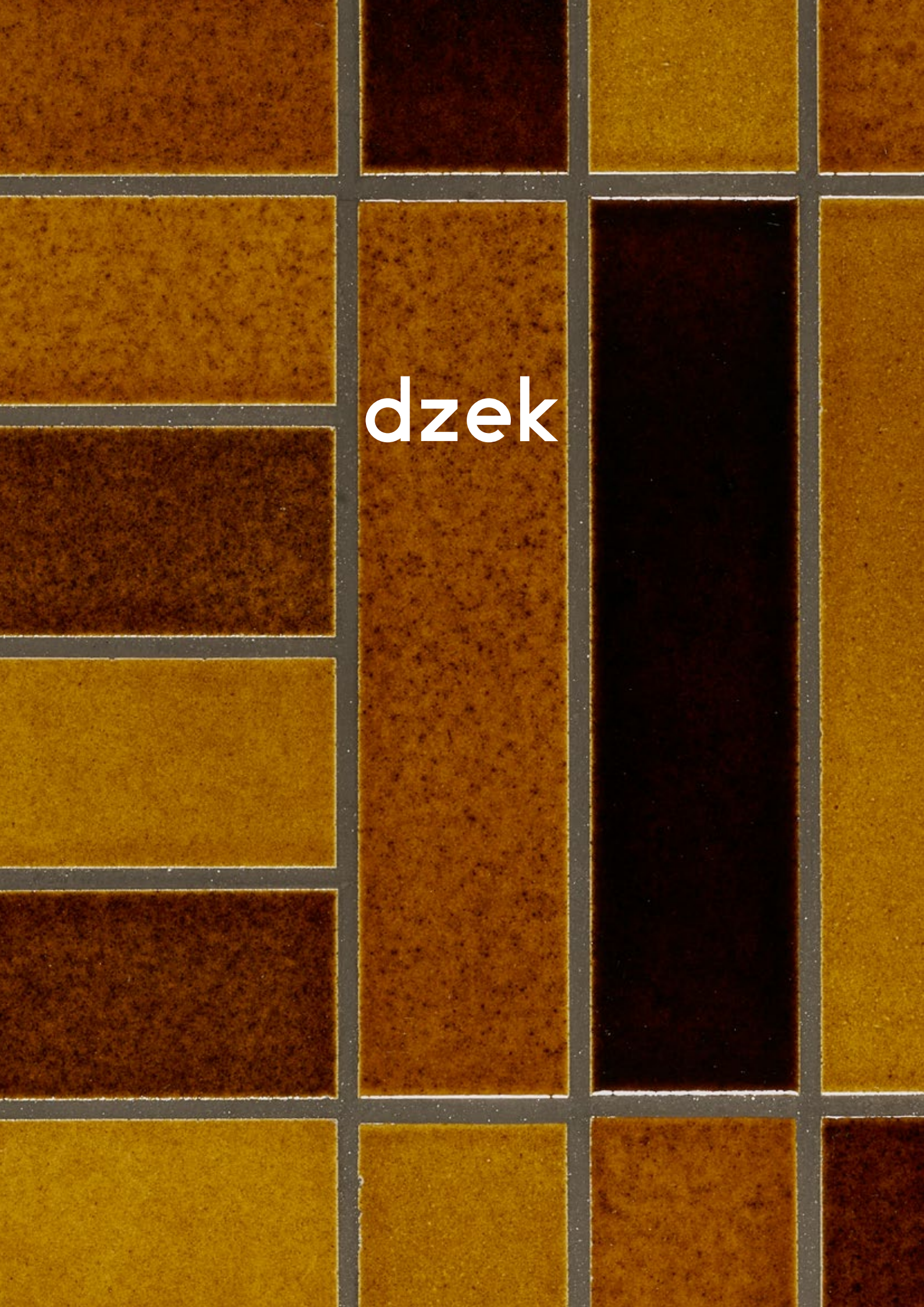
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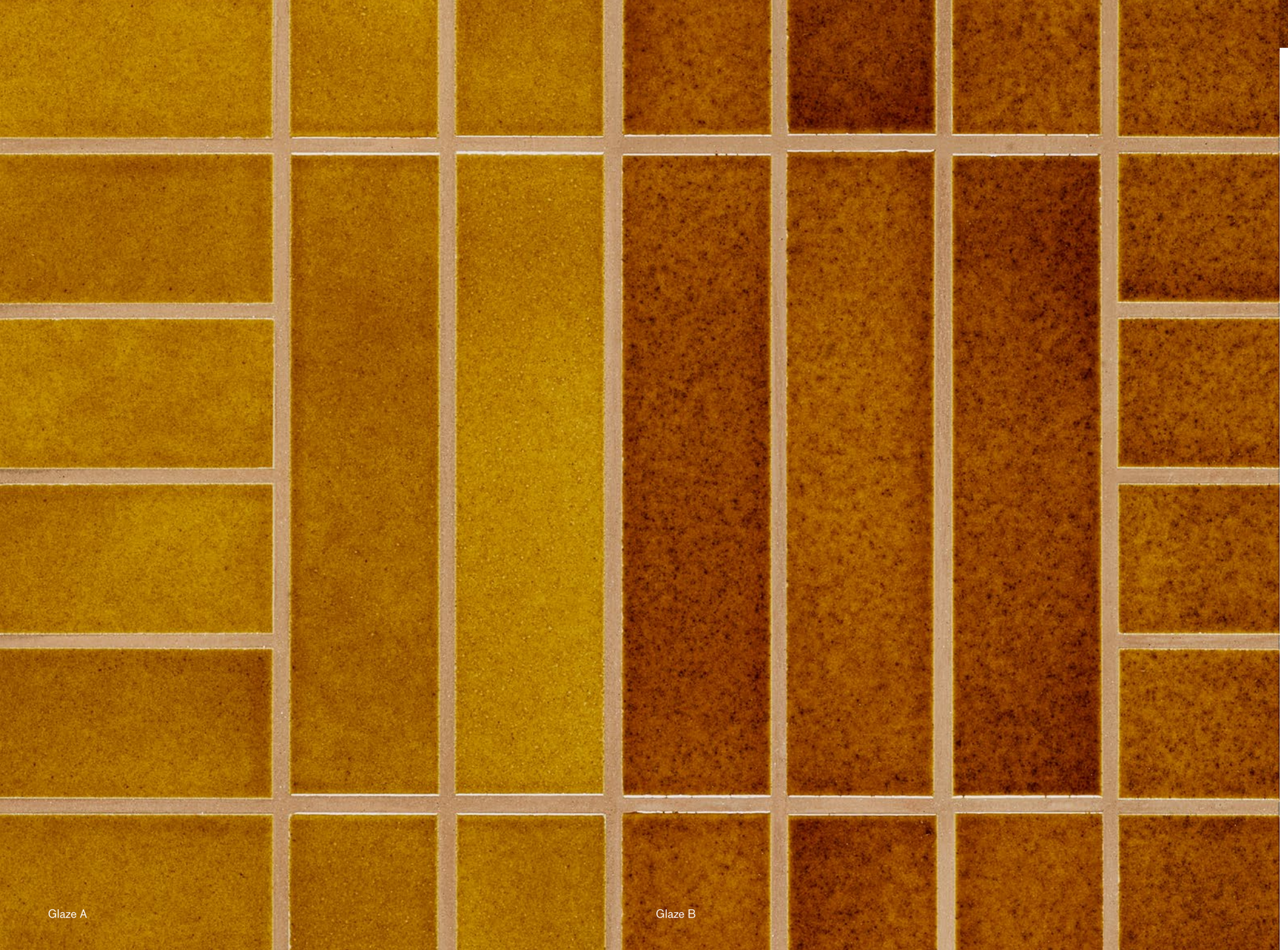

Glaze A

Glaze B

ExCinere is a collection of volcanic-ash-glazed tiles developed in collaboration with Italian design studio Formafantasma

dzek

New architectural products guided by nature

Dzek

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.

Formafantasma

Andrea Trimarchi (b. 1983) and Simone Farresin (b. 1980) established Formafantasma in 2009 following their graduation from Design Academy Eindhoven. Now based in Amsterdam, the studio has developed a coherent body of work characterised by experimental material investigations and has explored issues such as the relationship between tradition and local culture, critical approaches to ecology and the significance of objects as cultural conduits. Their work has been acquired by the Museum of Modern Art, New York; the Victoria & Albert Museum, London; the Art Institute of Chicago; and the Stedelijk Museum, Amsterdam, among many others. Beginning in September 2020 Formafantasma will head up Geo-Design, a new department at the Design Academy Eindhoven dedicated to explorations of the social, economic, territorial and geopolitical forces shaping design today.

Volcano and The Human

by Laura Houseley

Before we understood volcanic eruptions as manifestations of geothermal forces, humans believed in Typhon, the giant serpent of Greek mythology who slept peacefully beneath Mount Etna until rudely awoken, upon which he expressed his annoyance through explosions of fire and lava. Or Hephaestus, the productive god of fire tasked with forging thunderbolts for Jupiter and weapons for Mars, his commissions marked by the sparks flying from Vesuvius and Stromboli. Then there was Pele, the irritable goddess prone to fiery and deadly outbursts across the Hawaiian archipelago. But even as terrible and unknowable forces have dominated the communities who live beside volcanoes, those same populations have exploited the benefits of a volcanic landscape, putting to good use the extraordinary material expelled from exploding mountains in the form of molten lava, rock and ash.

Such opportunism is succinctly illustrated by the Bronze Age gardens of Pantelleria – beautifully simple agricultural structures built from jagged volcanic rocks, each one like a gloved fist gently enclosing a single fruit tree, its thick circular walls protecting the precious fruit from the wild winds that ravage the otherwise bleak and exposed landscape. This primitive volcanic architecture has proven effective; after three thousand years the buildings still stand, the fruit is preserved. The gardens of Pantelleria are among the earliest examples of volcanic material being used proactively – of humans building, literally, a paradox between the most mighty and destructive of natural forces and its latent benevolence.

It is this relationship between volcano and human, forever ricocheting between fear and awe, productivity and utility, that has gripped Andrea Trimarchi and Simone Farresin of Formafantasma. Their work traces through time the cultural resonance of volcanic material and its applications, and has explored the ways in which volcanic rock and ash can be used today in object design and architecture. On the islands of the Azores you will find clusters of small buildings with walls built from a dense black rock that absorbs the bright sunlight. The stones have been fashioned into shapes we might politely call cubes, but are most definitely not uniformly so. Their outer faces are left unfinished and coarse, a vernacular trait that speaks clearly of this hard rock's objection to tools. The stones are laid atop one another as in a characteristic dry-stone wall, the weight of the material itself and careful Tetris-like alignments making cement unnecessary. This is how basalt, the igneous rock formed from molten lava, rich in magnesium and iron and low in silica, has been traditionally and uniformly used by those living in the shadow of volcanoes across the globe. It is a rock that is easily accessible, sitting near to the earth's surface. It is self-generating and exceptionally tough. See likewise the grass-roofed homesteads of Iceland, the villages of Cape Verde in Africa, the ancient construction of Nan Madol in the Federated States of Micronesia. Evolution of the vernacular use of lava stone in architecture was, in Sicily's case at least, determined by Mount Etna itself, which erupted in 1669, causing huge destruction. The mass rebuilding that followed made elegant use of the same volcanic material that had caused the ruination in the first place. Catania emerged reimagined, with shining basalt paving and lively flourishes of ornate carved architectural work.

The somewhat paradox between reliance and intimidation felt by southern Sicilian communities was captured on celluloid by Roberto Rossellini in his 1950 film *Stromboli*. As Ingrid Bergman's Karin rails against her inhospitable environs, the volcano becomes a metaphor for oppression, yet the documentary-style film also paints a portrait of a community in concert with their unruly home. The border between reality and art blurred to the extreme when Stromboli erupted during filming, providing Rossellini with footage of an actual evacuation. Today, the tension and concordance between such communities and their volcanoes has changed little: Stromboli erupted again in 2019, killing one person and covering the village of Ginostra in a carpet of ash. The devastating 2019 eruption at White Island in New Zealand was also a stark reminder of how deadly the natural landscape can be.

The relationship between lava rock and the landscape is especially intimate. As volcanoes erupt, the material they produce swiftly changes the shape and structure of the land, sculpting a new reality, leaving behind a new material makeup. As Formafantasma poetically put it, 'Mount Etna is a mine without miners; it is excavating itself to expose its raw materials.' Spanish architect César Manrique felt this relation between lava rock and landscape keenly. He designed and built a series of buildings across the island of Lanzarote, in the Canary Islands off the West African coast, during the 1960s that amounted to a bold new vernacular style for lava. Here the boundary between land and architecture is obscured; jagged rocks protrude through walls and windows into interiors as though the once dynamic lava field beyond were breaking through the architecture. In 1940s Mexico City, Luis Barragán devised a whole neighbourhood that would preserve and respect the characteristics of a lava field. The plan for Jardines del Pedregal included roads, plazas, walls and gardens that followed the contours of the lava flow. For Barragán, the untamed, uncolonised lava field represented Mexico itself and was the perfect location not just for a new architectural style but for the promotion of a new, learned Mexican middle class. His ideological vision included swaths of 'garden' that left lava rock exposed and raw between the midcentury villas. It was a shockingly alternative, and short-lived, approach. Today most of the lava field is concealed beneath pavement and parking lots, tamed and quelled.

Perhaps unsurprisingly, the Romans were the first to understand the full breadth of potential for volcanic material. Not only did they use the hard basalt in architecture, applying sophisticated construction innovations to fashion the rock into glistening columns and sculpture, but they harvested mineral-rich ash to use as fertiliser on grapevines and other crops. Recognising its inherent strength, they made basalt the material of choice for Roman roads. Even more impressive was the invention of Roman concrete. This was the curiously contemporary building material that facilitated architectural masterpieces like the Pantheon. Although the exact recipe has evaded historians, scientists and architects alike, we know that volcanic ash is the special ingredient that gives the material its unquestionable longevity. Roman concrete binds extensive fortifying sea defences. The mix of volcanic ash, lime (calcium oxide), seawater and lumps of volcanic rock holds together piers, breakwaters and harbours. Over time, the seawater that has seeped through the concrete has dissolved the volcanic crystals and glasses, with new minerals crystallising in their place, miraculously making the structures even stronger. In comparison, the concrete we use today (nineteen billion tons of Portland cement per annum) has a lifespan of mere decades and accounts for 7 percent of industrial carbon dioxide production.

Despite centuries of ingenious applications of volcanic material in architecture, design and agriculture, volcanology – the scientific study of volcanoes and volcanic phenomena – didn't begin in earnest until the early eighteenth century, when the heady combination of uncharted scientific territory and intrepid adventuring required to investigate Europe's volcanoes proved irresistible to the romantic Victorians. Artists, scientists and adventurers dashed to the Mediterranean to witness Stromboli and Vulcano in action. Understanding volcanoes in the eighteenth century meant understanding the formation of the Earth for the first time and rejecting biblical teachings, and was therefore hugely contentious – but fashionable nonetheless. Whilst chemists and scientists published their papers, others mined the commercial and creative possibilities of mineralogy and volcanology.

Josiah Wedgwood was one of the era's most influential characters. He established the hugely popular Wedgwood ceramic factory, which became a blueprint for the modern commercial industry, and went on to influence the aesthetics of the day with his stylish interior objects. Wedgwood launched his Black Basalt pottery collection in 1768. This best-selling series of ceramic tableware and ornaments was modelled on ancient artefacts such as Egyptian scarabs and urns. Wedgwood's interpretive ceramics used a matte black clay to mimic the volcanic basalt stone from which the originals were carved. He perfected a fine-grain stoneware, moulded into neoclassical styles with a dense uniform surface requiring no glaze, polished to a dull gloss. Wedgwood boasted that his stoneware would 'last forever', just like proper basalt.

Applying the iconography of volcanic matter as Wedgwood did (rather than working with the stuff itself) was the course taken by all but the most ardent craftspeople in modern times. Consider the Fat Lava vases of the 1970s, with their make-believe magma glazes. Or lava lamps even – molten matter as kitsch. Object designs using actual volcanic material remain a rarity due to the inescapable fact that its high mineral content and density make it a most difficult and unreliable material to manipulate. Those who have worked directly with lava are fabled. Consider the craftspeople of southern Italy who were known for capturing magma in its molten state from the very edge of a lava field and directly moulding it into objects right there on the mountainside. They used the volcano as not only mine and miner but foundry too. The process has all but died out completely and is now used only to fashion tourist souvenirs. Returning volcanic sand to a molten glass-like substance and moulding and blowing it; crushing, cutting and carving basalt rock; or working with ash and ceramic bodies are all processes Formafantasma has explored in their volcanic projects.

Formafantasma's studies of volcanic matter have been extensive. They have followed the path of crumbs left by centuries of craftspeople and pursued the clues of volcanologists and scientists in order to uncover the potential of volcanic material. The ExCinere volcanic ash-glazed tiles are a success, produced using a carefully balanced formula of particle size, density and firing temperature. This most exceptional material did not give up its secrets easily, but it makes for a fitting analogy that the process has been difficult. ExCinere is one of only a handful of commercial products made today from raw volcanic matter. It can be considered an important advance in the relation between volcano and human – another reflection on our fascination with this most violent and mesmerising of landscapes, and a confirmation of nature's untameable pre-eminence.

ExCinere

The result of more than three years of research and experimentation, ExCinere is suitable for both interior and exterior surfaces, from kitchen counters and bathroom floors to architectural facade cladding. The collection is available in two sizes and four volcanic glazes that range in tone from light caramel to dark chocolate. The glossy tones derived from mixing and firing varying quantities, particle sizes and densities of volcanic matter are evocative of the dynamic landscape from which they come. The name ExCinere is a play on the Latin *ex cinere*, which means ‘from ash’.

Awards

- Architect’s Newspaper, Best Interior Product, 2019
- Beazley Designs of the Year, London Design Museum, Shortlist, 2019
- Wallpaper* Design Award, 2020

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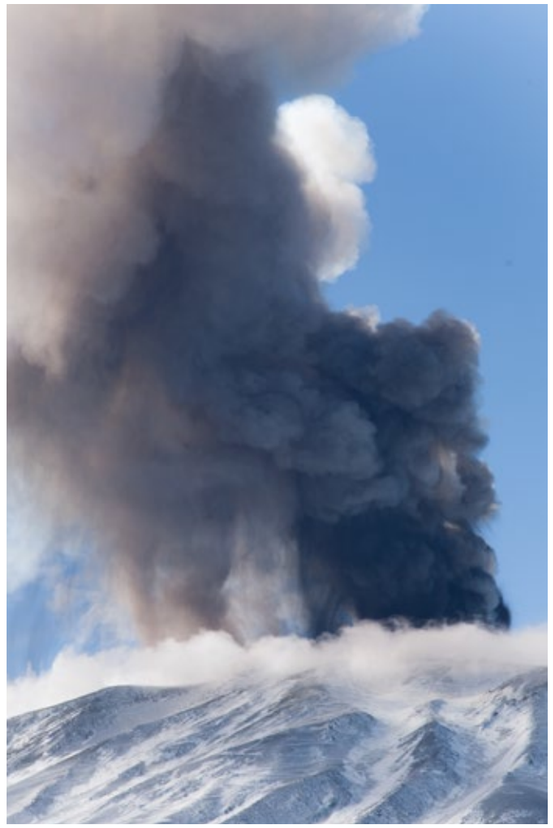
Background

The use of volcanic matter in architecture has a long and rich history, from the Bronze Age gardens of Pantelleria, where strong protective walls of raw volcanic rock were built around delicate fruit trees; to Roman concrete, which incorporated pulverised lava rock for durability; to César Manrique's evocative Lanzarote architecture of the 1960s, which so seamlessly and sympathetically integrates into its surrounding volcanic landscape.

ExCinere is a new take on the tradition of volcanic lava as building material, and a manifestation of the enduring attraction between humans and the powerful forces of nature.



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Approach

'Mount Etna is a mine without miners; it is excavating itself to expose its raw materials.'
—Formafantasma

Amsterdam-based design studio Formafantasma has been researching the potential of volcanic lava as a design material since 2010. Cofounder Andrea Trimarchi grew up in Sicily against the dramatic backdrop of Mount Etna. Over time, Trimarchi and partner Simone Farresin have observed the detrimental impact of mass tourism on the landscape and culture of Sicily. Their 2014 project De Natura Fossilium addressed this by thoroughly investigating the culture of lava in the Mount Etna and Stromboli regions and culminated in a collection of expertly crafted glass, basalt and textile works.

The ExCinere project was conceived as a means to further explore the application of this most fascinating, naturally occurring, self-generating, abundant material. Dzek and Formafantasma have collaborated to produce a useful architectural product that makes full use of volcanic lava's material properties.

The relationship between human and volcano, one of the most visceral symbols of the untameable forces of nature, is ridden with allegory. And so this project also became a battle of wills between human and volcano. Although volcanic ash and basalt rock may appear inert, their high metal oxide content makes them complex and unpredictable to work with. Three years of exploding, imploding, cracking and caving were endured before ExCinere's careful balance of porcelain body, ash glazes, firing temperature and method was achieved.

1 Post-eruption volcanic matter on a hillside of Mount Etna, Sicily

2 The two sizes and four colours of ExCinere

3 The Pantheon is an excellent example of the enduring quality of Roman concrete using volcanic ash

4 César Manrique's architecture seamlessly integrates into the volcanic landscape

5 The 20 November 2013 eruption of Mount Etna, Sicily

6 Roads covered in volcanic debris following the 2013 eruption of Mount Etna, Sicily

Process

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1 Mixed particle sizes of volcanic ash are sieved into homogeneous piles for glaze production

2 A pile of powdered volcanic ash used in the glazes

3 Precise measurements are used to create the four glazes; the colours and textures are derived via varying quantities, densities and particle sizes of volcanic ash

4 Glazes are hand applied using a spray technique; the body is a fully vitrified gres porcelain

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5 A glazed biscuit ready for firing

6 Fuorisalone installation, Milan, 2019

Formats and Finishes

ExCinere is available in two sizes and four volcanic ash glazes, allowing for infinite compositions for both interior and exterior architectural surfaces.

High slip resistance and corner transition units are available upon request.

Tile	Size	Thickness	Glazes			
Volcanic ash glazed gres porcelain	47 × 200 mm	8 mm	A	B	C	D
Volcanic ash glazed gres porcelain	47 × 95 mm	8 mm	A	B	C	D

Technical Data

Property	Standard	Notes
Water absorption	ISO 10545/3 ASTM C373	0.23% 0.23%
Breaking strength	ISO 10545/4	40,6 N/mm²
Grazing resistance	ISO 10545/11	resistant, no visible effects
Frost resistance	ISO 10545/12 ASTM C1026	resistant, no visible effects resistant, no visible effects
Resistance to thermal shock	ISO 10545/9 ASTM C484	resistant, no visible effects resistant, no visible effects
Chemical resistance	ISO 10545/13 ASTM C650	resistant, no visible effects not affected
Stain resistance	ISO 10545/14	5
Slip resistance	DIN 51130-04	R9
Dimensions Length and width Thickness Straightness of sides Wedging Surface flatness	ISO 10545/2	compliant with standard ± 0.6% ± 5% ± 0.5% ± 0.6% ± 0.5%

How to Buy

Tiles are sold in 0.34 m² boxes of a single size and colour or in a single-size mixed colour. Boxes of the short, 47 × 95 mm tile contain 70 units; boxes of the long, 47 × 200 mm tile contain 34 units.

All glazes are hand applied and made from organic matter; thus each tile will have subtle variations in colour and texture.

We ship worldwide from Italy. Lead times are generally 2 to 4 weeks for fulfilment. Transport times depend on location and shipping method. Samples are available upon request.

Order Options

Size	Units per box	m² per box
Short (47 × 95 mm)	70	0.34
Long (47 × 200 mm)	34	0.34

Mono

Box of a single glaze in a single size
Glazes: A / B / C / D

Poly

Mixed box of all four glazes
in a single size
Glazes: A + B + C + D

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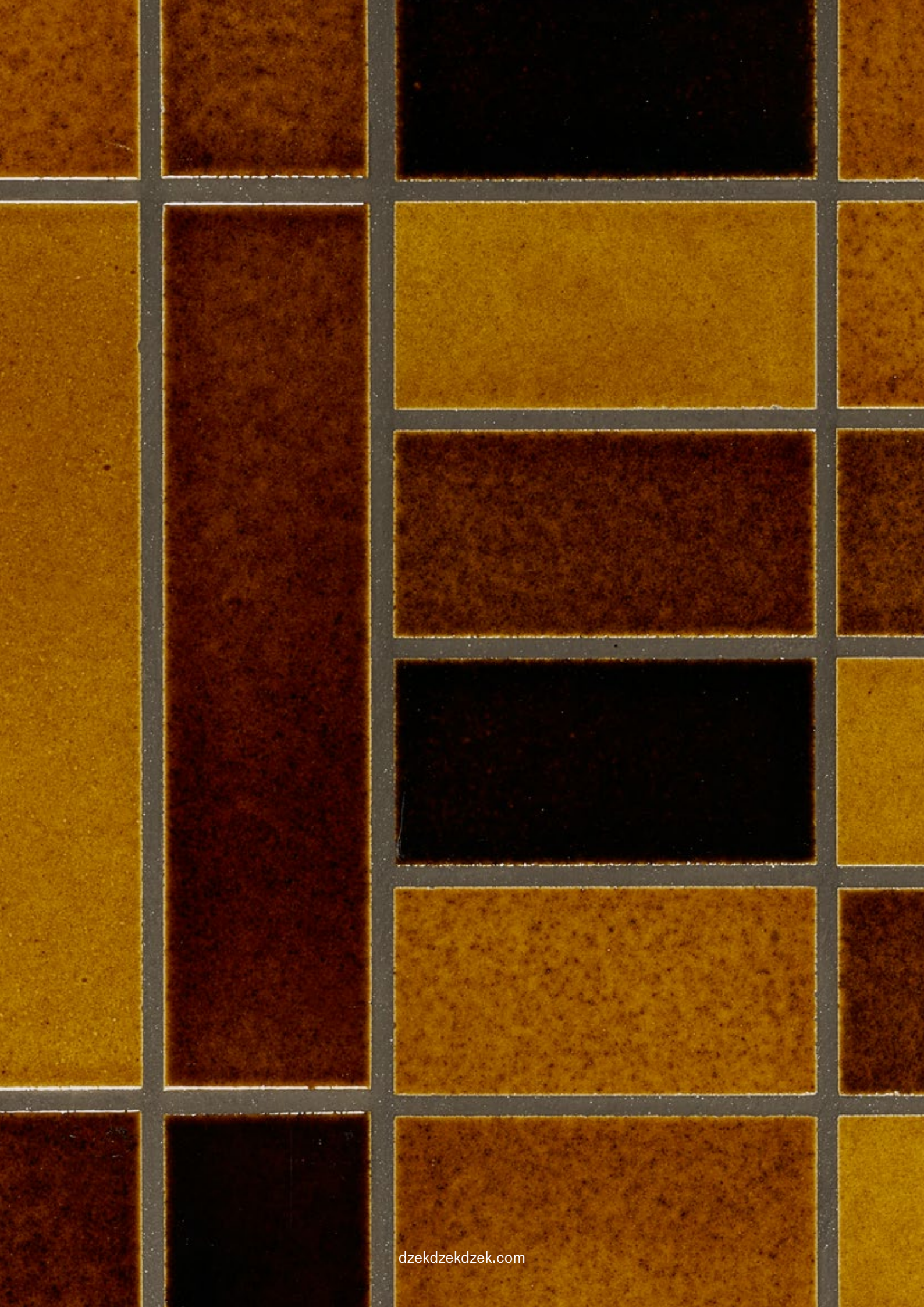
Designed by Julia, www.julia.studio
Printed by Pushprint

Glaze C

Glaze D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