dzek



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



Dzek creates original architectural products guided by nature. Our materials are developed in collaboration with designers, architects and material scientists whose radical perspectives on resources and design systems complement and challenge our own points of view.

We study and reinterpret traditional craft processes, industrial manufacturing and raw matter, transforming materials into new useful products suitable for architecture and design. This transformation is led by experimentation and our desire to understand the behaviour of elements under conditional influence rather than working towards specific aesthetic outcomes.

We believe that great architecture is made from materials that tell a story about their time and place. Through these stories we can peel back the layers to reveal the true value of things. Our approach to making respects the achievements of the past while aspiring to advance future possibilities. We aim to create products with artistic significance, and 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. His work is in the permanent collections of the Art Institute of Chicago, the Cooper Hewitt Smithsonian Design Museum, and the Design Museum London. While he is best known for his studio work, making coveted one-off and small-edition objects, he has successfully collaborated with industrial manufacturers and design producers. 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 lives and works in London.

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 Public 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 their 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 multicoloured 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 sanitary ware. 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 Dzekciorius describes as a minimal-maximalist *Gesamtkunstwerk*. The furniture pieces also demonstrate the essential quality of Marmoreal as an engineered, massproduced 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, costeffective 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

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 architectural surfaces, this large-aggregate, precast marble terrazzo offers an original material language with strong visual value. It skilfully balances a fifteenth-century craft tradition 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.

Awards

- Wallpaper* Design Award, 2015
- Interior Design Magazine best of 2015
- Homes & Gardens Designer Award, 2016
- Architectural Digest Great Design Award, 2017







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 localmaterial waste. Marmoreal acknowledges this history by using waste stone from Italian quarries, most of it locally sourced.

- 1 Archive image of early twentieth-century terrazzo making
- 2 Lamb's DeLank Granite Chair and Stool, 2010
- 3 Giallo Mori, Rosso Verona and Verde Alpi, the featured marbles in Marmoreal

Approach

'I wanted to emphasise the stoniness of stone.' — Max Lamb

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 precast 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.

Ingredients

Rosso Verona, Giallo Mori and Verde Alpi are the three Verde Alpi is a traditional marble from Valle d'Aosta, Italian marbles featured in Marmoreal. Bianco Verona is known for its intense green colour and contrasting white used to create the white-background version, and Grigio guartz veins. The most varied of the three marbles, its par-Carnico is used for the black-background version. All of ticles can have a high quartz content, making the stone a these marbles are natural materials and thus vary from glassy white or emerald green, or an absence of quartz, batch to batch. The variations are part of the inherent making it nearly black. beauty of natural stone and ensure that each piece of Mar-Bianco Verona makes up the background matrix for moreal is entirely unique. Marmoreal White. This traditional Veronese marble is

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.

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 scenescape.

Process

Marmoreal is a large-aggregate, precast 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 3050 × 1240 × 850 mm 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.

3

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.

- 5 Veronese landscape
- 6 Casting the marble slurry into blocks
- Finished blocks await cutting
- 8 Blocks cut into slabs and tiles

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.

Case Studies: Residential

Our purposeful materials are used by architects and designers to create memorable, award-winning spaces and experiences.

Residential

1.

Bathroom, New York, United States Design: MOS Architects and Chamber Materials: Marmoreal Black slab, 20 mm thick, honed finish Photo: Lauren Coleman

2. (top & bottom)

Kitchen and dining room, East Hampton, United States Design: Wythe Studios Architects Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Devon Banks

3. Kitchen, Brooklyn, United States Design: Caitlin Mociun and Tammer Hijazi Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Aaron Bengochea

4. (top & bottom) Kitchen and dining room, Brussels, Belgium Design: Victoria-Maria Interior Design Materials: Marmoreal White tile, 600 × 600 × 20 mm, honed finish, Marmoreal White slab, 20 mm thick, honed finish Photo: Tim Van de Velde

5. Kitchen, Madrid, Spain Design: Cordero Atelier Materials: Marmoreal White tile, 600 × 600 × 20 mm, honed finish Photo: Antártica Estudio

Dining room, New York, United States Design: Neal Beckstedt Studio Materials: Marmoreal dining table Photo: Eric Piasecki / OTTO

Kitchen, Singapore Design: Point Interiors Pte Ltd Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Benny Loh

8 Kitchen, Brooklyn, United States Design: E. G. Projects Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: E. G. Projects

۹. Kitchen, London, United Kingdom Design: Play Associates Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Play Associates

10. Kitchen, London, United Kingdom Design: POST-OFFICE Materials: Marmoreal Black slab, 20 mm thick, honed finish Photo: Angus Mill

Commercial

16. Bar, London, United Kingdom Design: Bluecrow Projects Materials: Marmoreal Black slab, 30 mm thick, honed finish Photo: Ed Reeve

17. (top & bottom) Lobby and public areas, Bergen, Norway Design: Paulsen Nilsen Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Espen Gees

18. (left & right pages) Bathrooms, Berlin, Germany Design: David Kohn Architects and Nord Studio Materials: Marmoreal Black tile, 300 × 600 × 20 mm, honed finish, Marmoreal White tile, 300 × 600 × 20 mm, honed finish Photo: William Pryce

19. (top & bottom) Restaurant, Dubai, United Ara Design: H2R Design Materials: Marmoreal White s honed finish Photo: Oculis Project

20. Reception desk, Berlin, Germ Design: Studio Karhard Materials: Marmoreal Black sl honed finish Photo: Stefan Wolf Lucks

21. Café, Ontario, Canada Design: Atelier Barda and Sid Materials: Marmoreal White s honed finish Photo: Brandon Titaro

11. Bathroom, New York, United States Design: MOS Architects and Chamber Materials: Marmoreal Black slab, 20 mm thick, honed finish Photo: Lauren Coleman

12. Bathroom, Moscow, Russia Design: Nido Interiors Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Sergey Krasyuk

13. Bathroom, Los Angeles, United States Design: Carter Design Materials: Marmoreal White tile, 300 × 300 × 20 mm, honed finish Photo: Brian W. Ferry

14. (top & bottom) Bathroom, London, United Kingdom Design: Waldo Works Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: Tom Teasdale

15. Bathroom, New York, United States Design: Anthony Sperduti Materials: Marmoreal Black tile, 300 × 300 × 20 mm, honed finish Photo: Gieves Anderson

ab Emirates slab, 20 mm thick,	22. Bar and restaurant, Honolulu, United States Design: OMFGCO Materials: Marmoreal White slab, 20 mm thick, honed finish Photo: OMFGCO
hany Ilab, 20 mm thick,	23. Retail space, New York, United States Design: 5G Studio Collaborative Materials: Marmoreal Black tile, 600 × 600 × 20 mm, polished finish Photo: Max Burkhalter
d Singh slab, 30 mm thick,	24. Retail space, Paris, France Design: Charles-Edmond Henry and Nicolas Dorval-Bory Architectes Materials: custom Marmoreal White slab, 20 mm thick, honed finish Photo: Nicolas Dorval-Bory

Formats and Finishes

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 300 × 300 mm tiles provide the flexibility to install in small spaces in a consistent grid. The generous 600 × 600 mm tiles and 3050 × 1240 mm slabs allow greater opportunities for customisation. Blocks measuring 3050 × 1240 × 850 mm 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.

Technical Data

Format	Size	Thickness	Weight	Finish
Tiles	300 × 300 mm	20 mm / 30 mm	4.5 kg / 6.89 kg	\mathbb{H}
	600 × 600 mm	20 mm / 30 mm	18.5 kg / 27.54 kg	\mathbb{H}
Slab				
	3050 × 1240 mm	20 mm / 30 mm	193 kg / 289.32 kg	(H) P
(H) Honed Polished				

How to Measure

Marmoreal slabs measure 3050 × 1240 mm with a finished usable area of $\pm 3000 \times \pm 1200$ mm and thicknesses of either 20 mm or 30 mm. We advise the use of 30 mm slab for work surfaces and 20 mm for walls, cladding and floors. Work should be carried out by a local qualified tradesperson with experience working in stone. We advise working with such a fabricator, architect or interior designer to ensure that material calculations are correct and to account for any overages necessitated by the design or installation of your project.

with custom sizes available for orders over 100 m². We recommend including a 10 percent contingency on top of for slabs, tiles and furnishings. your calculation to account for cutting or any errors that arise during installation such as accidental breakage. This will hopefully preempt any unforeseen circumstances that may present themselves.

How to Buy

Marmoreal tiles and slabs are shipped worldwide from our warehouse in Italy. Tile formats are often available with quick-ship options, while slabs are made to order and have a four-week production lead time. Transport times depend on destination and method of shipping. Samples are immediately available upon request.

Custom Orders

Tiles are available in 20 mm and 30 mm thicknesses Please contact us for enquiries about bespoke projects and items, including alternative thicknesses and finishes

Property	Standard	Value
Apparent density	EN14617-1	2450-2550 kg/m³
Water absorption	EN14617-1	≤1.00% (White) ≤ 0.25 % (Black)
Flexural strength	EN14617-2	10-20 MPa
Abrasion resistance	EN14617-4	35.0-40.0 mm (W 33-37 mm (Black)
Frost resistance	EN14617-5	KMf250.6-1.0
Thermal shock resistance	EN14617-6	∆m%≤0,15%;∆Rf,20
Impact resistance	EN 14617-9	1.0−2.0 J ≥ 1,5 J
Chemical resistance	EN 14617-10	C1
Linear thermal expansion coefficient	EN 14617-11	12-18 x 10-6°C-1°
Dimensional stability	EN 14617-12	Class A (<0,3 mm)
Electrical resistivity	EN 14617-13	ρs ≥1010 Ω ρv ≥108 Ωm
Compression resistance	EN 14617-15	90–150 MPa
Length and width	EN 14617-16	± 0.5 mm
Thickness	EN 14617-16	± 0.7 mm
Straightness of sides	EN 14617-16	± 0.3 mm
Rectangularity	EN 14617-16	± 0.9 mm
Centre curvature	EN 14617-16	± 0.2 % referred to
Edge curvature	EN 14617-16	± 0.2 % referred to
Warping	EN 14617-16	± 0.2 % referred to
Mohs hardness	EN 101	3 Mohs
Thermal conductivity	EN 12524	1.3 W / (mK)
Reaction to fire	EN 13501-1	A2fl-s1
Slip resistance	EN 14231 DIN 51130	Dry ≥ 35 / Wet ≥ 3 R9

Notes

/hite)

0%≤50%

For thickness 12 mm For thickness 20 mm, 30 mm

Test temperature/ 70° C

Referred to surface Referred to volume

Referred to tiles

From tabulated values

length

length

length

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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