

SYNTHETEC®

STONE
GRATING

Product #2
Catalogue
2022

FIBRPRO® Official
precast Website



Scan
Me



WITH OVER A DECADE OF SUCCESS
SYNTHETEC® IS THE BEST STONE TO TAILOR TO YOUR LANDSCAPE DESIGN

LANDSCAPE
DESIGN

OMA OMA
Client: Wing Tai Properties Limited
Category: Housing
Location: 108 So Kwun Wat Road



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C O N T E N T S



Headquartered in Hong Kong,

FIBRPRO® comprises a team of engineers specializing in the fields of materials, production techniques, structures, construction methodologies and management.

It is with this unique foundation that FIBRPRO® has been at the forefront in the design and fabrication of Fibre Reinforced Polymer (FRP) products for the construction industry since its establishment in 2010.

Certified as an Approved Supplier of Materials and Specialist Contractor for Public Works of Hong Kong SAR, FIBRPRO® is a one-stop contracting service provider that offers design, engineering, manufacturing, delivery, installation and commissioning for a comprehensive range of FRP related products and works with both proprietary designs and customer specific requirements. We take much pride in our involvement in numerous innovative and challenging projects including some singular customised works.

With our extensive knowledge of composite materials, manufacturing techniques, engineering skills and contracting requirements, we extended our service scope to proprietary engineered prefabrication products in 2015, and since then have been offering innovative and cost-effective solutions to address complex construction and architectural challenges and overcome the high labour costs in the construction market with improved productivity. Going from strength to strength, FIBRPRO® set up a dedicated FRP manufacturing plant in Guangdong in 2018 with research and development (R&D) capability, taking the development path that integrates education, research, production, and application.

How are we able to read your minds and to realize your thoughts?
Because we are manufacturer, engineer and contractor integrated as one!

A TALE OF INCESSANT IMPROVEMENT ABOUT US



Project Owner: Digital Time Limited
Details: Construction Of FRP External Façades At G/f - 2/f, No. 122-132a Hoi Pa Street Of Tsuen Wan



Project Owner: Water Suppliers Department Of HKSAR
Details: Construction Of FRP Covers To Accelerators, Settled Water Channel And Filter Bed At Shatin Water



Project Owner: Could Nine
Details: Construction Of FRP Moulding And Cladding To The Renovation Works Of Could Nine, The Peak



Project Owner: Drainage Serices Department Of HKSAR
Details: Construction Of FRP Baffle Walls, Ceiling, Covers, Features, Ladders, Planter Pots, Platforms, Staircases, To Main umping Station, Sedimentation Tanks And Ancillary Facility At Stonecutters

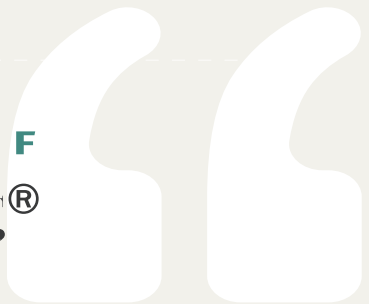


Project Owner: Drainage Serices Department Of HKSAR
Details: Provision Of FRP Formworks To The Concreting Of Sewage Conveyance System From North Point To Stonecutters Island. Across Victoria Harbour

Queen's Hill Estate
Client: The Hong Kong Housing Authority (HA)
Category: Housing
Location: Kwan Tei, Fanling, New Territories



THE CREATOR OF SYNTHETEC®



We started the journey of creating a strong, durable, aesthetically appealing, environmentally friendly and multi-functional matching artificial stone in 2010, inspired by the beautiful and magnificent Romanesque Architecture with its widely use of granite, marble, terrazzo stones.

With the growing demand for matching artificial stone products and features across the construction industry, we established in 2020, after 10 years of development, our proprietary range of artificial stone products labelled as "SYNTHETEC®". This was achieved with much collaboration with many property developers, architects, engineers and distinguished customers.

FIBRPRO® dedicates to deliver the best functional STONE solutions to your indoor and outdoor design creations.

Villa at Peel Rise



Client: Private
Category: Swimming Pool
Location: Peel Rise, The Peak, Hong Kong

To achieve a leading international brand to satisfy and inspire our customers

To provide engineering solutions to achieve excellence, we practice fineness at every step. With every solution we create, it is our attempt to transform architects' concepts into reality.

M

Manufacturing

Operate a dedicated manufacturing plant in Guang Dong, China

P

Precast

Research & Develop new engineering materials and to inspire more creative solutions

C

Contractor

Offer design, supply and installation one-stop service

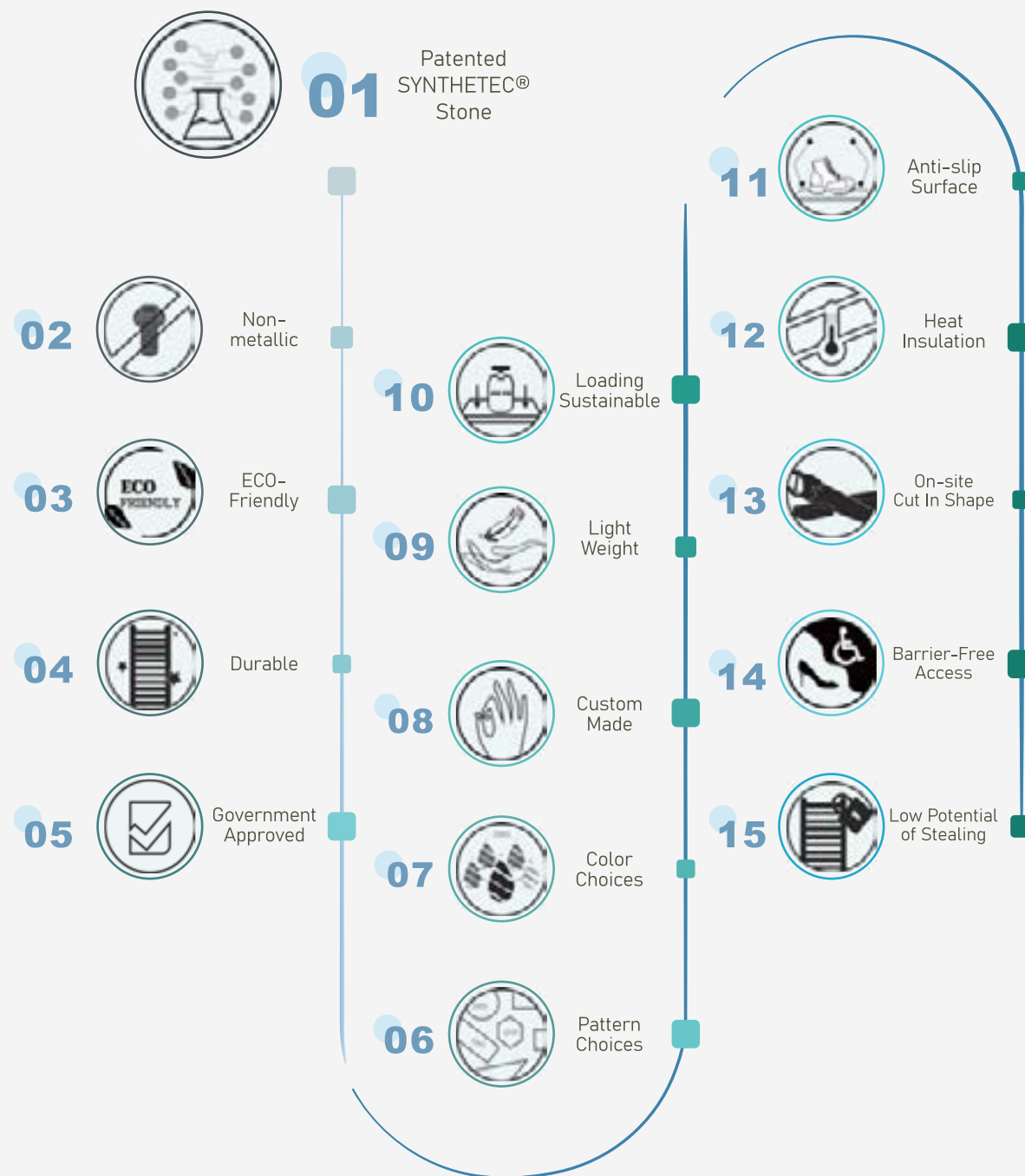
OUR GOALS



SYNTHETEC® STONE ADVANTAGE

The only limitation is your imagination

FIBRPRO® SYNTHETEC® Stone, with a limitless array of color choices, can be custom made into any size to fit even the most complex design in shapes and patterns and are durable, sustainable, load-bearing and versatile, from standard models to customized designs.



發展局
Development Bureau



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會



CITF 建築業
創科基金
CITF Pre-approved Product

Construction Innovation and Technology Fund

PRE APPROVED CODE :
PA20-084

In July
FIBRPRO® SYNTHETEC® Stone Grating and Tree Pit Cover
as innovation technology / products, are certified to be included
in the Pre-approved list of the Construction Innovation and
Technology Fund (CITF) in considering the outstanding
performance in accordance with following factors:



MOST COMMONLY APPLIED PRE-APPROVED TECHNOLOGIES AMONG SMES

In December 2021, FIBRPRO® SYNTHETEC® Stone Grating and Tree Pit Cover was recognised by CITF as one of the "Most commonly applied Pre-approved Technologies among small and medium enterprises (SMEs)" confirming their beneficial contributions to the construction industry.



SUSTAINABILITY OF SYNTHETEC®



Sustainability energizes every decision we make

We strive to ensure that each interface of our project is a high-execution asset that endeavors towards sustainability in all aspects. SYNTHETEC® Stone is an Eco-friendly choice



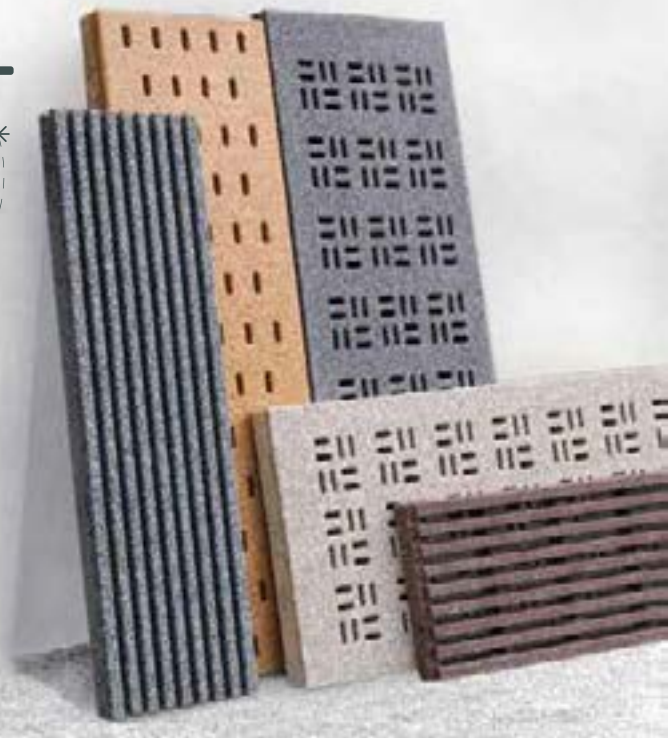
SYNTHETEC® stone is formed by at least 20% of recycled materials

To achieve the five keys of areas of energy efficiency, water efficiency, resource-conserving, Health & Environmental Protection, and Other Green Features, SYNTHETEC® stone formed by at least 20% of recycled materials.



"Green Label" certificate is on process

SYNTHETEC® stone manufacturing processes produce fewer carbon emissions compared to traditional iron and steel industries.



WHAT IS IGNORED ?

Flawless Landscape

can offer tremendous benefits for you and the environment.

We believe a drain trench and its top grating is an essential element to hardscape but is usually ignored.

Your hardscape is your floor canvas, the non-blending or non-matching grating may destroy your dedicated artwork much like scratches on your beauty face.

Perfect Silhouette Design

It is always desirable to blend gratings of drain trenches into your hardscape

Color Matching With Your Hardscape Tiles



What Are THE CHALLENGES Facing The Hardscape



Integration
Drainability
Anti-slip Surface
Color Matching
Durability



- ① Stainless Steel Grating
- ② Abrasion
- ③ Matching Cover
- ④ *Not Enough Drainability
- ④ Cracking



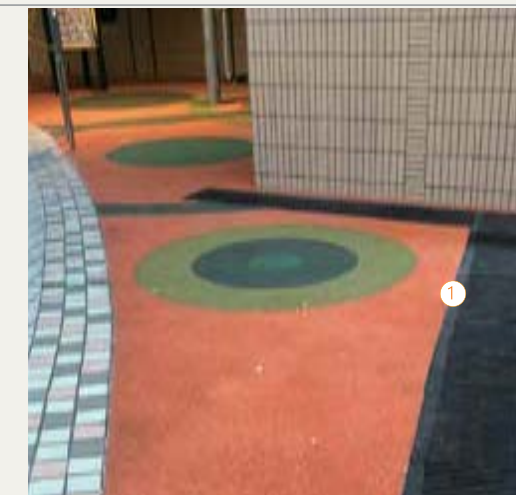
Connection
Consummate and Facile Lines
Color Matching
Anti-slip at Wet



- ① Cast Iron Channel Grating



Anti-slip at Wet
Color Matching
Barefoot Stepping



- ① Cast Iron Channel Grating

Ngan Shing Street Garden

Client: Leisure And Cultural Services Department

Category: Park

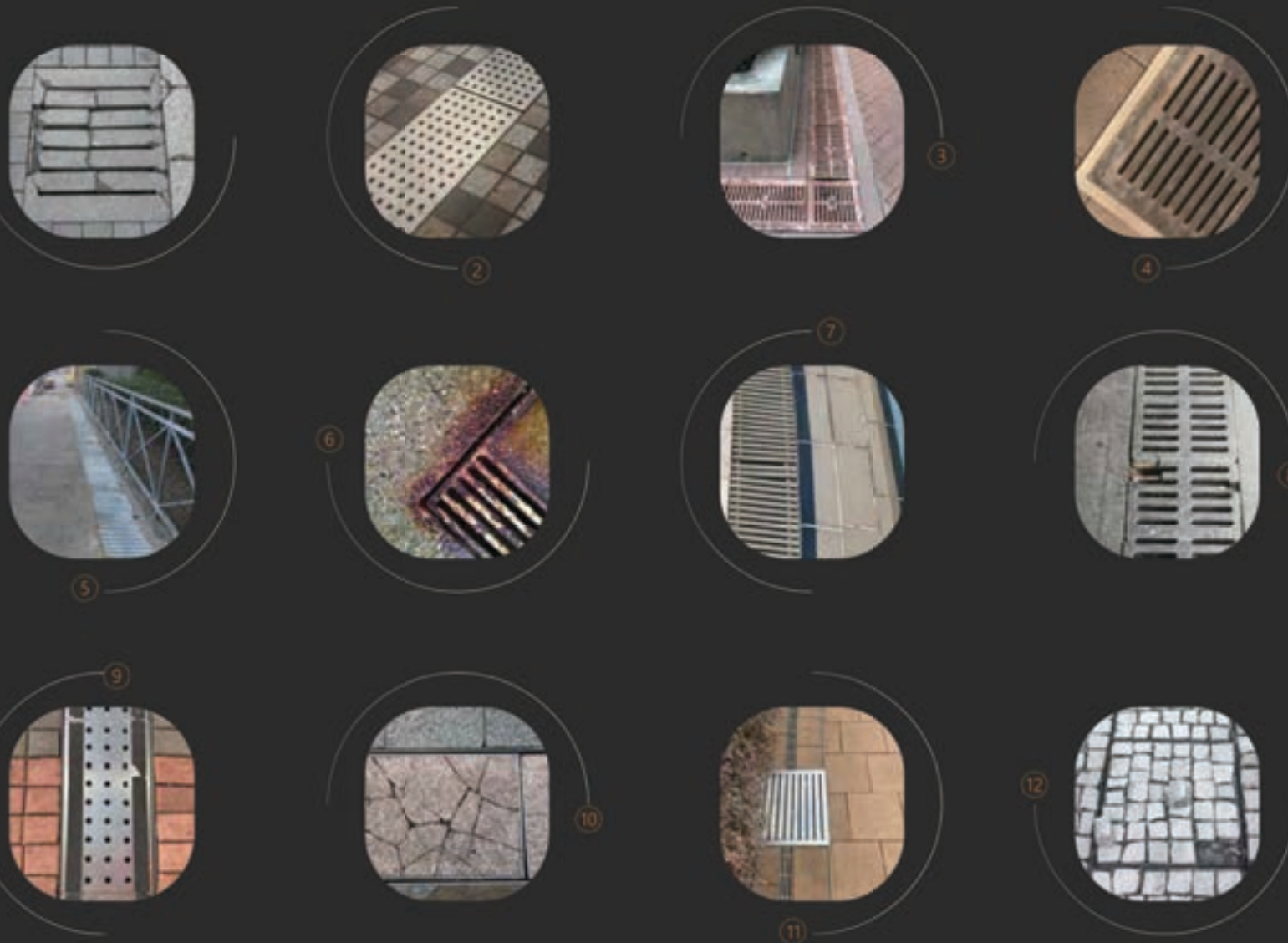
Location: 29 Ngan Shing Street, Shatin, Hong Kong

NO CHOICE BUT TO COMPROMISE ?

Architects and designers had in the past tried to avoid the unsightliness of conventional ferrous gratings but those efforts never yielded satisfactorily both durability and functionality such as



Please Scan the QR Code to learn more



① Stone Damaging

⑤ Slippage Floor

⑨ Non-durable Anti-slip Treatment

② Non-matching Color

⑥ Rusting

⑩ Cracking Of Surface Tile

③ Wearing Paint Color

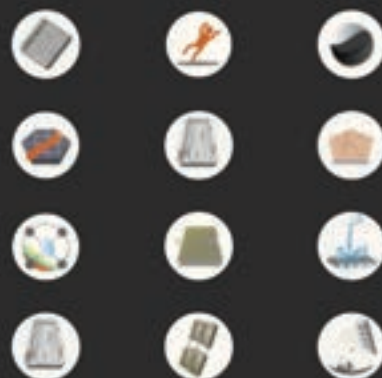
⑦ Brittle Plastic

⑪ Not Enough Drainability

④ Rusting Of Internal Reinforcement

⑧ Material Spalling Of Due To Internal Rusting

⑫ Separation of Granite / Marble / Tile



YOUR AESTHETIC LANDSCAPE SOLUTIONS

InnoCell Hong Kong | Science Park

Client: Science Park Hong Kong

Category: Housing

Location: 1 Chong San Road, Pak Shek Kok, Tai Po Hong Kong



SYNTHETIC®

is an integrated solution to the grating industry and you no longer have to worry about Grating Problems

① SYNTHETIC®
STONE GRATING

② Stainless Steel Bar Grating



SYNTHETEC® STONE GRATING

Water Park | Ocean Park Hong Kong

Client: Ocean Park Hong Kong

Category: Park

Location: Water World Ocean Park 33 Ocean Drive, Hong Kong

善影，就是風景
SYNTHETEC® Is The Landscape



FIBRPRO® SYNTHETEC® Stone Grating is a precast unit fabricated using low content (about 15% by weight) of resin / polymer material, such as polyester, epoxy methacrylates, phenolics, furans, vinyl ester etc. and binder such as quartz sand, natural or recycled crushed stone and recycled filler such as fine aggregate, mineral granulation or reused fibers.

The mixed compound with designated color achieved with an agglomeration of natural stone substrates and mineral oxides is filled into moulds and compacted to form panels to any shapes and architectural features through an advanced state of the art vacuum and compression process.



APPLICATIONS OF SYNTHETIC[®]



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Code to learn more

01 HOSPITALITY

MGM COTAI | Macau

Client:
MGM COTAI

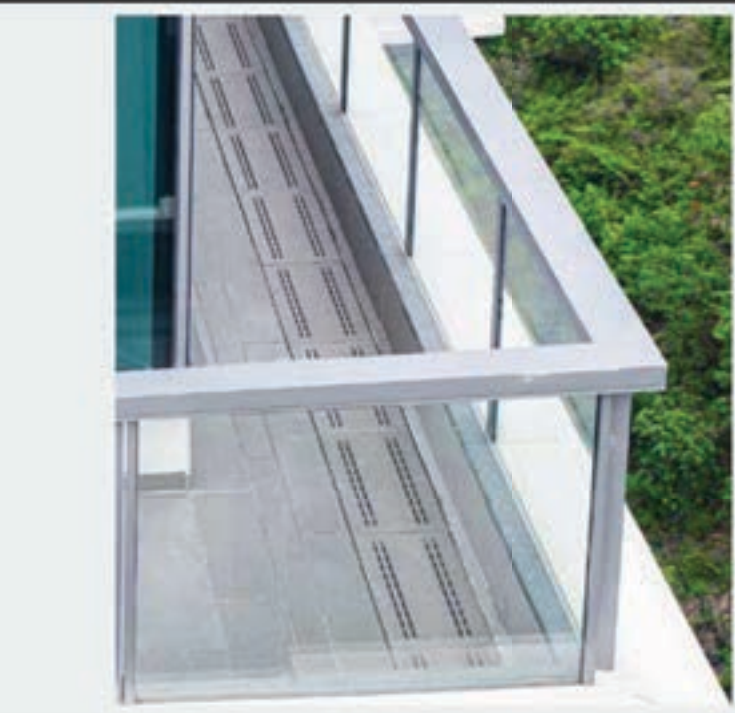
Location:
Avenida da Nave Desportiva, Cotai, Macau



04 CENTER

Sheung Shui Spot
Client:
Sheung Shui Spot

Location:
48 Lung Sum Avenue,
Sheung Shui, Hong Kong



03 PUBLIC AREA

The University Of Hong Kong
Client:
The University Of Hong Kong

Location:
The University of Hong Kong, Pokfulam, Hong Kong



02 HOUSING

Le Pont
Client:
Vanke Property (HK) Company Limited

Location:
No.99 So Kwun Wat Road, Tuen Mun,
New Territories, Hong Kong

05 PARK

Wang Toi Shan Playground
Client:
Leisure and Cultural Services Department

Location:
Wang Toi Shan, Fan Kam Road, Yuen Long, Hong Kong

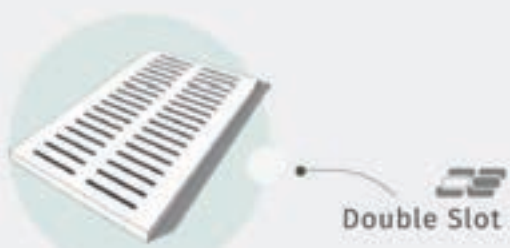


05 MARKET

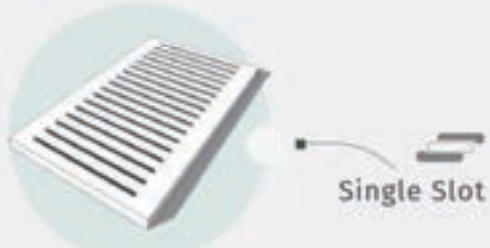
Yan Tin Estate Shopping Centre
Client:
Housing Authority

Location:
1st Tin Road, Yan Tin Estate, Tuen Mun, Hong Kong

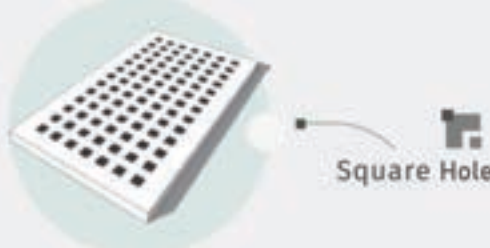




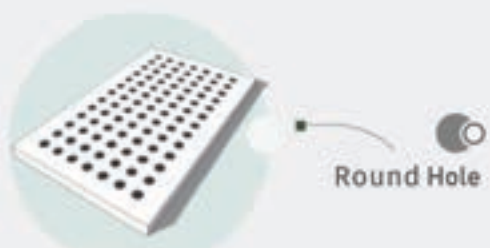
Double Slot



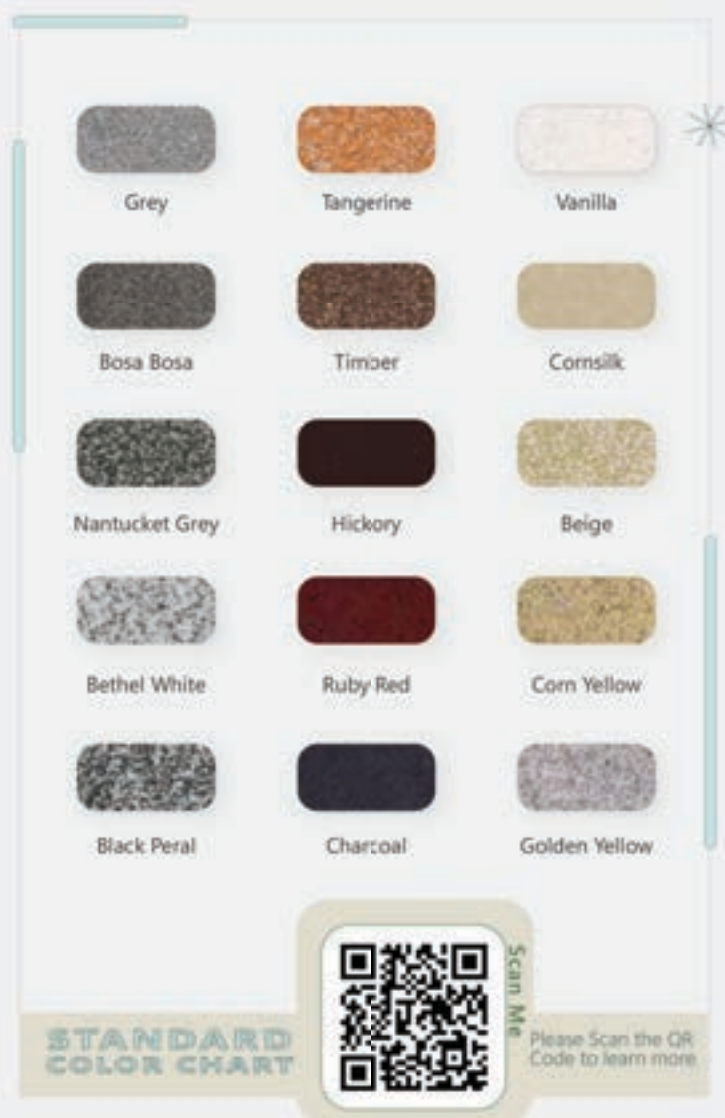
Single Slot



Square Hole



Round Hole



PEDESTRIAN

Model no.	Length	Width	Thickness*	MAX. Span
FPS-001	500 / 600	200	25 / 30 / 40	100
FPS-002	500 / 600	300	25 / 30 / 40	200
FPS-003	500 / 600	400	25 / 30 / 40	300
FPS-004	500 / 600	500	30 / 40 / 50	400
FPS-005	500 / 600	600	40 / 50 / 60	500
FPS-006	600 / 700	700	40 / 50 / 60	600

LIGHT VEHICLE DRIVEWAY

Model no.	Length	Width	Thickness*	MAX. Span
FLS-001	500 / 600	200	40 / 50 / 60	100
FLS-002	500 / 600	300	40 / 50 / 60	200
FLS-003	500 / 600	400	40 / 50 / 60	300
FLS-004	500 / 600	500	40 / 50 / 60	400
FLS-005	500 / 600	600	40 / 50 / 60	500
FLS-006	600 / 700	700	50 / 60 / 70	600

E.V.A / HEAVY VEHICLE CARRIAGEWAY

Model no.	Length	Width	Thickness*	MAX. Span
FHS-001	500 / 600	200	50 / 60 / 70	100
FHS-002	500 / 600	300	60 / 70 / 80	200
FHS-003	500 / 600	400	70 / 80 / 90	300
FHS-004	500 / 600	500	90 / 100 / 110	400
FHS-005	500 / 600	600	100 / 110 / 120	500
FHS-006	600 / 700	700	110 / 120 / 130	600

* The thickness of product depends on the loading requirement



Queen's Hill Estate
Client: The Hong Kong Housing Authority (HA)
Category: Housing
Location: Kwan Tei, Fanling, New Territories



SYNTHETEC® STONE GRATING

InnoCell Hong Kong | Science Park

Client: Science Park Hong Kong

Category: Housing

Location: 1 Chong San Road, Pak Shek Kok, Tai Po Hong Kong

OUR SERVICE

FIBRPRO® SYNTHETEC® Stone Grating can serve as an essential portion of flooring canvas by fully blending in to realize any infinite imaginations and possibilities for embellishing living spaces and landscape.

We provide a full range of custom made service and consultation service, you can freely pick your favorite color and design your favorite size, shape and hole pattern to enrich the style to fit your actual situation.

Load
Specifications

Concept
& Reference

Color
& Texture

Size
& Shape

Hole
Pattern



CUSTOM MADE
SERVICE



SIZE & SHAPE

Design your desired size and shape to fit your actual situation.

COLOR

Design your desired colour by our colour matching consultation service



DRAIN HOLE PATTERN

Design your desired hole patterns to enrich the style yet ensure maximum drainage.



1 Bullet

2 Slant Bullet

3 Irregular Round

4 Irregular Square

5 Equal Sign

6 Triangle

7 Plum Blossom

8 Vertical Lines

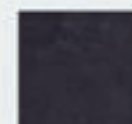
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FINISHING TEXTURE

You could choose severalty types of finishing according to the grating usage.



Anti-Slip



Metal-Like



Smooth



Wood-Like



Gravel-Like

TACTILE TILE / GRATING

3D MODEL DEMONSTRATION



Directional Tile



Top



Bottom



Hazard Warning Tile



Top



Bottom



Positional Tile

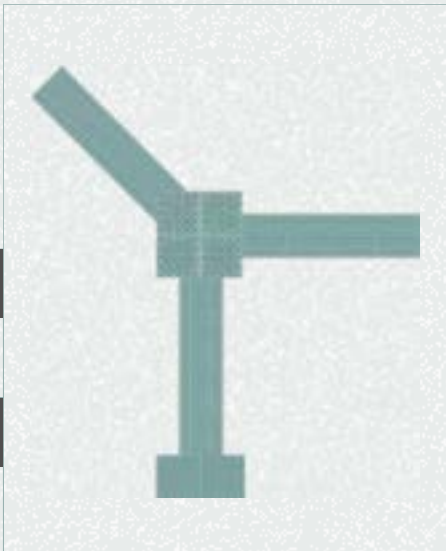


Top



Bottom

Application Tactile Tile | Grating
MODEL DEMONSTRATION



Appearance Design
Patent

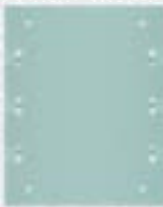
Patent No.
ZL 2021 3 0738417. 9

Utility Model
Patent

Filed No.
2021 2 2658603.9

Speed Bump / GRATING

3D MODEL DEMONSTRATION



Top



Bottom



Speed Bump

Appearance Design
Patent

Patent No.
ZL 2022 3 0091001. 7

Utility Model
Patent

Filed No.
2022 2 0358393.3

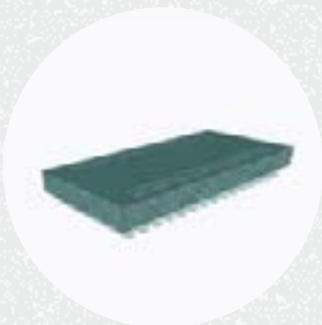
Application Speed Bump | Grating
MODEL DEMONSTRATION



Non-metallic Composite Grating & Its Structure

Probably the most Light-Weight
Heavy-Duty Grating in the World

3D MODEL DEMONSTRATION



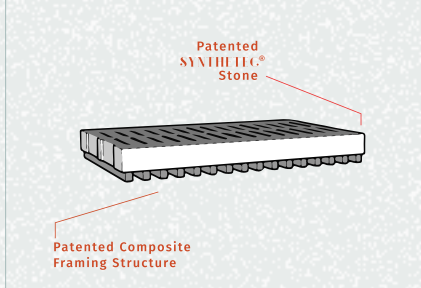
Top



Bottom

Composite Structure

Application Medium to Heavy Duty Grating
MODEL DEMONSTRATION



Invention
Patent

Filed No.
2020 1 0298137.5

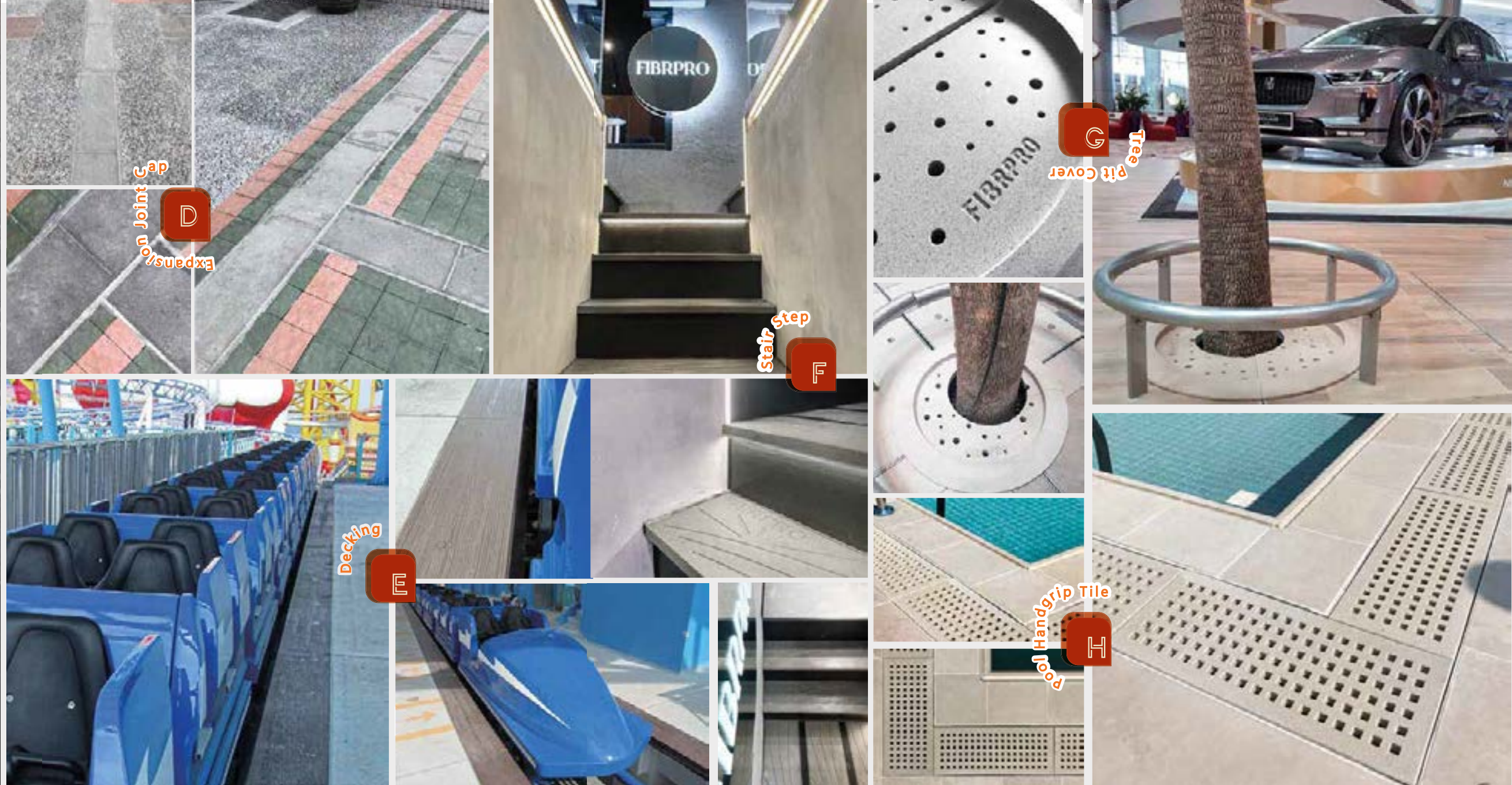
Appearance Design
Patent

Patent No.
ZL 2020 3 0069217.4

Utility Model
Patent

Patent No.
ZL 2020 2 0562239.9

BEAUTY
DURABILITY
EXTRAORDINARILY
VERSATILE



SYNTHETEC®
VERSATILE

FIBRPRO® proprietary SYNTHETEC® can accommodate the precise architectural and structural requirements of any design. It can be custom formed to all conceivable shapes, textures, colour, and technical function.

With SYNTHETEC®, your creative options are practically limitless.

Expansion Joint Cap



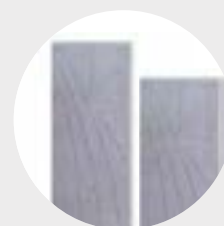
Project Reference
Hong Kong Baptist University

Client: Hong Kong Baptist University
Category: Podium E.V.A
Location: Fong Shu Chuen Library
Podium, HKBU, Hong Kong

Project Reference
Ocean Park Hong Kong
Thrill Mountain & Polar Adventure

Client: Ocean Park Hong Kong
Category: Park
Location: Wong Chuk Hang Road,
Aberdeen, Hong Kong

Stair Step



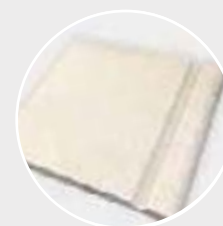
Project Reference
Fibrpro Head Office | Hong Kong

Client: Fibrpro International Ltd.
Category: Public Area
Location: Shatin Industrial Centre, Nos. 5-7
Yuen Shun Circuit, Sha Tin

Project Reference
Singapore Changi Airport

Client: Singapore Changi Airport
Category: Public Area
Location: Airport Blvd., Singapore

Pool Handgrip Tile



Project Reference
Villa at Peel Rise

Client: Private
Category: Swimming Pool | Housing
Location: Peel Rise, The Peak, Hong Kong

TESTING RESULTS

1

Approved For Children

Available for barefoot stepping
The temperature rises only moderately under direct sunlight

- FIBRPRO® SYNTHETEC® Stone Grating: max. up to 40-50°C
- Traditional cast iron channel grating: max. up to 70-80°C



2

Non-Slip Surface Tests

Available for Several Anti-Slip Requirements

- Complied with DIN 51130 Standard carrying out in MaterialLab
- Complied with En 14231 Standard carrying out in SGS



3

Loading Tests | Pedestrian

Available for Several Load Bearing Requirements

Complied with BS EN 124 Standard
carrying out in MaterialLab

- A15 ○
- B125 ○

4

Loading Tests | Heavy Duty

complied with BS EN 124 Standard
Carrying out in Castco

- C250 ○
- E.V.A ○
- D400 ○



LOADING SPECIFICATIONS

The loading applications are the first thing you should consider when looking to purchase SYNTHETEC® Stone Grating, to guarantee that you are selecting the right one

Pedestrian

Withstanding a 5kN test load. Appropriate for pedestrians.

Group 1

A15 Pedestrian

Comply with BS EN 124:2015

Withstanding a 15kN test load. For use in areas where pedestrians, pedal cyclists and wheelchairs have access.

Light Vehicle

Withstanding a 60kN test load. For use in pedestrian and car parks areas with occasional and slow moving vehicular access.

Group 2

B125 Light Vehicle

Comply with BS EN 124:2015

B125 Light Vehicle is a robust choice in many cases where light vehicular, slow moving traffic is present.

C250 Heavy Vehicle / E.V.A

Comply with BS EN 124:2015

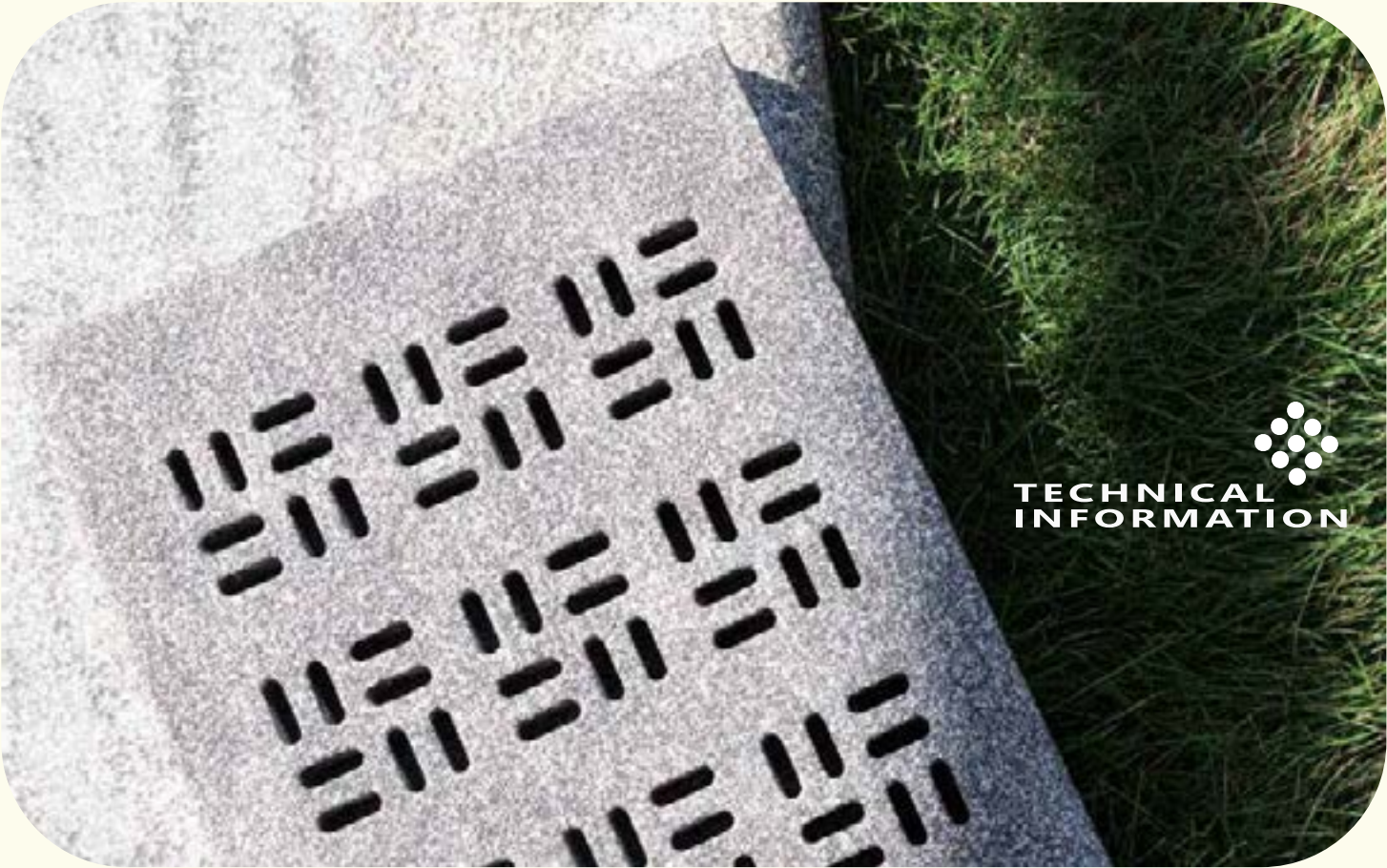
Withstanding a 300kN test load. For use in areas where cars, lorries and fire truck have access, including carriageways, hard shoulders pedestrian areas and emergency vehicular access.

Group 3

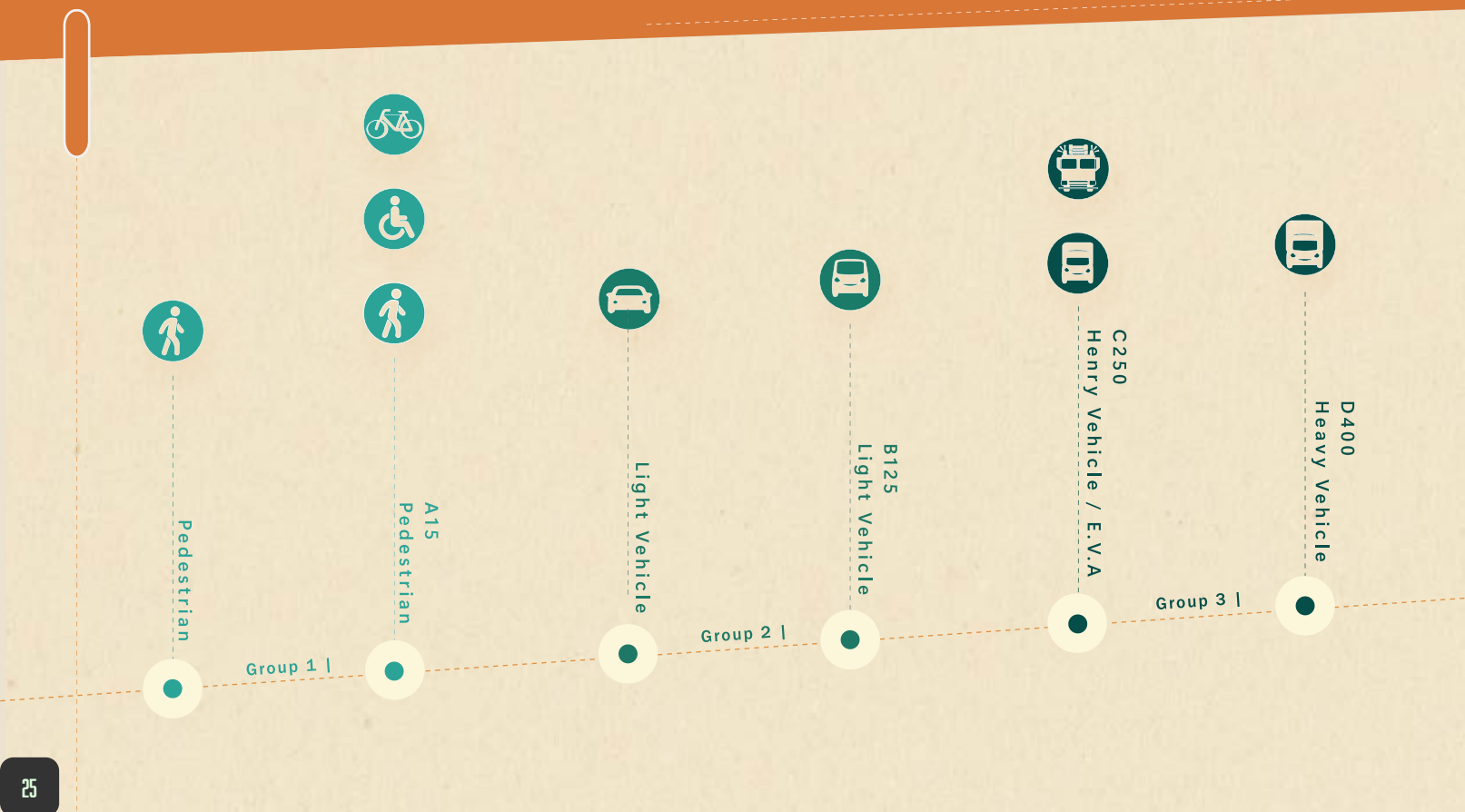
D400 Heavy Vehicle

Comply with BS EN 124:2015

Withstanding a 400kN test load. For use in areas where all types of road vehicles have access, including carriageways of road, hard shoulders and pedestrian areas.



Properties	Test Method	Result
Fire Test On Building Materials And Structures	BS 476 : Part7	Class 1
Flexural Strength	BS 2782 : Part10	33MPa
Shear Strength	BS 2782 : Part3	31MPa
Tensile Strength	BS 2782 : Part10	14MPa
Compressive Strength	BS2782 : Part3	75MPa
Absorption Water By Immersion	BS EN1170 : Part6	< 0.5% (in 7 days)
Anti-Slip	DIN 51130 EN 13748	R11 Dry Conditions > 60 Wet Conditions >50
Abrasion Resistance	BS EN13748	< 30 cm3 / 50 cm3





	SYNTHETEC®	Granite & Marble	Cast Iron	Stainless Steel	Fiberglass
Approximate Material Density Kg/m3	1800 Light- Weighted	2700	7800	7800	1500 Light- Weighted
Material Strength	Good	Poor	Good	Good	Good
Aging Resistance	Good	Good	Poor	Good	Good
Conductivity	Insulator	Insulator	Conductor	Conductor	Insulator
Chemical Resistance	Good	Good	Moderate	Good	Good
Anti-Slip	Good	Moderate Dry Condition Poor Wet Condition	Poor	Poor	Moderate Dry Condition Poor Wet Condition
At-site Cutability	Good	Moderate	Poor	Poor	Poor
Design Flexibility Color Shape Hole	Good Custom Made	Poor	Poor	Poor	Moderate
Material Cost	Moderate	High	Low	High	Moderate
Stealing Possibility	Low	Low	High	High	Low

GENERAL PLACEMENT INSTALLATION GUIDES

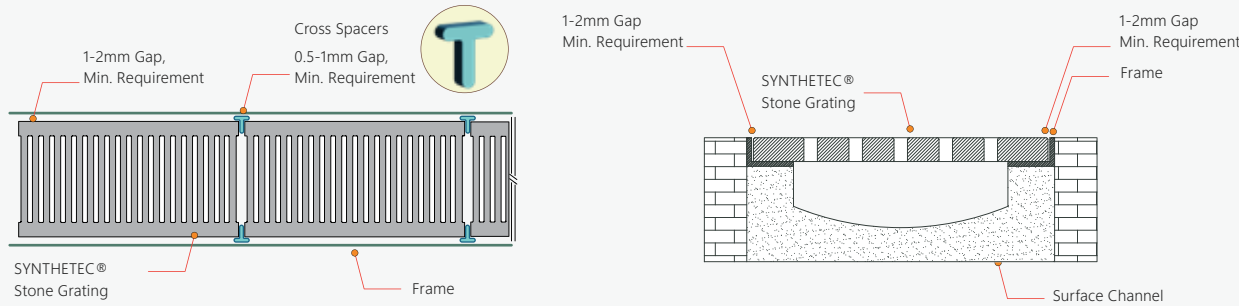
EXECUTION

1. Tolerance for Thermal Expansion (Important)

Like all materials SYNTHETEC® stone naturally expands under sunshine and shrinks at sunset. To allow for this phenomenon, the width of the surface channel at any location must be at least 1.5mm larger than the width of the grating, and the local tolerance from the true alignment should not exceed 1mm.

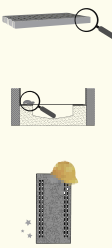
Along the surface channel, gaps between gratings shall be at least 1mm. Applying cross spacers, clips or other positioning tools for tiles would be helpful for the proper placement of the stone gratings.

Micro cracks or minor warpings may occur if the tolerances for placement are not respected.



2. Examination

- Inspect each piece of channel grating immediately before installation and eliminate pieces which have visible edge damages.
- Check frames and verify that the surfaces are clean, dry and have no protrusions which may cause point loading that may damage the channel grating.
- Do not commence installation until site is properly prepared. The installation of channel grating should be planned as the last step of the construction works to the trench and environment nearby, and after danger of damage from construction traffic has passed.



3. Preparation

- Remove all protective packaging.
- Clean surfaces thoroughly prior to installation.



4. Installation

Install in accordance with manufacturer's instructions.

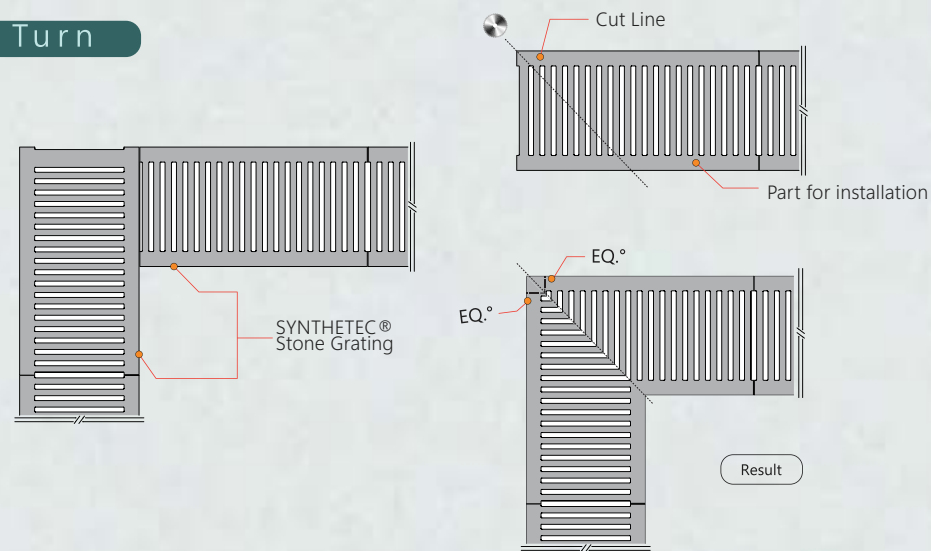


5. Cleaning and Protection

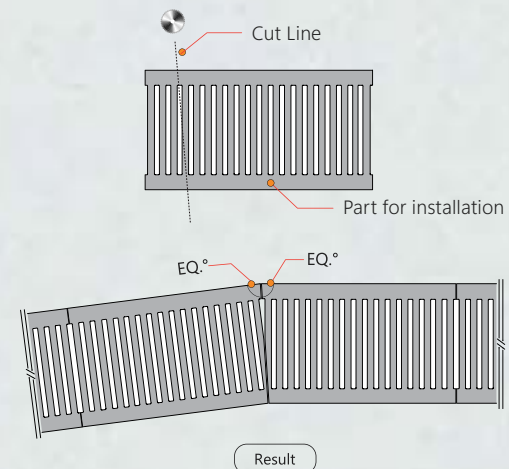
- During and after the installation on a unit by unit or area by area basis, protection sheet shall be placed immediately to cover the channel grating and ensure it is not removed or damaged until the area is open to the public.
- Prevent the grating for any potential exposure to smear, scratch or abrasion to other materials, tools and machines.
- Clean promptly after installation in accordance with manufacturer's instructions.
- Do not use harsh cleaning materials like acid wash that could damage the product.
- Repair or replace product if damaged by mishandling.



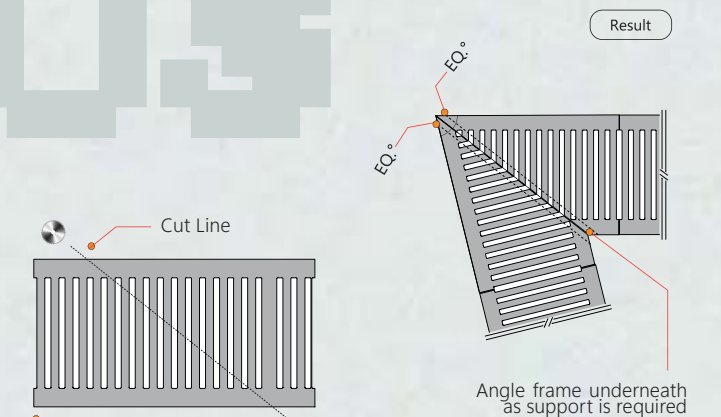
90° Angle Turn



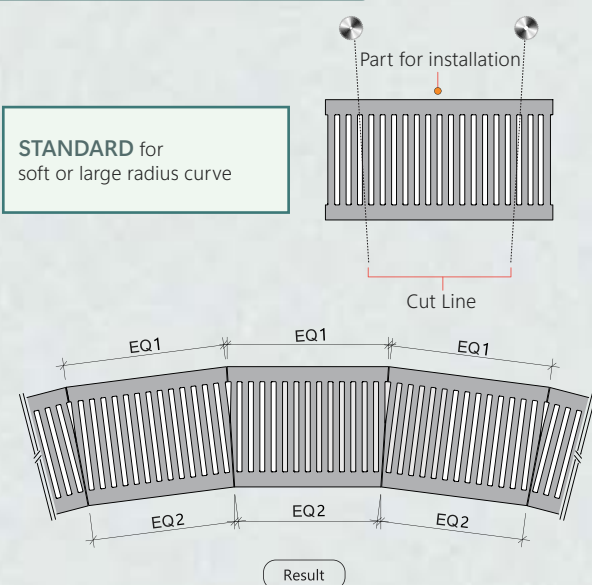
Obtuse Angle Turn



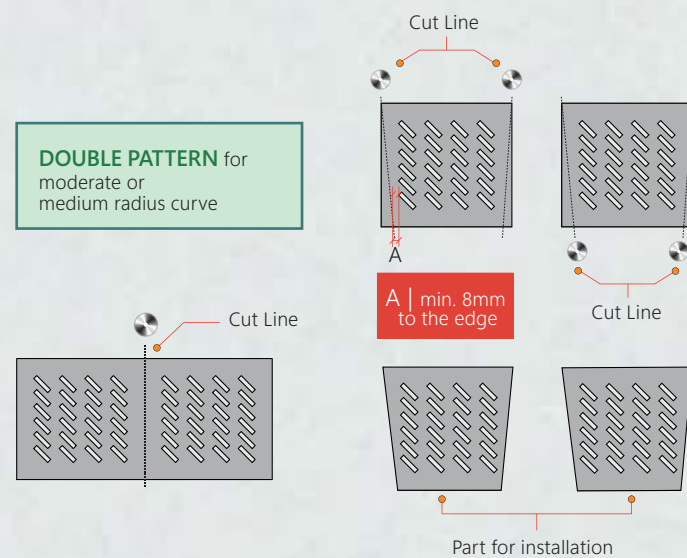
Acute Angle Turn



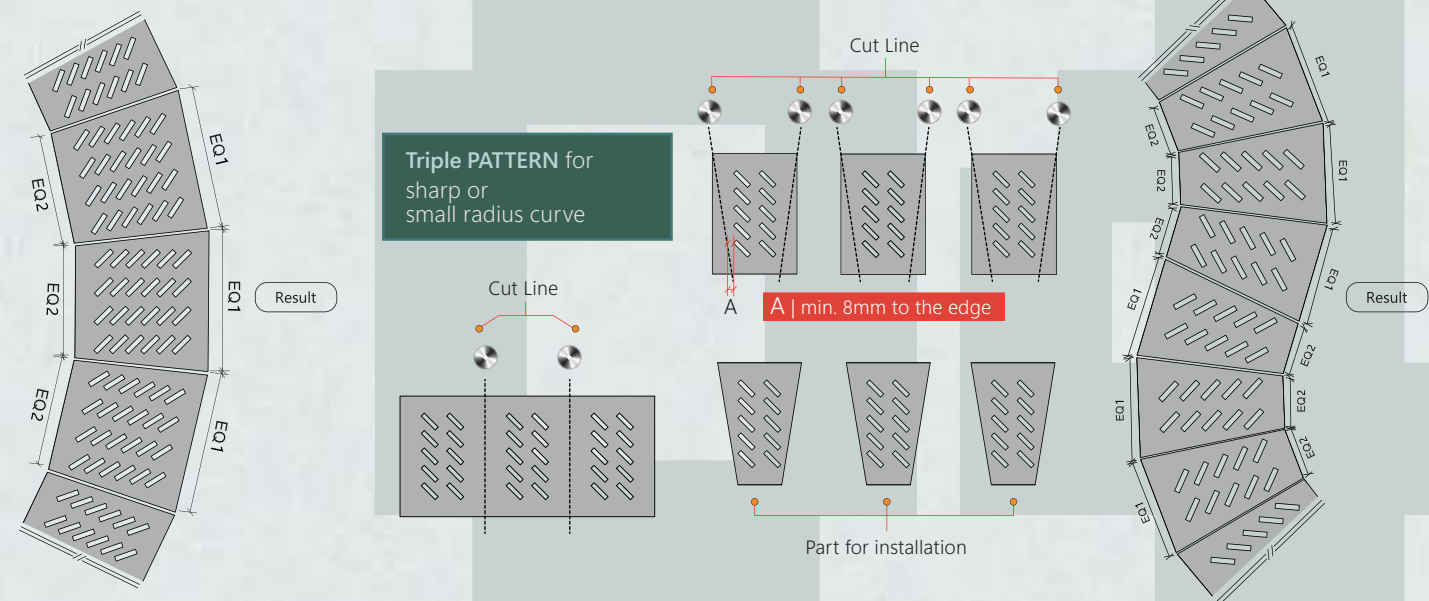
Curve Channel



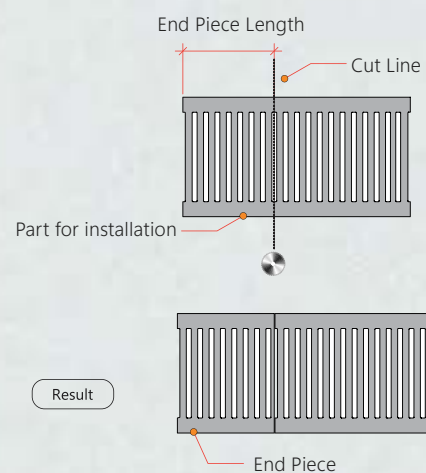
DOUBLE PATTERN for moderate or medium radius curve



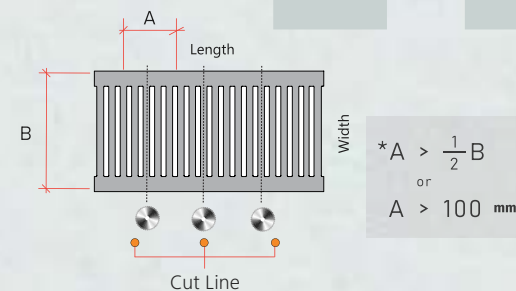
Triple PATTERN for sharp or small radius curve



End Piece



CAUTION:



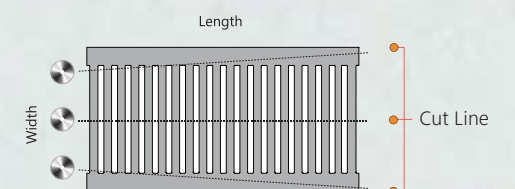
The **LENGTH** of the grating cover after modification shall be more than **1/2 of WIDTH** or **100mm** whichever is bigger.

Valid Cutting Direction

The modification of the length on site is allowed

Invalid Cutting Direction

The modification of the **WIDTH** is **HIGHLY NOT RECOMMENDED**. Any attempt to do so may cause structural damage



Water Park | Ocean Park Hong Kong

Client: Ocean Park Hong Kong

Category: Park

Location: Water World Ocean Park 33 Ocean Drive, Hong Kong

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