

TECHNICAL MANUAL

Big Optimus
Slabs

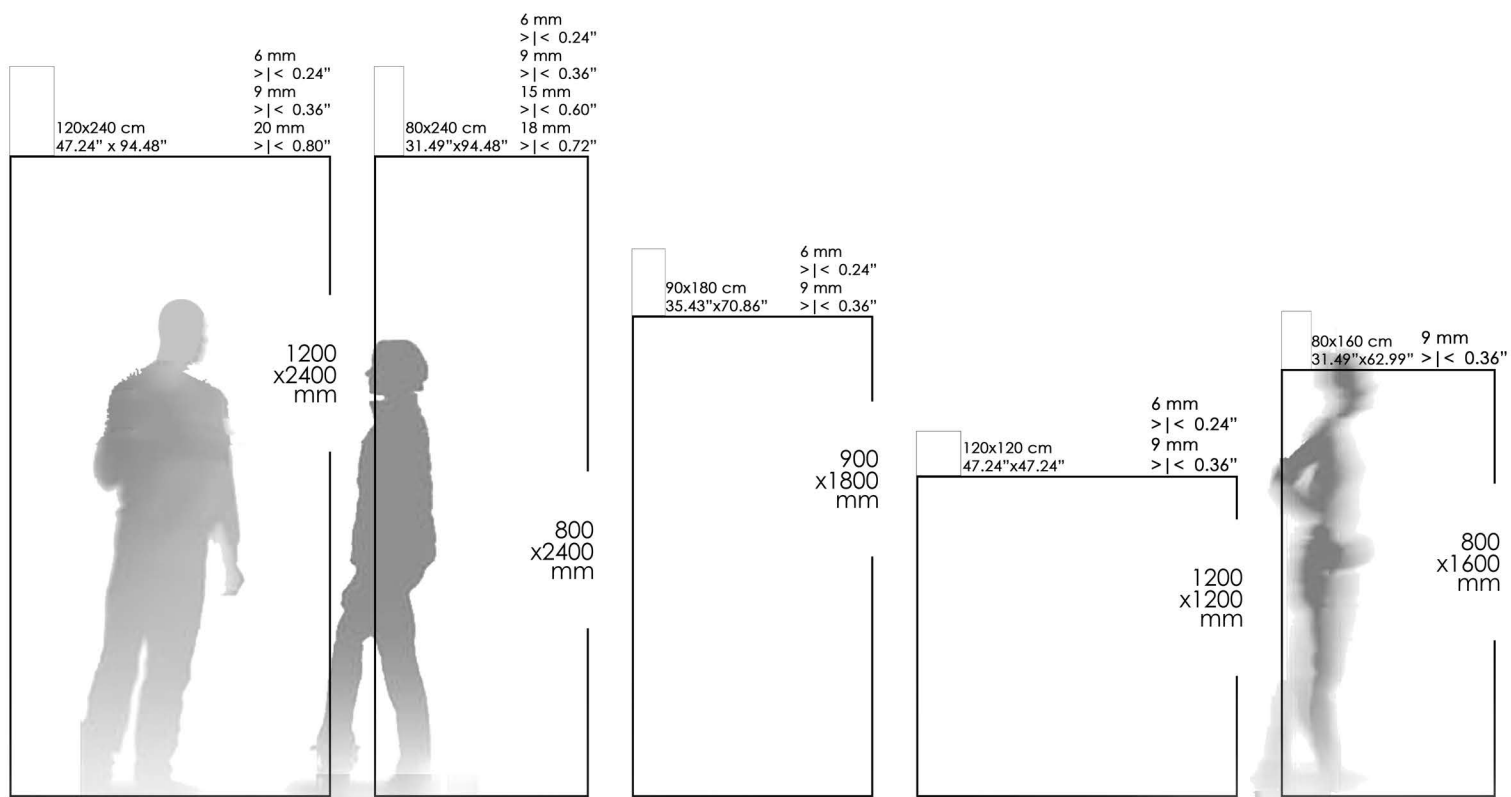


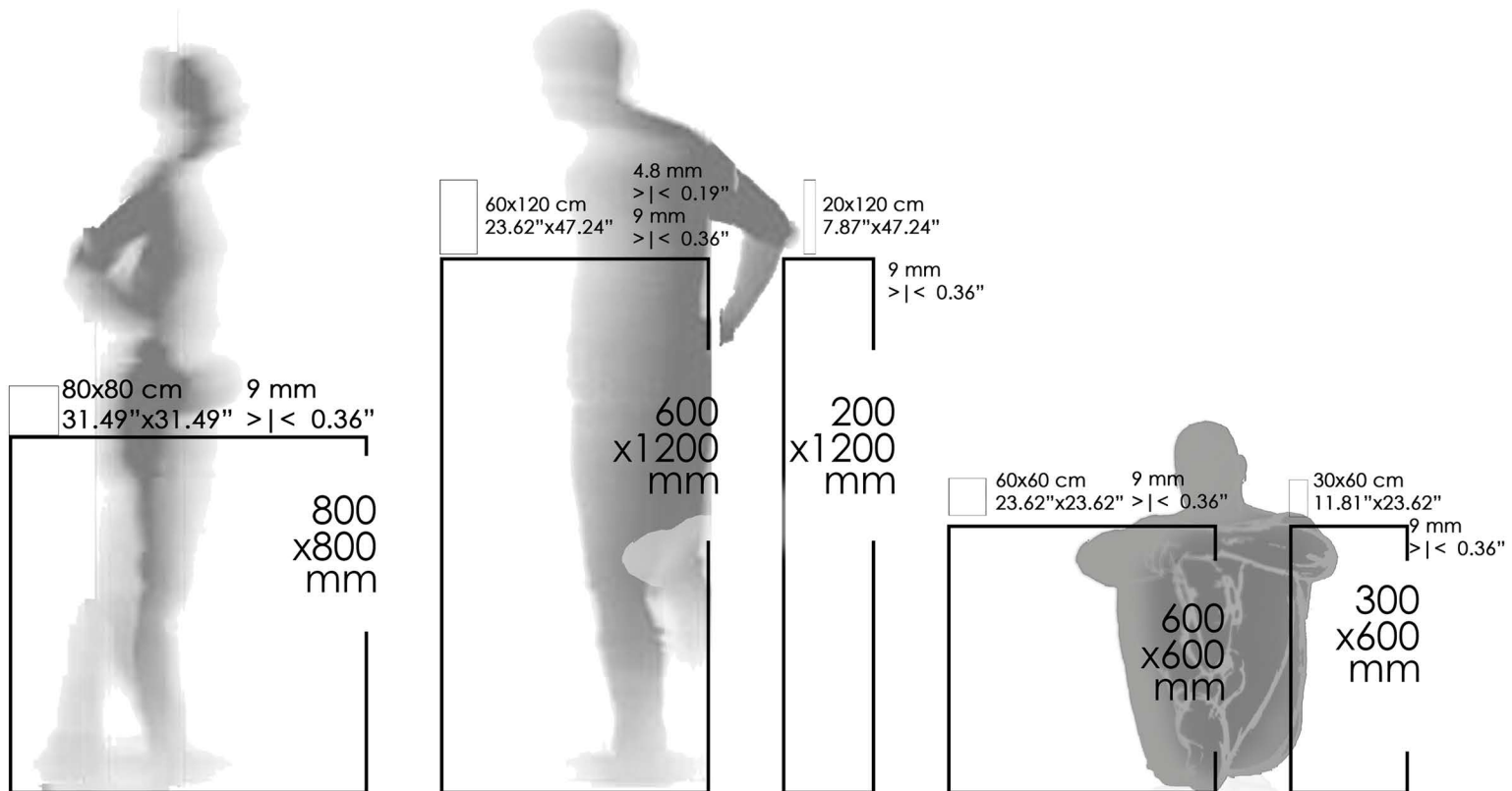
FLOOR & WALL
TILES

GGCL
GRUPO GRIFFIN CERAMIC LLP



GGCL's Optimus big slabs are our answer to the most advanced architectural and interior design needs – starting from 80×160 cm up to 120x240 cm – can be found in numerous collections and with different thicknesses, styles, including stone, concrete and marble, inspired by the latest design trends, which combine light weight, versatility and technical and aesthetic performance that is the result of the most advanced production technologies available in world today.





Product Typology

BODY TYPE	SIZE (CM)	6MM	9MM	15MM	18MM	20MM
Porcelain Tiles	120X240	✓	✓	✗	✗	✓
Porcelain Tiles	80X240	✓	✓	✓	✓	✗
Porcelain Tiles	120X120	✓	✓	✗	✗	✗
Porcelain Tiles	90x180	✓	✓	✗	✗	✗
Porcelain Tiles	80x160	✗	✓	✗	✗	✗
Porcelain Tiles	80x80	✗	✓	✗	✗	✗
Porcelain Tiles	60x120	✓	✓	✗	✗	✗
Porcelain Tiles	20x120	✗	✓	✗	✗	✗
Porcelain Tiles	60x60	✗	✓	✗	✓	✓
Porcelain Tiles	30x60	✗	✓	✗	✗	✗

Porcelain Tiles

GCCL SPECIFICATION

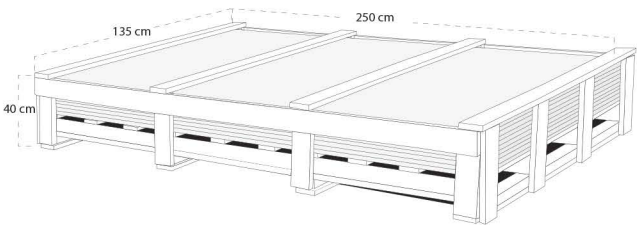
TEST DESCRIPTION	STANDARD TEST METHOD	STANDARD REQUIREMENTS	+15 MM THICKNESS	9 MM THICKNESS	6 MM THICKNESS
Surface Quality	BS EN ISO 10545-2	a minimum of 95% of the tiles are to be free from visible defects	Minimum of 95% of the tiles are free from visible defects		
Length & Width	BS EN ISO 10545-2	± 1.0mm	± 1.0mm	± 0.1mm	± 0.1mm
Thickness	BS EN ISO 10545-2	± 0.5mm	± 0.5mm	± 0.5mm	± 0.5mm
Straightness Of Sides	BS EN ISO 10545-2	± 0.8mm	± 0.8mm	± 0.8mm	± 0.8mm
Rectangularity	BS EN ISO 10545-2	± 1.5mm	± 1.5mm	± 1.5mm	± 1.5mm
Surface Flatness: Centre Curvature	BS EN ISO 10545-2	± 1.8mm	± 1.8mm	± 1.8mm	± 1.8mm
Surface Flatness: Edge Curvature	BS EN ISO 10545-2	± 1.8mm	± 1.8mm	± 1.8mm	± 1.8mm
Surface Flatness: Warpage	BS EN ISO 10545-2	± 1.8mm	± 1.8mm	± 1.8mm	± 1.8mm
Water Absorption	BS EN ISO 10545-3	≤ 0.5%	≤ 0.4%	≤ 0.4%	≤ 0.4%
Breaking Strength*	BS EN ISO 10545-4	≥ 1300 N ≥ 700 N	≥ 3500 N -	≥ 1600 N -	- ≥ 700 N
Modulus Of Rupture*	BS EN ISO 10545-4	≥ 35 N/mm ²	≥ 35 N/mm ²	≥ 35 N/mm ²	≥ 35 N/mm ²
Resistance To Surface Abrasion	BS EN ISO 10545-7	Report abrasion class	PEI CLASS 2-5	PEI CLASS 2-5	PEI CLASS 2-5
Coefficient Of Linear Thermal Expansion	BS EN ISO 10545-8	Test method available	≤ 7 X 10 ⁻⁶ /°C	≤ 7 X 10 ⁻⁶ /°C	≤ 7 X 10 ⁻⁶ /°C
Resistance To Thermal Shock	BS EN ISO 10545-9	Test method available	No visible defect	No visible defect	No visible defect
Crazing Resistance	BS EN ISO 10545-11	Required	No crazing	No crazing	No crazing
Frost Resistance	BS EN ISO 10545-12	Required	No visible damage	No visible damage	No visible damage
Resistance To Household Chemicals & Swimming Pool Salts	BS EN ISO 10545-13	Minimum B	Class A No visible effect	Class A No visible effect	Class A No visible effect
Resistance To Low Concentrations Acids & Alkalis	BE EN ISO 10545-13	Manufacturer to state classification	Class LA No visible effect	Class LA No visible effect	Class LA No visible effect
Resistance To Staining	BS EN ISO 10545-14	Test method available	Min. Class 4 Stains removed	Min. Class 4 Stains removed	Min. Class 4 Stains removed

Superior quality raw materials like kaolin, clay, feldspar, silica, and colouring inks are imported from Europe and other parts of the world to manufacture Optimus Big Slabs, without compromising on its breaking strength, water absorption, dust, termite and chemical resistance.

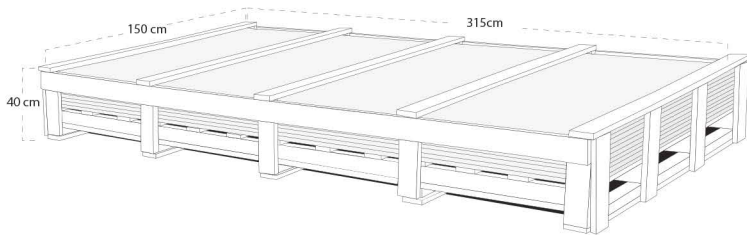
Optimus Big Slabs are exceptionally hard, resist thermal shock better than any material available today, are virtually non-porous and are a green product. Installation is quicker and easier because of the dimensions of the product.

Flooring, wall cladding, kitchen counter tops, vanity tops, steps and risers, and bath surrounds are all possible.

Pallet Details



Horizontal Pallet



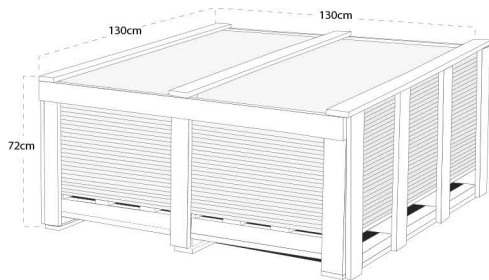
PALLET DIMENSIONS (CM)

FINISH	Length	Height	Width
Polished	250	40	135
Matt	250	40	135
Matt	250	40	135

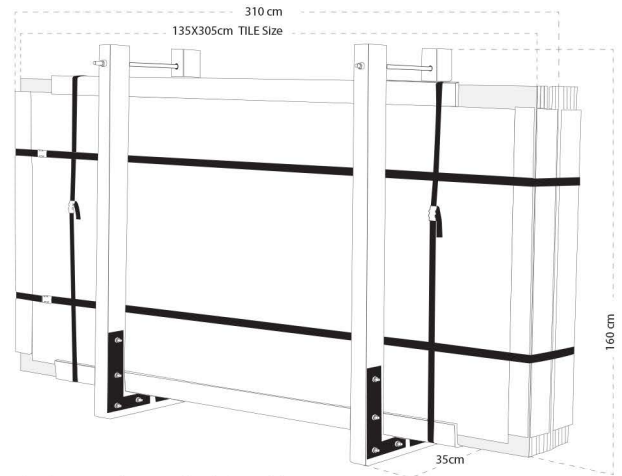
PALLET DIMENSIONS (CM)

FINISH	Length	Height	Width
Polished	315	40	150
Matt	315	40	150

Note: All tile dimensions mentioned above are rectified. Unrectified size is available in +/-140x308cm on request
All weights and thickness mentioned in the above table are approximate average.



Box Pallet



A-Frame Vertical Pallet

PALLET DIMENSIONS (CM)

FINISH	Length	Height	Width
Polished	130	72	130
Matt	130	72	130

PALLET DIMENSIONS (CM)

FINISH	Length	Height	Width
Polished	310	160	35
Matt	310	160	35

HANDLING EQUIPMENT

Aluminum Parallel profile with crossbars and Suction Vacuum suction cups with vacuum gauge



Tile Cart Trolley



Double Suction Cups



Modular Work Bench BM180



Modular Work Bench BM180 BM180 Plus (Perfect Workstation for large format tiles up to 160cm width)



CUTTING AND DRILLING EQUIPMENT

Compass device with suction cups for Circular Cuts



Free cut guide with complete outfit Max. Cut of length – 156 cm



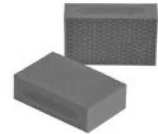
Free Cut Extension



Cutting off pliers for tile/slabs



Diamond polishing pad



Diamond for edge and side polishing



Diamond Blades for simultaneous cutting and grooving



INSTALLATION AND LEVELLING EQUIPMENT

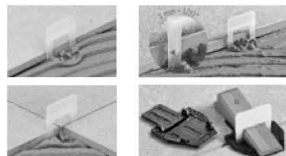
Compact Vibrator or Tile Beater



RLS 3D Clips for tiles



Wedges (for Anti-Chipping / Anti-Scratching preventing platforms)



Adjustable pliers for wall and floor covering



Low-speed mixer



Rubber Grout floats



Slant ridge notched trowel



Diamond for edge and side polishing



CLEANING AND MAINTENANCE

Brooms

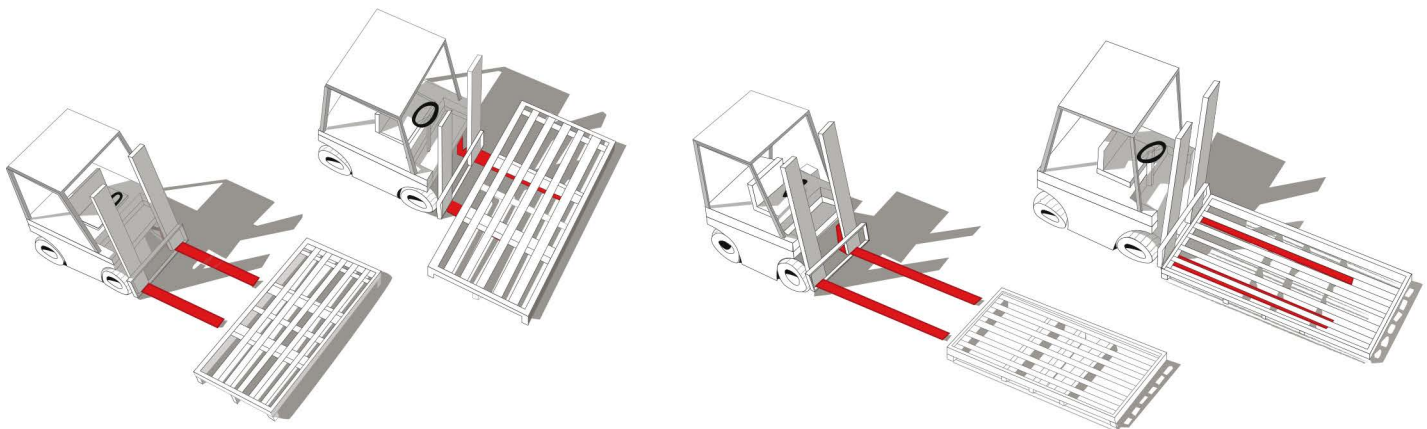


Floats with abrasive pads



Handling Optimus Big Slabs

- To handle the same crate from the narrow end requires forks that are at least 213cm/ 84" long. Lifting multiple crates with longer forks may require forklifts with a greater lift capacity.
- Specialized tools and equipment are currently available for the handling, installation and cutting of large porcelain surfaces. Innovative trowels with unique notch configurations can help increase the consistency of the mortar coverage on the back of the tile.
- To increase rigidity and limit twisting, use a system composed of parallel and transverse guides.
- For a perfect adhesion clean the slab and the suckers with a damp sponge.
- The suckers run along the guides and adhere to the slab. Make sure that a vacuum is created between the device and the surface.
- A single guide device can be used for sizes of maximum length.
- Use four operators at a time to carry out handling operations of large size slabs.
- Lift the slab along the long side and hang it vertically to the handles of the frame.
- For the large size slab a suitably reinforced trolley is recommended. Set the guides to the trolley for carrying the slab.
- Follow the same procedure for handling the 120x240cm and all other sub-sizes, where only two operators are sufficient.



Cut-to-Pieces and Drilling

- **GGCL** recommends the use of special designed devices for handling as well as cutting and laying of big slabs.
 - Handle slab with a proper and professional trolley of aluminum parallel profile with crossbars and vacuum suction cups along with a vacuum gauge. Please use double suction cups for slabs above 300cm. This could make sure that appropriate vacuum is created between the device and the slab. Lift the slab and keep it vertically to the trolley frame.
 - Keep the slab on a stable, flat and intractable surface. For successful cutting and drilling, **GGCL** recommend using a professional modular workbench with aluminum profiles and proper cutting tools for each type of cut.
 - Set the cutting unit on the tile so that the references coincide with the marked lines and lock it with the appropriate suckers. Score the slab from one edge to the other, being carefully maintaining the same pressure while moving.
 - When the cut has been made, move the slab until the slit line sticks out a 10 to 15 cm from the workbench. Start hew from both sides using appropriate cutting-off pliers and follow the scoring line to complete the hew.
 - Smooth rough edges and sides with an appropriate diamond polishing pad.
 - To drill internal cutouts from the slab, first you need to draw the guide lines. For circular cuts, use the compass device with suction cups. For rectangular cut, drill first a 5 – 7 mm hole at the corners of the rectangle shape, using a non-percussion drill. For a better drilling always, keep the surface and drill a little bit wet. Then Follow the drilled lines using a diamond-blade angle grinder and then finish off the edges with a diamond-polishing pad. Round holes (4) must be made in wet drilling, using diamond-blades. Start engraving the surface with a 75 degrees point angle, then straighten out the drill avoiding excessive pressure on the slab. Also, in this case finish with a diamond-polishing pad.
 - Manual traction devices are available, in order to make a finishing cut at 45° and thus enable special applications of the material.
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Installation

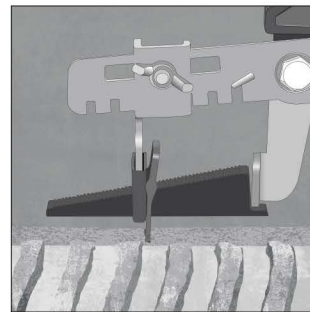
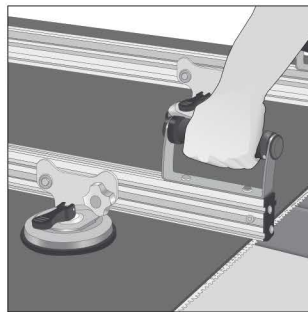
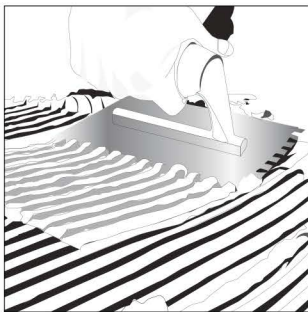
Laying "Optimus" slabs requires similar laying conditions to those required for traditional format slabs. Optimus requires the adhesive to be applied both on the setting bed and on the back of the slab.

Optimus Slabs For Flooring Require The Following Conditions:

- A flat surface that is clean and free from dust, scraps and any lumps of cement
- The setting bed must be uniform and have already undergone the dry shrinkage process
- Repair any cracks
- Any uneven parts on the surface must be filled with suitable levelling compounds

Instruments Required

- Cement-based powder adhesive for full spread, class "C2E according to EN12004 and S1 according to EN12002 standards"
- 3x3 mm square toothed trowel and 15 mm round toothed trowel
- Frame with suction cups for handling or double suction cups
- Non-bounce plastic mallet 170x370 mm
- Levelling system: base clip + wedge + pliers



Bonding To The Floor

- Ensure that the surface to be covered is solid, flat and free from dust and oil/grease.
- Use the adhesives described above mixed according to the specifications indicated in the technical data sheet of the chosen adhesive.
- Spread the adhesive onto the surface to be covered with a 15 mm round toothed trowel across an area of 5/10 cm more than the dimensions of the slab.
- With the slab in a vertical position on the handling frame, spread the adhesive onto the back of the slab with a 3x3 mm square toothed trowel.
- Using the frame with suction cups, bring the slab into a horizontal position and lay it.
- To guarantee uniform bonding of the slab, the special 170x370 mm non-bounce plastic mallet must be used, tapping from the middle towards the edges so as to remove any air pockets between the back of the slab, the adhesive and the surface to be tiled using the levelling system.

Bonding To The Wall

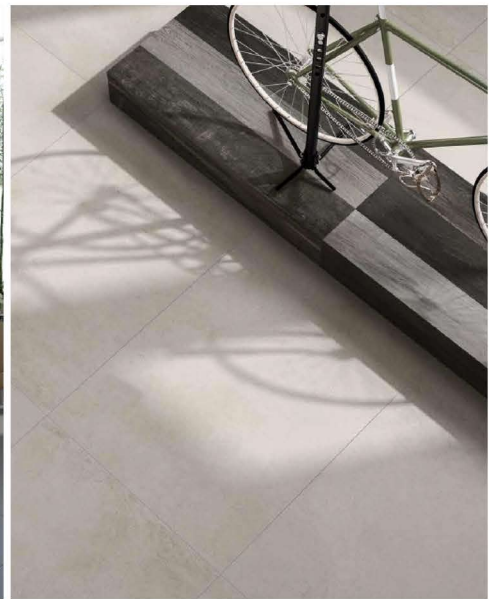
- Ensure that the surface to be covered is solid, flat and free from dust.
 - Cement-based powder adhesive for full spread, class "C2E according to EN12004 and S1 according to EN12002 standards".
 - Spread the adhesive onto the surface to be covered with a 15 mm round toothed trowel across an area of 5/10 cm more than the dimensions of the slab.
 - With the slab in a vertical position on the handling frame, spread the adhesive onto the back of the slab with a 3x3 mm square toothed trowel.
 - Using the handling frame in a vertical position lay the slab.
 - Before releasing the slab from the handling frame, ensure that the adhesive will hold it in place.
 - To guarantee complete bonding of the slab and eliminate any air, tap from the middle towards the edges using the non-bounce plastic mallet.
 - Before bonding the next slab, fix the hidden mechanical hook to the wall with the relevant nails (length 27 mm) using the gas-powered nailing machine.
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Ventilated Façade

Optimus Big Slab – Ventilated Façade Systems

A ventilated façade is a coating system on the outside of a building which leaves a ventilated chamber between the coating (façade) and the building insulation. Considered as the best solution for maximising insulation whilst reducing unwanted condensation or thermal bridge problems, ventilated façades provide excellent thermal-hygrometric solutions.

- Advantages of Ventilated Façade Systems
- Energy Saving – Excellent thermal insulation, reduction in heat/cool dispersal, and less heat absorption in warm climates.
- Technical and Aesthetic Durability – Significant reduction in deterioration due to pollution, does not absorb dust or dirt, easy to clean and maintain and promotes humidity dispersal.
- Healthier Environment – Increased comfort for users and meets all hygiene, health and environmental protection standards.



Cleaning And Maintenance

Optimus Big Slabs products are non porous (due to their high quality raw materials, stringent production parameters and state of the art technology), hence any dust or deposited waste cannot penetrate the surface.

For most cases only a damp cloth is sufficient for cleaning.

Regular cleaning highlights the aesthetic features of the surface and gives it exceptional shine.

For highly aggressive cleaning caused by some common food and substances follow the table below.

TYPE OF STAIN	CHEMICAL PRODUCT	EXAMPLE
Grease	Alkaline - Solvent	Detergent
Oil	Solvent	Ammonia
Ink	Oxidant - Solvent	Alcohol
Rust	Acid	Hydrolic acid
Lime	Acid	Descaling products
Cement	Acid	Hydrolic acid
Wine	Alkaline	Ammonia or Bleach
Coffee	Alkaline - Solvent	Ammonia or Bleach
Rubber	Solvent	Alcohol
Plaster	Acid	Hydrolic acid
Candle wax	Solvent	Alcohol
Iodine	Oxidant	Bleach
Blood	Oxidant	Bleach
Ice cream	Alkaline	Detergent
Resins	Solvent	Alcohol
Fruit juices	Oxidant	Bleach

Disclaimer: The aim of this manual is to offer helpful suggestions about handling and maintaining Optimus Big slabs. Due to nature of sintered ceramic material, it is highly advisable to consult an expert for these purposes. GGCL cannot be held responsible for any damage resulting from using the information and suggestions contained in this technical manual.

