

本土创造 BENTU

好奇 · 聆听 · 践行

CURIOSITY · LISTENING · PRACTICE

让 可 持 续 可 见 ！

M A K E S U S T A I N A B I L I T Y V I S I B L E !



固体废弃物材质实践

SOLID WASTE MATERIALS PRACTICE

世界是由物质构成的，物质是人类生存发展重要的基础和支撑。我们如何将意义归因于物质，以及物质如何引发情感？

The world is made up of material, which is the important foundation and support for human survival and development. How do we attribute meaning to matter, and how does matter trigger emotion?

如今，人类活动对物质的影响不断增强，工业革命以来的高资源利用与高污染排放的“双高”发展模式，造成物质资源的线性利用模式，彻底的改变地球物质循环的路径和空间分布，导致了频发的环境污染和资源枯竭危机。人类社会面临资源短缺和环境恶化的危害。

Today, the impact of human activities on material is increasing. Since the industrial revolution, the "double high" development model of high resource utilization and high pollution emissions has resulted in a linear utilization model of material resources, completely changing the path and spatial distribution of the earth's material cycle, leading to frequent environmental pollution and resource depletion crises.

Human society is facing the danger of resource shortage and environmental deterioration.

地球承受的负担剧增，资源枯竭和环境严重破坏威胁着人类社会的可持续发展。因此，对“物质”还应该在功利性评估之外进行思考。

The burden on the earth has increased sharply, resource depletion and serious environmental damage threaten the sustainable development of human society. Therefore, the "material" should also be considered beyond the utilitarian evaluation.

根据质量守恒定律，自然界的一切物质不灭。让物质在系统中被生产者和消费者吸收、利用、分解、释放，又再度被吸收、利用、分解、释放，形成循环。

According to the law of conservation of mass, all substances in nature are immortal. Let substances be absorbed, utilized, decomposed and released by producers and consumers in the system, and then absorbed, utilized, decomposed and released again to form a cycle.

物质的循环与再生对于促进资源和环境的可持续性几乎是唯一的选择。

Material recycling and regeneration is almost the only option to promote the sustainability of resources and environment.

固体废弃物在从开采到加工、生产、消费，包括管理的整个生命周期过程中的排放，面临越来越紧的资源与环境约束。

The discharge of solid waste in the whole life cycle from mining to processing, production and consumption, including management, faces increasingly tight resource and environmental constraints.

利用废物资源化，改变物质流动方向，实现物质闭环循环，其目标是最大限度将废物转化为可再生利用资源并减少污染物排放。

To utilize waste as a resource, change the direction of material flow, and realize the closed-circuit cycle of material. The goal is to maximize the conversion of waste into renewable resources and reduce pollutant emissions.

本土创造以“混”与“凝”为手段，以设计为媒介，以生产为辅助，将固体废弃物重塑其形态与功能，叠加、汇入，形成混融的范式。

Bentu Design reshapes the form and function of solid waste by means of "mixing" and "coagulation", with design as the medium and production as the auxiliary, and forms a paradigm of mixing.

交融、相生，通过功能载体产生联想与共鸣，让无序、不稳定性产生非线性关系，开拓韵味无穷的审美意境，于物理感官层面，唤醒形体再生；于精神意识层面，思辨材质复新。

Blending and symbiosis, generating association and resonance through functional carriers, making disorder and instability produce nonlinear relations, expanding the aesthetic artistic conception with infinite charm. Awakening the regeneration of form at the level of physical senses; Analyzing the material rejuvenation at the level of spiritual consciousness.

万物混凝，让物质在实践的底色中被重新渲染，在巨大的物质噪音中宣扬每个个体的内在与超越。

Everything coagulates, making matter re-rendered in the background color of practice, and publicizing the inner and transcendence of each individual in the huge material noise.

坚持物质在健康、多元和可持续的条件下，认识到世界的相互依存，并构建新的关系。

Insist on keeping matter healthy, diverse and sustainable, recognize the interdependence of the world, and build new relationships.

BTPC

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UHPC + 固体废弃物约 85% + 无机改性料

高强度
高耐久性
耐腐蚀性
低孔隙率

工业固体废物方向:

回收中国潮州废弃日用陶瓷
回收中国佛山废弃建筑陶瓷
回收中国云浮石材边角废料
回收工业矿渣 / 煤渣 / 陶粒 / 磷石膏 / 粉煤灰废料

城市生活固体废物方向:

回收废弃工程塑料 / 城市生活塑料
回收废弃彩贝壳 / 白贝壳 / 牡蛎壳
回收废弃玻璃瓶 / 啤酒瓶

建筑固体废物方向:

回收建筑红砖 / 拆迁废渣

BTPC

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UHPC + ABOUT 85% OF SOLID WASTE + INORGANIC MODIFIER

High strength
High durability
Corrosion resistance
Low porosity

Industrial Solid Waste Category:

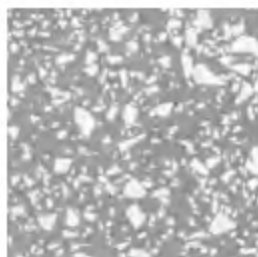
Recycling of waste domestic ceramics from Chaozhou, China
Recycling of waste construction ceramics from Foshan, China
Recycling of waste stone trimmings from Yunfu, China
Recycling of industrial slag, coal cinder, expanded clay aggregate, phosphogypsum, and fly ash waste

Urban Domestic Solid Waste Category:

Recycling of waste engineering plastics and urban domestic plastics
Recycling of waste colorful shells, white shells, and oyster shells
Recycling of waste glass bottles

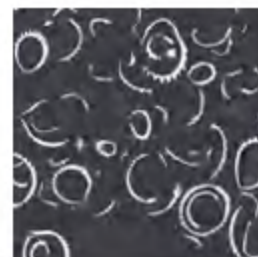
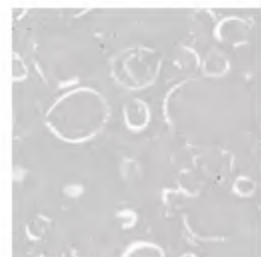
Construction Solid Waste Category:

Recycling of waste red bricks and demolition slag



失体

陶瓷再造
回收潮州废弃日用瓷



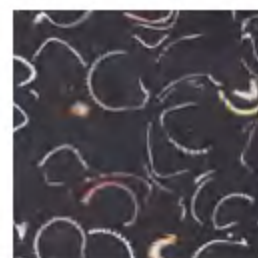
无机界限

白贝再造
回收废弃白贝壳



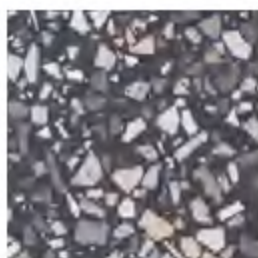
失体

陶瓷再造
回收潮州废弃日用瓷



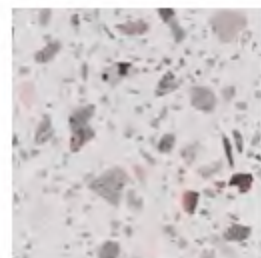
无机界限

彩贝再造
回收废弃彩贝壳



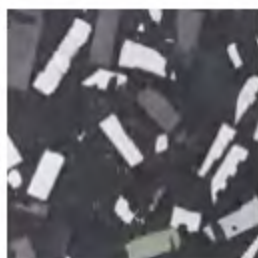
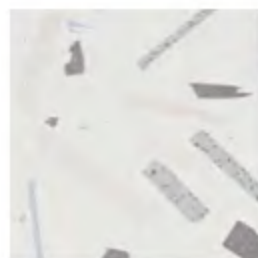
失体

陶瓷再造
回收佛山废弃瓷砖渣



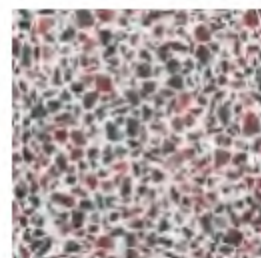
污托邦

建筑废渣再造
回收拆迁建筑废渣



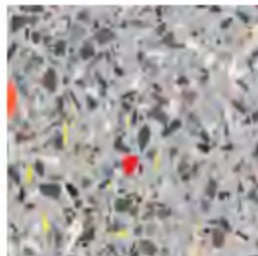
失体

陶瓷再造
回收佛山废弃瓷砖渣



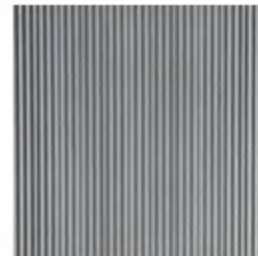
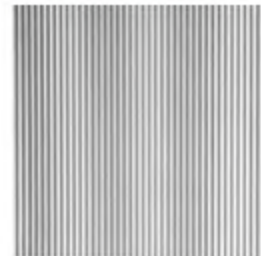
污托邦

建筑废渣再造
回收拆迁红砖废渣



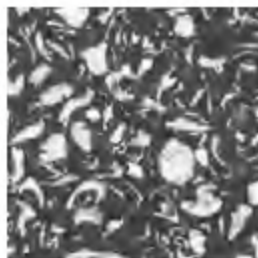
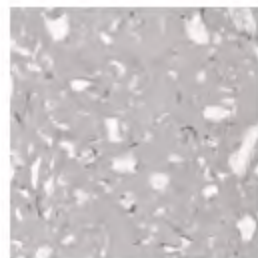
塑体

塑料再造
回收废弃塑料



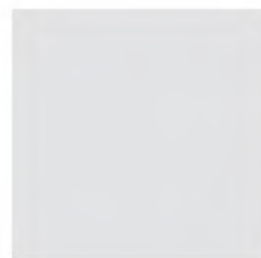
清水

粉煤灰再造
回收工业粉煤灰



无机界限

牡蛎壳再造
回收废弃牡蛎壳



水凝

石材废渣再造
回收废弃石材废渣

1.

固碳材料

CARBON FIXATION MATERIAL



固碳材料:

以钢铁工业固废（磨细的钢渣粉）为主要原料，通过碳酸化技术固定工业排放的 CO₂，实现“以废治废”，并生产高性能建材产品的目的。

利用工业固废（如钢渣、电石渣）中的钙 / 镁组分，在特定条件下与 CO₂ 反应生成碳酸盐，将 CO₂ 永久封存于材料中。

固碳材料有高固废利用率，且碳排放低。

固碳材料可以制作地铺石、内外墙体装饰材料等。

CARBON FIXATION MATERIALS:

Taking solid waste (ground steel slag powder) from iron and steel industry as the main raw material, CO₂ discharged from industry is fixed by carbonation technology, so as to realize the purpose of "treating waste with waste" and produce high-performance building materials products.

Calcium/magnesium components in industrial solid wastes (such as steel slag and carbide slag) react with CO₂ under specific conditions to generate carbonate, and CO₂ is permanently sealed in materials.

Carbon fixation materials have high solid waste utilization rate and low carbon emission.

Carbon fixation materials can be used to make paving stones, interior and exterior wall decoration materials, etc.

2.

工业固体废物
INDUSTRIAL SOLID WASTE



工业固体废物是在工业生产和加工过程中产生的，排入环境的各种废渣、污泥、粉尘等。

Industrial solid waste is generated in the process of industrial production and processing, and various waste residues, sludge, dust, etc. are discharged into the environment.

随着经济的发展，工业化进程加快，工业固体废物造成的污染日益突出。据统计，我国每年造成的工业固体废物排放量高达 10 亿吨，累计堆放量超过 67 亿。工业对资源的综合利用率较低，消耗较高，浪费较大，从而促成废物堆积，严重影响生态环境。

With the development of the economy and the acceleration of industrialization, the pollution caused by industrial solid waste has become increasingly prominent. According to statistics, the annual discharge of industrial solid waste caused by China is as high as 1 billion tons, and the cumulative stacking volume exceeds 6.7 billion. The comprehensive utilization rate of resources by industry is low, consumption is high, and waste is large, which promotes waste accumulation and seriously affects the ecological environment.

由于工业废物数量庞大，种类繁多，成分复杂，处理相当困难。目前一般的工业废物仍以消极堆存为主，部分有害的工业固体废物采用填埋、焚烧、化学转化、微生物处理等方法进行处置；有的投入海洋。

Due to the large quantity, variety and complex composition of industrial waste, it is quite difficult to dispose of. At present, general industrial waste is still mainly passive storage, and some harmful industrial solid waste is disposed of by landfill, incineration, chemical conversion, microbial treatment and other methods; Some are thrown into the ocean.

如工业陶瓷废料，它不仅对城市环境造成巨大压力，而且还限制了城市经济的发展及工业的可持续发展。



For example, industrial ceramic waste, which not only puts great pressure on the urban environment, but also limits the development of urban economy and the sustainable development of industry.

环境污染问题不仅破坏生态平衡，还严重威胁着人们的身体健康和生活质量。

Environmental pollution not only destroys the ecological balance, but also seriously threatens people's health and quality of life.

2.1

工业固废 日用陶瓷

INDUSTRIAL SOLID WASTE DAILY CERAMICS

中国瓷都（广东潮州），世界 70% 日用陶瓷的母体，也是全球最大的日用瓷生产基地。

The capital of Chinese porcelain (Chaozhou, Guangdong), the parent of 70% of the world's daily ceramics, is also the world's largest daily porcelain production base.

全球化浪潮席卷下，陶瓷产业将潮州与世界前所未有地紧密联结。

Under the wave of globalization, the ceramic industry has connected Chaozhou with the world as never before.

当势不可挡的现代化进程打破传统社会秩序，过往格序工整的潮州古城连同以血缘为社会秩序的乡土文化，快速地消亡。

When the unstoppable process of modernization broke the traditional social order, the ancient city of Chaozhou, which had been neatly ordered in the past, and the local culture based on blood as the social order, quickly disappeared.

急剧发展为这片土地带来的，远不止如此。全球化的刺激下，传统的陶瓷产业畸形膨胀。一方面，需求刺激出庞大的产量，陶瓷企业雨后春笋般出现，占用大量本地劳动人口的同时，也吸引了大量外来农村人口流入打工。

Rapid development has brought much more to this land. Stimulated by globalization, the traditional ceramic industry has swelled abnormally. On the one hand, demand stimulates huge output, and ceramic companies have sprung up, occupying a large number of local labor population, but also attracting a large number of migrant rural people to work.

内部社会关系的重组，同时也掀起了年轻一代的个体意识觉醒。捆绑在这庞大的产业链当中的无数个体，在产业洪流中有怎样的挣扎和渴望？过去与现在，本土与外来，这片土地上共处的人们，又该如何在流动变化的新时代，找到自我存在的价值？

The reorganization of internal social relations has also set off the awakening of the individual consciousness of the younger generation. What kind of struggles and aspirations do the countless individuals tied to this huge industrial chain have in the industrial torrent? Past and present, local and foreign, how can the people who coexist in this land find the value of their own existence in the new era of fluid and change?



23° 40' 22" N, 116° 38' 33" E

另一方面，地区范围小与家族主义下的保守趋同，使陶瓷企业不断重复废品率高的传统生产模式。而经济全球化下制造业向劳动成本更低的地区迁移，潮州成为大量西方企业的陶瓷代工点，这更加剧了废品量的上升。

On the other hand, the small size of the region and the conservative convergence under the familism make ceramic enterprises continue to repeat the traditional production mode with high scrap rate. Under the economic globalization, the manufacturing industry has migrated to areas with lower labor costs, and Chaozhou has become a ceramic OEM site for a large number of Western companies, which has exacerbated the increase in the amount of waste products.

仅一个潮安废瓷加工厂每年回收废瓷就有 1000 多吨，这只是潮州陶瓷行业的一个截面。讽刺的是，2018 年 1 月，中国政府关于“不再接收塑料、废纸、废弃炉渣、废弃纺织品、废弃矿渣等 24 种进口固体废物”的禁令正式生效。世界上 一半的“洋垃圾”将要另谋出路。然而，在现实世界的角落里，中国垃圾，洋垃圾，正以各种废品形式，继续倾倒在这片狭小的土地上。

A Chao'an waste porcelain processing plant alone recycles more than 1,000 tons of waste porcelain every year, which is only a section of the Chaozhou ceramic industry. Ironically, in January 2018, the Chinese government's ban on 24 types of imported solid waste, including plastics, waste paper, waste slag, waste textiles, and waste slag, came into effect. Half of the world's "foreign garbage" will have to find another way out. However, in the corner of the real world, Chinese garbage, foreign garbage, is continuing to be dumped on this small land in the form of various waste products.



“失体” — 日用废瓷再生实验项目

"LOSS OF BODY" - EXPERIMENTAL PROJECT OF RECYCLING WASTE PORCELAIN FOR DAILY USE

失体，有失体统，文化崩坏。

LOSS OF FORM, LOSS OF DECENCY, CULTURAL COLLAPSE.

深入中国潮州日用陶瓷行业，“本土创造”团队试图以实验家具与产品的形式，真实地呈现这负载巨大产能与商业价值的古城背后，我们所看见的崩裂、破碎的文化体统，并尝试重塑其“体”。

Going deep into China's Chaozhou daily-use ceramics industry, the "Local Creation" team tried to present the cracked and broken cultural system behind the ancient city with huge production capacity and commercial value in the form of experimental furniture and products, and tried to rebuild Shape its "body".

中国潮州，全球最大的日用瓷生产基地。因为劳动力成本低下，大量西方企业的陶瓷代工点均设在这里。这是一座负载巨大产能与商业价值的古城，出产了世界上70%的日用陶瓷，然而现代化进程打破了传统社会秩序，工整的潮州古城格局连同它的乡土文化，正快速地消亡。

Chaozhou, China, the world's largest daily-use porcelain production base. Because of the low labor cost, a large number of ceramic foundries of western enterprises are located here. This is an ancient city with huge production capacity and commercial value. It produces 70% of the world's daily-use ceramics. However, the modernization process has broken the traditional social order. The neat structure of Chaozhou's ancient city, together with its local culture, is rapidly dying out.



此外，陶瓷行业本身属于高能耗、高污染行业，在地方主义与家族主义的保守驱使下，日用陶瓷企业不断重复废品率高的传统生产模式，仅一个潮安废瓷加工厂，每年回收的废瓷就有1000吨，极大地破坏了当地的生态环境。

In addition, the ceramics industry itself is a high-energy, high-pollution industry. Driven conservatively by localism and familyism, daily-use ceramics companies continue to repeat the traditional production model with a high scrap rate. There is only one waste porcelain processing plant in Chaoan, which recycles There are 1,000 tons of waste porcelain, which has greatly damaged the local ecological environment.

传统上，这里对废弃瓷砖的再生利用仅仅是将废瓷粉碎研磨，重新加入陶瓷制作原料中去。受限于陶土原料需要保持的黏性，能利用上的废瓷十分有限且成本更高，导致矿产资源、能源过度消耗，也阻碍了陶瓷行业本身的可持续性发展。

Traditionally, the recycling of discarded ceramic tiles here is just to crush and grind the waste porcelain and add it back into the raw materials for ceramic production. Limited by the viscosity that clay raw materials need to maintain, the waste porcelain that can be used is very limited and the cost is higher, which leads to excessive consumption of mineral resources and energy, and also hinders the sustainable development of the ceramic industry itself.

在“失体”实验中，我们往另一个方向尝试：改变混凝土骨料的利用方式，提高废瓷的利用率和生产速度，设计兼具艺术性与实用性的产品。“本土创造”在失衡的现实中，以设计之力重塑文化之体，真切影响到社会现实。

In the "lost body" experiment, we tried in another direction: changing the utilization of concrete aggregates, improving the utilization rate and production speed of waste porcelain, and designing products that are both artistic and practical. In the unbalanced reality, "local creation" uses the power of design to reshape the body of culture and truly affects social reality.





破碎的日用瓷与混凝土混合凝结，经切割打磨而成，以装置家具为载体，在基础形态中探讨恰当的比例，以简单的平板结构拼接，探讨废弃日用瓷以简单的构造形式再次回到大众生活日常回到生活根本。

The broken porcelain is mixed with concrete, cut and polished, and the installation furniture is used as a carrier to explore the appropriate proportions in the basic form, and the simple flat structure is put together to explore the discarded porcelain in a simple structure to return to the daily life of the public back to the fundamental life.



我们尝试用装置及实验家具的形式，向社会传递巨大产业背后体系的破碎崩离，揭示社会所面临的社会问题与环境问题，不可降解的废弃日用瓷被丢弃被埋藏，并从材料学的角度出发，尝试废弃日用瓷与混凝土的结合可能性。

We try to convey to the society the fragmentation of the system behind the huge industry from the form of installation and experimental furniture, and reveal the social and environmental problems faced by the society. From the perspective of material science, we also discover the problem of discarded and buried non-biodegradable porcelain, and try to explore the possibility of combining discarded porcelain with concrete.

废瓷再生 × 装饰砖钻穗”

WASTE PORCELAIN RECYCLING × DECORATIVE TILE ‘SUI’

将不能降解与难以二次利用的日用废瓷粉碎重新利用，经过不断配比的材料实验，我们以约 40% -60%的回收日用废瓷与调配的高性能混凝土混合，进行批量化生产。表面经打磨抛光而成，极富表现力。

After continuous material experiments, we mixed the recycled waste porcelain with high performance concrete with about 40 % -60 % of the recovered waste porcelain for batch production. With the surface ground and is polished to be extremely expressive.

墙地面装饰是建筑材料使用量最大的材料之一，我们通过庞大需求的角度将再生材料介入其中，才能真真正正将不可降解的陶瓷消耗掉，真切地影响到社会现实。

Wall and floor decoration is one of the most used building materials, and we intervene recycled materials through the perspective of huge demand in order to really consume the non-degradable ceramics and truly affect the social reality.

我们提供两种骨料搭配样式，一种由八个颜色构成，废瓷随意散落充满张力，适合墙面使用；另一种由五个颜色构成。

We offer two types of aggregates collection, which one is consisting of eight colors, scrap porcelain scattered randomly and full of tension, suitable for wall applications. The other consists of five colors.

将废弃的日用瓷更细致粉碎分类，再进行大小颗粒配比，表面瓷粒错落有致分布、细致紧密，防污性能更优异，更适合地面使用；

The discarded daily-use porcelain is more carefully crushed and classified before the size of the particles are well-proportioned, and the broken porcelain particles are distributed in a staggered manner, meticulously and closely, better excellent in the anti-pollution performance, more suitable for ground use.

颜色与颗粒之间的搭配可以满足各类空间需求，而再生材料以产品为载体重新进入我们的日常，是我们实验的终极目标。

The collocation of colors and particles can meet various space needs, and the re-entry of recycled materials into our daily life through products as carriers is the ultimate goal of our experiments.





废瓷再生

× 公共家具 “梁”

WASTE PORCELAIN RECYCLING

× PUBLIC FURNITURE ‘LIANG’

“梁”混凝土公共家具将本土陶瓷文化与可持续化的日常图景相结合，通过更具社会性的新常态应用，耳濡目染地围合出美的日常与正确的价值传递。

The "Liang" concrete public furniture combines local porcelain culture with sustainable everyday scenes, and through a new and more social application of normality, the daily routine of beauty and correct value transmission is imbibed.

在设计上，采用模块化结构构成，Y形模块长度不同的分支更提供了丰富的自由组合形态延伸。

In terms of design, it adopts a modular structure, and the branches of the Y-shaped module with different lengths provide a wealth of free combination form extensions.

部件采用装配式结构拼接，底座和座面相互镶嵌，三角形的简洁形态使视觉更轻盈，结构更牢固，同时减轻重量。

The components are assembled and stitched, the base and seat are inlaid with each other, and the simple shape of the triangle makes the vision lighter, the structure more solid, and the weight reduction.

面对过度开发带来的社会，污染环境的现状，我们试图寻找一种解决方法，利用废料循环再生，日常设计，工业制造，美学呈现，切切实实为环境着想。

The components are assembled with an assembled structure, the base and seat surface are inlaid with each other, the simple form of the triangle makes the visual lighter structure is also more solid, while reducing weight.



工 · 桌子

材料：BTPC，回收日用陶瓷废料

尺寸：Ø1000xH750 mm

重量：100 kg

颜色：白色

Gong · table

Material: BTPC , daily porcelain waste

Dimension: Ø1000xH750 mm

Weight: 100 kg

Color: white



废瓷再生

× 公共家具 “π”

WASTE PORCELAIN RECYCLING

× PUBLIC FURNITURE ‘PAI’

本土创造以设计为媒介，以混凝为手段，融合粉煤灰、废旧陶瓷等骨料，通过对废弃材质的真实转化，传达一种可持续设计的善与美。

Local creation uses design as a medium and coagulation as a means to integrate fly ash, waste ceramics and other aggregates, and convey the goodness and beauty of a sustainable design through the real transformation of waste materials.

利用多变可塑的色彩、图案及造型，转接当代户外场景的多元氛围，为混凝土驻留更多空间提供可能。

Use changeable and plastic colors, patterns and shapes to transfer the diverse atmosphere of contemporary outdoor scenes, and provide the possibility for concrete to reside in more space.

“π”凳独具匠心的片式串联设计，可以二次创作出贴近场景的独特造型，激发与城市公共场域的呼应对话。

The unique series design of the "π" stool can recreate a unique shape that is close to the scene, and stimulate a dialogue with the urban public space.

坐凳与地面组成一个标准的梯形，具有稳定的力学结构，等待随时为行人提供歇脚的便利。

The stool and the ground form a standard trapezoid, with a stable mechanical structure, waiting to provide pedestrians with the convenience of resting their feet at any time.

绿荫层叠，稀疏散落，光影梭织交错，荡漾开一种秩序与美感、功能性与艺术性无间的平衡美学。

The green shades are layered, sparse and scattered, and the light and shadow are intertwined, creating a balanced aesthetic of order and beauty, functionality and artistry.



2.2

工业固废
建筑陶瓷INDUSTRIAL
SOLID
WASTE
ARCHITECTURAL
CERAMICS

中国佛山，拥有全球最大、最成熟的陶瓷产业链和产业集群的建筑陶瓷工厂，承载着全球建筑陶瓷 1/8 的年产量，与此同时，这里也不得不承载每年 400 万吨陶瓷废弃物带来的环境污染。

Foshan, China, has the world's largest and most mature ceramic industry chain and industrial cluster of architectural ceramics factory, carrying 1/8 of the world's annual output of architectural ceramics, at the same time, it also has to bear the environmental pollution caused by 4 million tons of ceramic waste per year.

这里的建筑陶瓷废弃物大多送往偏远村落，填埋鱼塘或非法倾倒。它不可降解的材质无法被自然所消化，占用土地，影响植被生长，甚至污染我们赖以生存的水源。

Much of the construction ceramics waste here is sent to remote villages, landfilled in fish ponds or illegally dumped. Its non-degradable material cannot be digested by nature, occupying land, affecting vegetation growth, and even polluting the water source we depend on.

我们或许无法从根本上改变这个行业，但又岂能漠视？从 400 万吨的建筑瓷砖废渣着手，以材质再生融入日常，不仅是激发商业价值的大胆尝试，更是可持续发展理念日常化的实践，显示了“本土创造”的基本坚守和追求。

We may not be able to fundamentally change the industry, but how can we ignore it? Starting from 4 million tons of construction tile waste residue and integrating material recycling into daily life is not only a bold attempt to stimulate commercial value, but also a daily practice of sustainable development concept, showing the basic adherence and pursuit of "local creation".

“瓷造”——广东佛山建筑瓷砖废渣制造日常产品的材质再生实验，让废弃的建筑陶瓷以衍生产品的形式回到大众层面的使用中，成为可量化生产的日常家具。

"Porcelain manufacturing" - Guangdong Foshan architectural tile waste residue manufacturing daily product material recycling experiment, so that waste architectural ceramics in the form of derivative products



陶瓷生产的主要原材料为不可再生资源，经过高温烧制后，硬度极高，边角废料无法自然消化，而“本土创造”的团队擅长使用混凝土，那么，能否将废弃建筑陶瓷边角料与我们所长相结合呢？

The main raw material for ceramic production is non-renewable resources, and after high-temperature firing, the hardness is extremely high, and the scrap cannot be digested naturally, and the "locally created" team is good at using concrete, so can we combine waste building ceramic scraps with our strengths?

利用水泥的胶凝作用，是不是能使其利用率不再受限，并在日常生活中循环？

Using the gelling effect of cement, can its utilization rate no longer be limited and circulate in daily life?

最终，“瓷造”获得了巨大成功。遵循“本土创造”传统，从设计之初就重视环境污染程度和产品生命周期，发挥混凝土产品安全且包容性强的优势，让废弃的建筑陶瓷重新成为环境友好的产品。

In the end, "porcelain manufacturing" was a great success. Following the tradition of "local creation", we pay attention to the degree of environmental pollution and product life cycle from the beginning of design, and give full play to the advantages of safe and inclusive concrete products, so that waste architectural ceramics can become environmentally friendly products again.





产品信息

Product information



桌子·工

材料: BTPC、回收建筑陶瓷瓷砖废料

尺寸: Ø1000xH750 mm

重量: 100 kg

颜色: 白色 / 蓝色 / 绿色

Gong • table

Material: concrete , porcelain waste

Dimension: Ø1000xH750 mm

Weight: 100 kg

Color: white/blue/green

2.3

工业固废 石材废渣

INDUSTRIAL SOLID WASTE STONE WASTE

中国云浮，位于广东西部，是世界最大的石材加工基地之一，以“石都”的称号享誉海内外。

China Yunfu, located in the west of Guangdong, is one of the world's largest stone processing bases, known at home and abroad with the title of "stone capital".

然而，不少石材加工企业在矿山开采和石材加工过程中出现资源浪费、粉尘排放超标、废水未经处理无序排放、石粉废渣随意丢弃等现象，对环境造成严重的破坏；

However, many stone processing enterprises in the process of mining and stone processing have waste of resources, excessive dust discharge, untreated disorderly discharge of wastewater, random discarding of stone powder waste residue, etc., causing serious damage to the environment;

重生产，轻服务和创新，忽略石材新产品开发、技术创新、创意设计和应用服务，也成为限制整个行业发展的桎梏。

Heavy production, light service and innovation, ignoring stone new product development, technological innovation, creative design and application services, have also become a shackle that limits the development of the entire industry.

重拾对石材加工的边角废料材质原点的研究与设计，让石材行业绿色发展，是我们必然的回归。

Revisiting the research and design of the origin of the corner waste material of stone processing and making the stone industry green development is our inevitable return.



产品骨料源自云浮，云浮石材具有细碎斑斓的花纹，“本土创造”尝试回归石材在中国最原始、最深刻的形态，以现代设计思维重新定义水磨石工艺，利用大量废渣，进行量产化升级，生产出符合大众日常生活需求的产品。

Product aggregate from Yunfu, Yunfu stone has fine and colorful patterns, "local creation" tries to return to the most original and profound form of stone in China, redefine terrazzo technology with modern design thinking, use a large amount of waste residue, mass production upgrading, produce products that meet the needs of public daily life.



霰·再生混凝土装饰砖

XIAN · RECYCLED CONCRETE DECORATIVE BRICKS

主体材料：BTPC、回收石材边角废料

常规尺寸：1200×600×H20mm

产品重量：36kg

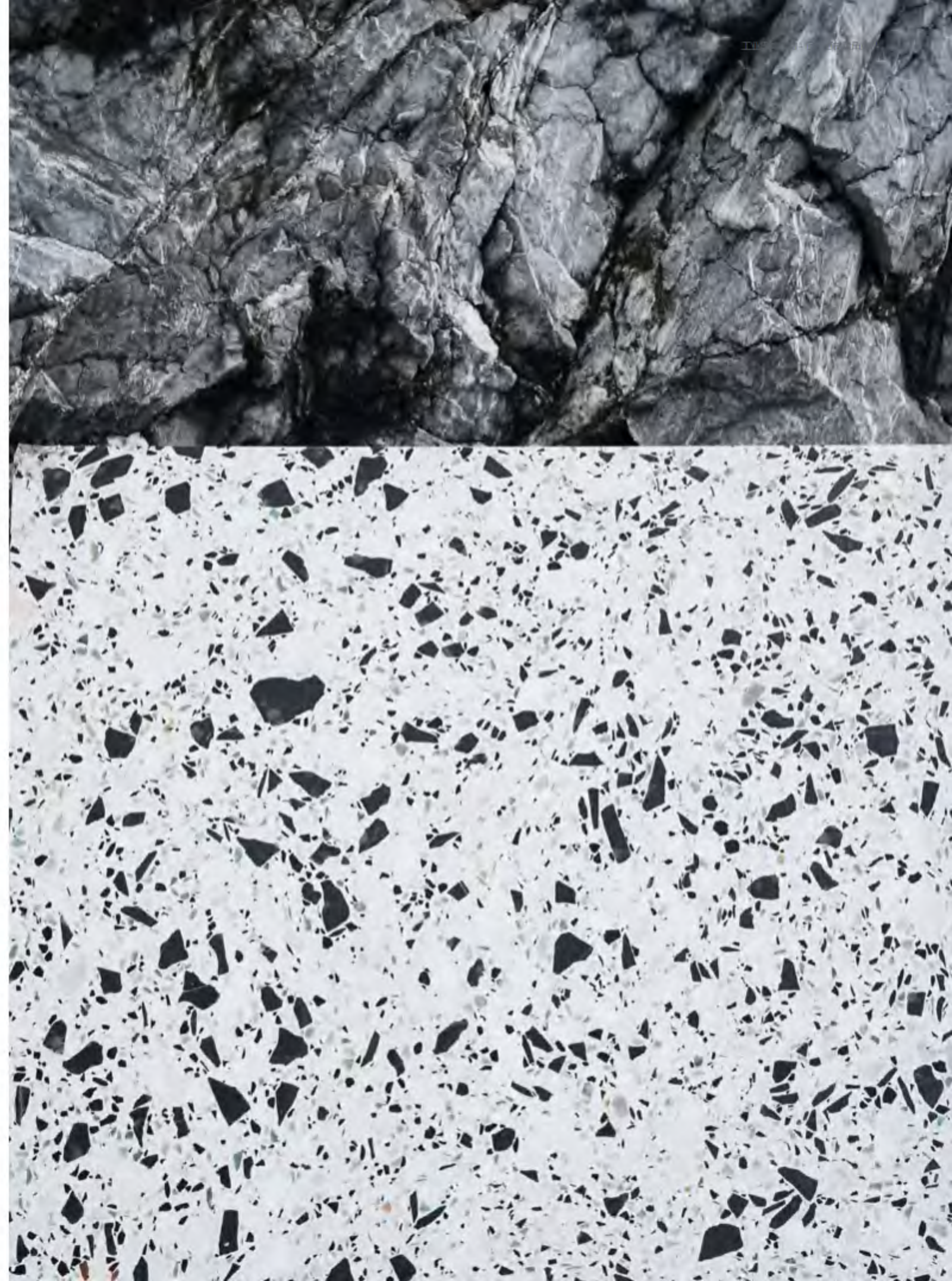
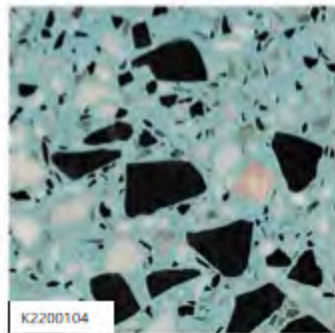
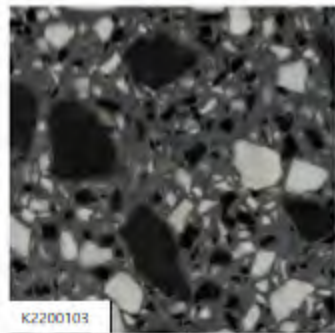
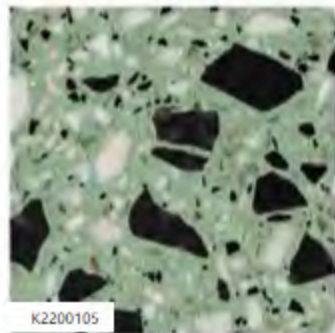
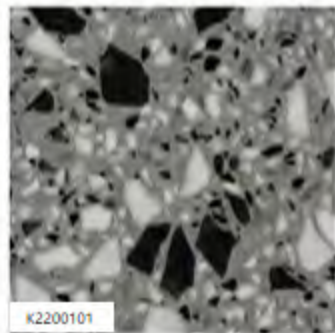
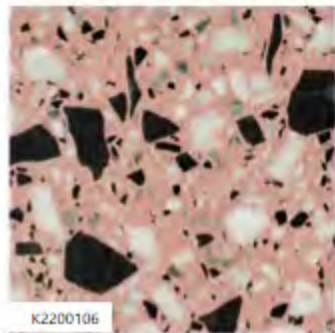
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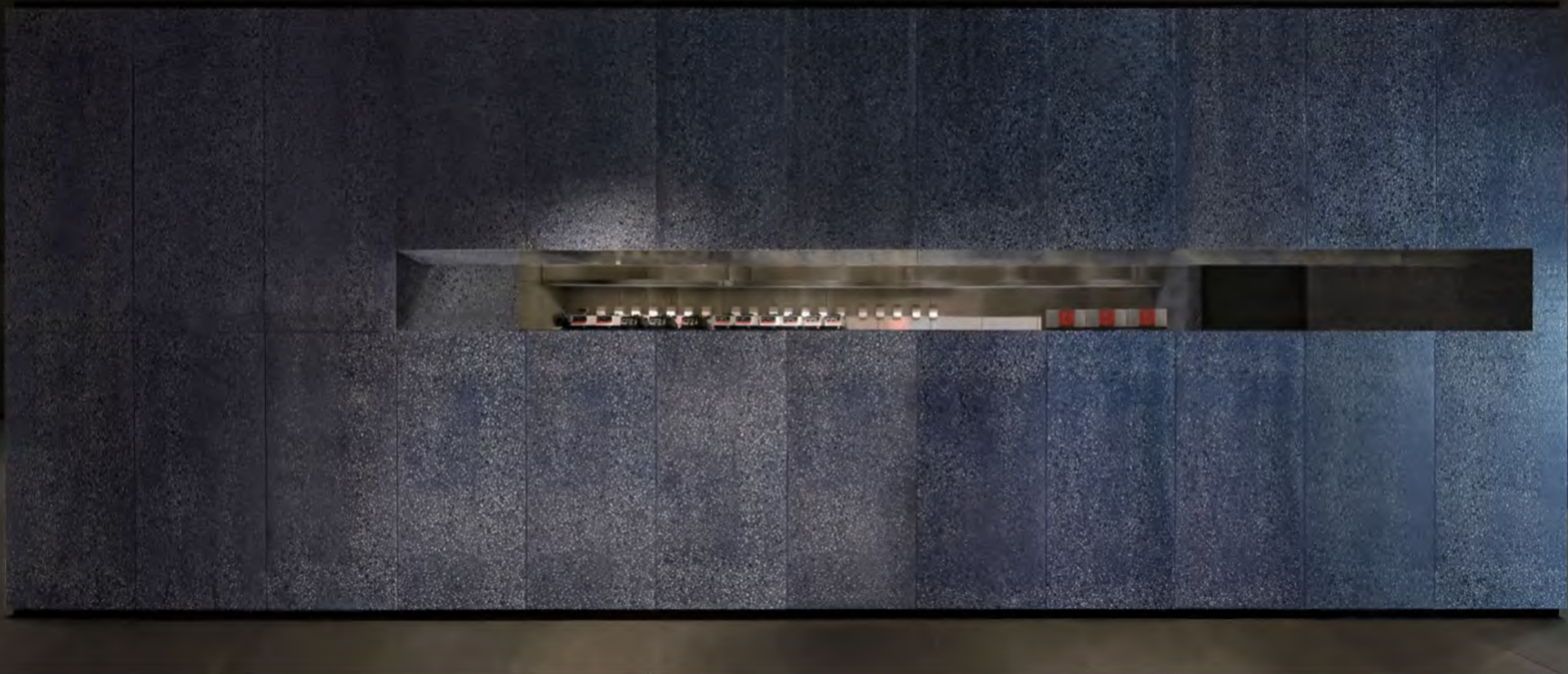
Main material: BTPC、 Recycling stone corner waste

Regular size: 1200×600×H20mm

Product weight: 36kg

Note: Specifications and colors can be customized.





摩乐茶

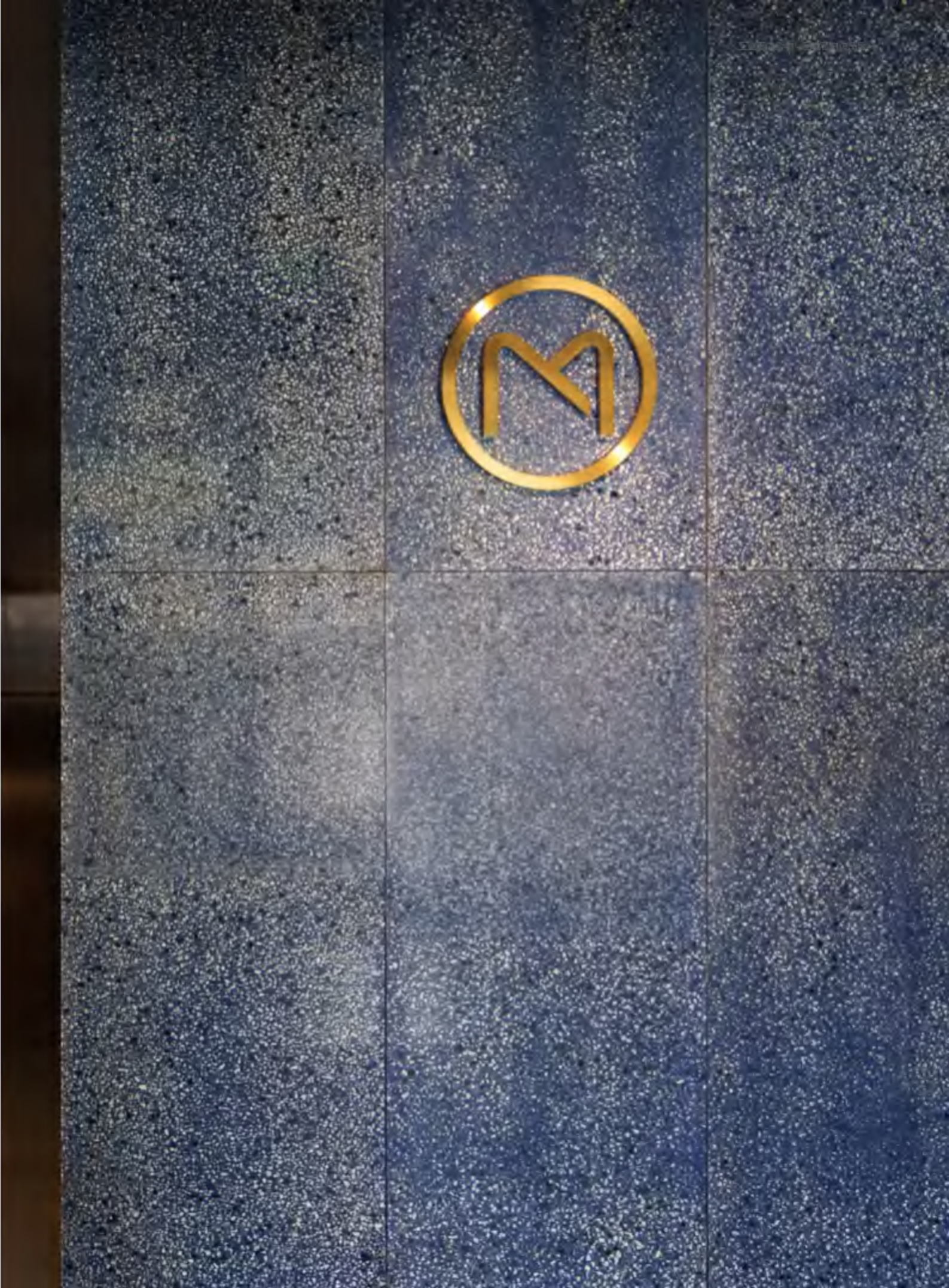
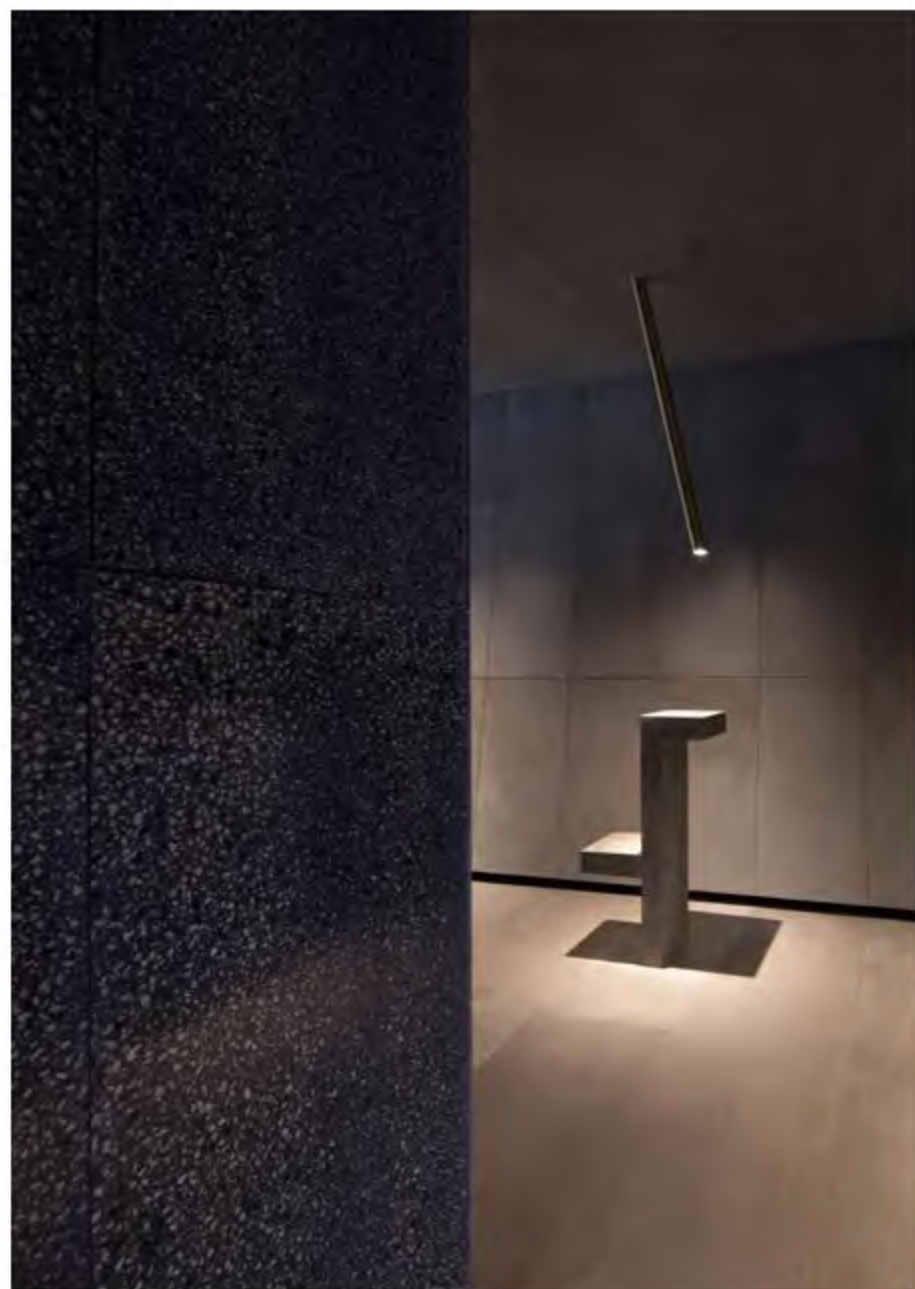
MOLE CHHA 设计：自由思考 Design: Infinity Nide 摄影：本土创造 Photograph: BENTU

一个以水磨石为表达元素的现代新茶饮空间。在昏暗的混凝土空间环绕下，明亮的蓝色水磨石和灰哑的水泥形成的反差视觉对比，而黄铜配饰的加入，让整体气质硬朗得更精致。

Terrazzo is the main element in such a modern tea shop. Surrounded by the dim concrete walls, intense visual contrast of blue terrazzo and gray concrete strikes everywhere and brass accessories make the whole room more delicate.

保留纯粹的通道作为活动空间，单向动线设计引导顾客在消费过程中完成完整的社交空间体验，让每一个“心”获得自由的社交。

As the aisle is the main activity space, the one-way design guides customers to complete the process of consumption, meanwhile the freewheeling interaction takes place.



2.4

工业固废
煤渣再生INDUSTRIAL
SOLID WASTE
CINDER
REGENERATION

自工业革命以来，煤作为最重要的能源之一，带给人类巨大财富的同时也对人类的生活环境产生极大的破坏。燃烧过程中会释放出含硫气体，污染大气，燃烧后产生煤渣，成为废料弃置堆积，还占用本来就有限的土地。

Since the industrial revolution, coal, as one of the most important energy sources, has brought great wealth to human beings, but also caused great damage to human living environment. During the combustion process, sulfur-containing gases will be released, polluting the atmosphere, and cinders will be generated after combustion, which will be piled up as waste and occupy limited land.

人类文明更替的过程，并非单向直线的，有着其曲折反复的一面。工业文明发展至今，人类所掌握的生产水平和科技水平达到前所未有的高度，然而与过去相比，人类身处的环境亦面临着极端的污染和伤害，究竟此刻人类与环境相互摩擦妥协的结果，是文明往前迈进避无可避的代价，还是一种尚未察觉到的倒退？

The process of human civilization replacement is not a one-way straight line, but has its own twists and turns. Since the development of industrial civilization, the level of production and technology mastered by human beings has reached unprecedented heights. However, compared with the past, the environment in which human beings live is also facing extreme pollution and damage. After all, it is the result of friction and compromise between human beings and the environment at this moment. Is it the inevitable price of civilization's progress, or is it an as yet unseen regression?

生产、消费、商业，设计已被市场牵引着被动太久，它需要真正主动地担起这个社会的调解者角色。

Production, consumption, commerce, and design have been driven by the market for too long, and it needs to really take the initiative to play the role of mediator in this society.



将煤渣等工业进程中产生的无用之物重新利用起来，运用到日常空间中，我们希望为大众带来好用来说，这是一次材质可能性的探索，也是一次对自我的挑战。

By reusing useless objects produced in industrial processes such as cinders and applying them to daily spaces, we hope to bring usability to the public. This is an exploration of the possibility of materials and a challenge to ourselves.

煤渣有很多种类，普通的煤渣密度低、结构疏松、强度低，添加到水泥里会影响混凝土的强度，普通煤渣可以制作不用于承重的轻质煤渣砖，它并不适合用于做产品。在实验过程中，我们找到了一种特别的煤渣—无烟煤渣，它具有轻质、且强度高的特点。这种煤渣正是我们想要的，不仅减轻产品重量，又不损失混凝土强度。

There are many types of cinder, ordinary cinder density is low, loose structure, low strength, added to cement will affect the strength of concrete, ordinary cinder can be made not for load-bearing light cinder bricks, it is not suitable for making products. In the course of the experiment, we found a special cinder, anthracite cinder, which is light and strong. This cinder is exactly what we wanted, reducing product weight without losing concrete strength.



再生混凝土装饰砖

RECYCLED CONCRETE DECORATIVE BRICKS

主体材料: BTPC、回收工业煤渣废料

常规尺寸: 1200×600×H20mm

产品重量: 36kg

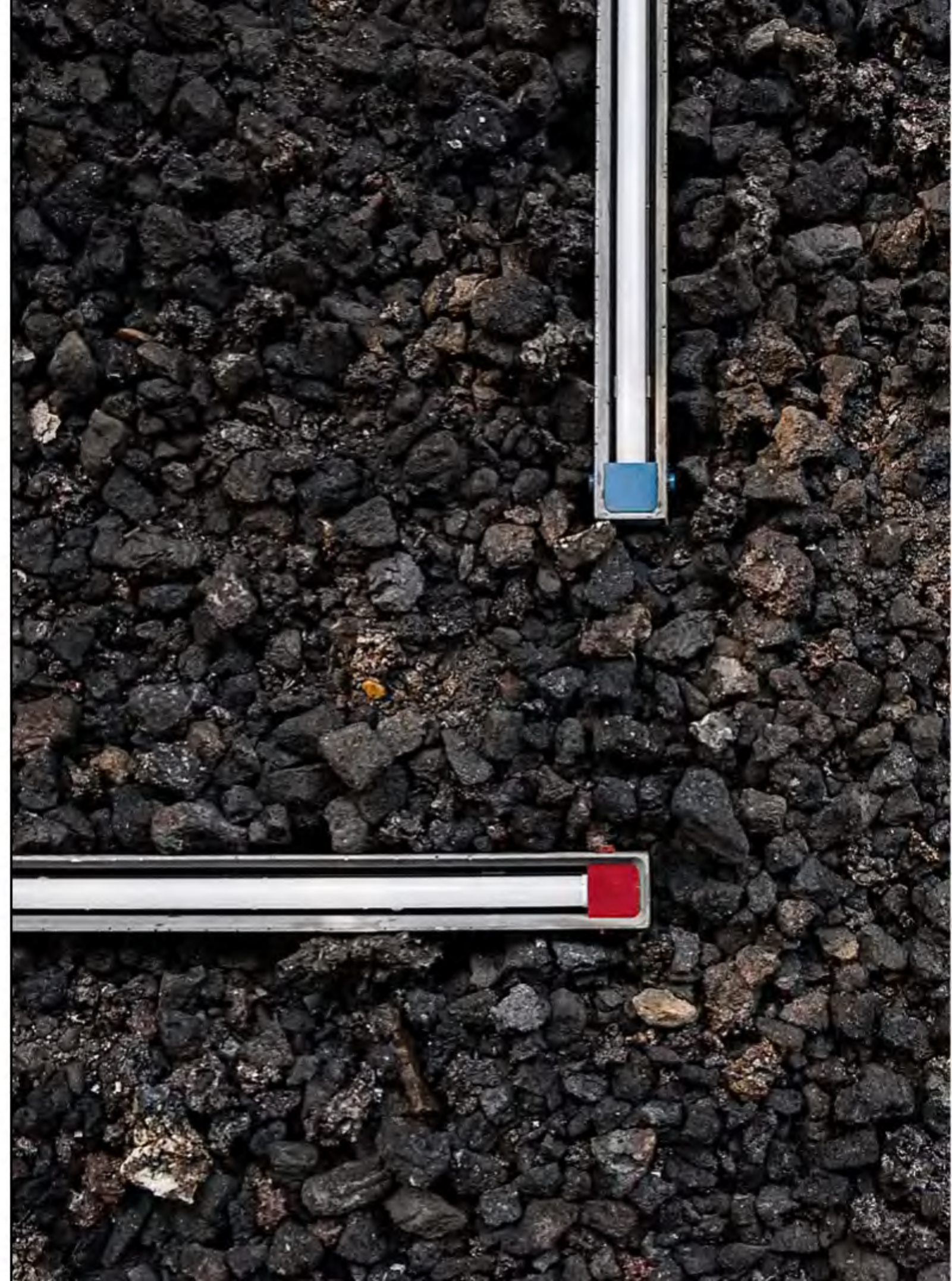
注: 规格和花色可定制。

Main material: BTPC、Recovery of industrial cinder waste

Regular size: 1200×600×H20mm

Product weight: 36kg

Note: Specifications and colors can be customized.



2.5

工业固废 磷石膏再生

INDUSTRIAL SOLID WASTE PHOSPHOGYPSUM REGENERATION

磷石膏是磷化工产生的工业固体废弃物，其综合利用是一项世界性难题。

Phosphogypsum is an industrial solid waste produced by phosphorus chemical industry, and its comprehensive utilization is a worldwide problem.

产品由回收磷石膏制作而成，以水泥作胶凝材料回收磷石膏作骨料进行循环利用。

The product is made of recycled phosphogypsum, and the recycled phosphogypsum is used as aggregate with cement as the cementitious material for recycling.

众所周知，混凝土是由水泥、水、沙、石头等材料混合而成，我们通过材料的不断创新实验测试，调整材料的结构，成功研发利用磷石膏替代传统混凝土中的石头骨料和部分水泥的再生混凝土配方。

As we all know, concrete is made of cement, water, sand, stone and other materials. Through continuous innovation and experimental testing of materials, we have adjusted the structure of materials and successfully developed the use of phosphogypsum to replace stone aggregates in traditional concrete and the regeneration of some cement. Mixed concrete formulation.

其中，回收材料的比例占到整体的 50%，这不仅能将大量固体废弃物循环利用，同时也节约了石材矿山资源的消耗，减少了碳的排放。

Among them, the proportion of recycled materials accounts for 50% of the whole, which can not only recycle a large amount of solid waste, but also save the consumption of stone mine resources and reduce carbon emissions.



设计赋予价值，循环赋予新生。回收材料应用到日常家居产品中去，这不仅仅是磷石膏废弃物循环利用可持续发展的有效尝试，也是对我们所处环境的最大关怀，让可持续走进我们的日常，亲近你我。

Design gives value, cycle gives new life. The application of recycled materials to daily household products is not only an effective attempt to recycle phosphogypsum waste for sustainable development, but also the greatest care for our environment, so that sustainability enters our daily life and is close to you and me.

磷石膏建材实践—结合产业思维进行设计创新，形成循环经济发展。让上一个产业的废弃物成为下一个产业的原材料。保护生态的同时创造经济价值。

Phosphogypsum building material practice—combined with industrial thinking to carry out design innovation and form a circular economy development. Let the waste of the previous industry become the raw material of the next industry. Create economic value while protecting the ecology.



再生混凝土装饰砖

RECYCLED CONCRETE DECORATIVE BRICKS

主体材料：BTPC、回收工业磷石膏废料

常规尺寸：1200×600×H20mm

产品重量：36kg

注：规格和花色可定制。

Main material: BTPC、Recovery of industrial phosphogypsum waste

Regular size: 1200×600×H20mm

Product weight: 36kg

Note: Specifications and colors can be customized.





2.6

工业固废 陶粒再生

INDUSTRIAL SOLID WASTE CERAMSITE REGENERATION

珠三角地区河道纵横，水塘密布，每年的清淤工程会产生大量的污泥。将河道清淤产生的污泥作为主要材料，经过无害化处理和特殊工艺制成陶粒，再作为骨料与混凝土结合，制成独具特色的家居产品。

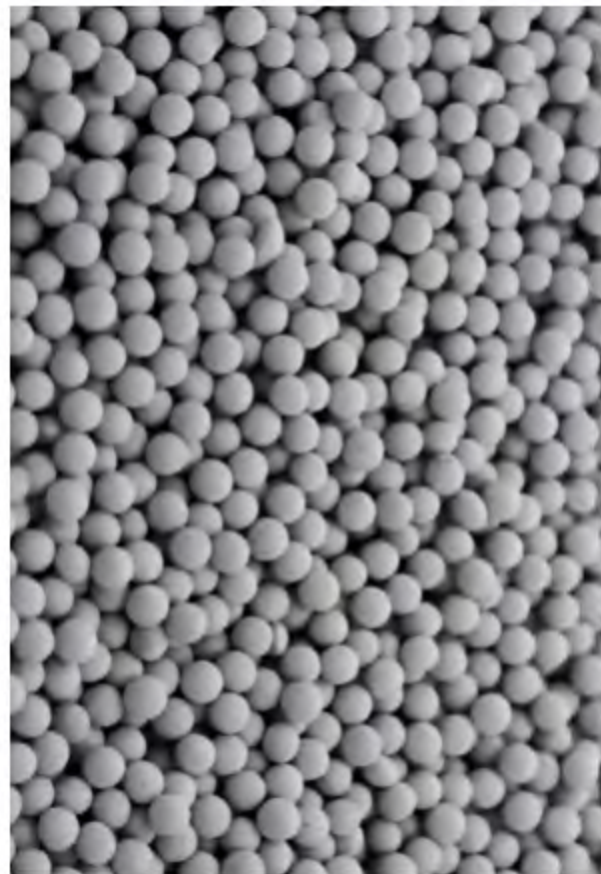
There are many rivers and ponds in the Pearl River Delta region, and a large amount of sludge will be produced every year in the dredging project. The sludge produced by river dredging is used as the main material, which is made into ceramsite through harmless treatment and special technology, and then combined with concrete as aggregate to make unique household products.

不仅有效解决污泥处理难题，更能赋予废弃物新的生命，减少能源消耗和污染排放，实现资源的循环利用。

It not only effectively solves the problem of sludge treatment, but also gives new life to waste, reduces energy consumption and pollution discharge, and realizes the recycling of resources.

淤泥陶粒具有较高的强度和耐久性，制成的家具和建材产品坚固耐用，使用寿命长。相比于传统陶瓷材料，淤泥陶粒的生产过程能耗更低，碳排放更少，更符合低碳环保理念。

Sludge ceramsite has high strength and durability, and the furniture and building materials products made from it are durable and have long service life. Compared with traditional ceramic materials, the production process of sludge ceramsite has lower energy consumption and less carbon emission, which is more in line with the concept of low carbon and environmental protection.



通过传播提高公众的环保意识，倡导绿色生活方式。淤泥材料赋予桌面独特的纹理和质感，使得家具呈现一种粗犷而不失精致的工业风格，既有力量感又具备时尚感；不仅是功能性产品，也是艺术品，赋予空间独特的艺术氛围。

Raise public awareness of environmental protection through communication and advocate a green lifestyle. Mud material gives the desktop a unique texture and texture, which makes the furniture present a rough and exquisite industrial style, which is both powerful and fashionable. It is not only a functional product, but also a work of art, giving the space a unique artistic atmosphere.



再生混凝土装饰砖

RECYCLED CONCRETE DECORATIVE BRICKS

主体材料：BTPC、回收废弃淤泥陶粒

常规尺寸：1200×600×H20mm

产品重量：36kg

注：规格和花色可定制。

Main material: BTPC 、 Recycling industrial waste ceramsite

Regular size: 1200×600×H20mm

Product weight: 36kg

Note: Specifications and colors can be customized.







回收工业废弃陶粒茶几 · 而

材料：BTPC、回收废弃淤泥陶粒、瓷沙、粉煤灰

尺寸：Ø1000x H420 mm/ Ø600x H600 mm

使用场景：户外、室内

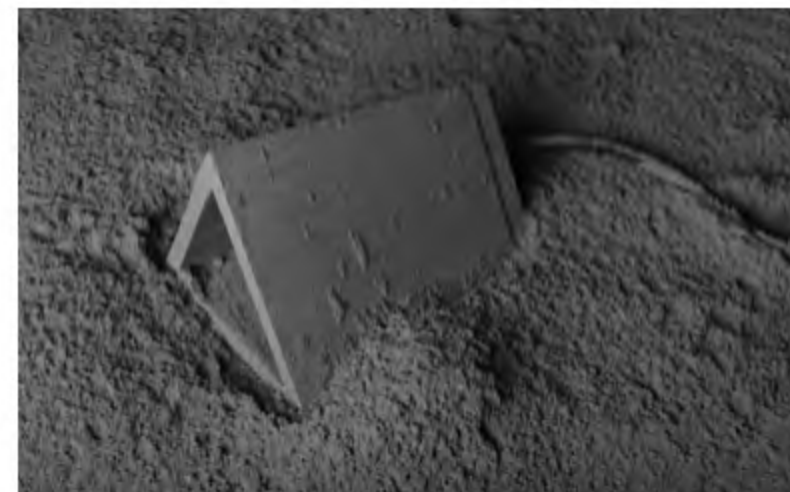
TEA TABLE · ER

Material: BTPC, Industrial Waste Ceramsite, Ceramic Sand, flyash

Size: Ø1000x H420 mm/ Ø600x H600 mm

Usage scenarios: outdoor, indoor

2.7

工业固废
粉煤灰再生INDUSTRIAL
SOLID WASTE
FLY ASH
REGENERATION

清水混凝土的一体成型对其生产工艺有极高的要求，容易受到温度、湿度等环境因素的影响，但与生俱来的厚重与清雅比起一般材料更能表达出建筑空间的情感。我们坚持用这种任性难把控的材料，坚持拒绝一切后期处理，坚持一体出模达到光洁平整，棱角分明精确的品质。很难，只因为水泥很美。

The one-piece molding of fair-faced concrete has extremely high requirements on its production process and is easily affected by environmental factors such as temperature and humidity. However, its inherent heaviness and elegance can express the emotion of the architectural space better than ordinary materials. We insist on using this kind of willful and difficult-to-control material, insist on rejecting all post-processing, and insist on one-piece molding to achieve smooth, smooth, sharp-edged and precise quality. It's difficult, just because cement is beautiful.

在材料使用上，我们以回收粉碎的废弃瓷砖和粉煤灰废渣为骨料，混合超高性能混凝土一体浇筑而成。

In terms of materials used, we used recycled and crushed waste ceramic tiles and fly ash residue as aggregates, mixed with ultra-high-performance concrete and poured them into one piece.

在性能上，高密度混凝土的特性使产品抗渗耐污，更易清洁。在环境影响方面，产品在生产过程中自然凝结，避免了烧制，能减少扬尘与用水污染，做到生产过程的环保最大化。而每个产品的投入使用，意味着当中 60%-80% 的废弃材料真正实现回收利用。让产品渗透在日常生活的每一处，我们想为这个地球做得更多。

In terms of performance, the characteristics of high-density concrete make the product impermeable and stain-resistant, and easier to clean. In terms of environmental impact, the product condenses naturally during the production process, avoiding firing, reducing dust and water pollution, and maximizing the environmental protection of the production process. The use of each product means that 60%-80% of the waste materials are truly recycled. Let products penetrate into every part of daily life, and we want to do more for this earth.



粉煤灰再生 × 装饰砖“条”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘LINE’

越是简单的几何图形，越能在自然中找到原始印迹，它源自自然亿万年来实践的经验。将目之所见打散、重组、排列、重构，人类以几何的形式创造日常。这种创造不需要你缔造传奇，只需要抵御浮躁，发现真实。

The simpler the geometry is, the more primitive imprints can be found in its nature, as it was derived from nature's eons of practical experience. Breaking up, reorganizing, arranging, reconstructing, human beings create everyday in geometric form. No need to create a legend, all you need to do for creation is to resist impetuosity and discover truth.

厚度薄至 13mm，同时保证高强抗折，相比常规水泥板材，条砖轻薄的厚度更便于运输，降低物流成本的同时，也方便安装。

The tile ensures high strength and bends resistance even with the thickness of 13mm. Compared with common concrete boards, the tile is thin and light, which makes it more convenient for transportation. This superiority not only reduces the logistics cost, but also facilitates installation.

圆角细密的条纹使墙面近看纹理立体清晰，稍远看则纹路虚化，近乎平面。

The rounded and fine fringe pattern makes the wall solid and clear at close view, and the lines are empty and nearly flat at a distance.

灰的维度

dimensions in grey

灰或者灰白，提供两种水泥的灰，纹理的表面自然散布着细密的气孔。

We provid two kinds of tiles colour, grey or grey white. And the tiles surface is naturally interspersed with fine pores.

线的流向

direction of line

纹路纵向流动，垂直加强空间纵深感

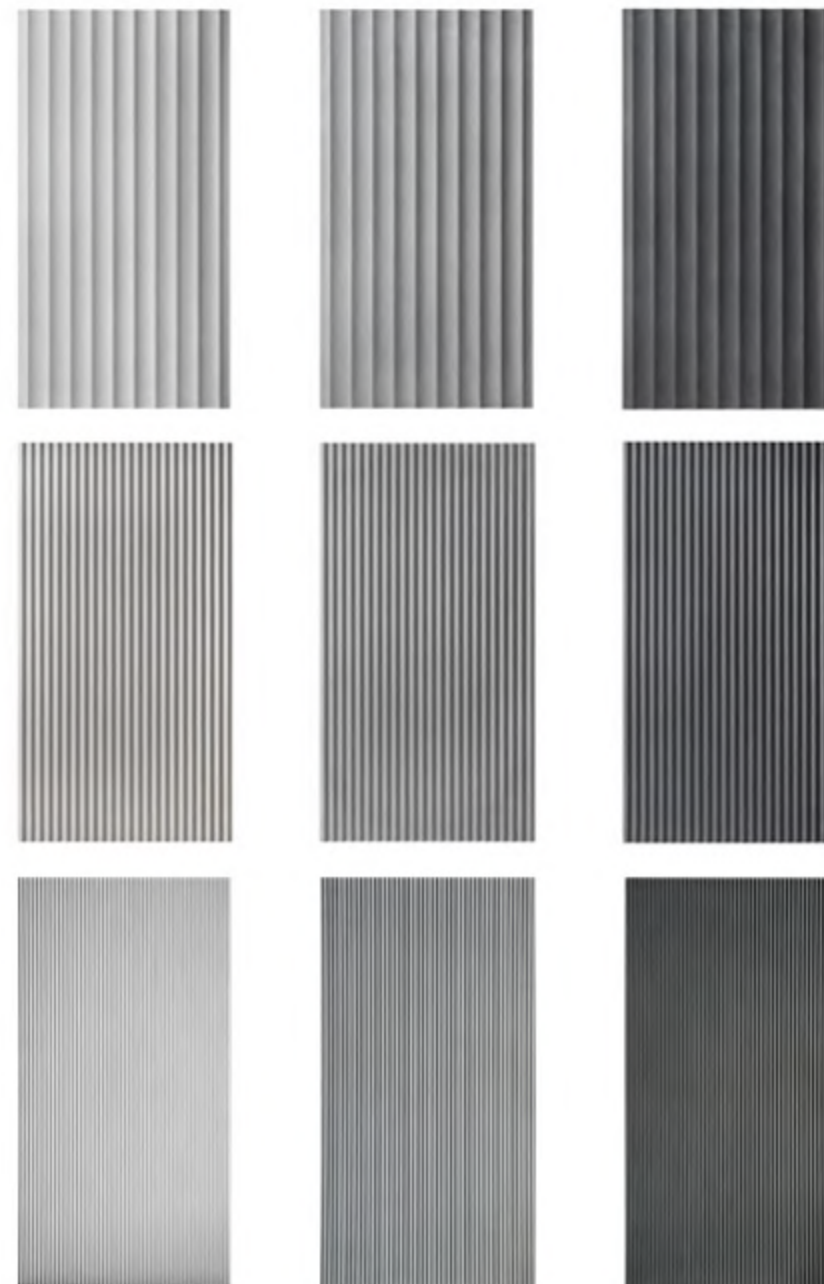
Vertical flow of texture enhances the spatial depth.

纹理横向流动，营造稳定和缓的室内氛围

When the texture flows horizontally, it creates a stable and gentle interior atmosphere.

纹理斜向交错，以跳跃打破沉闷与规则

When the texture is interlaced, it breaks the dreary rules.



条·再生混凝土装饰砖

LINE · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：1200×600×H15mm

产品重量：15-20kg

可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 1200×600×H15mm

Product weight: 15-20kg

Available colors: Grey White / Grey / Dark Grey



粉煤灰再生 × 装饰砖 “钻”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘DIAMOND’

看似单一灰调的墙砖在黑暗中整齐划一如同方阵列队般严谨，当光从建筑的缝隙溜进室内，投射其上的光影折射与流逝，赋予了混凝土生命；

The seemingly single gray wall tiles are neatly arranged in the dark, as rigorous as a square array. When the light slips into the room from the gaps in the building, the light and shadow cast on it refract and flow, giving life to the concrete;

光束掠过几何切割的混凝土表面如同钻石般闪亮，平凡寂静的表面随即泛起波澜。

the beams pass through the geometrically cut surfaces. The concrete surface shines like a diamond, causing ripples to appear on the otherwise ordinary and silent surface.

光影下的黑白灰，逐渐有层次感。十五毫米的厚度，仍然坚韧而硬朗。

The black, white and gray under the light and shadow gradually gain a sense of hierarchy. Fifteen millimeters thick, still tough and tough.

粉煤灰再生 × 装饰砖 “O”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘O’

O 从方与圆直线与曲线平面与弧面之间构建一种对偶关系，一个或几个单元之间的旋转或移动组合形成一个元素，元素与元素之间重复构成，形成充满个性的装饰趣味图案。

O constructs a dual relationship between square and circle straight lines and curved planes and arc surfaces. The rotation or movement of one or several units forms an element. The elements are repeated to form a decorative interest full of personality. pattern.

混凝土的呼吸在表面留下无限的生命力，一动一静之间气孔散落在各个角落，大与小密与疏亮与暗，伴随着错落别致的孔洞、色差、痕迹的自然之美。

The breath of concrete leaves infinite vitality on the surface. The pores are scattered in every corner between movements and stillness, large and small, dense and sparse, bright and dark, accompanied by the natural beauty of scattered and unique holes, color differences and traces.





reddot award 2017
best of the best

粉煤灰再生 × 装饰砖 “影”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘SHADOW’

“影”墙砖采用混凝土材料与陶瓷边角料混合灌注，一体脱模而成。以 50% 的废弃瓷砖搅碎，充当骨料混合到混凝土材料中，充分再利用废弃材质，环保再生，这是一场旷日持久的践行，是一种生命态度，一种欲望的节制。

The wall tile “Shadow” had applied an integrated design and was molded in a whole. The cement which made it up was aggregated with ceramic that contributed to 50% of weight in the material, resulted in a brilliant efficiency of recycling wasted materials. It will be an action we make everyday, as well as an attitude towards life, and the abstinence against appetite and profligacy.

市面上的常规墙砖一般是利用颜色或直接设计起伏的立体表面来营造三维效果。“影”从不同的角度出发，利用水泥高可塑性的材料特质，将立体结构融于墙砖平面中。利用光在墙砖的二维平面上折射形成的阴影深浅来营造立体感，为装饰性建材产品提供更丰富的发展方向。

Wall tiles commonly seen often rely on color and wavy surface to serve for a decorative purpose but “Shadow” is uncommon. Learning from the principle of light and shadow imaging with incredible formability of cement, this design stayed in a planar form but presented different shades of shadow with grooves of different depths. The contrast between light and shade resulted in a visually three-dimensional effect that enhances the extensivity and made the room impressive. “Shadow” will present more and more possibilities of how a decorative wall tile could be.





影·再生混凝土装饰砖

SHADOW · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：298×298×H12mm

产品重量：2.2kg

可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 298×298×H12mm

Product weight: 2.2kg

Available colors: Grey white / Grey / Dark grey



粉煤灰再生 × 装饰砖“凹”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘AO’

全球化正高速发展，富余物质与荒芜精神间的不对等逐渐升级，心的消费成为商业竞争的新标准，审美取向由此重新定义。淘汰泛滥，坚守自我，真正的装饰主义实则是材料与工艺之间的理性取舍与博弈。

Globalization is developing at a rapid pace, and the asymmetry between surplus material and desolate spirituality is gradually escalating. Conscious consumption has become the new standard for business competition, and aesthetic orientation has been redefined. Eliminating the overflow and sticking to oneself, true decorativeism is actually a rational choice and game between materials and craftsmanship.

设计 Highlight

一砖之上既有平缓渐层与利落高差，两种层次过渡减弱了混凝土的厚重感。

There are both gentle gradients and sharp height differences above one brick. The transition between the two levels weakens the heavy feeling of concrete.

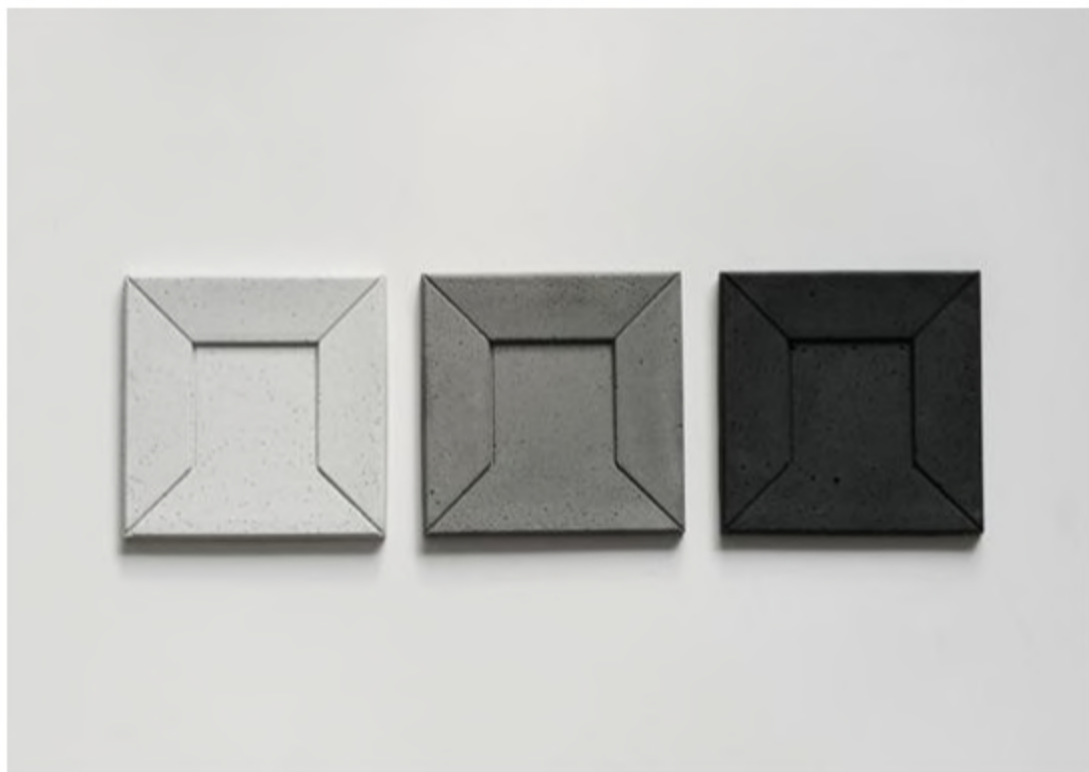
几何图案构成形如窗户的方中嵌方，颇有中国传统纹样的素雅别致。

The geometric pattern forms a square inlaid square shaped like a window, which is quite elegant and unique in traditional Chinese patterns.

应用 Application

饰以满足日常的壁灯、挂钩等，墙砖铺展的平面线条得到立体延续。图形开口一致时，延展空间内有限的视觉距离。开口相对时，虚化了墙砖边界，增强墙体面积感。应用于空间外立面时，素洁的水泥表面了然于繁杂的街景之中。

Decorated with wall lamps, hooks, etc. that meet daily needs, the flat lines of the wall tiles are continued three-dimensionally. When the graphic openings are consistent, the limited visual distance in the extended space is extended. When the openings face each other, the boundaries of the wall tiles are blurred and the sense of area of the wall is enhanced. When applied to the exterior facade of the space, the plain cement surface stands out from the complex street scene.



凹·再生混凝土装饰砖

AO · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：298×298×H19mm

产品重量：3kg

可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 298×298×H19mm

Product weight: 3kg

Available colors: Grey white / Grey / Dark grey



粉煤灰再生 × 装饰砖“浪”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘WAVE’

“浪”，利用混凝土极高的可塑性，在保有混凝土坚韧气质的同时，让生命体的自然贡张，在波浪起伏的形态中流淌。

"Wave" utilizes the extremely high plasticity of concrete to maintain the toughness of concrete while allowing the natural tension of life to flow in the undulating form.

浪，以回收粉碎瓷片做 40% 的骨料，混合高强度混凝土和粉煤灰浇注而成。高密度混凝土的特性使“浪”抗渗耐污，更易清洁。

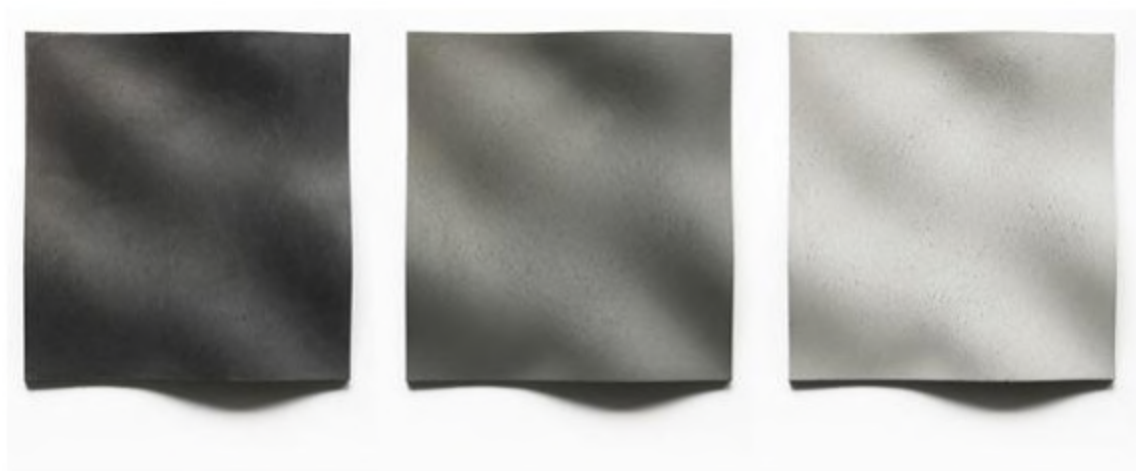
"Wave" is made of recycled crushed porcelain flakes as 40% aggregate, mixed with high-strength concrete and fly ash. The characteristics of high-density concrete make "Lang" impermeable and stain-resistant, and easier to clean.

在用作墙面装饰砖之余，单砖还可衍生成装饰性家具，拓展建材应用的灵感思路。

In addition to being used as wall decorative bricks, single bricks can also be derived into decorative furniture, expanding the inspiration for building material applications.

在建筑材料跨界延展的研发路上，我们已经往前走出一小段路。在这个时代大背景下，建筑材料与生活，环境之间如何更好地共处？一切尚存迷雾，一切尚待我们举镐。

On the road of research and development of cross-border extension of building materials, we have already gone a short way forward. In the context of this era, how can building materials, life, and the environment better coexist? Everything is still foggy, and everything is still waiting for us to pick up the pickaxe.



浪·再生混凝土装饰砖

WAVE · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：298×298×H28 mm

产品重量：3kg

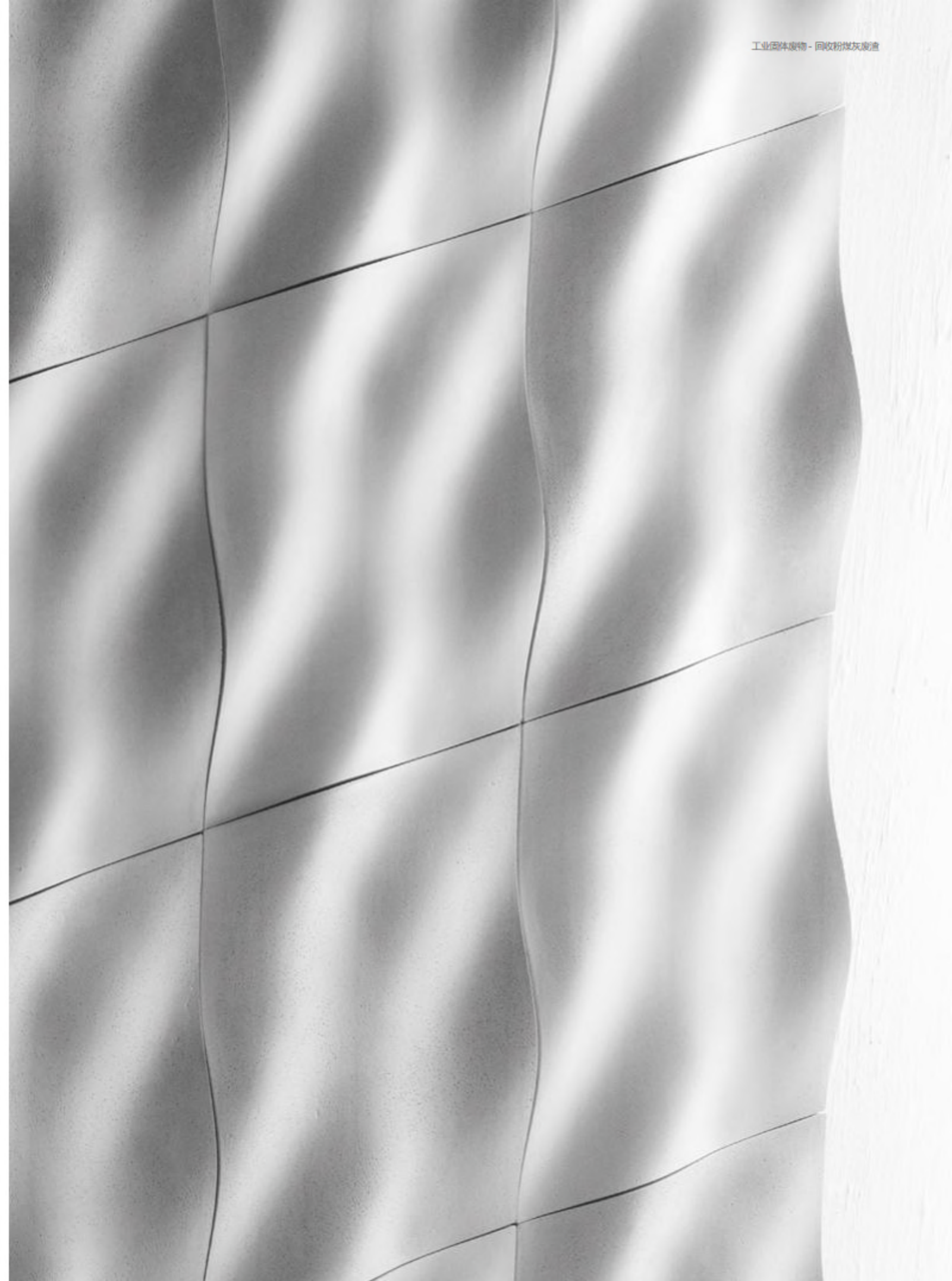
可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 298×298×H28mm

Product weight: 3kg

Available colors: Grey white / Grey / Dark grey





粉煤灰再生 × 装饰砖“钻”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘DIAMOND’

看似单一灰调的墙砖在黑暗中整齐划一如同方阵列队般严谨，当光从建筑的缝隙溜进室内，投射其上的光影折射与流逝，赋予了混凝土生命；

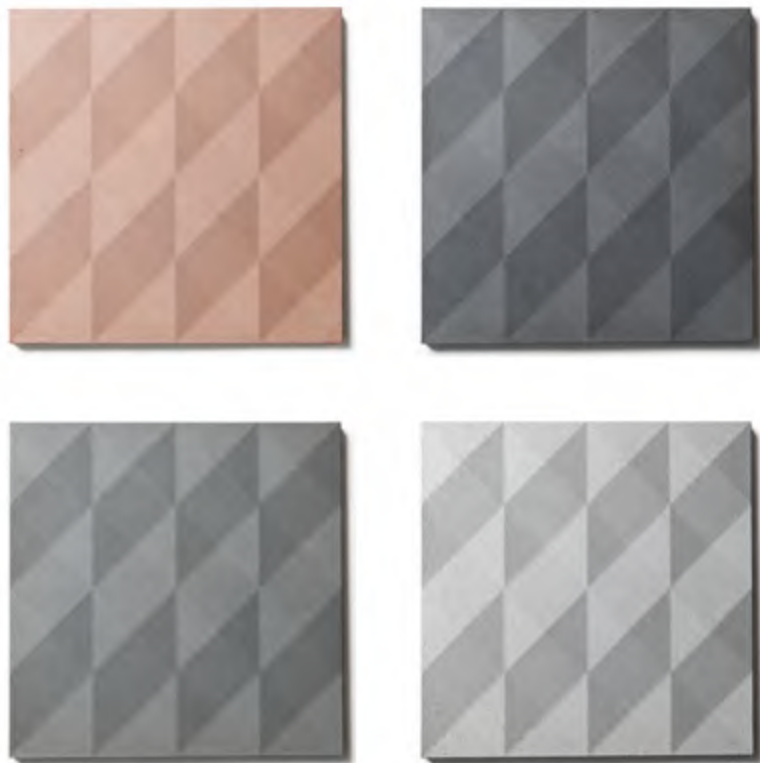
The seemingly single gray wall tiles are neatly arranged in the dark, as rigorous as a square array. When the light slips into the room from the gaps in the building, the light and shadow cast on it refract and flow, giving life to the concrete;

光束掠过几何切割的混凝土表面如同钻石般闪亮，平凡寂静的表面随即泛起波澜。

the beams pass through the geometrically cut surfaces. The concrete surface shines like a diamond, causing ripples to appear on the otherwise ordinary and silent surface.

光影下的黑白灰，逐渐有层次感。十五毫米的厚度， 仍然坚韧而硬朗。

The black, white and gray under the light and shadow gradually gain a sense of hierarchy. Fifteen millimeters thick, still tough and tough.



钻·再生混凝土装饰砖

DIAMOND · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：298×298×H16 mm

产品重量：2.4kg

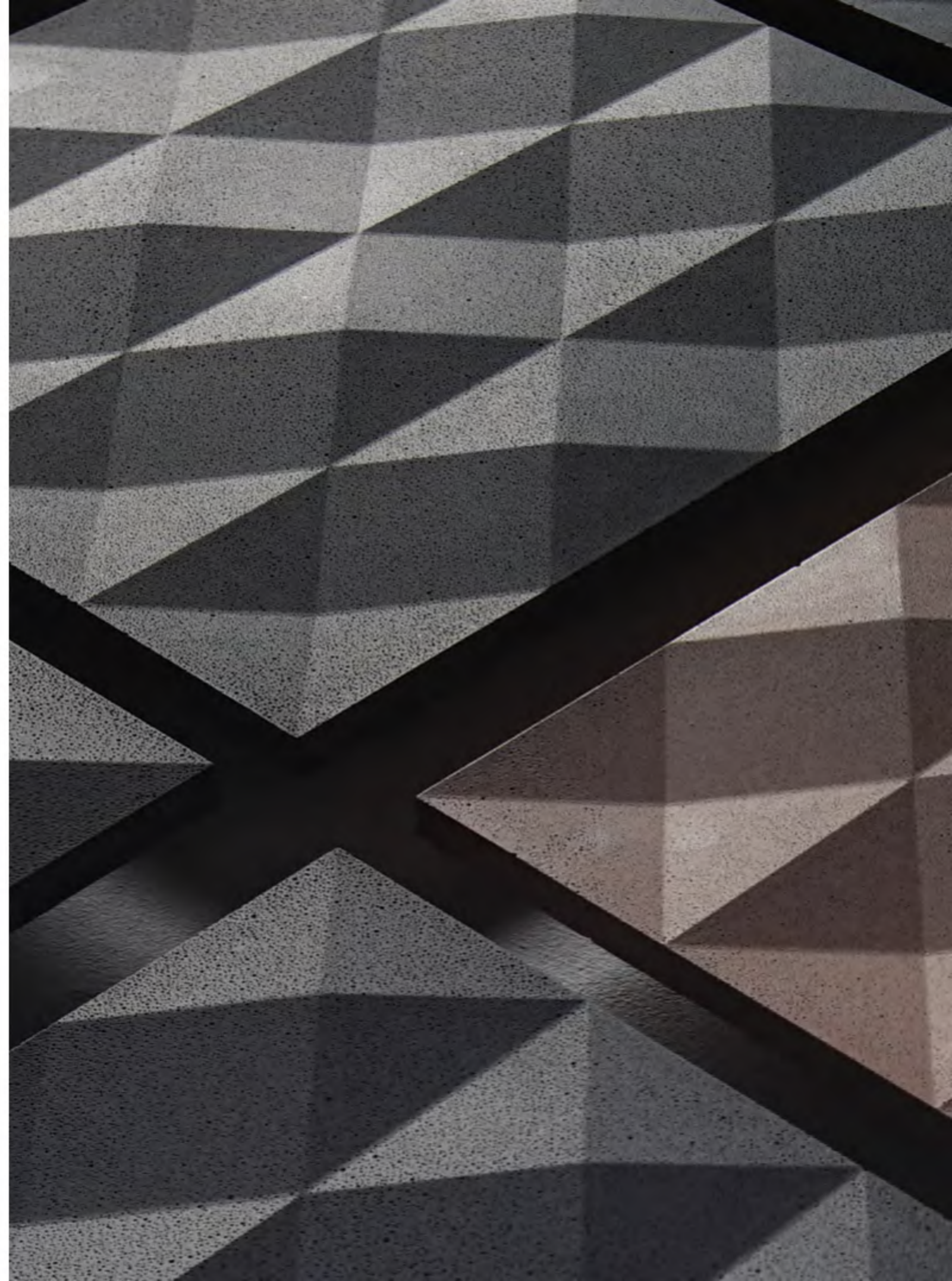
可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 298×298×H16 mm

Product weight: 2.4kg

Available colors: Grey white / Grey / Dark grey



粉煤灰再生 × 装饰砖 “六”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘SIX’

消费时代的春雨催生出一茬茬新需求，也催生了人类欲望的疯长。生产不再只是满足生存的基本幸福，人类垄断、自然破产、大地亏空，欲望的掺杂让生产虚假地膨胀，大量陶瓷边角料的堆弃成为最佳注脚。将陶瓷的沉痛哀鸣一并搅碎倒进混凝土骨料，在流水线的模子里灌造极致。一方方，灰白，坚韧，平滑，庄重，是生命死而复生的肃穆，欲望燃尽的苍白沉默。

The spring rain of the consumer era has given rise to new demands and the crazy growth of human desires. Production is no longer just about satisfying the basic happiness of survival. Human monopoly, natural bankruptcy, and land shortage. The mixture of desires makes production falsely expand. The accumulation of large amounts of ceramic scraps has become the best footnote. The deep wail of ceramics is crushed and poured into the concrete aggregate, and then poured into the assembly line mold to perfection. Square, gray, tough, smooth and solemn, it is the solemnity of life coming back from the dead and the pale silence of desire burning out.

墙砖“六”，具有独特抗污性能，以灰白色调抗衡生活的污浊。

The wall tile "Six" has unique anti-pollution properties and uses gray and white tones to counteract the filth of life.

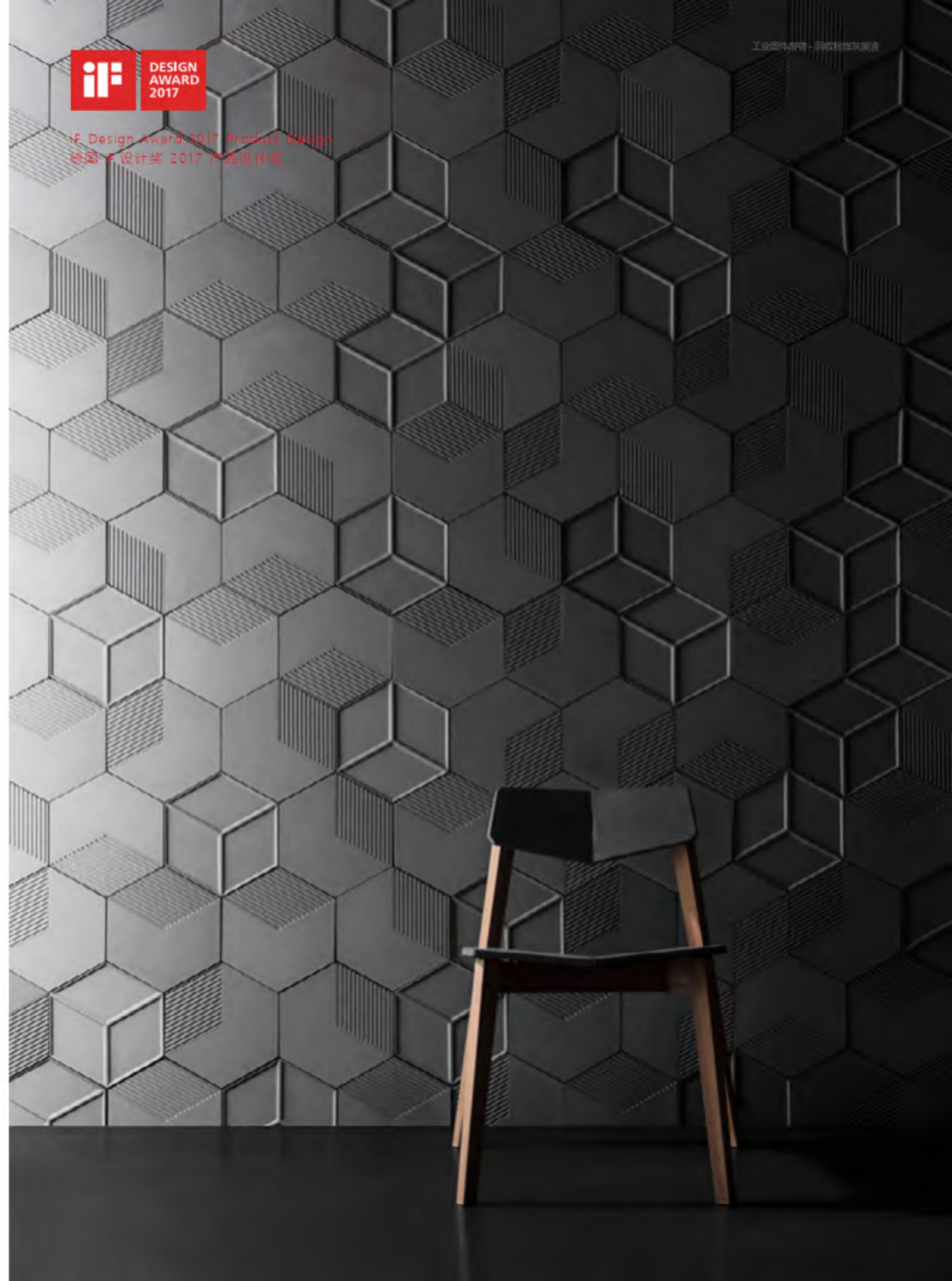
骨子里的坚韧，纹路的笔直起伏，让光线构射出强烈的空间感。

The tenacity in the bones and the straight and undulating textures allow the light to create a strong sense of space.

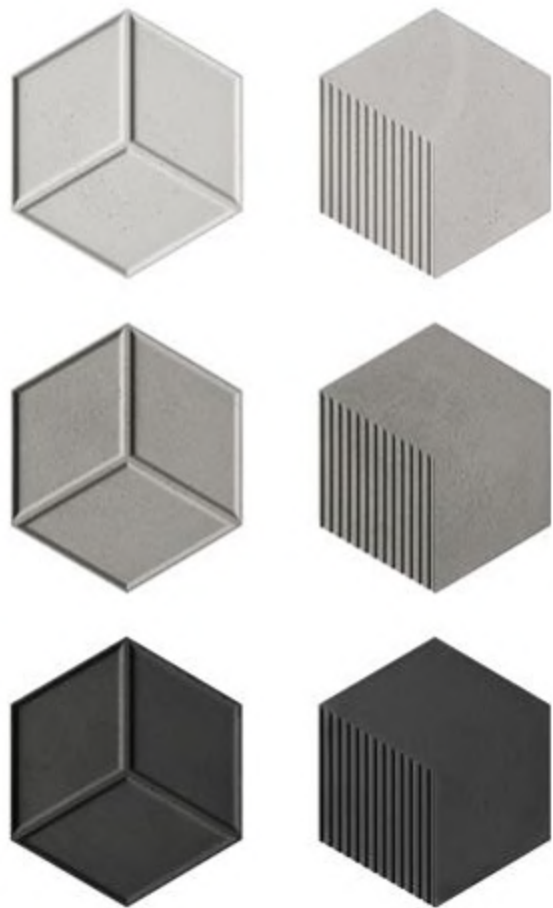


DESIGN
AWARD
2017

IF Design Award 2017 Product Design
德国 iF 设计奖 2017 产品设计奖







六·再生混凝土装饰砖

SIX · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：242×280×H13mm

产品重量：1.2/1.4kg

可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 242×280×H13mm

Product weight: 1.2/1.4kg

Available colors: Grey white / Grey / Dark grey



粉煤灰再生 × 装饰砖“伞”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘SAN’

同样是经过精心设计切割的石，一个是钻石，一个是水泥。钻石因广告成就为奢侈品，水泥则因创造者对品质的极致渴望。

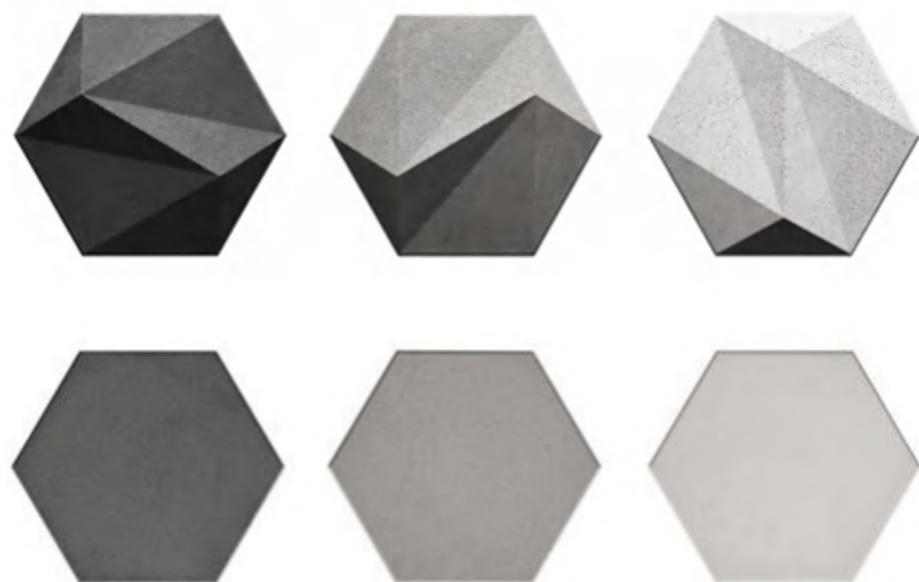
They are also carefully designed and cut stones, one is diamond and the other is cement. Diamonds became a luxury product because of advertising, and cement became a luxury product because of the creator's ultimate desire for quality.

将粉煤灰废料，陶瓷废渣和混凝土材料结合，环保的同时开创新型墙面材料技术的运用，设计中渗透着本土创造对自然的尊重和对多种可能性的探讨。

Combining fly ash waste, ceramic waste and concrete materials, it is environmentally friendly and pioneers the application of new wall material technology. The design is permeated with local creation's respect for nature and exploration of multiple possibilities.

点、线、面，陡然起伏，明暗交替，自由拼接，是光影的跳跃，是几何的摆弄，用混凝土衬托混凝土，用精心切割的灰去装点大片粗糙的灰，美，来得原始而任性。

Points, lines, and surfaces are suddenly undulating, alternating light and dark, and freely spliced. It is the jumping of light and shadow, and the playing of geometry. Concrete is used to set off concrete, and carefully cut ash is used to decorate large areas of rough gray. Beauty is original and willful.



伞·再生混凝土装饰砖

SAN · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：242×280×H13 /242×280×H37mm

产品重量：1.4/2.1kg

可选颜色：灰白 / 灰 / 深灰

Main material: BTPC 、 Recycling fly ash waste 、 Ceramic waste

Regular size: 242×280×H13 /242×280×H37mm

Product weight: 1.4/2.1kg

Available colors: Grey white / Grey / Dark grey





粉煤灰再生 × 装饰砖钻菱”

RECYCLED FLY ASH DECORATIVE WALL TILES × ‘LING’

点相连成线，线相接成面，面有起伏成体。执着于切割面的美，比例线的凌厉。点线面体辅佐于混凝土质感。

Points are connected to form a line, lines are connected to form a surface, and the surface has undulations to form a body. Obsessed with the beauty of cutting surfaces and sharp proportions. Points, lines and surfaces assist in the texture of concrete.

菱·再生混凝土装饰砖

LING · RECYCLED CONCRETE DECORATIVE WALL TILES

主体材料：BTPC、回收粉煤灰废料、陶瓷废渣

常规尺寸：242×280×H18 mm

产品重量：1.3kg

可选颜色：灰白 / 灰 / 深灰

Main material: BTPC、Recycling fly ash waste、Ceramic waste

Regular size: 242×280×H18 mm

Product weight: 1.3kg

Available colors: Grey white / Grey / Dark grey



3.

城市生活固体废物
MUNICIPAL SOLID WASTE



城市生活垃圾又称城市固体废物，它是指城市居民日常生活或为城市日常生活提供服务的活动中产生的固体废物。典型的城市固体废物包括废塑料、废橡胶、废汽车、废旧家电、废纸等。

Construction waste refers to the general term for muck soil, waste concrete, waste masonry and other wastes generated by people engaged in demolition, construction, decoration, repair and other construction industry production activities.

城市固体废物数量巨大、种类繁多、成分复杂，已成为我国环境保护领域的突出问题。大量的固体废物首先必然会侵占土地，继而污染土壤、水体和空气，并造成其他危害。在城市垃圾中几乎包含了所有日常生活可以接触到的物质，成分相当复杂；

The recycling rate of construction waste is higher than that of general industrial solid waste, and most construction waste can be reused as renewable resources.

固体废物在产生、排放、收集、贮存、运输利用、处理和处置过程的任何一个或多个环节都可能对环境造成污染。

Domestic waste brings great trouble to the urban living environment, and construction waste will also be. It is understood that the amount of construction waste in China has accounted for more than 1/3 of the total urban waste, and will continue to grow. Most of these construction wastes are transported to the suburbs or villages for open stacking, which not only occupies a large amount of land, but also produces dust and gray sand during the cleaning and stacking process, causing serious environmental pollution.

它在特定的范围、时间和技术条件下，也具有被重新利用的资源价值。

At present, the main treatment method of construction waste in China is to bury it underground. It not only occupies a large amount of land, but also destroys the soil structure and causes surface subsidence.



3.1

城市生活固废
回收废弃塑料URBAN SOLID
WASTE
RECYCLE
WASTE PLASTIC

人类社会面临资源短缺和环境恶化的危害。地球承受的负担剧增，资源枯竭和环境严重破坏威胁着人类社会的可持续发展。废物管理不善正在污染世界海洋，通过媒介繁殖疾病，废物燃烧中的空气传播颗粒物增加呼吸道疾病。堵塞排水沟造成洪水灾害。

Human society faces the dangers of resource scarcity and environmental degradation. The burden on the earth has increased dramatically, and the depletion of resources and the serious destruction of the environment threaten the sustainable development of human society. Poor waste management is polluting the world's oceans, breeding diseases through vectors, and airborne particulate matter from waste combustion increases respiratory diseases. Blocking drains causes flooding.

根据世界银行的《废物 2.0》报告，全世界每年产生 20.1 亿吨城市固体废物，其中至少 33% 的废物没有以环境安全的方式进行管理。2018 年报告预测，快速的城市化，人口增长和经济发展将推动全球废物在未来 30 年内增加 70%，达到每年产生的惊人废物 34 亿吨。

According to the World Bank's Waste 2.0 report, the world generates 2.01 billion tonnes of municipal solid waste each year, of which at least 33% is not managed in an environmentally safe manner. The 2018 report predicts that rapid urbanization, population growth and economic development will drive a 70% increase in global waste over the next 30 years, reaching a staggering 3.4 billion tonnes of waste generated annually.

材质再生是最深刻最重要的人文关怀!

Material regeneration is the most important humanistic care!





K2201104



K2201106



K2201107



K2201108



K2201105



K2201102



K2201101



K2201103

塑·再生混凝土装饰砖

SU · RECYCLED CONCRETE DECORATIVE BRICKS

主体材料：BTPC、回收废弃工业塑料

常规尺寸：1200×600×H20mm

产品重量：36kg

注：规格和花色可定制。

Main material: BTPC、Recycling waste industrial plastics

Regular size: 1200×600×H20mm

Product weight: 36kg

Note: Specifications and colors can be customized.



塑料再生 × 公共家具 “十”

RECYCLED PLASTIC WASTE × PUBLIC FURNITURE ‘TEN’

“十”是数字完备的标注；一横一竖，十字交叉，既是结构的基础，亦可组合、打破、无限延申。

"Ten" is a complete notation of numbers; One horizontal and one vertical, crossing, is not only the foundation of the structure, but also can be combined, broken and extended indefinitely.

基础的几何平板构造，以及极其纯粹的组装结构，是对再生混凝土的力学性能的又一次尝试，对几何形式本质还原，对平板拼装设计和可持续发展的进一步探索。

The geometric slab structure of the foundation and the extremely pure assembly structure are another attempt to the mechanical properties of recycled concrete, the essential reduction of geometric form, and the further exploration of slab assembly design and sustainable development.

在“失体”日用瓷再生实验项目的实验家具系列中，我们就有了这个方向的第一次尝试：改变骨料的利用方式，提高废弃物的利用率和生产速度，探讨兼具艺术性与实用性的拼装式家具发展可能。

"In the experimental furniture series of the "lost body" daily-use porcelain regeneration experimental project, we have the first attempt in this direction: changing the utilization mode of aggregate, improving the utilization rate and production speed of waste, and exploring the development possibility of assembled furniture with both artistry and practicality."

我们以 35% 的回收塑料作为骨料与 65% 配制的高性能混凝土进行搅拌生产，表面经研磨抛光而成。

We use 35% recycled plastic as aggregate and 65% high-performance concrete for mixing production, and the surface is made by grinding and polishing.

色彩上，搭配高饱和的蓝、绿、黄混凝土与回收塑料颗粒随机碰撞，塑料颗粒随意散落其中，色彩自由分布在表面，通过大尺度的体量和鲜艳的色彩让家具更有张力。

In color, the recycled plastic particles are randomly collided with high-saturated blue, green and yellow concrete, and the plastic particles are scattered randomly, and the color is freely distributed on the surface, which makes the furniture more tense through large-scale volume and bright colors.





塑料再生

× 公共家具 “π”

RECYCLED

PLASTIC WASTE

× PUBLIC FURNITURE ‘PAI’

本土创造以设计为媒介，以混凝为手段，融合粉煤灰、废旧陶瓷等骨料，通过对废弃材质的真实转化，传达一种可持续设计的善与美。

BENTU design uses design as a medium and coagulation as a means, blending fly ash, waste ceramics and other aggregates, and conveying the goodness and beauty of sustainable design through the true transformation of waste materials.

利用多变可塑的色彩、图案及造型，转接当代户外场景的多元氛围，为混凝土驻留更多空间提供可能。

Using a variety of plastic colors, patterns and shapes, it can transfer the diverse atmosphere of contemporary outdoor scenes, providing the possibility for concrete to reside in more spaces.

“π”凳独具匠心的片式串联设计，可以二次创作出贴近场景的独特造型，激发与城市公共场域的呼应对话。坐凳与地面组成一个标准的梯形，具有稳定的力学结构，等待随时为行人提供歇脚的便利。

The unique π stool design can create a unique shape close to the scene and stimulate a dialogue with the urban public field. The bench forms a standard trapezoidal shape with the ground, with a stable mechanical structure, waiting to provide pedestrians with a resting position at any time.

绿荫层叠，稀疏散落，光影梭织交错，荡漾开一种秩序与美感、功能性与艺术性无间的平衡美学。

The layers of greenery, the sparse scattering, the interweaving of light and shadow, ripple a balanced aesthetic of order and beauty, functionality and artistry.







材料 | BTPC、粉煤灰、回收潮州日用陶瓷沙、回收废弃工业塑料

规格 | 直款: 1200*500*H440/1800*500*H440mm

规格 | 弯款: 1485*500*H440mm

重量 | 225 kg

Materials | BTPC, fly ash, recycled Chaozhou daily-use ceramic sand, Recycling waste industrial plastics

Specifications | Straight type: 1200*500*H440/1800*500*H440mm

Specifications | Curved type: 1485*500*H440mm

Weight | 225 kg

塑料再生

× 公共家具 “工”

PLASTIC RECYCLING

×PUBLIC FURNITURE ‘GONG’

材料 | BTPC、粉煤灰、回收潮州日用陶瓷沙、回收废弃工业塑料

规格 | Ø 1000*H750 mm (腿柱 315mm)

Materials | BTPC, fly ash, recycled Chaozhou daily-use ceramic sand, Recycling waste industrial plastics

Specification | Ø 1000*H750 mm (leg column 315mm)

进入一张圆桌构筑的世界，也就进入了某段极私密而日常的叙事情节。喁喁私语或是沉默，在这个由其功能而赋形的空间里，圆与直线、块与面的理性秩序，组织出某种恒定，行为、知觉、思绪，一切皆在此间流动，自然毕露，斑斓有趣。

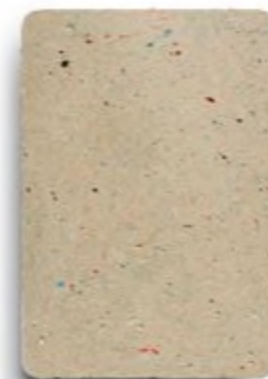
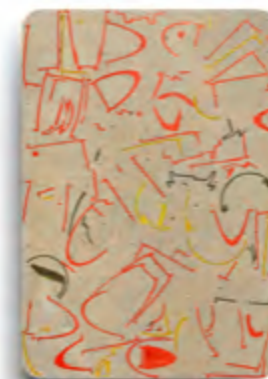
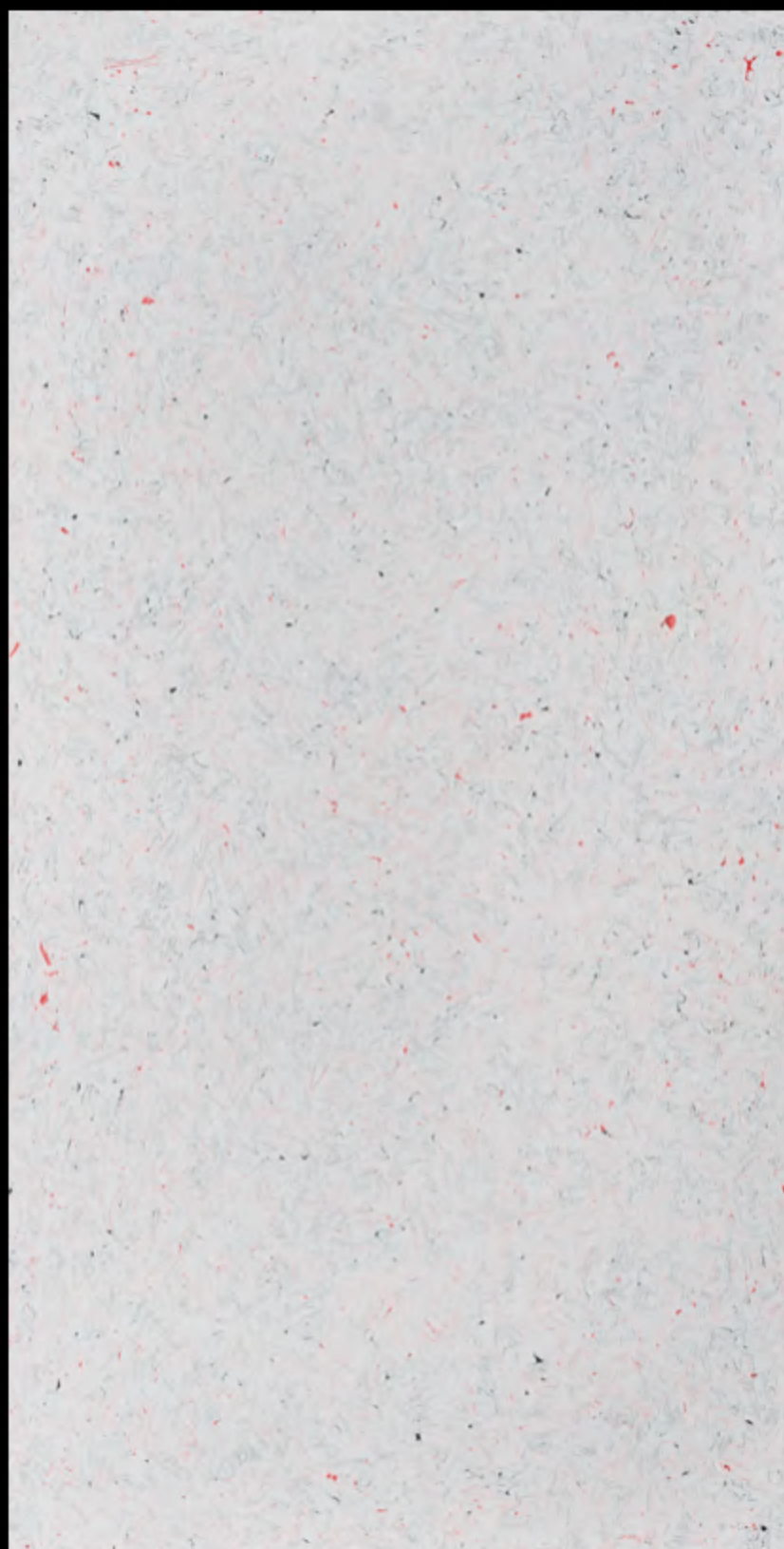
Entering a world constructed by a round table is entering a very private and everyday narrative. Whispering or silence, in this space shaped by its function, the rational order of circles and lines, blocks and surfaces, organized into a certain constant, behavior, perception, thoughts, everything flows here, natural, colorful and interesting.

以废弃塑料等为骨料，桌面自然散步多色废弃骨料，在各对比底色上裸露粗犷的自然。桌墩的八边形柱体，同样是建筑中常见的元素，充斥极大部分视觉的平行棱边与方正体块，在悬空极薄的面板与坚实的地面之间，给出理性、稳定的连接。直径一米的桌面满足 3-4 人就餐使用，给予日常一点美与趣致。

Using waste plastics, etc. as aggregates, the desktop naturally walks multi-colored waste aggregates, and the rough nature is exposed on each contrasting background. The octagonal column of the table pier is also a common element in architecture, filling most of the visual parallel edges and square blocks, giving a rational and stable connection between the extremely thin panel and the solid ground. The one-meter diameter table top can be used by 3-4 people, giving a little beauty and fun to everyday life.







塑·回收塑料再生混凝土装饰砖 常规尺寸：1200×600×H20mm

3.2

城市生活固废

回收废弃贝壳/牡蛎壳

URBAN SOLID
WASTE
RECYCLING
WASTE SHELLS/
OYSTER SHELLS

我国是世界上最大的贝类主产国，产量位居世界第一。我国的海洋中，生活着 800 余种贝类，贝类养殖占海水养殖总产量的 80% 以上，是海洋渔业的重要组成部分。常见的养殖品种主要有贻贝、扇贝、牡蛎、青蛤、文蛤、蛎、鲍等十余种。

China is the largest producer of shellfish in the world, and its output ranks first in the world. There are more than 800 species of shellfish living in China's oceans, and shellfish culture accounts for more than 80% of the total output of marine aquaculture, which is an important part of marine fisheries. The common cultured species mainly include mussels, scallops, oysters, green clams, meretrix meretrix, razor clams and abalone.

每年超过 700 万吨软体动物的壳作为无用的废料被海产品行业丢弃，绝大多数的壳不是被丢在垃圾场就是被倾倒在海里。这不仅是一种昂贵且对生态有害的做法，而且是对一种材料的巨大浪费，我们努力的寻找环境上和经济上可持续的用途。

Every year, more than 7 million tons of mollusk shells are discarded by the seafood industry as useless waste, and the vast majority of shells are either dumped in garbage dumps or dumped in the sea. This is not only an expensive and harmful practice to the ecology, but also a huge waste of materials. We strive to find environmentally and economically sustainable uses.

贝壳形态千变万化，但基本都由占壳重95%的 CaCO_3 晶体和占壳重约5%的有机基质构成，尽管有机基质只占贝壳重量的5%左右，但正是这些有机大分子在 CaCO_3 晶体核化、定向、生长和空间形态等方面调控作用，使其微结构呈现出多种多样性。

Shells are varied in shape, but they are basically composed of CaCO_3 crystals which account for 95% of the shell weight and organic matrix which accounts for about 5% of the shell weight. Although the organic matrix accounts for only about 5% of the shell weight, it is these organic macromolecules that regulate the nucleation, orientation, growth and spatial morphology of CaCO_3 crystals, which makes their microstructures present a variety.



为混凝土与贝壳的结合产生独特的肌理奠定了基础，有机与无机的结合，千变万化的微结构，产生了一种集装饰、环保、省成本与一身的材料。

It lays a foundation for the combination of concrete and shell to produce unique texture. The combination of organic and inorganic and ever-changing microstructure has produced a decorative, environmentally friendly and cost-saving material.

该材料对贝壳类废弃物的再利用是可持续发展的一个很好的范例—不仅促进了水产养殖行业向前可持续发展，而且也向贝类的养殖者和加工者提供了二次经济收益。避免它们被扔进垃圾场而是被应用这些废弃物就已经产生经济价值了。

The reuse of shellfish waste by this material is a good example of sustainable development—it not only promotes the sustainable development of aquaculture industry, but also provides secondary economic benefits to shellfish farmers and processors. It has already produced economic value to avoid them being thrown into the garbage dump but being applied with these wastes.





回收贝壳 / 牡蛎壳

城市生活固体废物 · 回收废弃贝壳 / 牡蛎壳



项目名称：万一空间
设计摄影：自由思考
建材家具：本土创造
应用材料：海鲜贝壳类废渣 + BTPC
项目地址：深圳南山海上世界文化中心

3.3

城市生活固废 回收废弃玻璃

URBAN SOLID WASTE RECYCLING WASTE GLASS

玻璃瓶的生产是耗能最多的包装产品之一。它的回收利用很有价值。废玻璃主要来源有两个：一是玻璃生产企业加工中产生的边角料，另外就是人们生活中产生的玻璃瓶罐和玻璃窗等。

The production of glass bottles is one of the most energy-intensive packaging products. Its recycling is valuable. There are two main sources of waste glass: one is the scraps produced in the processing of glass manufacturers, and the other is glass bottles and glass windows produced in people's lives.

废玻璃是城市垃圾中最难处理的成分之一，如果不回收，不利于垃圾减量。收运、焚烧的成本也很高，也无法在填埋中降解，甚至部分废玻璃还含有锌、铜等重金属，随意丢弃会污染土壤和地下水。据悉，玻璃完全降解需要 4000 年，如果弃之不管，无疑会造成巨大的浪费和污染。

Waste glass is one of the most difficult components of urban waste to deal with. If it is not recycled, it is not conducive to waste reduction. The cost of collection, transportation and incineration is also very high, and it cannot be degraded in landfills. Some waste glass even contains heavy metals such as zinc and copper. Random disposal will pollute soil and groundwater. It is reported that it takes 4,000 years for glass to completely degrade. If it is left alone, it will undoubtedly cause huge waste and pollution.

通过对废玻璃进行回收和利用，不但有经济效益，更有重大环境效益。为实现可持续发展，对旧玻璃瓶实行再回收利用。可以节省开支，更好的处理垃圾对大自然的灾害。

Through the recycling and utilization of waste glass, not only economic benefits, but also significant environmental benefits. In order to achieve sustainable development, recycling of old glass bottles is carried out. It can save money and better deal with the harm of garbage to nature.



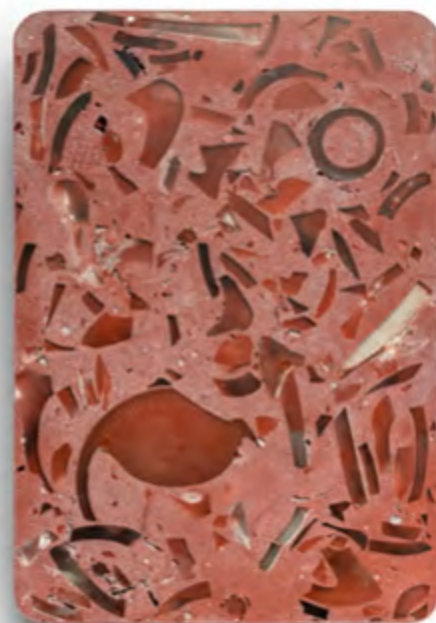
据统计，利用回收的玻璃再生玻璃，可节约煤、电能源 10%-30%，减少空气污染 20%，减少采矿废弃的尾气 80%。按一吨计算，回收一吨废玻璃可以节约石英砂 720 公斤，少用纯碱 250 公斤，节约长石粉 60 公斤，节约煤炭 10 吨，电 400 度。

According to statistics, using recycled glass to regenerate glass can save 10%-30% of coal and electricity energy, reduce air pollution by 20%, and reduce exhaust gas from mining waste by 80%. Calculated by one ton, recycling one ton of waste glass can save 720 kilograms of quartz sand, 250 kilograms of soda ash, 60 kilograms of feldspar powder, 10 tons of coal, and 400 degrees of electricity.

将废旧玻璃投入物质循环，使得材料进行二次新生，赋予除了美之外的环境社会责任。在建构与破坏之间，重新建立与人类社会的链接，寻求有意义的无限循环。

Putting waste glass into the material cycle makes the material undergo a second life, endowing it with environmental and social responsibilities other than beauty. Between construction and destruction, the connection with human society is re-established, and a meaningful infinite cycle is sought.





再生混凝土装饰砖

RECYCLED CONCRETE DECORATIVE BRICKS

主体材料：BTPC、回收废弃玻璃瓶 / 啤酒瓶

常规尺寸：1200×600×H20mm

产品重量：36kg

注：规格和花色可定制。

Main material: BTPC、Recycling waste glass/beer bottles

Regular size: 1200×600×H20mm

Product weight: 36kg

Note: Specifications and colors can be customized.



玻璃再生

× 公共家具 “π”

GLASS REGENERATION

× PUBLIC FURNITURE ‘PAI’

本土创造以设计为媒介，以混凝土为手段，融合粉煤灰、废旧陶瓷等骨料，通过对废弃材质的真实转化，传达一种可持续设计的善与美。

BENTU design uses design as a medium and coagulation as a means, blending fly ash, waste ceramics and other aggregates, and conveying the goodness and beauty of sustainable design through the true transformation of waste materials.

利用多变可塑的色彩、图案及造型，转接当代户外场景的多元氛围，为混凝土驻留更多空间提供可能。

Using a variety of plastic colors, patterns and shapes, it can transfer the diverse atmosphere of contemporary outdoor scenes, providing the possibility for concrete to reside in more spaces.

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The unique π stool design can create a unique shape close to the scene and stimulate a dialogue with the urban public field. The bench forms a standard trapezoidal shape with the ground, with a stable mechanical structure, waiting to provide pedestrians with a resting position at any time.

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The layers of greenery, the sparse scattering, the interweaving of light and shadow, ripple a balanced aesthetic of order and beauty, functionality and artistry.





4.

建筑固体废物
CONSTRUCTION SOLID WASTE



建筑垃圾指人们在从事拆迁、建设、装修、修缮等建筑业的生产活动中产生的渣土、废旧混凝土、废旧砖石及其他废弃物的统称。

Construction waste refers to the general term for muck soil, waste concrete, waste masonry and other wastes generated by people engaged in demolition, construction, decoration, repair and other construction industry production activities.

建筑垃圾可回收利用率要高于一般工业固废，大多数建筑垃圾可以作为再生资源重新利用。

The recycling rate of construction waste is higher than that of general industrial solid waste, and most construction waste can be reused as renewable resources.

生活垃圾给城市居住环境带来了极大的困扰，建筑垃圾同样也会。据了解，中国建筑垃圾的数量已占到城市垃圾总量的 1/3 以上，并且还将持续增长。这些建筑垃圾大都被运往郊外或乡村露天堆放，不仅占用大量土地，还会在清运以及堆放过程中产生粉尘和灰砂，造成严重的环境污染。

Domestic waste brings great trouble to the urban living environment, and construction waste will also be. It is understood that the amount of construction waste in China has accounted for more than 1/3 of the total urban waste, and will continue to grow. Most of these construction wastes are transported to the suburbs or villages for open stacking, which not only occupies a large amount of land, but also produces dust and gray sand during the cleaning and stacking process, causing serious environmental pollution.

目前我国建筑垃圾的主要处理方法是将其填埋地下。不仅占用大量土地，还破坏土壤结构、造成地表沉降。

At present, the main treatment method of construction waste in my country is to bury it underground. It not only occupies a large amount of land, but also destroys the soil structure and causes surface subsidence.

4.1

建筑固废
红砖废渣CONSTRUCTION
SOLID WASTE
RED
BRICK WASTE

以建筑垃圾为“再造”的开端。随着建筑业的发展，我国建筑垃圾的产量占城市垃圾总量的 30%-40%。占用大量土地，降低土壤质量。建筑垃圾含有大量硫酸根离子，在厌氧条件下会转化为具有臭鸡蛋味的硫化氢，影响空气质量。

Take construction waste as the beginning of "recycling". With the development of the construction industry, the output of construction waste in China accounts for 30%-40% of the total amount of urban waste. Takes up a lot of land and reduces soil quality. Construction waste contains a large amount of sulfate ions, which will be converted into hydrogen sulfide with rotten egg smell under anaerobic conditions, affecting air quality.

建筑垃圾在堆方和填埋过程中，由于发酵和雨水的淋溶，冲刷，以及地表水和地下水的浸泡而渗滤出的污水，会造成周围地表水和地下水的严重污染。

In the process of construction waste in the process of landfilling, due to fermentation and rainwater leaching, washing, and surface water and groundwater immersion and seeping out of sewage, it will cause serious pollution of surrounding surface water and groundwater.

利用建筑废料循环再生，日常设计，工业制造，美学呈现，切切实实为人服务，为环境着想。

The use of construction waste recycling, daily design, industrial manufacturing, aesthetic presentation, truly serve people, for the sake of the environment.

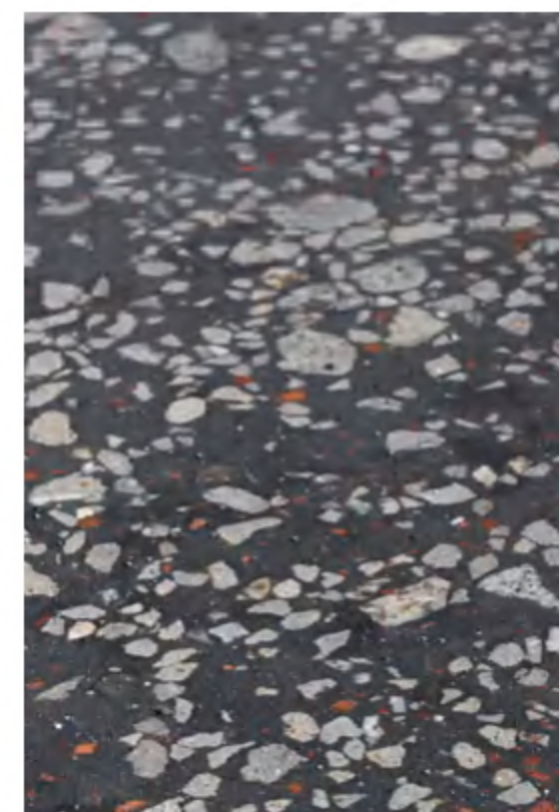
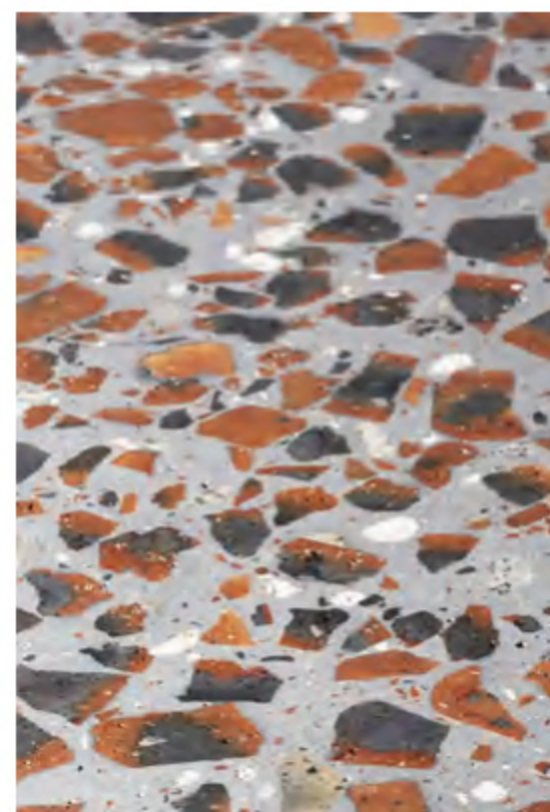
人人都喜欢自然。自然是什么？一石、一沙、一草、一花，高山、湖泊、大海、沙漠，自然是时光浸泡的痕迹，是生死！再造探讨一种“工业”与“自然”的综合可能。关注人类社会与环境废弃物，发现废物独特美感，形成产品到商品，再到用品，注重用品被客户淘汰成为废品后，是否会对环境造成破坏。再造—用工业化生产造出个性之美，让你使用你的美。

Everyone loves nature. What is nature? A stone, a sand, a grass, a flower, mountains, lakes, sea, desert, nature is a trace of time immersion, is life and death! Reinvention explores the possibility of a combination of "industry" and "nature". Pay attention to human society and environmental waste, discover the unique beauty of waste, form products to commodities, and then to supplies, and pay attention to whether supplies will cause damage to the environment after they are eliminated by customers as waste.

用无用之物造出情怀生活，让你关注你的存在。用心与世界在一起，你才是你！贪婪的力量可以把世界变成平的，但终究无法格式化我们的全部，太阳总是在温暖着我们，这才是永恒！再造，重新给予生命，让废弃物恢复尊严。

Reinvention - use industrial production to create individual beauty, allowing you to use your beauty. Create an emotional life out of useless things that make you pay attention to your existence. Be with the world with your heart, you are you! The power of greed can make the world flat, but after all, it cannot format our all, the sun is always warming us, this is eternity!





桌子 · 工

材料: BTPC, 回收建筑拆迁红砖废渣

尺寸: Ø1000xH750 mm

重量: 100 kg

Gong · table

Material: BTPC, Residual red brick

Dimension: Ø1000xH750 mm

Weight: 100 kg





回收建筑废料 3D 打印家具

RECYCLED BUILDING WASTE 3D PRINTED FURNITURE

重构产品设计的底层逻辑：无机固废 3D 打印技术的影响

Reconstructing the Logic of Product Design: The Impact of 3D Printing with Inorganic Solid Waste

利用无机固废（建筑垃圾与工矿垃圾）进行的 3D 打印技术，正在三个关键层面重新定义产品设计中的 " 可持续性 "：

3D printing with inorganic solid waste (construction and industrial waste) is redefining sustainability in product design across three key levels:

从全球供应链到 " 零公里材料 "

该技术将当地的拆除废料转化为主要原材料，从而结束对外部 " 绿色 " 材料的依赖，并启动本地化的物质循环。

From Global Supply Chains to "Zero-Kilometer Materials"

It transforms local demolition waste into the primary resource, ending dependence on external "green" materials and initiating a local material cycle.

大幅减少废料与碳排放

通过算法优化的打印方式可减少 30-60% 的材料用量，并通过省去运输、模具生产及高能耗养护环节，使整体碳排放降低超过 65%。

Radical Reductions in Waste and Carbon

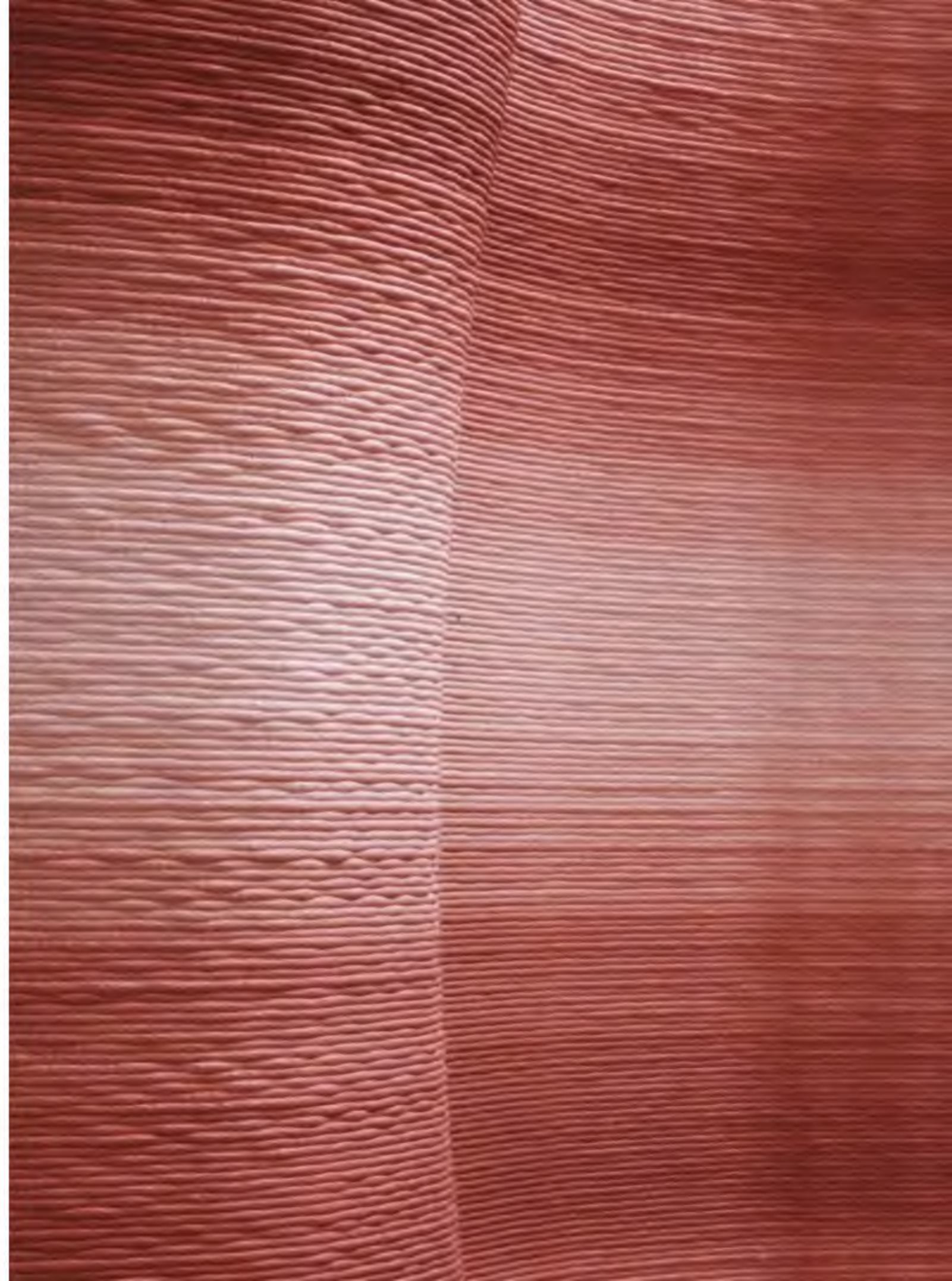
Algorithm-optimized printing reduces material use by 30-60% and cuts overall carbon emissions by over 65% by eliminating transport, molds, and high-energy curing.

性能集成与文化深度

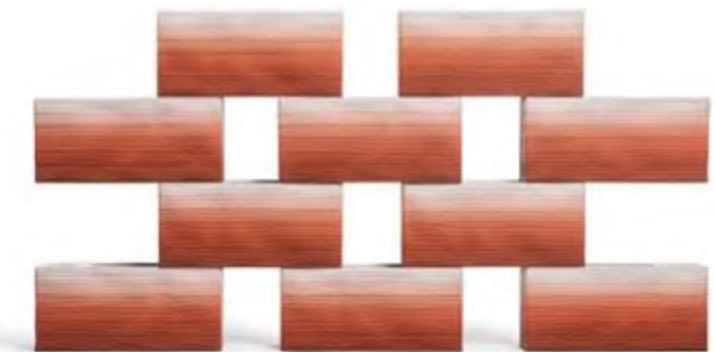
它能够实现传统模具无法完成的复杂高性能结构（如晶格结构或多孔表面）。更重要的是，它能够将固废本身的历史肌理 " 编码 " 进设计形态中，使 " 可持续 " 从一个冰冷的指标，转变为可触摸的集体文化记忆。

Integrated Performance & Cultural Depth

It enables complex, high-performance structures (like lattices or porous surfaces) impossible with traditional molds. Furthermore, it embeds the historical texture of the waste into the design, turning "sustainability" from a cold metric into a tangible cultural memory.

















应用：杭州市余杭区黄湖镇黄湖大溪公园



结构美学融入产品，流线型的座椅设计，提供了舒适的支撑，适合公共空间中的休闲放松。

Structural aesthetics are integrated into the product with a streamlined seating design that provides comfortable support for casual relaxation in public spaces.

海洋生物材料的应用于 3D 打印工艺所形成的独特的产品肌理重新定义工业化产品的个性化表达。

The application of marine biomaterials to the 3D printing process creates unique product textures that redefine the personalized expression of industrialized products.

红色与绿色的自然渐变，提升产品的视觉吸引力，令人联想自然界的景色。

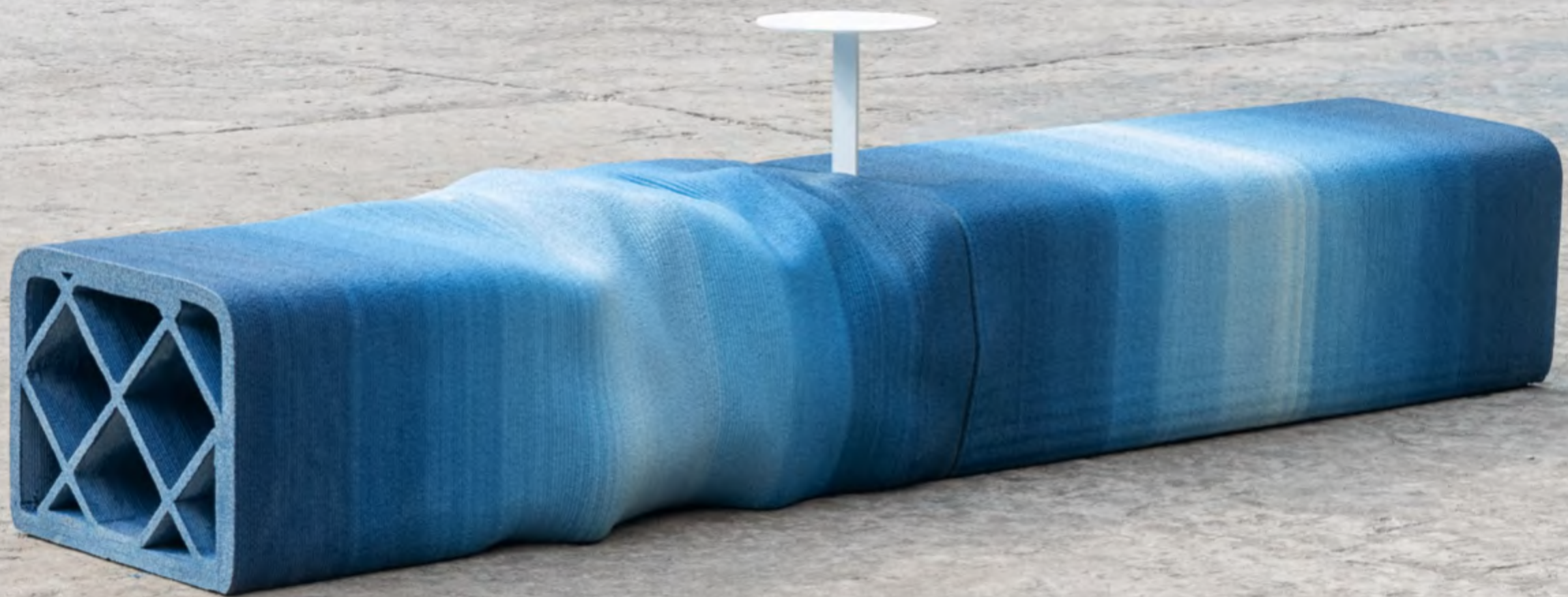
The natural gradient of red and green enhances the visual appeal of the product and is reminiscent of nature.

进行材料与技术的选择其实是进行文化选择。采用可持续材料和现代技术不仅仅是功能上的决策，更是对可持续理念的践行。是现代文明对于可持续理念的重视，并对未来世界负责任的态度。

Making technology choices is really making cultural choices. The use of sustainable materials and modern technology is not just a functional decision, it is the practice of the concept of sustainability. It is a way for modern civilization to take the concept of sustainability seriously and to be responsible for the world of tomorrow.









5.

回收废弃橡胶鞋料

RECYCLED WASTE RUBBER
SHOE MATERIALS

回收废弃橡胶鞋料家具

RECYCLED WASTE RUBBER SHOE MATERIALS AND FURNITURE

目前全球每年生产约 200 亿双鞋，其中 95% 最终将被送往垃圾填埋场。

一双普通的鞋是由尼龙、聚酯材料、聚氨酯、EVA、TPU、合成橡胶、纺织纤维等数种合成材料组成。其中鞋子外底使用的材料一般是加入炭黑的橡胶和发泡橡胶。橡胶废料分解速度极其缓慢——可能需要 100 多年的时间；焚烧处理橡胶废料每吨会产生 250 公斤以上烟尘和 400 公斤以上有毒气体。垃圾填埋场中大量高度易燃的橡胶废料也带来重大环境和健康问题，并成为啮齿动物和昆虫便利的栖息地，多为危险传染病的源头。

Currently, around 20 billion pairs of shoes are produced globally each year, with 95% ultimately being sent to landfills.

A typical shoe is composed of several synthetic materials, including nylon, polyester, polyurethane, EVA, TPU, synthetic rubber, and textile fibers. The outsoles of shoes generally use rubber with added carbon black and foamed rubber. Rubber waste decomposes extremely slowly, taking over 100 years. Incinerating rubber waste produces more than 250 kg of smoke and over 400 kg of toxic gases per ton. Large amounts of highly flammable rubber waste in landfills pose significant environmental and health issues, serving as convenient habitats for rodents and insects and becoming sources of dangerous infectious diseases.

如今鞋类的消费增长，产品快速更新换代，加剧了橡胶废料堆积速度，对环境构成威胁。

The increasing consumption of shoes and the rapid product turnover exacerbate the accumulation of rubber waste, threatening the environment.





回收废弃橡胶鞋料凳子·兀

WASTE RUBBER SHOES

STOOL · WU

坐凳的 90% 原材料为回收鞋料等橡胶，高比例的回收材料使用，减少废弃物的产生和填埋，减轻垃圾处理设施的负担，真正将可持续性的理念转化为实际行动。

The high proportion of recycled materials reduces waste generation and landfill, lessening the burden on waste treatment facilities and translating sustainability concepts into practical action. The stool's excellent weather resistance makes it suitable for various outdoor scenarios.

坐凳具有优异的耐候性能，适用于各种户外场景，长效使用的材料性能有效减少新材料制作与生产的能耗，从而显著降低碳足迹。回收橡胶鞋料材质具有一定的高回弹质感，有效避免在不同场景使用发生碰撞受伤等安全问题。

The long-lasting material performance effectively reduces the energy consumption of new material production, significantly lowering the carbon footprint. The recycled rubber shoe material has a certain high-resilience texture, effectively preventing injuries from collisions in different scenarios.

产品采用安全无毒害的胶凝物质，符合环境友好及绿色环保的安全要求，确保使用者的健康和安全。

The product uses safe, non-toxic adhesives, meeting environmentally friendly and green safety requirements to ensure user health and safety.





凳子 · 兀

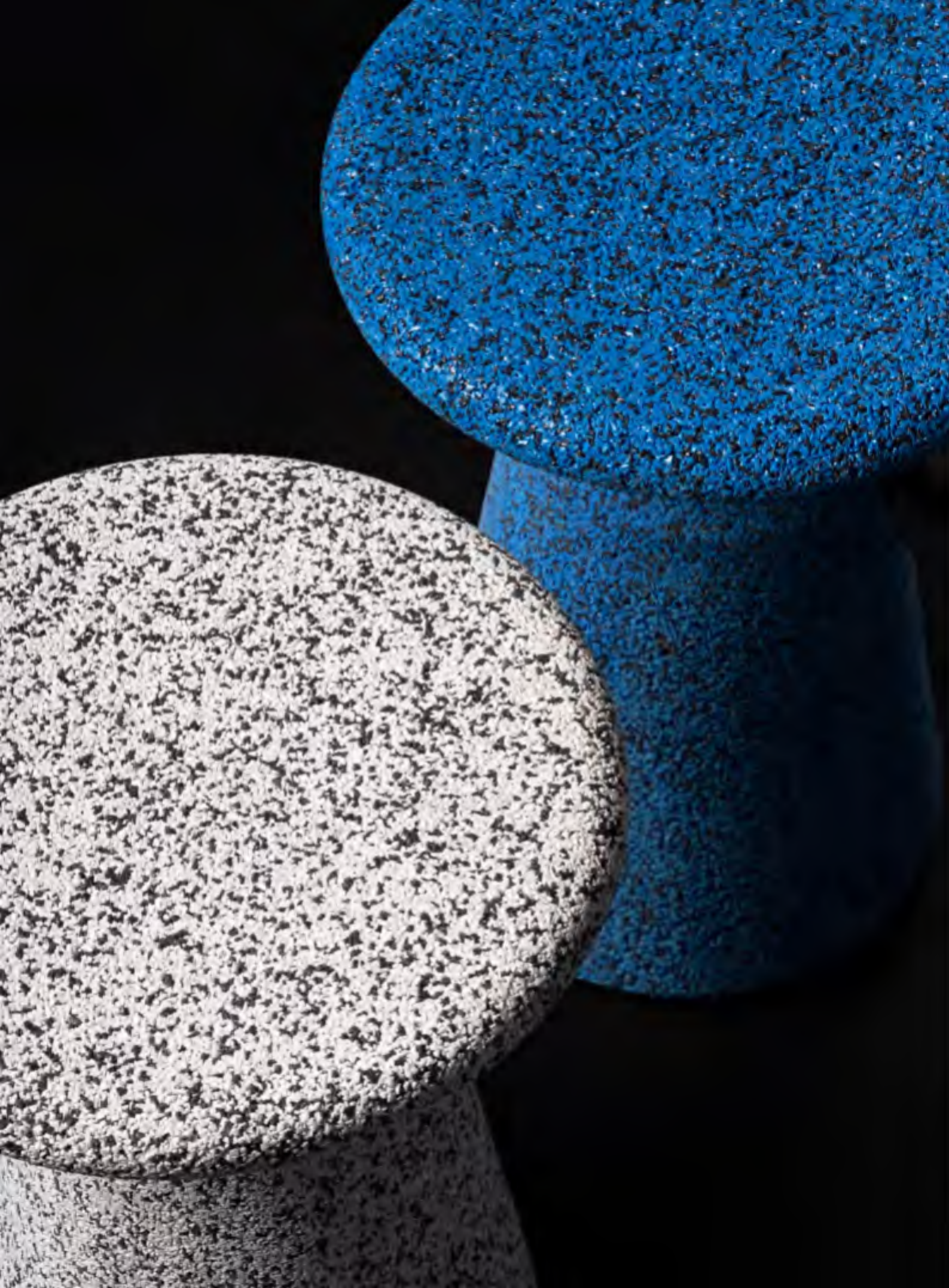
主体材料：回收鞋料橡胶
 产品尺寸：375×330×H460 mm
 产品重量：17.5 kg
 使用场景：户外、室内
 可选颜色：灰白 / 黑色 / 米黄 / 黄色 / 绿色 / 灰绿 / 蓝色 / 蓝绿 / 橙色

Stools · Wu

Materials: Recycled shoe material rubber
 Size: 375×330×H460 mm
 Weight: 17.5 kg
 Usage scenarios: outdoor, indoor
 Optional colors: off-white/black/beige/yellow/green/grey-green/blue/blue-green/orange







凳子 · 旋

主体材料：回收鞋料橡胶

产品尺寸：Ø330×H440 mm

产品重量：17.3 kg

使用场景：户外、室内

可选颜色：灰白 / 黑色 / 米黄 / 黄色 / 绿色 / 灰绿 / 蓝色 / 蓝绿 / 橙色

Stools · Xuan

Materials: Recycled shoe material rubber

Size: Ø330×H440 mm

Weight: 17.3 kg

Usage scenarios: outdoor, indoor

Optional colors: Dark blue/blue/light blue/white/black

6.

回收城市生活塑料
RECYCLING URBAN PLASTIC
WASTE



回收废弃城市塑料家具

RECYCLED WASTE URBAN PLASTIC FURNITURE

塑料的发明和使用给人们带来了极大便利，而现代社会的发展使人们愈发依赖塑料。据经济合作与发展组织（OECD）统计，2019 年全球约产生 3.5 亿吨塑料废弃物，其中 45% 被填埋、22% 被随意丢弃在陆地或海洋、17% 被焚烧、仅有 9% 被再次利用。

The invention and use of plastic brought great convenience to people's lives, and as modern society has evolved, our reliance on plastic has only grown. The Organisation for Economic Co-operation and Development (OECD) estimates that in 2019, around 350 million tons of plastic waste were generated worldwide. Of this, 45% was landfilled, 22% was indiscriminately discarded on land or in the ocean, 17% was incinerated, and only 9% was recycled.

我国是世界塑料生产和使用大国，其中多种塑料产品，如聚氯乙烯（PVC）、氨基模塑料等产量已经位于全球首位，且进一步增长的潜力仍然十分巨大。

这些塑料使用之后，一部分由于没有得到及时有效的收集处理而进入环境，并在环境中发生破碎、腐化，给地表水、土壤和海洋等带来严重的环境污染。

China is the world's largest producer and consumer of plastic, with many plastic products, such as polyvinyl chloride (PVC) and amino molding compounds, ranking first in global production. The potential for further growth remains significant.

After use, some of this plastic enters the environment due to a lack of timely and effective collection and treatment. Once in the environment, it breaks down and degrades, causing severe pollution to surface water, soil, and oceans.





reddot award
design concept



边几 / 凳子 •

主体材料：回收城市废弃塑料 100%

产品尺寸：Φ335×H450 mm

产品重量：5.5 kg

使用场景：户外、室内

可选颜色：黄色 / 绿色 / 蓝色 / 红色 / 橙色

Side tables/Stools •

Materials: Recycle 100% of urban waste plastic

Size: Φ335×H450 mm

Weight: 5.5 kg

Usage scenarios: outdoor, indoor

Optional colors: yellow/green/blue/red/orange



7.

3D 打印回收塑料 PET/PLA
RECYCLING PLASTIC PET/PLA
BY 3D PRINTING

3D 打印回收塑料 PET/PLA

RECYCLING PLASTIC PET/PLA BY 3D PRINTING

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8.

3D 打印生物基材料

(咖啡渣 / 茶叶渣 / 橘皮 / 海藻 / 贝壳等)

3D PRINTING BIO-BASED MATERIALS

(COFFEE GROUNDS/TEA GROUNDS/
ORANGE PEEL/SEAWEED/SHELLS)

3D 打印生物基材料 (咖啡渣 / 茶叶渣 / 橘皮 / 海藻 / 贝壳等)

3D PRINTING BIO-BASED MATERIALS (COFFEE GROUNDS/TEA GROUNDS/ORANGE PEEL/SEAWEED/SHELLS)

石油基材料透支地质年代的碳，而生物基材料以年为单位，利用植物光合作用实现碳的循环。从咖啡渣、果皮到贝壳，本土创造将这些日常有机废弃物与 PHA 胶凝基材、3D 打印技术结合，构建出既能完全降解、又富有质感与温度的生物基材料体系，真正完成从“消耗储备”到“利用流量”的转变。

Petroleum-based materials deplete carbon stored over geological timescales, whereas bio-based materials operate on an annual cycle, using plant photosynthesis to achieve carbon circulation. By combining everyday organic waste—such as coffee grounds, fruit peels, and shells—with PHA as a binder and 3D printing technology, Tellspec creates a bio-based material system that is both fully biodegradable and rich in texture and warmth, truly realizing the shift from "consuming reserves" to "utilizing renewable flows."

这一结合不仅是工艺创新，更是对“从摇篮到摇篮”设计理念的践行。通过将农业与食品加工的废料转化为可降解、高性能的产品，生物基材料让日常消费品从“用完即弃”转变为可回归自然的生态服务，使每一次消费与创造，都成为对地球的善意投资。

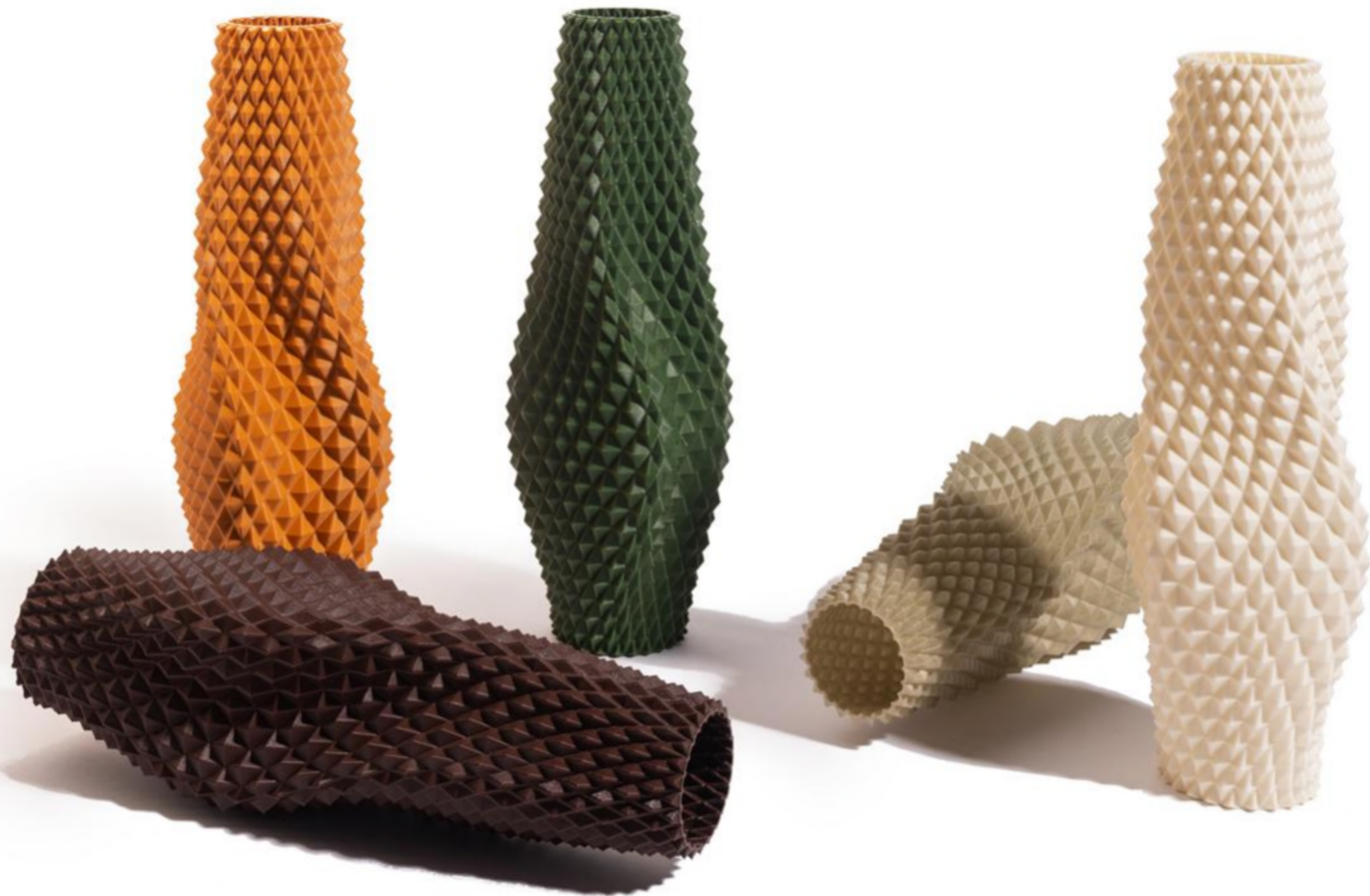
This integration is more than a process innovation; it is a practice of the "cradle-to-cradle" design philosophy. By transforming agricultural and food processing waste into degradable, high-performance products, bio-based materials turn everyday consumer goods from "disposable" items into ecological services that can return to nature, making every act of consumption and creation an investment in the well-being of the planet.











9.

生物基 - 菌丝体

BIOLOGICAL BASE-MYCELIUM



菌丝体

MYCELIUM

菌丝体，由于其具有 100% 的生物降解性的巨大机会，已经被认为是一种设计媒介，可以替代一些人工的危险材料，如塑料、玻璃纤维或聚苯乙烯。避免大量使用石油，减少制造成本和当前制造过程中产生的有害废物。

Mycelium, because of its great opportunity of 100% biodegradability, has been considered as a design medium, which can replace some artificial dangerous materials, such as plastic, glass fiber or polystyrene. Avoid using a large amount of oil, and reduce the manufacturing cost and harmful waste generated in the current manufacturing process.

而生物有机材料菌丝体，正逐渐成为未来潜在的新型可持续材料。它的环保制造过程几乎不需要任何能源，产生的废物也非常少。菌丝体可在多领域实现应用，以缓解塑料制品的过度使用而造成的环境危机。

The bio-organic material mycelium is gradually becoming a potential new sustainable material in the future. Its environmentally-friendly manufacturing process requires almost no energy and produces very little waste. Mycelium can be applied in many fields to alleviate the environmental crisis caused by excessive use of plastic products.

菌丝体基塑料的开发和应用，是治理塑料废弃物污染、缓解化石能源矛盾的有效途径之一，对实现可持续发展这一人类社会共同目标有着重要的推动作用。

The development and application of mycelium-based plastics is one of the effective ways to control plastic waste pollution and alleviate the contradiction of fossil energy, and plays an important role in promoting the common goal of human society to achieve sustainable development.







10.

新“三合土”
'NEW TRIAD SOIL'

“新三合土” “无机生长”

‘NEW TRIAD SOIL’ “INORGANIC GROWTH”

“无机生长”，利用贝壳灰与青山村的建筑废弃土壤、建筑拆除废料，以及青山村农林业生产废弃物做为纤维加强材料，辅助现代材料科技的高分子复合材料改性，进行乡村“新三合土”材料研发，使在地材料、在地工艺、在地建造，成为乡村建筑、家具表皮肌理的表达。

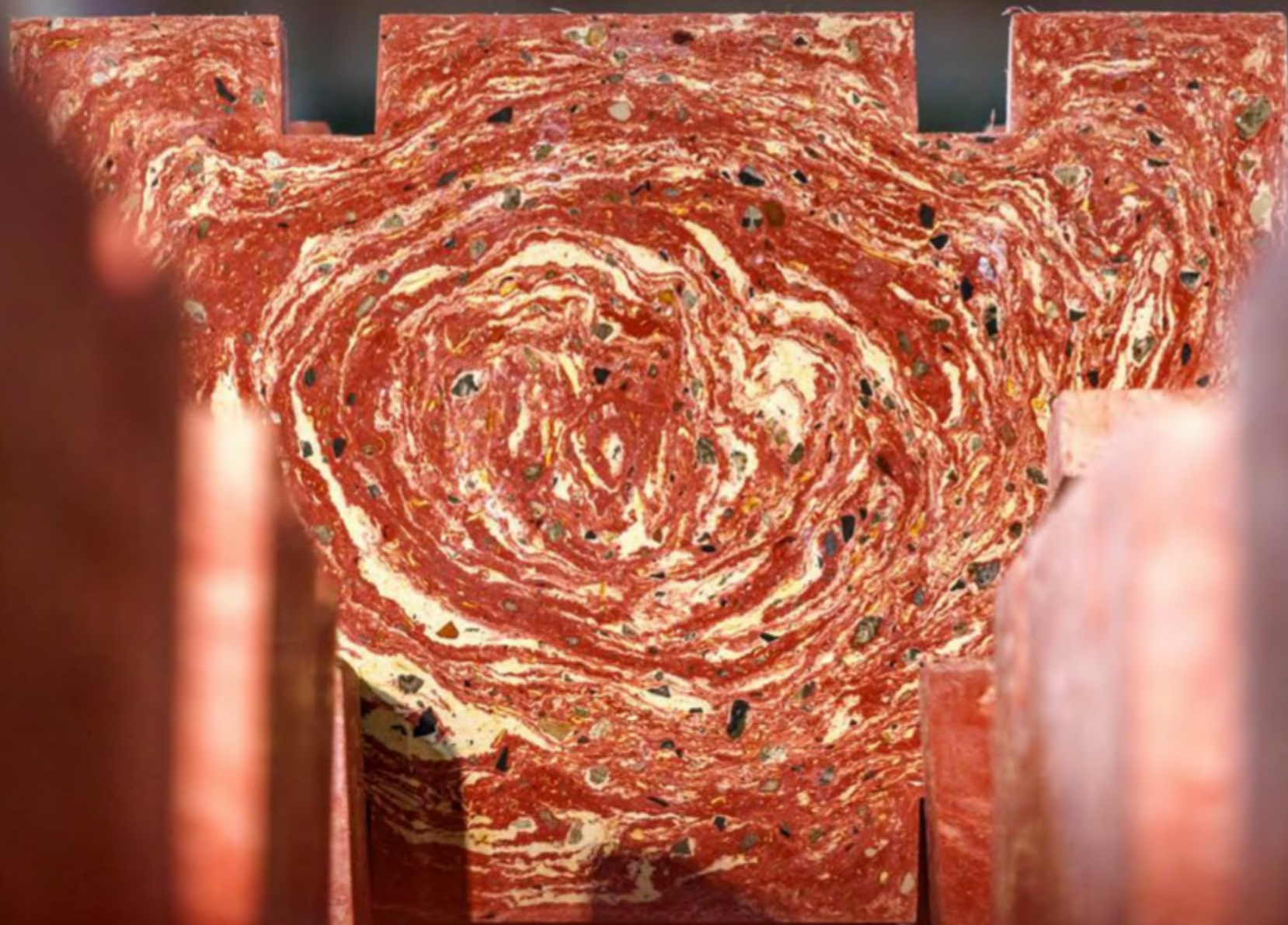
“Inorganic Growth”，utilizing shell ash and the construction waste soil and demolition waste from Qingshan Village, as well as agricultural and forestry production waste from Qingshan Village, as fiber reinforced materials, assist in the modification of polymer composite materials with modern material technology, and carry out research and development of rural "new triadic soil" materials, let local materials, processes, and construction become an expression of the skin surface texture of rural architecture and furniture.

中国东南沿海一带分布着大量的火山岩，缺少烧制石灰的石灰岩，但是具有丰富的贝壳，因此古人就地取材，用贝壳烧制成贝壳石灰，熟化后拌以土和砂子制成三合土，用作建筑砌筑材料或胶凝材料，称为中国古代的“混凝土”。

There is a large amount of volcanic rock distributed along the southeastern coast of China, lacking limestone for firing lime, but with abundant shells. Therefore, the ancient people took local materials and burn seashells into lime. After ripening, mix with soil and sand to make a triadic soil, which was used as building materials or cementitious materials, known as the "concrete" of ancient China.







合作品牌 / 项目应用 / 材料开发

CO-BRAND/PROJECT APPLICATION/MATERIAL
DEVELOPMENT



为腾讯研发碳捕捉的固碳材质，这是下一波材料开发的浪潮。

利用废弃生蚝壳作为物质媒介，是因为我们需要在日常生活中认识到物质的价值，并在日常物质里激发无限的创造潜力。

It is the next wave of material development to develop carbon-capturing carbon-fixing materials for Tencent.

Using discarded oyster shells as material media is because we need to realize the value of material in daily life and stimulate unlimited creative potential in daily material.

04
2024.12

碳寻计划 CarbonX Program

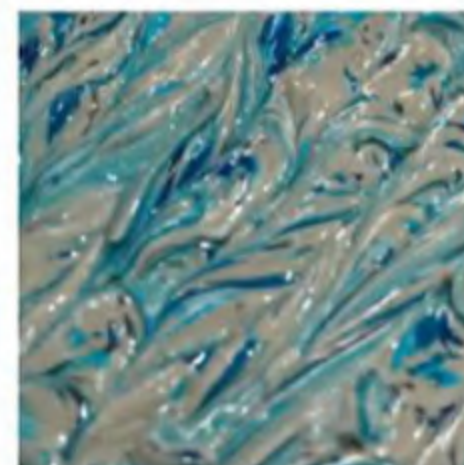
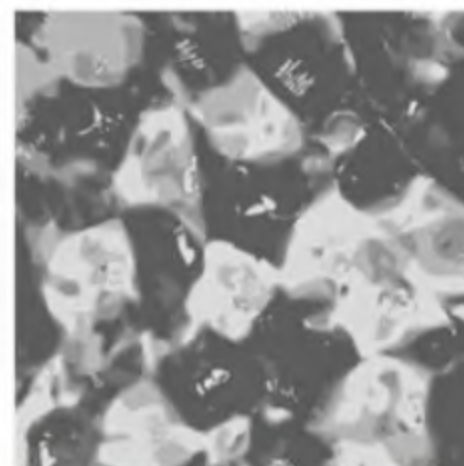
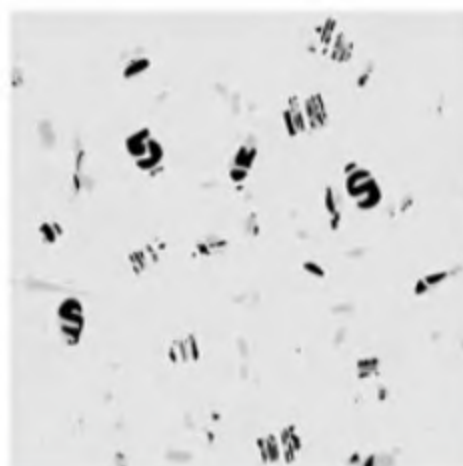
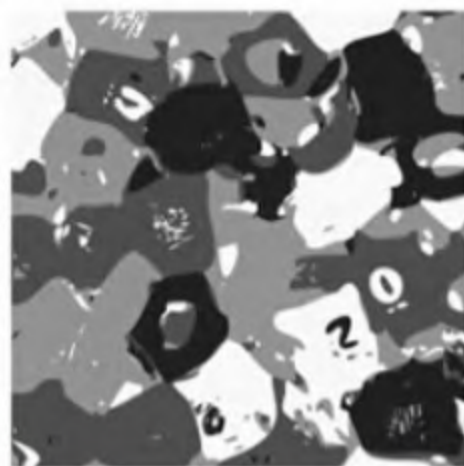
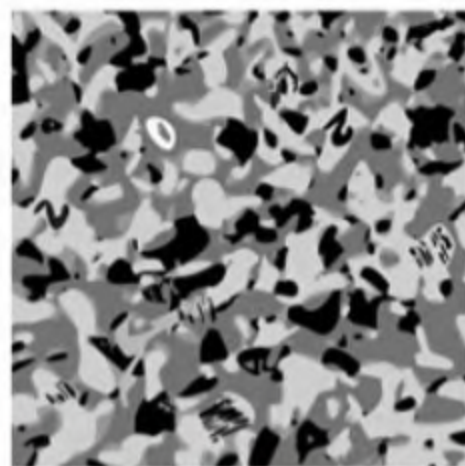
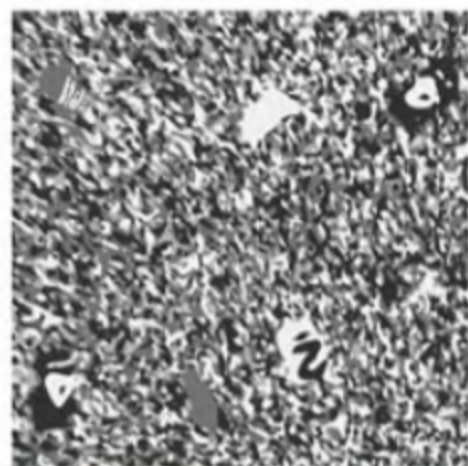
碳寻计划——由腾讯SSV碳中和实验室发起的一项创新行动，旨在寻找和支持前沿的低碳技术，以应对全球气候变化的挑战。

欢迎来「碳寻计划CarbonX」展位，发现关于CO₂的更多可能！

CLOUD
HOUSE

以CO₂为代表的温室气体正影响着全球气候。减碳方面，全球都在一张棋盘上





org.A

2mm RPP 小颗粒混色
对半罐子表面分布
形态清晰

org.B

20mm RPP 小颗粒混色
对半罐子表面分布
形态清晰

org.C

对半 RPP 混色罐子满铺
20mm RPP 小颗粒作基础
形态清晰

org.D

对半 RPP 单色罐子满铺
20mm RPP 小颗粒作基础
形态清晰

org.E

对半 RPP 混色罐子
20mm RPP 小颗粒作基础
形态交融

org.F

2mm RPP 小颗粒混色
手揉控制流动造型



inorg.A

2mm RPP 小颗粒混色
黑砂 / 白瓷砂



inorg.B

20mm RPP 小颗粒混色
黑砂 / 白瓷砂



inorg.C

2mm+20mm RPP 小颗粒混色
黑砂 / 白瓷砂



inorg.D

RPP 空罐子对半剪开混色
黑砂 / 白瓷砂



inorg.E

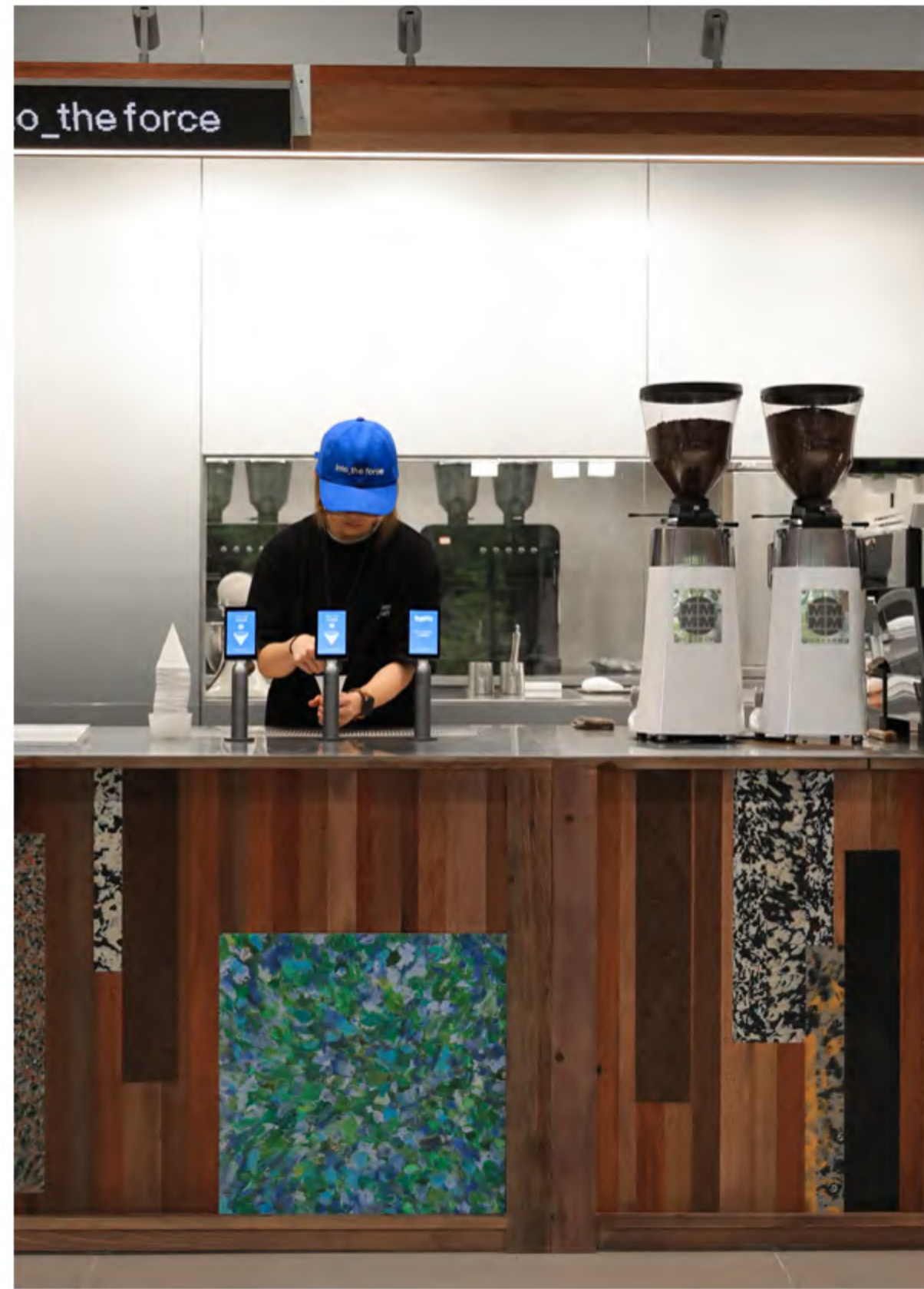
RPP 罐子灌料
黑砂 / 白瓷砂





■ 定制产品 / 板材：回收咖啡渣板材、回收 RPP 塑料板材、回收 RPP 塑料再生砖

■ Custom product/ boards: Recycling coffee grounds, recycling RPP plastic plates and recycling RPP plastic recycled bricks



■ 空间应用产品：回收海南废弃椰子木 & 咖啡渣再造铝材家具（回收椰子木、回收咖啡渣、回收铝）

■ Custom product: Recycling abandoned coconut wood in Hainan & coffee grounds to rebuild aluminum furniture (recycling coconut wood, coffee grounds and aluminum)

















■ 空间定制产品：空镜 - 复合玻璃桌子、错位 - 黄洞石圆桌
 ■ Custom product: Empty Mirror - Laminated Glass Table、Dislocation-Beige Travertine table



■ 空间定制建材：清水混凝土预制装配式超大型道具柜、清水混凝土大型墙板

■ Custom boards: Assembled ceramicite concrete cabinets, Extra-sized fair-faced concrete walls



■ 空间定制建材：清水混凝土大型墙板
■ Custom boards: Extra-sized fair-faced concrete walls



















Thank !