

The background is a light beige or cream-colored paper with a marbled pattern. It features numerous irregular, torn fragments of paper in various colors, including shades of brown, tan, and olive green. A prominent, large, dark green leaf-like shape is visible on the left side. The overall texture is rough and layered, suggesting a collage or a piece of aged, recycled paper.

**dzek**

















Marmoreal is an engineered marble  
for architectural surfaces  
developed in collaboration with the  
British designer Max Lamb.

**dzek**

New architectural products guided by  
art, craft, and technology



## Dzek

Dzek creates original architectural materials and products in collaboration with designers. Founded in 2013 by Brent Dzekciorius, our work combines a craft sensibility with optimism about the potential of industrial manufacturing.

The process starts with an idea from a designer's studio. Inspired by the Bauhaus school's integration of art, craft, and technology, Dzek works closely with the designer to undertake research and prototyping, and then turn their raw idea into a manufactured reality.

Dzek believes that great architecture is made from elements that tell a story about their time and place. Our holistic approach to materials making respects the achievements of the past while advancing future possibilities. We aim to create products with artistic significance, that allow architects and interior designers to forge meaningful new relationships between people and the spaces they occupy.



## Max Lamb

Max Lamb, the designer behind Marmoreal, challenges tradition through a pragmatic, concise, process-driven approach. His material-based designs are exhibited in museums and galleries worldwide and are highly regarded by both critics and collectors. While he is best known for his studio work, making coveted one-off and small-edition works, he has successfully collaborated with several esteemed industrial manufacturers and design producers. In 2016 Lamb served as the guest designer and jury president of the Villa Noailles Design Parade, and he has served as a Lexus Design Awards mentor since 2015, a role that he will continue through 2017. He has received numerous awards, including a 2008 Designer of the Future Award at Design Miami/Basel and the 2010 HSBC Private Bank Design Collection commission. Lamb holds a degree in three-dimensional design from Northumbria University, and an MA in design products from the Royal College of Art, London. He was a tutor for the design products MA at the RCA from 2012 to 2015. He was a special projects designer for Tom Dixon before setting up his own studio in London, where he lives and works.





## Marmoreal: Rebellious Child of the Terrazzo Family

by Vicky Richardson

The Royal Institute of British Architects in central London turns out to be a good place to start researching this article on Marmoreal. Its library has no books that can help me, but the Art Deco entrance hall features a spectacular terrazzo floor, and the material wraps around the interiors of WCs and corridors. Marmoreal is a variety of terrazzo with its own unique design and manufacturing process. Developed and produced by Dzek in collaboration with the British designer Max Lamb in 2014, Marmoreal is a product of our times—in both the aesthetic and the technological sense—although it could not exist without the tradition of terrazzo, which dates back to the fifteenth century.

The RIBA headquarters was completed in 1934 to a design by the British architect George Grey Wornum. Strongly influenced by Scandinavian Functionalism, particularly Gunnar Asplund's Stockholm City Library, its use of terrazzo is a great example of the revival of the material as a fashionable, decorative finish in the 1930s. The interiors were designed in collaboration with artists and craftspeople and feature materials and motifs from around the world, reflecting RIBA's desire to represent the profession internationally. Although the building was highly experimental in its use of materials, it was constructed during an economic downturn and the budget was tight. Terrazzo would have been understood as a fashionable but hard-wearing and cost-effective choice of finish.

It's thought that terrazzo was first developed as a flooring material in Italy in the fifteenth century, when mosaic craftspeople working with marble realised that the disused chips of material, when trodden into the ground, became a resilient surface. Palladio used a variety of terrazzo in villas in the Veneto region of north-eastern Italy, which perhaps led to the naming of a variety of terrazzo with larger chunks of marble as Palladiano.

In the twentieth century terrazzo was revived at moments when architectural style embraced decoration. It was used widely in public buildings such as hospitals and civic centres, as it is durable and easy to clean but still carries an air of grandeur and an association with European style. The Italianate Ironmonger Row swimming baths in London's Clerkenwell (1931), where terrazzo was used for floors and partitions, is a good example. The building was beautifully restored by Tim Ronalds Architects in 2012, and both precast and in-situ terrazzo were used for floors and walls in the reception and main staircase.

Terrazzo became fashionable again in the 1950s at the start of the post-war boom, and yet again in the 1980s in part as a reaction against the utilitarianism of Modernism. In 1982 the Japanese designer Shiro Kuramata came up with the idea of using shards of coloured glass instead of stone in a type of terrazzo he named Star Piece. He went on to use the highly polished, glittery material for an entire interior at Design Gallery 1953 in Tokyo and for the Issey Miyake store in Ginza. The effect was a speckled pattern that appeared to flatten three-dimensional objects and spaces. Kuramata described it as 'the debris of meaning'. In 1983 the designer joined forces with the Italian design collective Memphis to produce a series of tables (Nara, Tokyo, and Kyoto) using Star Piece terrazzo; and later he translated the material into a graphic pattern that was applied to fabric and other surfaces, including packaging for the perfume L'Eau d'Issey in 1990.

As a means of extending its ideas into print, in 1988, Memphis founder Ettore Sottsass and his wife, the design critic Barbara Radice, founded a biannual magazine named after one of their favourite materials: *Terrazzo*. Radice wrote in her first editorial that the word, with its dual meaning—'terrace' or 'place of encounter' in Italian, and 'mosaic flooring' in English—expressed the 'idea of hardness of stone, of building and also the idea of leisure suggested in English by the multi-coloured pleasantness of the material'. 'Names', she continued, 'always carry with them a magic aura, a mysterious power. I like to think that *Terrazzo* can call forth the sum of both meanings in the two languages and be enhanced by the qualities.'

The meaning of the word 'marmoreal' is 'marble-like', and in Italian it refers to things that look like marble but are not actually made from it. Although it is born of a very different impetus and era, Marmoreal captures something of the joyful spirit of Memphis. It celebrates the natural quality of marble and relishes its multi-coloured variations. Four types and colours of marble are used in Marmoreal: green Verde Alpi, ochre-yellow Giallo Mori, and red Rosso Verona are set into either a white Bianco Verona or a black Grigio Carnico. But the material is not just a version of terrazzo. It brings a contemporary array of associations, and uses new techniques in its manufacturing. Conceived and designed by Max Lamb, a designer who has dedicated himself to exploring materials in a practical and artistic sense since graduating from the Royal College of Art in 2006, Marmoreal celebrates the 'stoniness of stone'.

Lamb first worked with stone in 2007, when he carved a chair from limestone quarried in the north of England (the Ladycross Sandstone Chair). He has since explored the geological and material properties of different stones while on residencies in many parts of the world, including China, Russia, and Ireland. Lamb conceived Marmoreal as a variety of terrazzo that uses large chunks of historically important Italian marble, showing his appreciation for the colours and natural patterning. The aggregates in Marmoreal are not only unusually large, but also carefully composed according to a 'recipe'. As Lamb explains, 'It is the aggregate size in relation to the background matrix that gives Marmoreal its graphic quality and its performance as an engineered material.'

Alongside developing Marmoreal as a material for architects and designers to play with, Lamb has used it for his own series of architectonic furniture and sanitaryware. To be consistent with the sustainable philosophy of Marmoreal, the furniture uses only standard-dimension slabs and tiles in order to reduce waste. These pieces look particularly striking within a setting of Marmoreal walls and floors and take the 'all-over' aesthetic to an extreme, an approach that Dzek founder Brent Dzekorius describes as a minimal maximalist *Gesamtkunstwerk*. The furniture pieces also demonstrate the essential quality of Marmoreal as an engineered, mass-produced material that can be used to create unique one-offs, each with a slightly different 'slice' of stone.

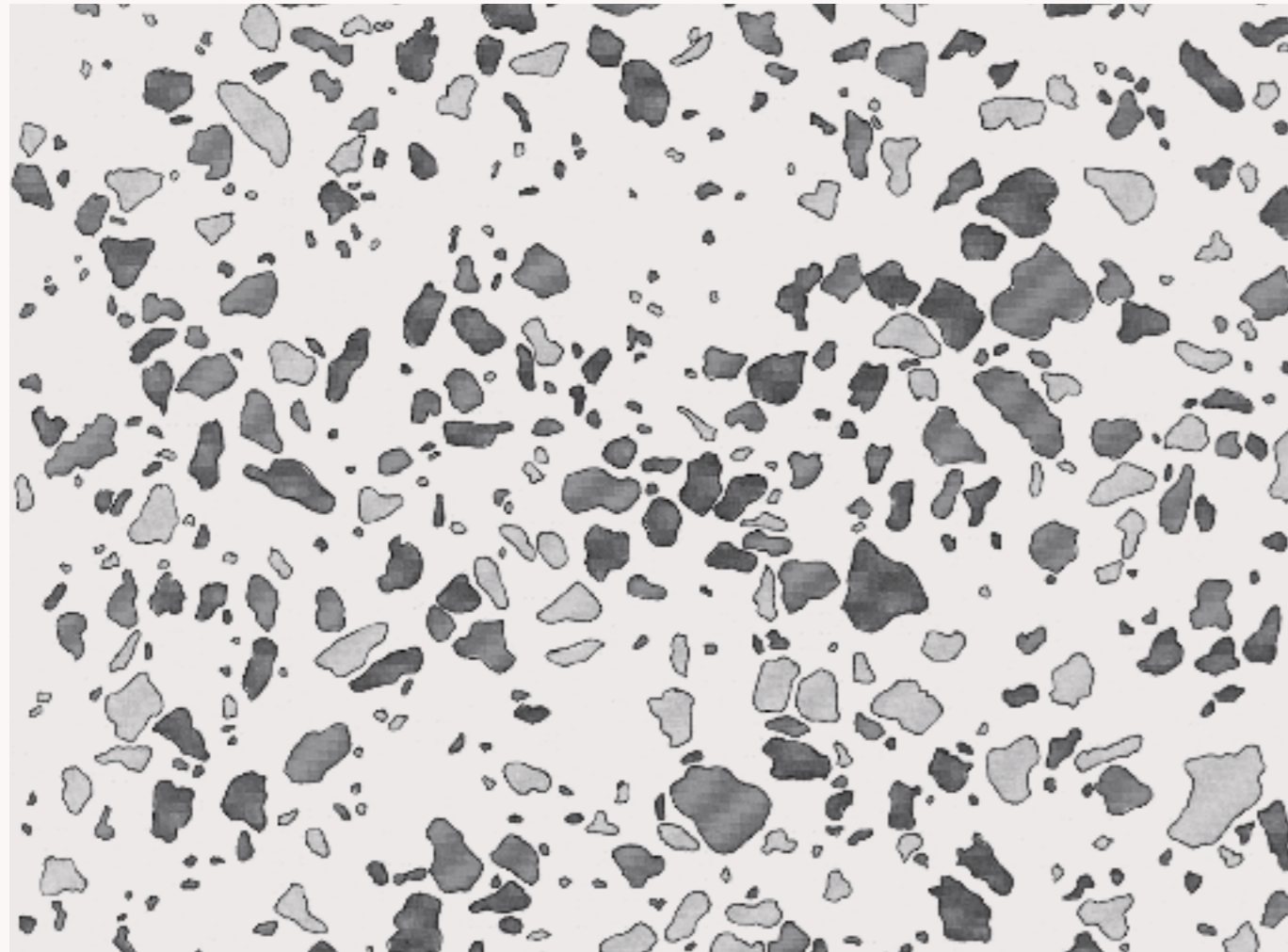
Lamb's furniture and the growing catalogue of interiors where Marmoreal has been used as a surface material (private residences, retail environments, public spaces) demonstrate its versatility and style. Historic twentieth-century examples of terrazzo continue to be lovingly cared for by their owners, not simply because they are hard-wearing and practical but because they contribute something unique to the character of the architecture. Its sustainable engineering and simple, cost-effective format make Marmoreal a pragmatic choice. But aesthetically, its expressive chunks of coloured marble render Marmoreal the rebellious, artistic child of the terrazzo family.



# Marmoreal

## Background

Marmoreal is offered in two colourways, one with a white background, and the other black. Each version is composed of four classical Italian marbles and is a material exploration that celebrates the individual qualities of these stones while acknowledging that their combination leads to something even more compelling. Suitable for interior and exterior architectural surfaces, this large-aggregate, pre-cast marble terrazzo offers an original material language with strong visual values. It skilfully balances fifteenth-century craft traditions with modern engineered-stone technologies. The word 'marmoreal' means 'marble-like'; this Marmoreal is composed of approximately 95 percent marble and 5 percent polyester resin binders.



1



2



3

## History

Terrazzo's sustainable roots date back to fifteenth-century Venice, where craftspeople used waste materials—for instance local stone off-cuts and chips from the construction of palazzos—to make decorative mosaic-like flooring solutions. Eventually they began introducing glass, metals, and even concrete, all while consistently using local-material waste. Marmoreal acknowledges this history by using waste stone from Italian quarries, most of it locally sourced.

## Approach

Max Lamb's ongoing *Quarry* series was the starting point for the conversations that led to Marmoreal. These sculptural works are characterised by their raw appearance and generous scale, and honestly celebrate a given stone's natural shape, texture, and historical context. We at Dzek were curious as to how Lamb's pragmatic design logic and vast experience working with stone might play out in creating his own stone. We researched different human-made stone technologies and conducted a thorough survey of existing products, past and present, to ensure originality. After settling on the idea of a pre-cast terrazzo, extensive compositional studies followed, and Lamb arrived at the idea of using large marble rocks as the bulk of the recipe to emphasise the inherent 'stoniness' of the ingredients. This approach contrasts dramatically with the typically small, speckled pieces of aggregate common in terrazzo.

1 Marmoreal concept sketch by Max Lamb

2 Archive image of early twentieth-century terrazzo making

3 Lamb's DeLank Granite Chair and Stool, 2010





## Ingredients

Rosso Verona, Giallo Mori, and Verde Alpi are the three Italian marbles featured in Marmoreal. Bianco Verona is used to create the white-background version, and Grigio Carnico is used for the black-background version. All of these marbles are natural materials and thus vary from batch to batch. The variations are part of the inherent beauty of natural stone and ensure that each piece of Marmoreal is entirely unique.

Rosso Verona, a red nodular limestone of the Jurassic period from northern Italy, is the prevailing stone in much of Veronese classical architecture. The entire city of Verona feels as if it is made from it. Its visual quality is the most predictable of the three featured stones, with colours ranging from earthy reds like dry clay to more saturated brownish reds characterised by fine circular patterns and stylolitic veins.

Giallo Mori is a bright, ochre-yellow marble from Trentino-Alto Adige, with both light and dark veins and the occasional small white quartz patches. The colour can range from pale yellow to dark Dijon mustard. The texture is often flat but can sometimes contain small white speckles that resemble a mass of microbes.

Verde Alpi is a traditional marble from Valle d'Aosta, known for its intense green colour and contrasting white quartz veins. The most varied of the three marbles, its particles can have a high quartz content, making the stone a glassy white or emerald green, or an absence of quartz, making it nearly black.

Bianco Verona makes up the background matrix for Marmoreal White. This traditional Veronese marble is characterised by its opacity and textural flatness, perfect attributes to serve as a canvas for the three primary marbles. Bianco Verona can vary in colour from off-white to cream, pink, or grey. In the Marmoreal development phase, it became clear that this stone provided better contrast than its more famous counterparts, Carrara and Botticino.

Grigio Carnico is the background for Marmoreal Black. This dark grey to black limestone from Alpi Carniche contains some pronounced white and grey veining, but on the smaller scale used to create a matrix, these qualities are homogenised and give the appearance of a galactic seascape.



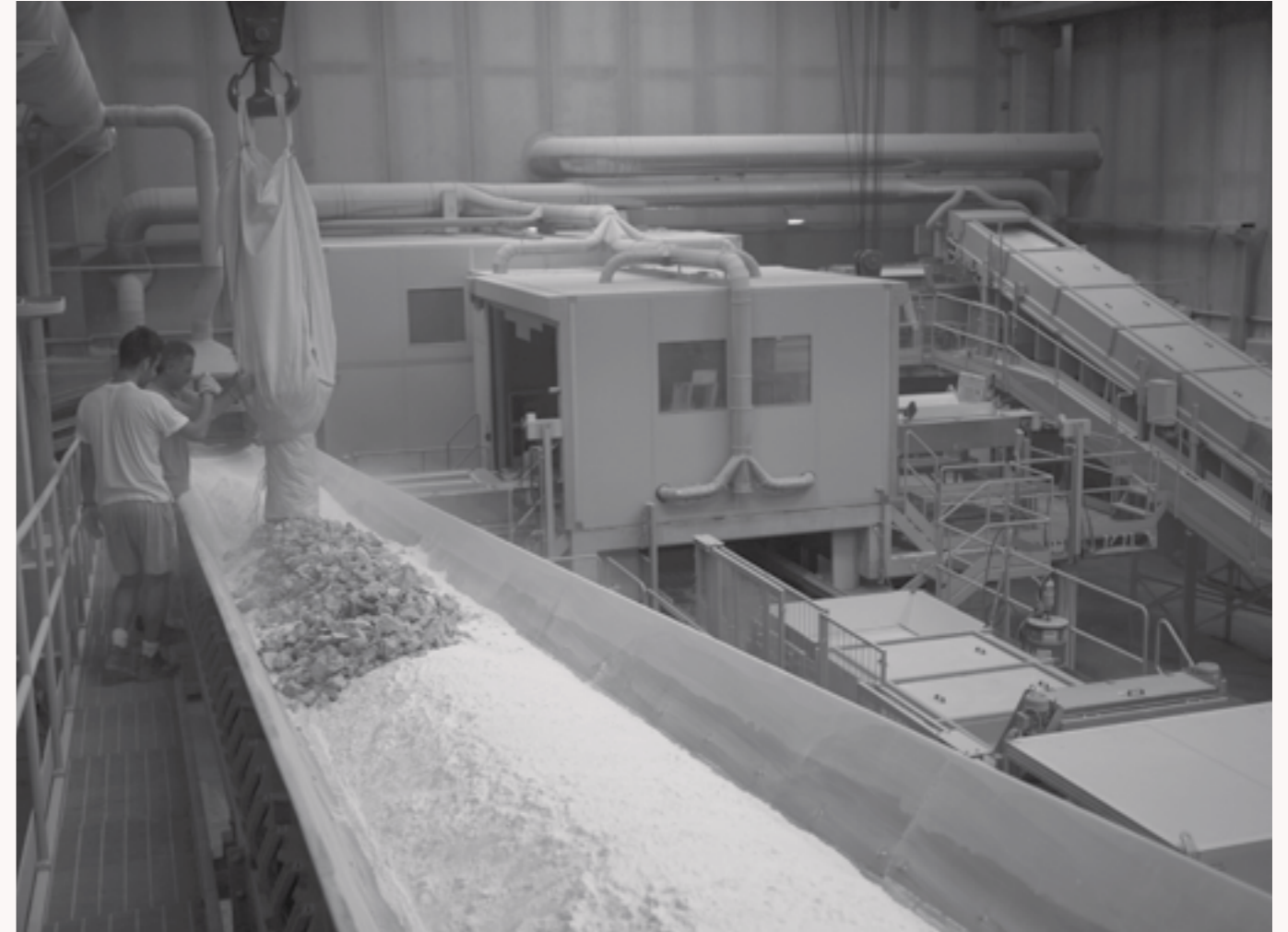


# Process



Marmoreal is a large-aggregate, pre-cast terrazzo. To make it, marble rocks of mixed dimension are combined in large industrial mixers with a polyester resin binder. This mix is then poured into a 305 x 124 x 85 cm block mould, and a cast block is formed using a combination of pressure, vibration, and vacuum. This method of making, while precise in its formulation, ensures a random combination of marble elements, so that no two pieces or sections of Marmoreal are ever the same.

1



2

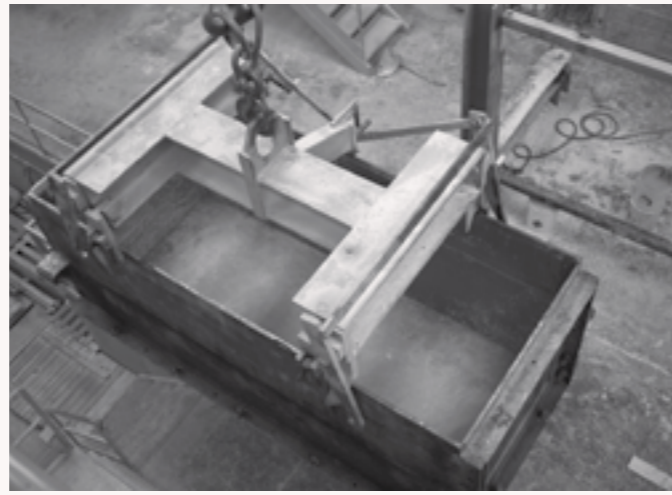


1 Some of the smaller coloured aggregates used in Marmoreal

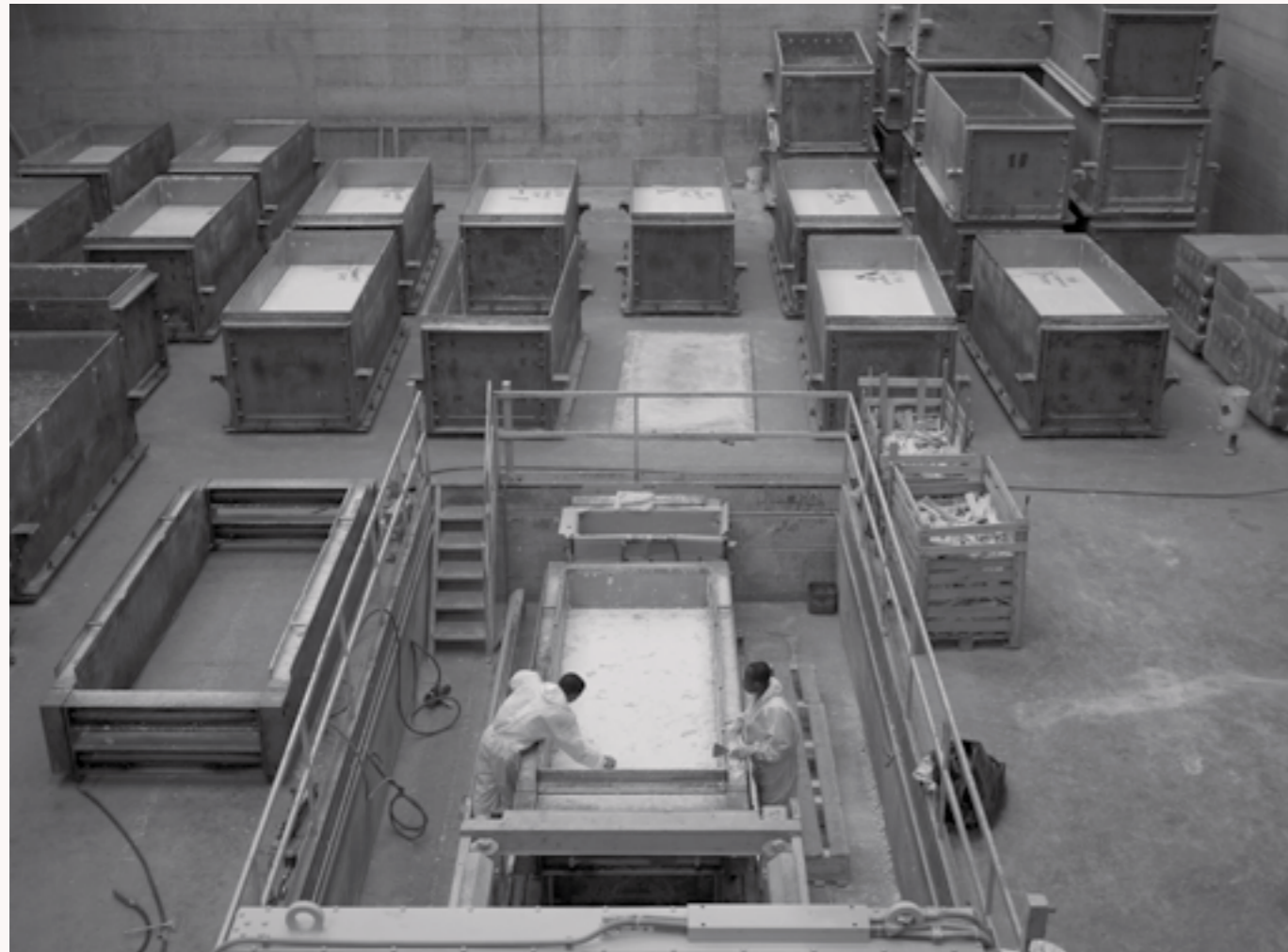
2 Sorting the ingredients onto the belt and mixing them with marble powder



Once the casting is complete, the block is removed from the mould and cures for an additional two weeks before it is cut. The resulting 10 metric tonnes of stone can be treated quite similarly to any other block of marble or stone.



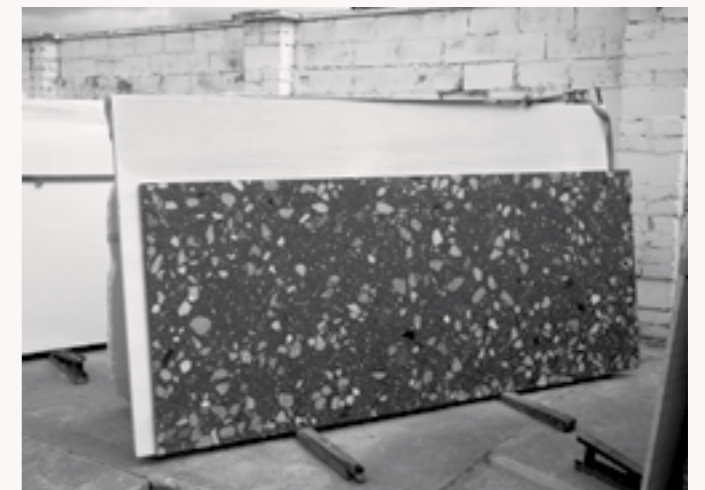
3



4



Blocks are sliced into standard-dimension slabs and tiles, adhering to the most economical and least wasteful use of the material. The blocks can also be CNC milled into large, curvaceous architectural features, furnishings, or objects. Bespoke thicknesses and dimensions are available upon request.








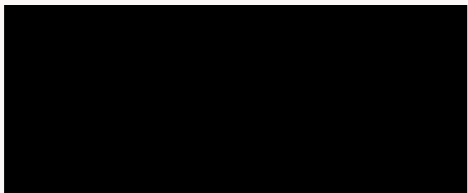
3 Casting in progress, Italy

4 Completed blocks in the yard, and slabs being cut with large gang saws



## Formats and Finishing

Marmoreal is available in a range of standard dimensions and finishes that suit the randomness of the material yet give the impression of a continuous surface. The smaller 30 × 30 cm tiles provide the flexibility to install in small spaces in a consistent grid. The generous 60 × 60 cm tiles and 305 × 124 cm slabs allow greater opportunities for customisation. Blocks measuring 305 × 124 × 85 cm are available on special request. We offer a honed finish, which gives a perfectly matte, natural expression of the marbles, or a polished finish, which gives a more saturated, reflective surface.

Type	Size	Thickness	Finishing
Tiles	 30×30cm	2cm / 3cm	(H) (P)
	 40×40cm	2cm / 3cm	(H) (P)
	 60×60cm	2cm / 3cm	(H) (P)
	 100×100cm	2cm / 3cm	(H) (P)
	 30×60cm	2cm / 3cm	(H) (P)
Slab	 305×124cm	2cm / 3cm	(H) (P)

(H) Honed (P) Polished

Alternative thicknesses and dimensions are available upon request

## Technical Data

Property	Standard	Value	Notes
Apparent density	EN14617-1	2450–2550 kg/m	
Water absorption	EN14617-1	≤1.00% (White) ≤ 0.25 % (Black)	
Flexural strength	EN14617-2	10-20MPa	
Abrasion resistance	EN14617-4	37–40 mm (White) 33–37 mm (Black)	
Frost resistance	EN14617-5	KM <sub>125</sub> 0.6-1.0	
Thermal shock resistance	EN14617-6	Δm%≤0,15%;ΔR <sub>1,20</sub> %≤50%	Test temperature/ 70°C
Impact resistance	EN 14617-9	≥ 1,5 J	
Chemical resistance	EN 14617-10	C1	
Linear thermal expansion coefficient	EN 14617-11	12–18 x 10 <sup>-6</sup> C <sup>-1</sup>	
Dimensional stability	EN 14617-12	Class A (<0,3mm)	
Electrical resistivity	EN 14617-13	ρ <sub>s</sub> ≥10 <sup>10</sup> Ω ρ <sub>v</sub> ≥10 <sup>8</sup> Ωm	Referred to surface Referred to volume
Compression resistance	EN 14617-15	90–150 MPa	
Length and width	EN 14617-16	± 0,5mm	Referred to tiles
Thickness	EN 14617-16	± 0,7mm	Referred to tiles
Straightness of sides	EN 14617-16	± 0,3mm	Referred to tiles
Rectangularity	EN 14617-16	± 0,9mm	Referred to tiles
Centre curvature	EN 14617-16	± 0,2 % referred to length	Referred to tiles
Edge curvature	EN 14617-16	± 0,2 % referred to length	Referred to tiles
Warping	EN 14617-16	± 0,2 % referred to length	Referred to tiles
Mohs hardness	EN 101	Up to 3 Mohs	
Thermal conductivity	EN 12524	1.3W / (mK)	From tabulated values
Reaction to fire	EN 13501-1	A2fl-s1	
Slip resistance	EN 14231 DIN 51130	Dry ≥ 35 / Wet ≥ 3 R9	For Honed 320



## Certifications

Marmoreal is Greenguard Gold certified. The Greenguard certification program assures that products designed for use in indoor spaces meet strict chemical emissions limits, creating healthy interiors. Greenguard Gold certification is even stricter, considering additional safety factors to account for sensitive individuals (such as children and the elderly), and ensuring that products are acceptable for use in environments such as schools and health care facilities.



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