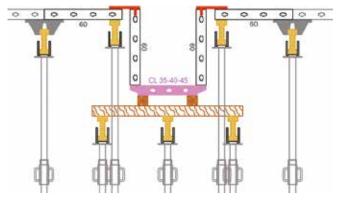
# **DROP BEAM FORMING**

When forming drop-beams various elements come into play: ease of handling, safety, flexibility and repeatability, as

well as precision of execution.

At the same time, easy cleaning and maintenance are essential for a fast and efficient formwork turn-around of the concrete structure.

Precise position of the beam and designed depth are



essential points to be met to ensure the proper behav-

iour of the concrete structure.

Geosky includes the Junction Plate accessory, used to connect the slab formwork to the beam formwork: this element allows horizontal adjustments of up to 100 mm, thus providing greater flexibility in the dropped-beam forming without any added complexity.

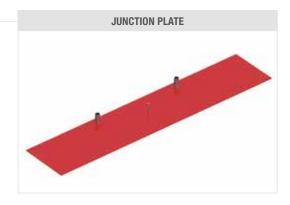
# **GEOSKY JUNCTION PLATES**

Junction Plates are available in the 1.20 m length and 0.60 m length versions in order to ensure compatibility with





The sides and the bottom of the beams can be formed with any combination of panels from the Geopanel and the Geopanel Star range, taking advantage of the great system interoperability.



# **COMBINED WALL AND SLAB FORMWORK**

In case of monolithic casting of walls and slab, the Geopanel Twin Angle panel is used to seamlessly connect the corner of a Geopanel wall form-work to the corner of a Geosky slab form-work.





# **GEOSKY DILATATION PLATES**



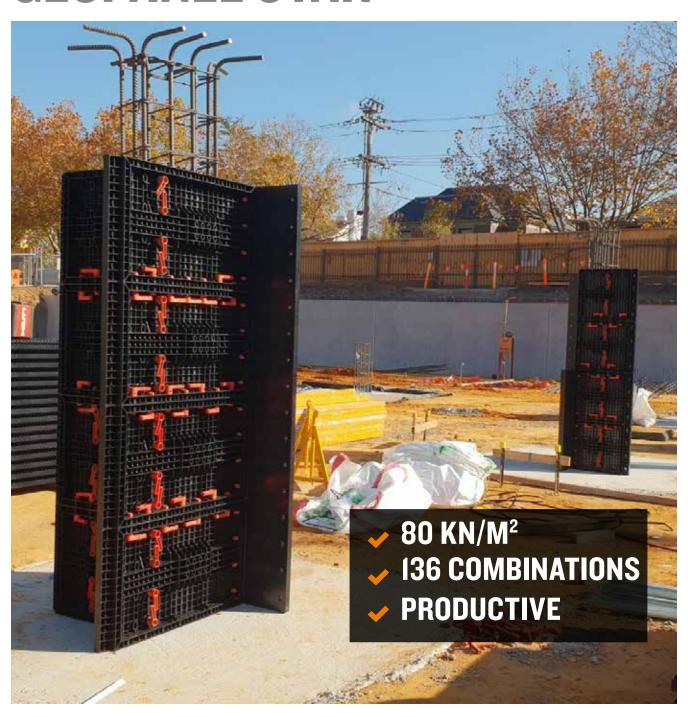
In case of large horizontal slab surfaces without interruptions and elevated ambient temperatures, thermal dilatation is managed using specific steel elements, the Geosky Dilatation Plates.

These elements are available in length of 1.2 m and 0.6 m to ensure compatibility with Geopanel 120x60 in any orientation.





# **GEOPANEL STAR**



ADJUSTABLE COLUMN FORMWORK



## THE GEOPANEL STAR

Geopanel Star is a series of adjustable column formwork panels that brings incredible flexibility and quality to construction sites.

Strong but light, as no element is heavier than 11 kg and Geopanel Star formwork can be moved by hand or by crane as best suiting the job schedule.

Column size is adjustable in 100 mm increments, and panels can be combined with other Geopanel Star forms as well as with Geopanel and Geotub parts in a usefully large number of possible combinations.

#### **POUR COLUMNS UP TO 4.2 M IN A SINGLE LIFT**

#### **ADJUST SIZES AT 100 MM INTERVALS**

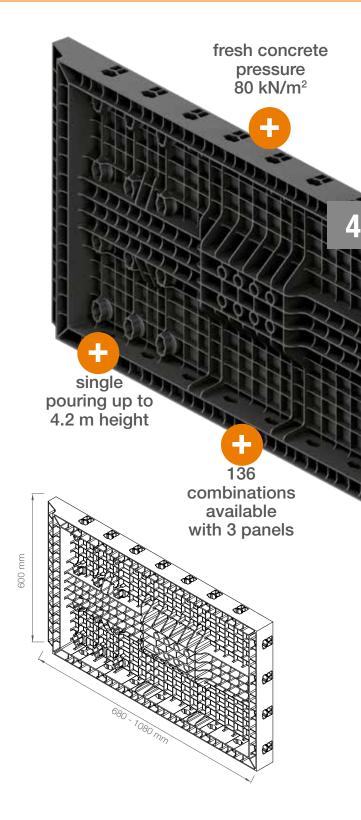
#### MAX WEIGHT PER ELEMENT LESS THAN II KG

Geopanel Star is composed by three different size of panels, each adjustable by 100 mm increments, which combine to form columns in sizes between 200 mm and 1000 mm.

The combination with Geopanel wall panels further expands the possible combinations from 120 mm to well over 1000 mm.

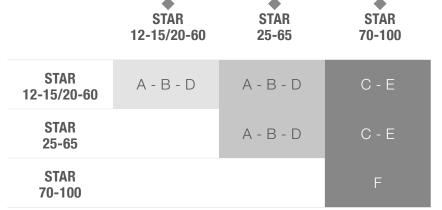
After concrete setting the formwork is not necessarily completely disassembled: it can much more simply be split in two half-shells which are much faster to handle and prepare for the next pour.

Half a Geopanel Star column formwork can weigh less that 80 kg, making handling really simple.



Element	Dimensions (mm)	Sizes (m)	Contact surface (m²)	Weight (kg)
GEOPANEL STAR 20-60	680 x 605 x 80	0.60 x 0.20 / 0.30 / 0.40 / 0.50 / 0.60	0.363	7.03
<b>GEOPANEL STAR 25-65</b>	730 x 605 x 80	0.60 x 0.25 / 0.35 / 0.45 / 0.55 / 0.65	0.393	7.43
GEOPANEL STAR 70-100	1080 x 605 x 80	0.60 x 0.70 / 0.80 / 0.90 / 1.00	0.605	10.42

# **COMBINATIONS AND ELEVATIONS**



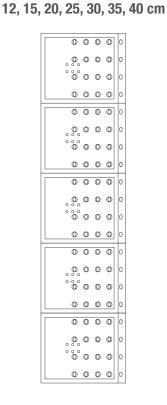
The Geopanel Star panel range is adjustable to a range of column sizes from 120 mm to 1000 mm.

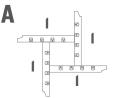
The different panels can be combined with each other in order to obtain the desired size combination.

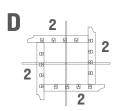


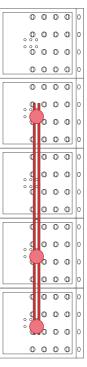
ELEVATION FOR SIDES EQUAL TO: 45, 50, 55, 60, 65 cm

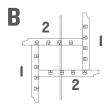
ELEVATION FOR SIDES EQUAL TO: 70, 80, 90, 100 cm

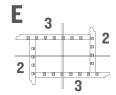


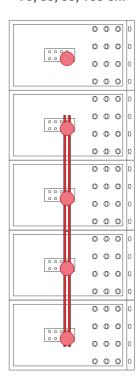


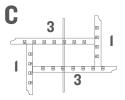


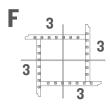




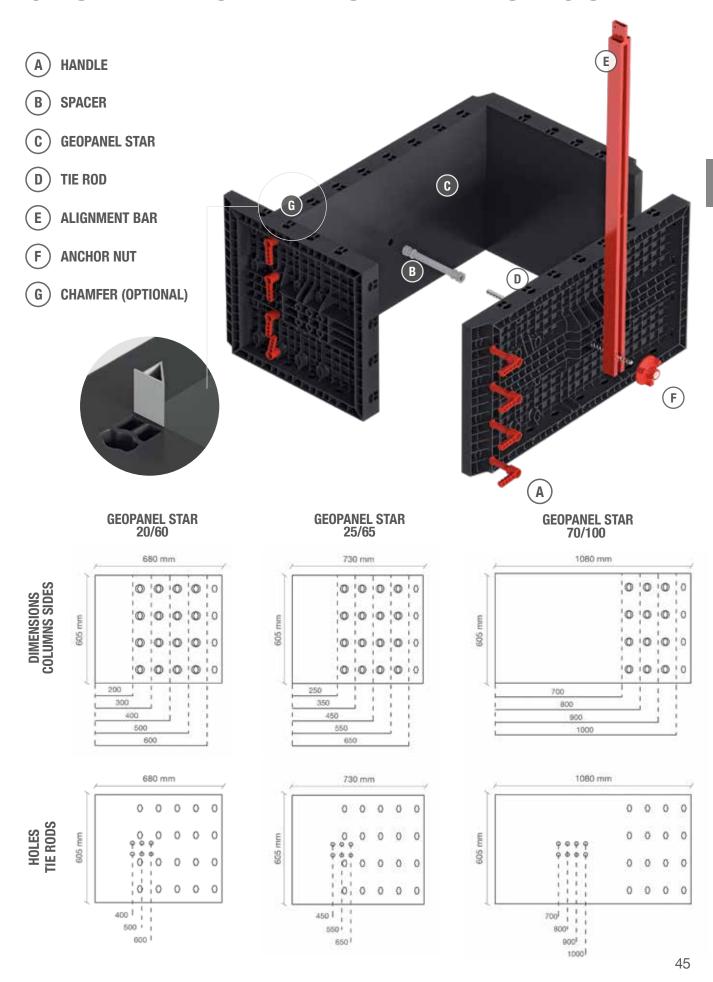








# **GEOPANEL STAR INSTALLATION GUIDE**



# **COLUMNS**

Geopanel Star is a high-strength column formwork made of tough ABS polymer.

It can take all the wear and tear of a construction site while simplifying the concrete forming tasks, reducing the crane workload and improving the site logistics.









# **COMBINATION WITH GEOPANEL**

Geopanel Star panels are part of the Geopanel formwork system, and combine with all other Geopanel elements. The combined formwork range expandes to sizes below and above those that Geopanel Star panels alone can achieve.

When columns of size greater than 1 m need to be formed the combination of Geopanel Star and Geopanel elements is the correct answer.





## **COLUMN SIZE 120 MM AND 150 MM**

Geopanel Star formwork columns of sizes 120 and 150 mm are formed using the Geopanel 35x60 wall panel, which has in fact a double use. Geopanel 35x60 has openings in its face that make possible a perpendicular connection just as with the Geopanel Star elements.

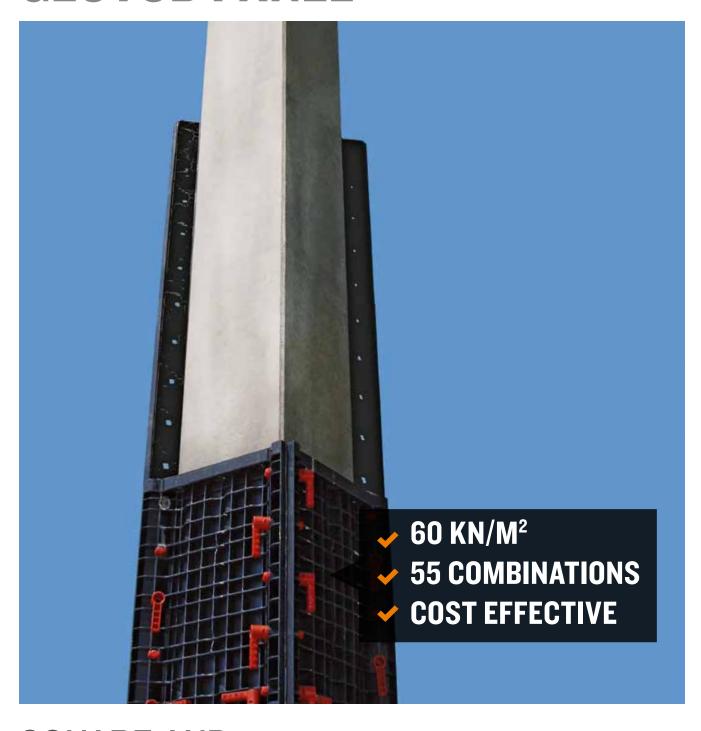
Geopanel 35x60 is used on its own for columns of 120x120 mm, 120x150 mm or 150x150 mm, or in combination with other Geopanel Star panels.







# **GEOTUB PANEL**



SQUARE AND RECTANGULAR COLUMN FORMWORK



# **GEOTUB PANEL**

Geotub Panel is a simple and straightforward column formwork. The panels are optimised for fast forming, each panel dedicated to one single size for maximum simplicity.

Geotub Panel was developed following the feedback from customers and targets some very simple requests:

#### AS SIMPLE AS POSSIBLE

#### **AS LIGHT AS POSSIBLE**

#### AS AFFORDABLE AS POSSIBLE

The result is a series of panels 750 mm tall which deviate from the 605 mm standard of the rest of Geoplast formwork with the goal of reducing by 25% the number of panels per column. The fact that each panel forms one size only makes it extremely simple to learn to use as there is one only way to set it up.

The maximum panel weight is 7.5 kg making Geotub Panel an extremely agile formwork, suitable for small teams working on sites with limited crane access. The bare essentials approach to this formwork make it the most affordable of the Geoplast range.



Geotub Panel elements feature an integrated chamfer: this design means a simpler set-up of the column formwork and fewer parts to manage on site.



Element	Dimensions (mm)	Contact surface (m²)	Weight (kg)
GEOTUB PANEL 20	200 x H750	0.150	3.05
<b>GEOTUB PANEL 23</b>	230 x H750	0.173	3.36
GEOTUB PANEL 25	250 x H750	0.188	3.41
<b>GEOTUB PANEL 30</b>	300 x H750	0.225	3.81
GEOTUB PANEL 35	350 x H750	0.263	4.58
<b>GEOTUB PANEL 40</b>	400 x H750	0.300	5.18
GEOTUB PANEL 45	450 x H750	0.338	5.83
<b>GEOTUB PANEL 50</b>	500 x H750	0.375	6.23
GEOTUB PANEL 55	550 x H750	0.413	6.79
GEOTUB PANEL 60	600 x H750	0.450	7.02



# **ALL THE COMBINATIONS CUSTOMIZABLE MODULAR SYSTEM**

	0	0	0	0	0	0	0	0	0	0
Size (mm)	200	230	250	300	350	400	450	500	550	600
200	200 x 200	200 x 230	200 x 250	200 x 300	200 x 350	200 x 400	200 x 450	200 x 500	200 x 550	200 x 600
230		230 x 230	230 x 250	230 x 300	230 x 350	230 x 400	230 x 450	230 x 500	230 x 550	230 x 600
250			250 x 250	250 x 300	250 x 350	250 x 400	250 x 450	250 x 500	250 x 550	250 x 600
300				300 x 300	300 x 350	300 x 400	300 x 450	300 x 500	300 x 550	300 x 600
350					350 x 350	350 x 400	350 x 450	350 x 500	350 x 550	350 x 600
400						400 x 400	400 x 450	400 x 500	400 x 550	400 x 600
450			5	5			450 x 450	450 x 500	450 x 550	450 x 600
500			<b>O</b> ,					500 x 500	500 x 550	500 x 600
550			COMBINA	TIONS					550 x 550	550 x 600
600										600 x 600

H 3 meters = 16 GEOTUB PANEL (8+8 with handles)

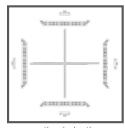
H 3 meters = 16 GEOTUB PANEL (8+8 with handles + 6 tie rods of 1 m + 12 anchor nuts)

H 3 meters = 16 GEOTUB PANEL (8+8 with handles + 12 tie rods of 1 m + 24 anchor nuts)





ties spanning in one direction



ties in both







# **COLUMN FORMWORK**

Geotub Panel is a self-contained formwork system, the 750 mm panel length optimised for minimal number of elements per column box.

All elements of the Geotub Panel range combine with each other, achieving a large number of size permutations.





## A MODULAR PANEL SYSTEM

Geotub Panel is a real workhorse, capable of replacing timber or steel-frame formwork on virtually any construction site. Its simple set-up requires minimal training, the low weight renders it totally crane-independent.

Geotub Panel is perfectly suited to sites with multiple columns of the same size, providing a cost-effective investment.



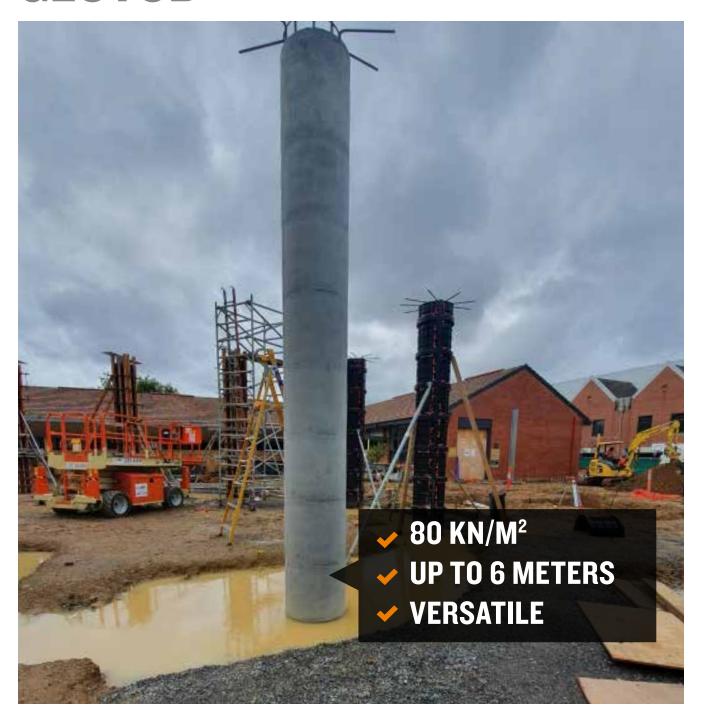








# **GEOTUB**



CIRCULAR AND OVAL COLUMN FORMWORK



# **GEOTUB**

When the first Geotub formwork was launched in 2003 it was a revolution in the global market.

Surprisingly easy to use, featuring impressive performance and durability, Geotub was first in a brand new class of system formwork.

The Geotub formwork elements are engineered for maximum ease of use. Very light, no single element weighing more than 11 kg, Geotub requires no crane during forming and dismantling, Handling and logistics is equally simple.

Specially designed tabs on the outside of the curved panels hold them stacked one on another, so that the forms may be stored neatly both on site and in the material yard.





Element	Nominal sizes (mm)	Contact surface (m²)	Peso (kg)
GEOTUB Ø 25	Ø250 H605	0.237	2.95
GEOTUB Ø 30	Ø300 H605	0.285	3.67
GEOTUB Ø 35	Ø350 H605	0.332	4.09
GEOTUB Ø 40	Ø400 H605	0.380	4.56
GEOTUB Ø 45	Ø450 H605	0.427	4.93
GEOTUB Ø 50	Ø500 H605	0.475	5.54
GEOTUB Ø 60	Ø600 H605	0.570	6.44
GEOTUB Ø 70	Ø700 H605	0.665	7.53
GEOTUB Ø 80	Ø800 H605	0.760	8.64
GEOTUB Ø 90	Ø900 H605	0.855	9.48
GEOTUB Ø 100	Ø1000 H605	0.950	10.43

# **GEOTUB POUR HEIGHTS**

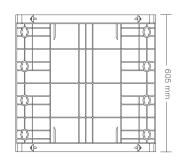
## **GEOTUB CONFIGURATION OF A COLUMN**

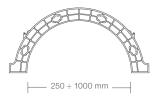
Geotub was probably one of the greatest formwork innovations launched in the market in year 2003: a circular column formwork that is light, simple to use, durable and available in a wide range of sizes.

These features make it even today the reference hand-held reusable circular column formwork on the world market. Available in a wide range of sizes, Geotub is useful in all kinds of sites, from residential to infrastructure building.

	O Max pour height (mm)	No. Elements for max height	No. fixing handles per element	No. Handles for max height
GEOTUB Ø 25	6050	20	6	120
GEOTUB Ø 30	6050	20	6	120
GEOTUB Ø 35	6050	20	7	140
GEOTUB Ø 40	6050	20	7	140
GEOTUB Ø 45	4840	16	8	128
GEOTUB Ø 50	4840	16	8	128
GEOTUB Ø 60	4840	16	9	144
GEOTUB Ø 70	3630	12	10	120
GEOTUB Ø 80	3630	12	10	120
GEOTUB Ø 90	3630	12	11	132
GEOTUB Ø 100	3630	12	11	132









# **CIRCULAR COLUMN FORMWORK**

Geotub is the first reusable plastic formwork for the construction of round columns. It allows a fast and easy dismantling without using releasing agents. The panels are very light: they can be handled and installed by a single person.



The advantages of Geotub become particularly evident with larger column sizes: light, very easy to manage, durable, impeccable logistics, affordable. Geotub is an authentic all-rounder that makes forming circular columns a really simple task.

Striking a column formed with Geotub is literally a fiveminute job. After concrete setting the formwork is not necessarily completely disassembled: it can much more simply be split in two half-shells which are much faster to handle and prepare for the next pour.

Half a Geotub column formwork can weigh as little as 15 kg, making handling really simple.
The applications of Geotub are many:

#### **CIRCULAR COLUMNS AND POSTS**

**OVAL COLUMNS** 

**POST- AND MAST-FOUNDATIONS** 

**BRIDGE PILLARS** 

**COLUMN REPAIR** 

**COLUMN ENCASEMENT** 





# **OVAL COLUMNS**

Most of the Geoplast formwork panels share the same module and different systems are compatible with one another. Geopanel and the Geotub circular column formwork work together very efficiently to produce oval columns.

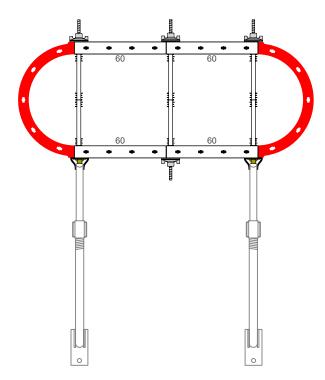




Oval columns are particularly useful in underground and multi-storage carparks as they improve visibility and reduce the risk of vehicle damage during manoeuvres.

As the Geoplast oval column formwork is composed by off-the-shelf components it is very affordable compared to custom-fabricated steel columns, and the single formwork elements will be much more easily used in future applications.





# **MARINE SOLUTIONS**

As all Geoplast formwork, Geotub is particularly suitable when working in presence of water, which can make working conditions more difficult and complicated. In some cases Geotub is the only possible solution, since it is made of ABS and is not affected by water or chlorides.





# **BRIDGE BUILDING**

Bridges are built for roads to fly over obstacles, which means that quite often formwork must be deployed on rough or densely built-up terrain. Erecting a tower crane is often impossible, so a light hand-held formwork capable of producing relatively large diameters becomes a very interesting and productive tool.





# **COLUMN REPAIR AND ENCASEMENT**

The repair or encasement of existing columns is a relatively frequent event. In such cases forming with Geotub is just as straightforward as the production of new columns as the formwork panels are simply assembled around the object to be jacketed with new concrete.





There are different reasons for reworking concrete columns, the main ones being concrete and rebar replacement following weathering and aging, accident repair, increase of its structural capability, jacketing of metal columns to increase fire resistance. Damaged columns may lose their ability to support the axial dead load, live load, and horizontal load.

Such events must be avoided at all cost, especially in the case of infrastructures and public buildings.

Very many column repair jobs are constrained by physical obstacles such as the presence of an existing beam or roof slab above the column, or location within a building or in a hostile environment (drops, cliffs, running water or else). Such situations set drastic limits to the kind of formwork that can be used, often forcing compromises on productivity, surface quality of the concrete, or both. Given its low weight, realiability and practicality of use, Geotub is perfect for column repair and enlargement: it is light, precise, easy to handle and produces an excellent concrete finish.





# **UTILITY POLE FOUNDATIONS**

Geotub is well suited for forming bases for power poles and light poles as it is adjustable to height and enables encasing existing reinforcing or cages already embedded in the footing.

The low weight and ease of use make it very simple to handle and transport the Geotub forms from one site to another.





# **PRECAST COLUMNS**

Geotub is ideal for the off-site mass production of identical columns: strong and durable, it produces a very smooth concrete finish.

Additionally, its handy size and weight make it easy to use even within buildings, without any complicated or potentially hazardous logistic process.





# **ACCESSORIES**

#### **CONNECTOR PLATE**

Bracket used to connect push-pull props to the formwork. It is fastened using the tie rod and a 65 mm anchor nut. Always place an alignment bar between the connector plate and the formwork for correct load distribution.



#### **BRACE CONNECTOR**

Bracket used to connect push-pull props to the formwork when no tie-rod is available. It is fixed directly to the formwork by replacing a fixing handle with a steel pin Ø24 mm



#### **FIXING BRACKET**

Z-shaped steel bracket used hold the formwork to the ground. Pressure tap not included.

#### **BAR CONNECTOR**

Used to connect female-to-female ends of Geoplast alignment bars. Fastened using four Ø10 mm pins.





# **ACCESSORIES**

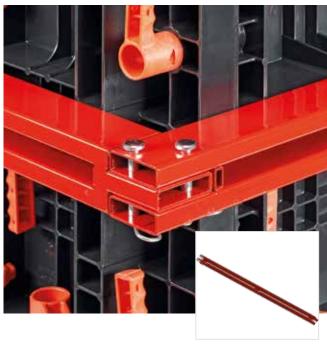
#### **CORNER BAR STUD**

Allows connection between Geoplast alignment bars should their extremities do not meet at the corner of the formwork. An anchor nut and two Ø10 mm pins are used to fasten the alignment bars.



#### **CORNER BAR ASSEMBLY**

For precise corner forming corner bar assemblies are aded to internal and external corner formwork. Each assembly is composed by two alignment bars and two ø10 mm pins. For details refer to the assembly manual.



#### **SHORE-UP CLAMP**

Steel bracket used to fasten timber to the formwork, for example for shoring. It is connected directly to the formwork using a Ø24 mm steel pin replacing a fixing handle.



#### **LIFTING HOOK**

Used to crane-lift Geoplast formwork. It features a locking device that will not allow it to open and get unfastened during lifting.



## **OPERATION REQUIREMENTS**

#### **CONCRETE CASTING**

Geoplast formwork is a professional tool designed according to international standards. Please follow the rate of rise diagram to establish the pour speed. Only immersion concrete vibrators (pokers) are allowed.

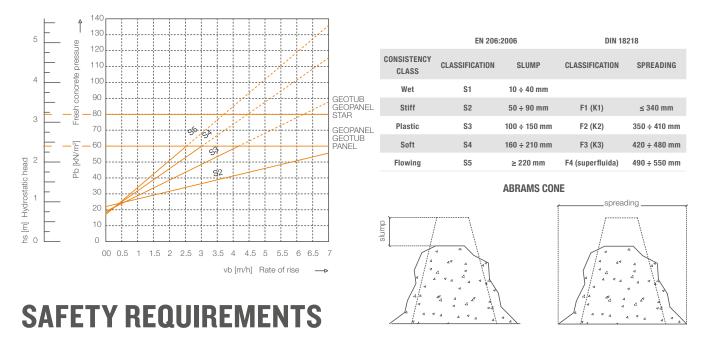
#### **HANDLING**

Geoplast formwork is designed for easy manual handling. Crane handling is nevertheless possible: for such cases use the Geoplast Lifting Hook to lift panel assemblies. In case of single panels always use lifting slings making sure that no panel or element may fall while suspended.

#### **RELEASING AGENT**

As long as the contact surface of the panels shows no signs of wear, no releasing agent is required. If a releasing agent is used, please make sure that it is approved by its manufacturer for use on ABS.

### RATE OF RISE DIAGRAM



The operations of positioning, assembling, dismantling, plumbing, handling and cleaning of Geopanel products, as well as the pouring of the concrete, must be carried out by competent and properly trained personnel or under supervision of the site manager, who must ensure that:

- all above mentioned operations are carried out properly,
- every person working with the formwork is equipped with suitable tools and personal protective equipment to perform all necessary actions in full compliance of the safety standards,
- all panels and the supplied accessories are checked before use, discarding those which should not meet the minimum standard of reliability and safety because of the presence of any breakage and/or deformation,
- the formwork is installed on a perfectly flat surface, so as to work safely and ensure a perfect shoring and plumbing,
- all connection, alignment and plumb accessories of the formwork are properly tightened and secured to the ground before starting the pour.
- ABS formwork is not fireproof: do not place close to hot objects or open flame.

Geoplast S.p.A. disclaims any liability or responsibility arising from improper use of Geopanel formwork. Any assembly of molds and/or use of accessories otherwise described in these guidelines must first be approved by Geoplast S.p.A.

## **MAINTENANCE AND STORAGE**

#### **FORMWORK CLEANING**

The Geoplast system formwork is exceptionally easy to clean. ABS is a particularly smooth and non-porous material that concrete has trouble sticking to.

Cleaning is done with just water and no detergents. Industrial jet-washers of up to 1000 bar pressure are commonly used, but Geoplast formwork can also by easily cleaned by hand.

For deep cleaning it is possible to use acid concrete dissolvers approved for use on ABS polymer. Any remaining deposit of concrete should be removed with a plastic scraper or a wire brush.

#### **STORAGE**

In order to facilitate the handling and lifting of the panels and all accessories, store them on pallets or battens to keep them off the ground.

Although the product does not suffer weathering, for long-term storage it is preferable to keep panels away from direct sunlight.





## **GEOPANEL**

	PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	No. pieces per pallet	No. handles*	Product code
	GEOPANEL 120x60	1210 x 605 x 80	Gratene (ABS Recycled compound)	10.38	750 x 1210 x H2580	38	12	GPP120
	GEOPANEL 40x60	404 x 605 x 80	Gratene (ABS Recycled compound)	3.85	770 x 1210 x H2400	104	6	GPP40
			01 (AD0					
	GEOPANEL 35x60	353 x 605 x 80	Gratene (ABS Recycled compound)	3.53	750 x 1210 x H2350	118	6	GPP35
			Gratene (ABS					
	GEOPANEL 30x60	303 x 605 x 80	Recycled compound)	2.82	770 x 1210 x H2400	140	5	GPP30
	GEOPANEL 25x60	252 x 605 x 80	Gratene (ABS	2.59	770 x 1210 x H2400	166	5	GPP25
	CEOT AILE ZOXOO	202 X 000 X 00	Recycled compound)	2.00	770 % 1210 % 112100	100		GI 1 20
	GEOPANEL 20x60	202 x 605 x 80	Gratene (ABS Recycled compound)	2.29	770 x 1210 x H2350	204	5	GPP20
	GEOPANEL 15x60	150 x 605 x 80	Gratene (ABS Recycled compound)	2.04	750 x 1210 x H2400	280	4	GPP15
	GEOPANEL 5x60	50 x 605 x 80	Gratene (ABS Recycled compound)	0.75	750 x 1210 x H2400	840	-	GPP5
i	GEOPANEL 4x60	40 x 605 x 80	Gratene (ABS Recycled compound)	0.69	750 x 1210 x H2400	1064	-	GPP4
			0 / 450					
i	GEOPANEL 3x60	30 x 605 x 80	Gratene (ABS Recycled compound)	0.62	750 x 1210 x H2400	1400	-	GPP3
1			Gratene (ABS					
	GEOPANEL angolo int.	303 x 605 x 80	Recycled compound)	3.86	810 x 1210 x H2400	128	5	GPPINT
	GEOPANEL angolo est.	252 v 605 v 80	Gratene (ABS	2.99	800 x 1210 x H2300	130	5	GPPEXT
	GLOI ANEL Alignio 631.	202 x 000 x 00	Recyclea compouna)	2.00	000 X 1210 X 112000	100	0	GIT EXT
Ĩ	GEOPANEL WP - 18	100 x 605 x 80	Gratene (ABS Recycled compound)	1.37	800 x 1200x H2450	450	4	GPPWP18
A	GEOPANEL SCB300	55 x 300 x 38	Steel	0.7				GPSCB300
<b>▼</b>								
T	GEOPANEL SCB600	55 x 600 x 38	Steel	1.40				GPSCB600
•								

PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	No. pieces per pallet	No. handles*	Product code
<b>GEOPANEL CL 20-25-30</b>	460 x 605 x 80	Gratene (ABS Recycled compound)	4.92	750 x 1200 x H2500	91	6	GPPCL30
GEOPANEL CL 35-40-45	610 x 605 x 80	Gratene (ABS Recycled compound)	6.14	750 x 1200 x H2550	76	7	GPPCL45
TWIN ANGLE	303 x 303 x 100	Gratene (ABS Recycled compound)	3.96	800 x 1200 x 2350	232	3	GPPTA
GEOPANEL ART	1210 x 605 x 28*	Gratene (ABS Recycled compound)	4.25	1200 x 750 x H2020	80	-	EGPAART0120
* +13 mm interlock stud (	Not yet available	in Australia)					
GEOPANEL STAR 20-60	680 x 605 x 80	Gratene (ABS Recycled compound)	7.03	750 x 1200 x H2580	64	8	GPS60
GEOPANEL STAR 25-65	730 x 605 x 80	Gratene (ABS Recycled compound)	7.43	750 x 1200 x H2580	58	8	GPS65
GEOPANEL STAR 70-100	1080 x 605 x 80	Gratene (ABS Recycled compound)	10.42	750 x 1200 x H2580	40	11	GPS100
* Handles sold separate	ely from produc	t.					

## **GEOTUB PANEL**

	PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	No. pieces per pallet	No. handles*	Product code
	GEOTUB PANEL 20	200 x 750 x 80	Gratene (ABS Recycled compound)	3.05	750 x 1200 x H2100	112	6	GPTP20
The same of the sa								
	GEOTUB PANEL 23	230 x 750 x 80	Gratene (ABS Recycled compound)	3.36	750 x 1200 x H2200	114	7	GPTP23
	GEOTUB PANEL 25	250 x 750 x 80	Gratene (ABS Recycled compound)	3.41	750 x 1200 x H2030	96	7	GPTP25
	GEOTUB PANEL 30	300 x 750 x 80	Gratene (ABS Recycled compound)	3.81	750 x 1200 x H2300	96	7	GPTP30
	GEOTUB PANEL 35	350 x 750 x 80	Gratene (ABS Recycled compound)	4.58	750 x 1200 x H2130	80	8	GPTP35
	GEOTUB PANEL 40	400 x 750 x 80	Gratene (ABS Recycled compound)	5.18	750 x 1200 x H2300	80	8	GPTP40
	GEOTUB PANEL 45	450 x 750 x 80	Gratene (ABS Recycled compound)	5.83	750 x 1220 x H2440	64	8	GPTP45
THE REAL PROPERTY.								

	PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	No. pieces per pallet	No. handles*	Product code
	GEOTUB PANEL	<b>50</b> 500 x 750 x 80	Gratene (ABS Recycled compound)	6.23	750 x 1230 x H2100	48	9	GPTP50
	GEOTUB PANEL	<b>55</b> 550 x 750 x 80	Gratene (ABS Recycled compound)	6.79	750 x 1350 x H2100	48	9	GPTP55
	GEOTUB PANEL	<b>60</b> 600 x 750 x 80	Gratene (ABS Recycled compound)	7.02	750 x 1450 x 2080	48	9	GPTP60
-00	* Handles sold s	separately from pro	oduct.					

### **GEOTUB**

	GEUIUD							
	PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	No. pieces per pallet	No. handles*	Product code
	GEOTUB ø25	ø250 H605	Gratene (ABS Recycled compound)	2.95	810 x 1210 x H2200	60	6	GPR250
	GEOTUB ø30	ø300 H605	Gratene (ABS Recycled compound)	3.67	930 x 1210 x H2450	60	6	GPR300
	GEOTUB ø35	ø350 H605	Gratene (ABS Recycled compound)	4.09	1030 x 1210 x H2260	50	7	GPR350
4								
	GEOTUB ø40	ø400 H605	Gratene (ABS Recycled compound)	4.56	1140 x 1210 x H1900	40	7	GPR400
4								
	GEOTUB ø45	ø450 H605	Gratene (ABS Recycled compound)	4.93	1210 x 1230 x H2330	48	8	GPR450
•								
	GEOTUB ø50	ø500 H605	Gratene (ABS Recycled compound)	5.54	770 x 1210 x H2100	20	8	GPR500
•								
	GEOTUB ø60	ø600 H605	Gratene (ABS Recycled compound)	6.41	770 x 1210 x H2350	20	9	GPR600
•								
	GEOTUB ø70	ø700 H605	Gratene (ABS Recycled compound)	7.53	870 x 1210 x H2380	18	10	GPR700
A								
	GEOTUB ø80	ø800 H605	Gratene (ABS Recycled compound)	8.64	970 x 1210 x H2350	16	10	GPR800
4								
	GEOTUBø90	ø900 H605	Gratene (ABS Recycled compound)	9.48	1070 x 1210 x H2530	16	11	GPR900
4								
	GEOTUB ø100	ø1000 H605	Gratene (ABS Recycled compound)	10.43	1170 x 1210 x H2400	14	11	GPR1000

## **GEOSKY**

	PRODUCT	Dimensions (mm)	Material	Weight (kg)	Package dimension (mm)	No. pieces per pallet	No. handles*	Product code
10000000	GEOSKY Y BEAM	191 x 605 x 200	Gratene (ABS Recycled compound)	2.67	1000 x 1210 x H2160	140	-	GPGSY
Same								
All and the	GEOSKY WEDGE	160 x 605 x 118	Gratene (ABS Recycled compound)	2.67	750 x 1200 x H1900	204	4	GPGSW
in City								
-36	GEOSKY H BEAM	310 x 605 x 121	Gratene (ABS Recycled compound)	2.69	1200 x 1240 x H1960	120	-	GPGSH
All Indian								
	GEOSKY HS BEAMO	130 x 605 x 40	Gratene (ABS Recycled compound)	0.62	750 x 1210 x H2280	594	-	GPGSHS
All the same								

 $<sup>^{\</sup>ast}$  Handles sold separately from product.

## **ACCESSORIES**

	AGGEGGGITTE				
	PRODUCT	Material	Colour / Finish	Weight per unit (kg)	Product code
	HANDLE	PA66 Nylon	Red	0.09	GPHAN
	COMPENSATION ROD	PA66 Nylon	Red	0.08	GPCR
	COMPENSATION NUT	PA66 Nylon	Red	0.038	GPCN
	COMPENSATION WRENCH	PA66 Nylon	Red	0.26	GPCW
	CAP 25	HD PE	Black	0.004	GPCAP25
	CAP 43	Gratene (ABS Recycled compound)	Black	0.015	GPCAP43
	BORDER CAP	Gratene (ABS Recycled compound)	Black	0.006	GPBC
	Package of 200 pieces (100 pieces le	eft cap and 100 pieces right ca	ap)		
3	CONCRETE SHIELD	PP	Red	0.13	GPCS
A	TIE-ROD BRACKET	Steel	Galvanised	0.37	GPTRB
3					
	FIXING BRACKET	Steel	Galvanised	0.28	GPFB
	CORNER BAR STUD	Steel	Galvanised	0.42	GPCBS
Service Control of the Control of th					6

	PRODUCT	Material	Co	olour / Finish	Weight per unit (kg)	Product code
	BAR CONNECTOR MM 120	Steel	(	Galvanised	0.038	GPBARC
-	PIN Ø10	Steel	(	Galvanised	0.05	GPPIN10
and b	PIN Ø24	Steel	(	Galvanised	0.38	GPPIN24
200	SHORE-UP CLAMP	Steel	(	Galvanised	1.10	GPPBSB
	TIMBER SUPPORT BRACE	Steel	(	Galvanised	1.10	GPTSB
	LIFTING HOOK	Steel	(	Galvanised	1.81	GPLH
1	BRACE CONNECTOR M 12/50	Steel	(	Galvanised	0.73	GPBC
	BRACE CONNECTOR M 66	Steel	(	Galvanised	0.63	EGASNON0066
+ 🚳	CONNECTOR PLATE M 49	Steel	(	Galvanised	1.45	EGAPIST0049
+ 🍇	CONNECTOR PLATE M 62	Steel	(	Galvanised	1.50	GPCP62
	ANCHOR NUT DI5 Ø120	PA66 Nylon		Red	0.37	GPNUT-N120
	ANCHOR NUT DI5 Ø100	Steel	(	Galvanised	0.22	ZBAN100
<b>U</b>	ANCHOR NUT DI5 Ø65	Steel	(	Galvanised	0.22	GPNUT-S65
-	ALIGNMENT BAR SUPPORT	Steel	(	Galvanised	0.60	EGSUBAA0000
	PRODUCT	Material	Colour / Finish	Length (mm)	Weight per unit (kg)	Product code
2 4	DILATATION PLATE	Steel	Painted	200 x 1210	6.00	EGALADT0120
	Pin D24 L60 with R-Clip included					
	Y DILATATION PLATE	Steel	Painted	200 x 600	0.35	EGALADT0060
111	JUNCTION PLATE L120	Steel	Painted	1210 x 250	7.25	EGALASC1210
	JUNCTION PLATE L60	Steel	Painted	605 x 250	3.65	EGALASC0605
	ALIGNMENT BAR F-UN2000	Steel	Painted	2000 x 60 x 60	8.94	GPAB2000
	ALIGNMENT BAR UNI500	Steel	Painted	1500 x 60 x 60	6.89	GPAB1500

	PRODUCT	Material	Colour / Finish	Length (mm)	Weight per unit (kg)	Product code
	ALIGNMENT BAR UNIOOO	Steel	Painted	1000 x 60 x 60	4.79	GPAB1000
	ALIGNMENT BAR UN750	Steel	Painted	750 x 60 x 60	3.61	GPAB750
	ALIGNMENT BAR UN500	Steel	Painted	500 x 60 x 60	2.52	GPAB500
1000	CORNER CHAMFER PROF. 22 X 10	PVC	White	22 x 10 x 2000	0.08	GPCE10
	CORNER CHAMFER PROF. 35 X 15	PVC	White	32 x 15 x 2000	0.13	GPCE15
	Z-BAR TIE ROD IM	Steel	Black	Ø15 x 1000 mm	1.40	ZBAR1
	Z-BAR TIE ROD 3M	Steel	Black	Ø15 x 3000 mm	4.40	ZBAR3
	Z-BAR TIE ROD 5.8M	Steel	Black	Ø15 x 5800 mm	8.26	ZBAR6
	150MM CONDUIT & CONE ASSEMBLY	PVC	White	150 x 25 Ø int.	0.04	CCA150
	200MM CONDUIT & CONE ASSEMBLY	PVC	White	200 x 25 Ø int.	0.05	CCA200
	250MM CONDUIT & CONE ASSEMBLY	PVC	White	250 x 25 Ø int.	0.06	CCA250
	300MM CONDUIT & CONE ASSEMBLY	PVC	White	300 x 25 Ø int.	0.07	CCA300
	400MM CONDUIT & CONE ASSEMBLY	PVC	White	400 x 25 Ø int.	0.07	CCA400
	500MM CONDUIT & CONE ASSEMBLY	PVC	White	500 x 25 Ø int.	0.08	CCA600
	600MM CONDUIT & CONE ASSEMBLY	PVC	White	600 x 25 Ø int.	0.09	CCA600
	POURING PLATFO	IRM				

## PUURING PLAI FURIVI

1	PRODUCT	Material	Weight per unit (kg)	Product code
1	CONSOLE	Steel	8.25	GPPPC
	ANTI DOTATION DEVICE			
	ANTI-ROTATION DEVICE	Steel	1.34	GPPPAR
	DADADET DOOT	01. 1	0.00	ODDDDD
	PARAPET POST	Steel	3.39	GPPPP
1	FRONT PARAPET SUPPORT	Steel	2.85	EGAGUAR0000
'l	THORT FARALET SOLF OIL	Otoci	2.00	EGAGGAIIOOO
	PARAPET MOUNT	Steel	0.27	EGASTAPF000
3				
٦	SIDE PARAPET MOUNT	Steel	0.56	GPPPSP
3				60

# **REFERENCES**BERRIGAN IRRIGATION WORKS, AUSTRALIA

One of the gate structures of the Berrigan Main Channel, part of the Murray Irrigation Scheme (NSW, Australia), needed to be rebuilt. As pressure was mounting to complete the job during a limited shut-down period between seasons, a fast, adaptable formwork system was required. The Geopanel system formwork was used to build two U-shaped walls with channel returns and wings to suit the Rubicon gates: using Geopanel meant that the entire structure could be formed and poured in under 5 days.

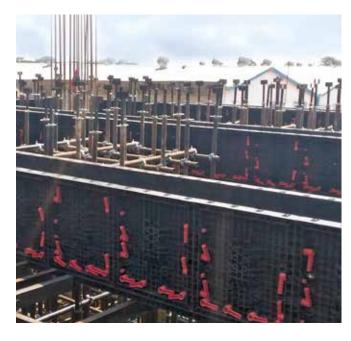




## **CANNING PLANT, EMBAKASI, KENYA**

The combination of Geopanel and Geopanel Star formwork enabled the contractor to overcome the main challenge of the project, the creation of in-situ drop beams and columns. The columns were up to 7 meters high.

The flexibility of the formwork allowed for savings in terms of forming and concrete cost as well as man-hours.





# **REFERENCES**

## FISHT OLYMPIC STADIUM, SOCHI, RUSSIA

Fisht Olympic Stadium is located in Sochi Olympic Park. The 40,000 capacity stadium was constructed for the 2014 Winter Olympic games. It served as the venue for their opening and closing ceremonies.

Geoplast Geotub, the reusable plastic formwork for round and oval columns, was used during construction saving a great amount of crane time.





## SAN FRANCISCO, AIRPORT TERMINAL I REDEVELOPMENT

Geotub was used for the circular columns of the extension Terminal 1 in San Francisco Airport.

The 46,451 m<sup>2</sup> project for the new Boarding Area B, as well as a new Terminal 1 Center, includes a newly consolidated security checkpoint and baggage handling system.







# REFERENCES PALAZZO CANOVA, PADUA, ITALY

Palazzo Canova is a residential complex consisting of seven large apartments. The design was conceived to respond to the needs of contemporary living, favoring a strong relationship between the exterior and interior.

In order to meet expectations in terms of both appearance and material quality, Geopanel and Geopanel Star were used to construct the concrete frame.





## KALASATAMA REDI TOWERS, HELSINKI, FINLAND

Kalasatama is a residential and business district built on the waterfront in Helsinki. Geotub was used for the construction of an underground car park, carved into the rock, situated at 30 meters below the road surface and integrated with the Kalasatama subway station line.

Using a light formwork was essential in the tight spaces available in an underground construction site, allowing for manual forming and stripping while maintaining high productivity and concrete quality.



# REFERENCES NAD AL SHEBA 3 VILLAS, DUBAI

Nad Al Sheba 3 is a new sub-community in Dubai, situated south of the Dubai Creek. 500 villas were constructed and delivered by 2018.

Geopanel Star was selected for the construction of the columns: ease of handling and resistance to high ambient temperature were important elements in the choice of the formwork.





## M50 MOTORWAY EXTENSION, RED COW ROUNDABOUT, DUBLIN

The Red Cow Roundabout is a vital trafic junction west of the city of Dublin, Ireland.

Geotub 60 column formwork was chosen as it avoided the use of cranes, which would have forced the temporary closure of traffic lanes during installation and operation.

The new bridges are each carried by 12 round columns of 600 mm diameter.





# **REFERENCES**

## RAILWAY MAINTENANCE CENTRE, VALENCIENNES, FRANCE

As part of a conversion of an industrial building in Valenciennes, northern France, into a rolling stock maintenance centre, Geopanel was used to create the level slab at the entrance of the building. The panels' light weight and versatility proved to be a winner in the quick construction of the three new access tracks.





## **MULTISTOREY CAR PARK, MILAN, ITALY**

A considerable number of pillars had to be cast for this underground car park in the Milan area. The use of Geopanel Star made it possible to speed up the casting phases thanks to the ease of handling, the rapidity of formwork erection and dismantling, and the possibility of obtaining variable pillars various sizes with the same elements.



## **REFERENCES**

## **COMMERCIAL BUILDING, ROSERSBERG, SIGTUNA, SWEDEN**

The construction of a new commercial building in an area with low soil strength required numerous and dense foundation piles. The numerous pile caps were formed with Geotub, which had the not inconsiderable advantage at this stage of the construction site of requiring no crane for handling.





## SEI MILANO RESIDENTIAL COMPLEX, MILAN, ITALY

Sei Milano is a new multi-functional neighbourhood conceived as a "living park" servicing the city: gardens, balconies. covered loggias and glazed greenhouses overlooking the promenade and gardens.

The numerous round columns used Geotub formwork, taking advantage of its portability to avoid the need for a crane for the handling.





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