

# SYNTHETEC®

STONE  
GRATING

Product #2  
Catalogue  
2022

**FIBRPRO®** Official  
precast Website



Scan  
Me





WITH OVER A DECADE OF SUCCESS  
SYNTHETIC® 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

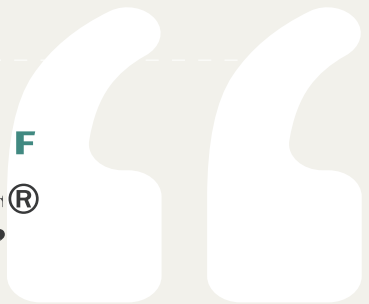


**Project Owner:** Drainage Serices Department Of HKSAR  
**Details:** Provision Of FRP Formworks To The Concreting Of Sewage Conveyance System From North Point To Stonecutters Island. Across Victoria Harbour





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

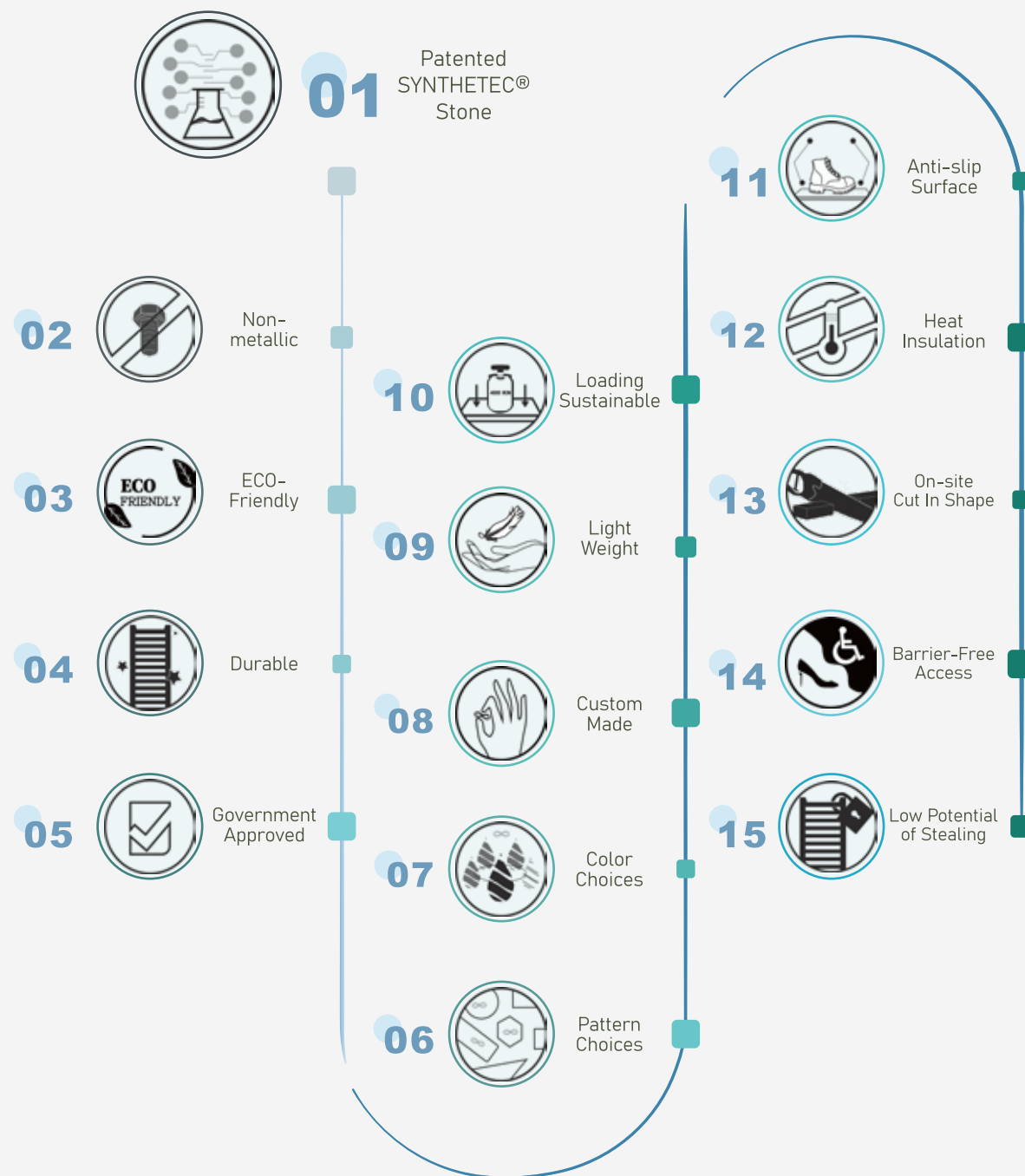




## SYNTHETEC® STONE ADVANTAGE

### 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 建造業  
創科基金  
CITF Pre-approved Product

## Construction Innovation and Technology Fund

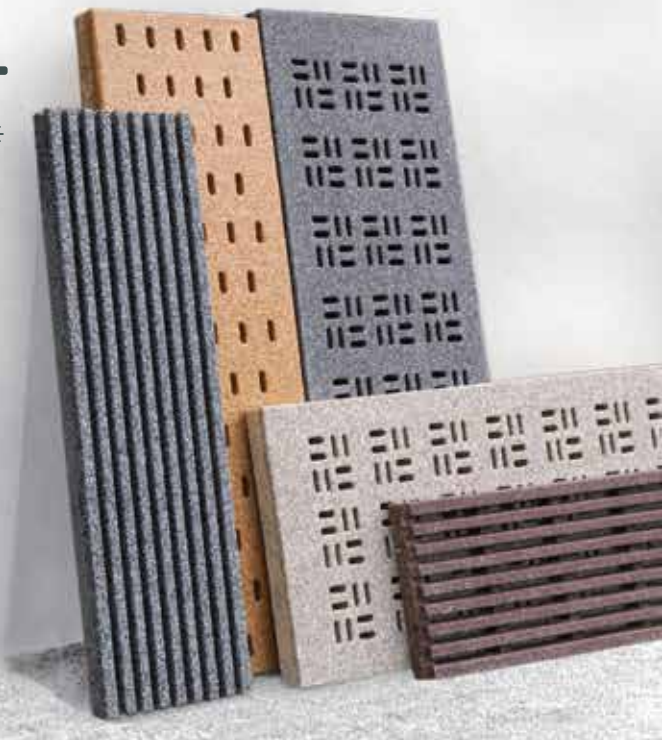
PRE APPROVED CODE :  
**PA20-084**

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 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



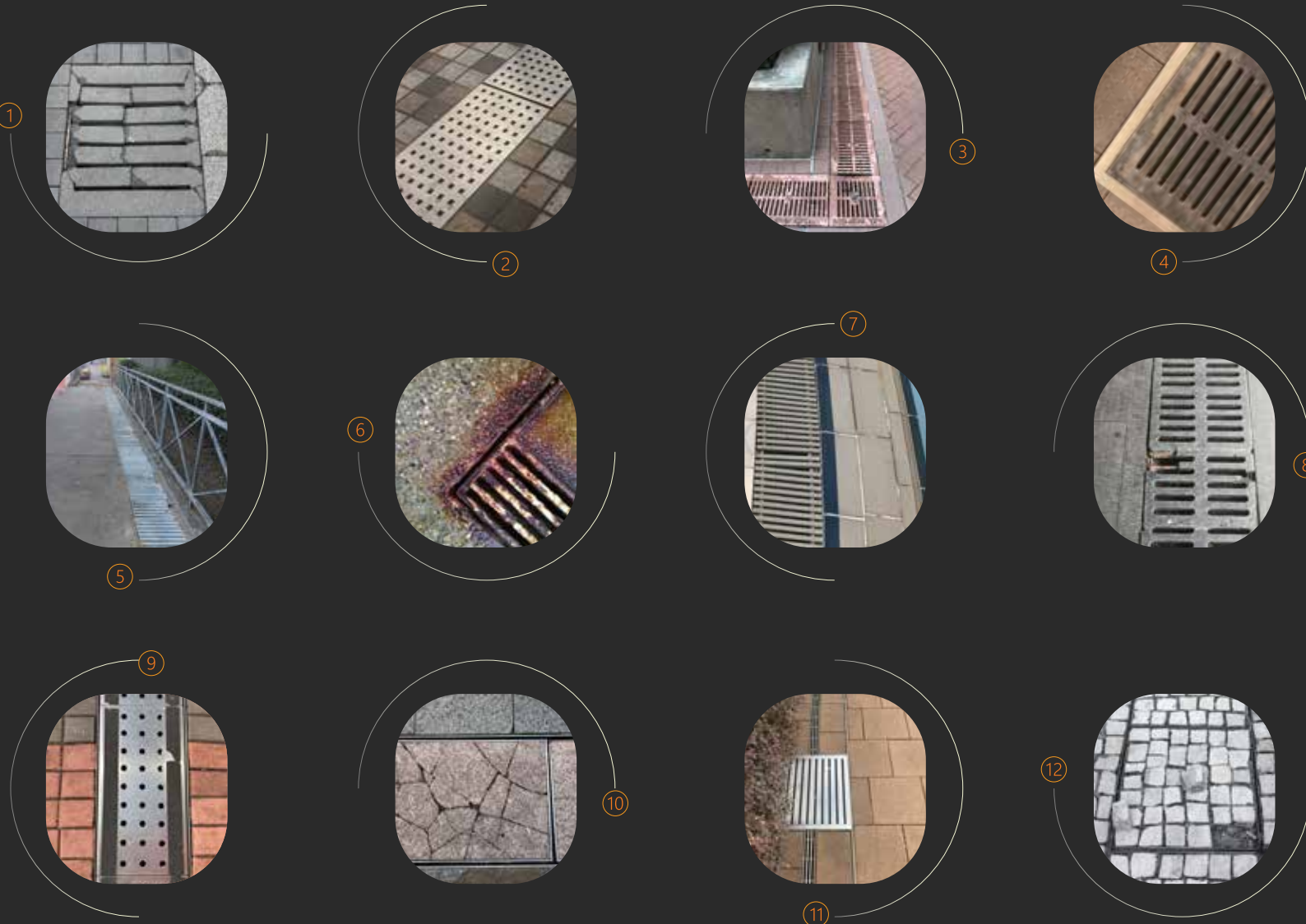
# NO CHOICE BUT TO COMPROMISE ?

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

Scan Me



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

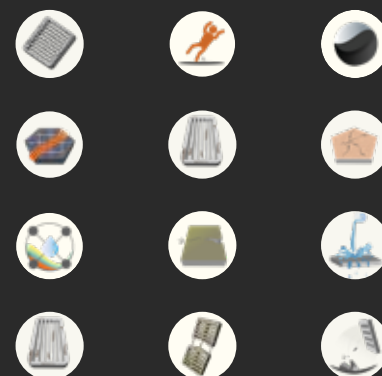
⑦ Brittle Plastic

⑪ Not Enough Drainability

④ Rusting Of Internal Reinforcement

⑧ Material Spalling Of Due To Internal Rusting

⑫ Separation of Granite / Marble / Tile



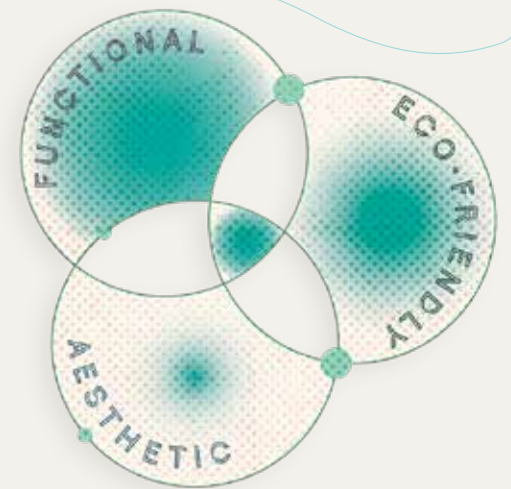
## YOUR AESTHETIC LANDSCAPE SOLUTIONS

InnoCell Hong Kong | Science Park

Client: Science Park Hong Kong

Category: Housing

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



### SYNTHETEC®

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

① SYNTHETEC®  
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 SYNTHETEC®



Scan Me

Please Scan the QR 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

## 06 ▲ 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:  
Tsz Tin Road, Yan Tin Estate, Tuen Man, Hong Kong







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

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



# 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

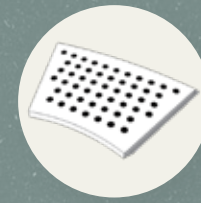
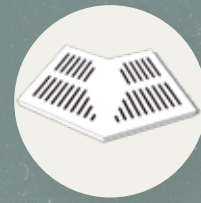
Color  
& Texture

Size  
& Shape

Hole  
Pattern



CUSTOM MADE  
SERVICE



### SIZE & SHAPE

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

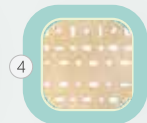
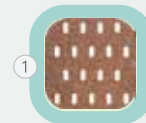
### COLOR

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

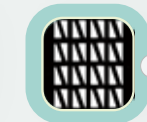
④ Irregular Square

⑤ Equal Sign

⑥ Triangle

⑦ Plum Blossom

⑧ Vertical Lines



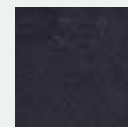
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### FINISHING TEXTURE

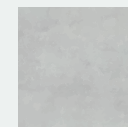
You could choose severalty types of finishing according to the grating usage.



Anti-Slip



Metall-Like



Smooth



Wood-Like

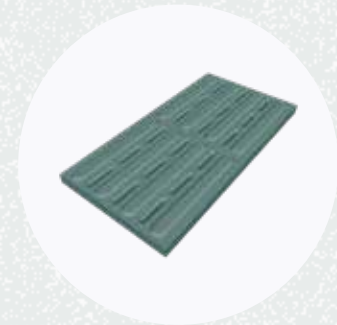


Gravel-Like



TACTILE TILE / GRATING

3D MODEL DEMONSTRATION



Directional Tile



Top



Bottom



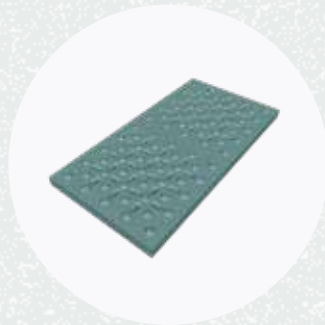
Hazard Warning Tile



Top



Bottom



Positional Tile

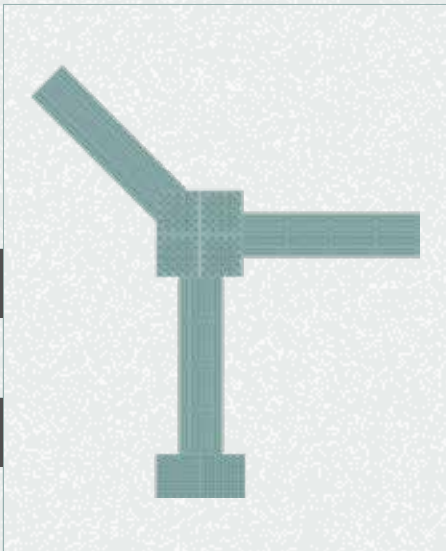


Top



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

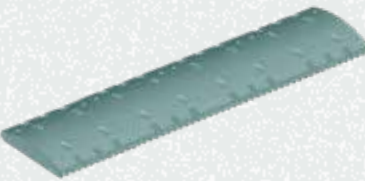
Appearance Design  
Patent

Patent No.  
ZL 2022 3 0091001. 7

Utility Model  
Patent

Filed No.  
2022 2 0358393.3

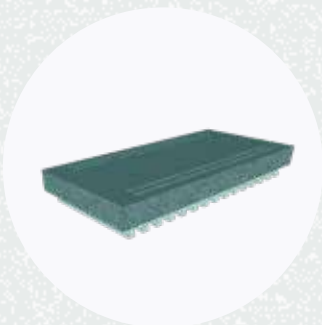
Application Speed Bump | Grating  
MODEL DEMONSTRATION



Non-metallic Composite Grating & Its Structure

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

3D MODEL DEMONSTRATION



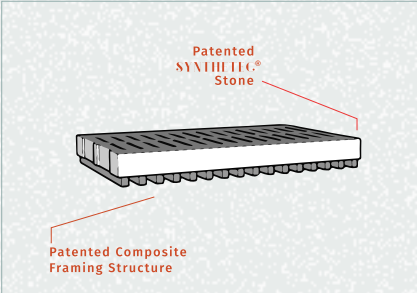
Top



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

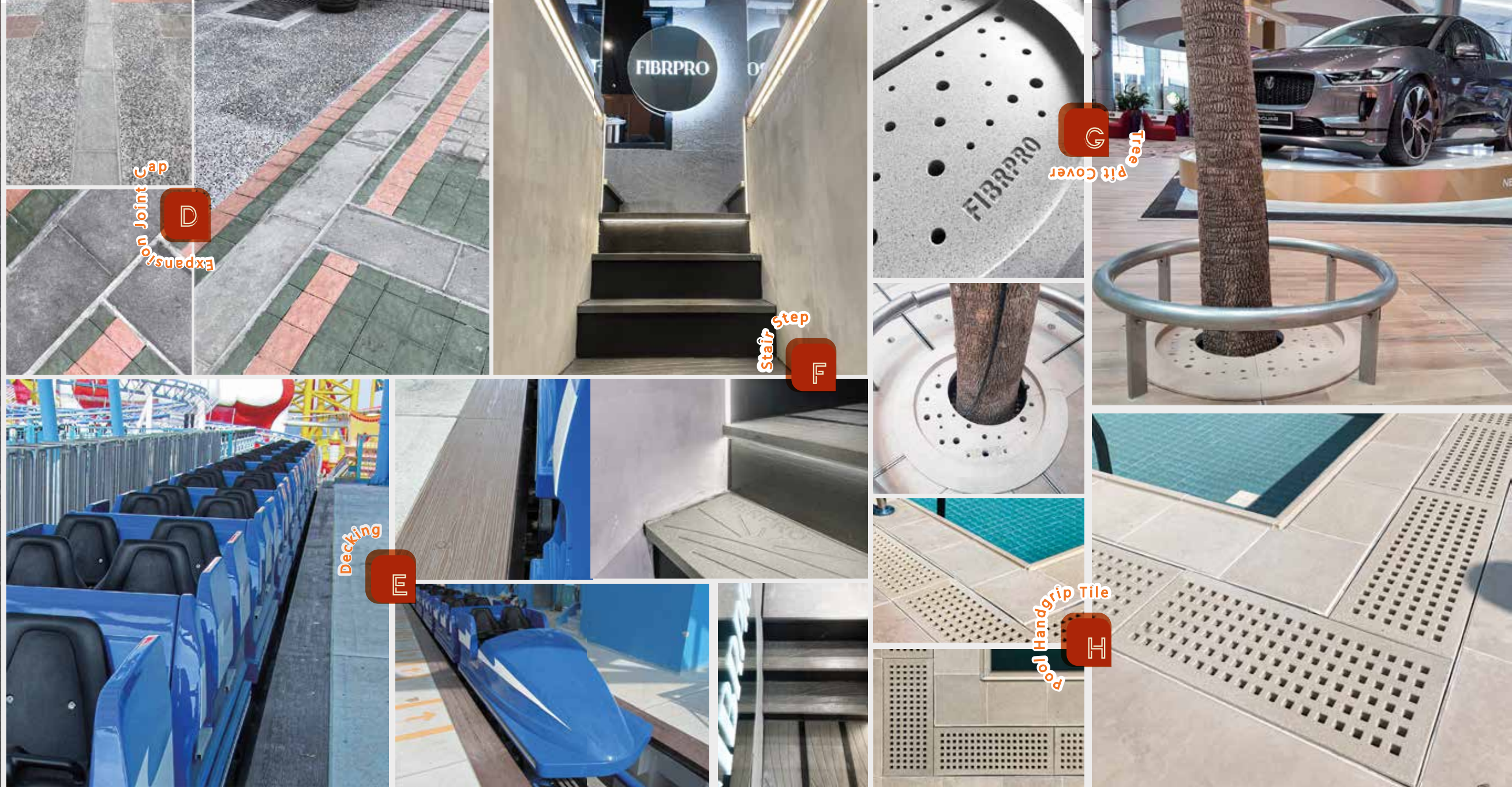


BEAUTY

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



D



E

Decking

Stair Step



F

Project Reference  
Fibrpro Head Office | Hong Kong

Client:

Fibrpro International Ltd.

Category:

Public Area

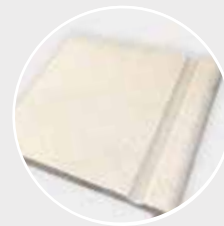
Location:

Shatin Industrial Centre, Nos. 5-7  
Yuen Shun Circuit, Sha Tin



G

Tree Pit Cover



H

Project Reference  
Villa at Peel Rise

Client:

Private

Category:

Swimming Pool | Housing

Location:

Peel Rise, The Peak, 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

Project Reference

Singapore Changi Airport

Client:

Singapore Changi Airport

Category:

Public Area

Location:

Airport Blvd., Singapore



# 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

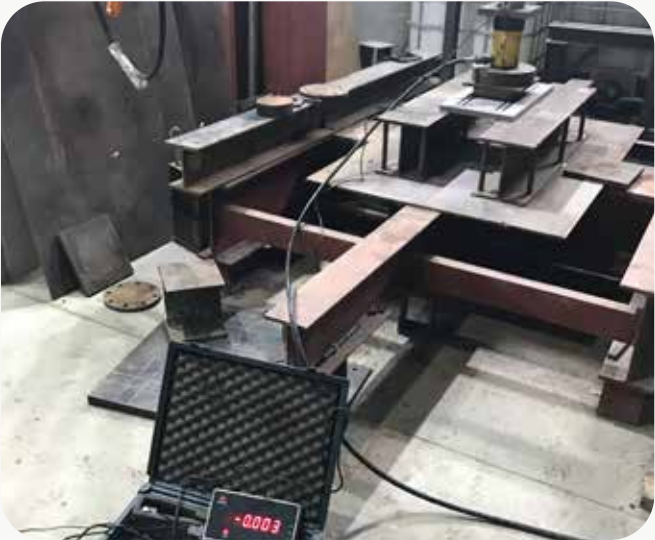


2

## Non-Slip Surface Tests

Available for Several Anti-Slip Requirements

- Complied with DIN 51130 Standard carrying out in Materialab
- 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 Materialab

- 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

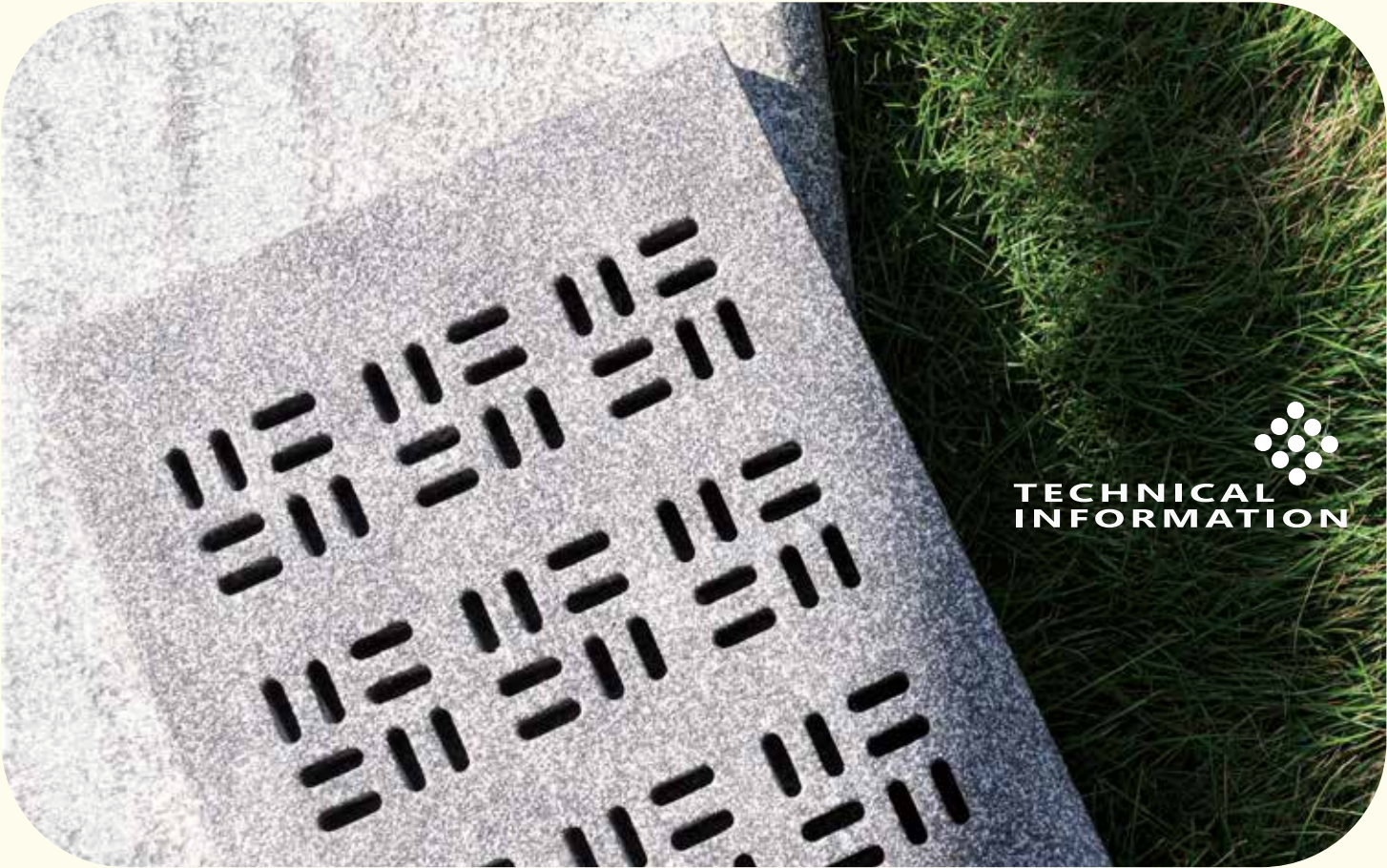
Withstanding a 300kN test load. For use in areas where cars, lorries and fire truck have access, including carriageways, hard shoulders pedestrian areas and emergency vehicular access.

Group 3

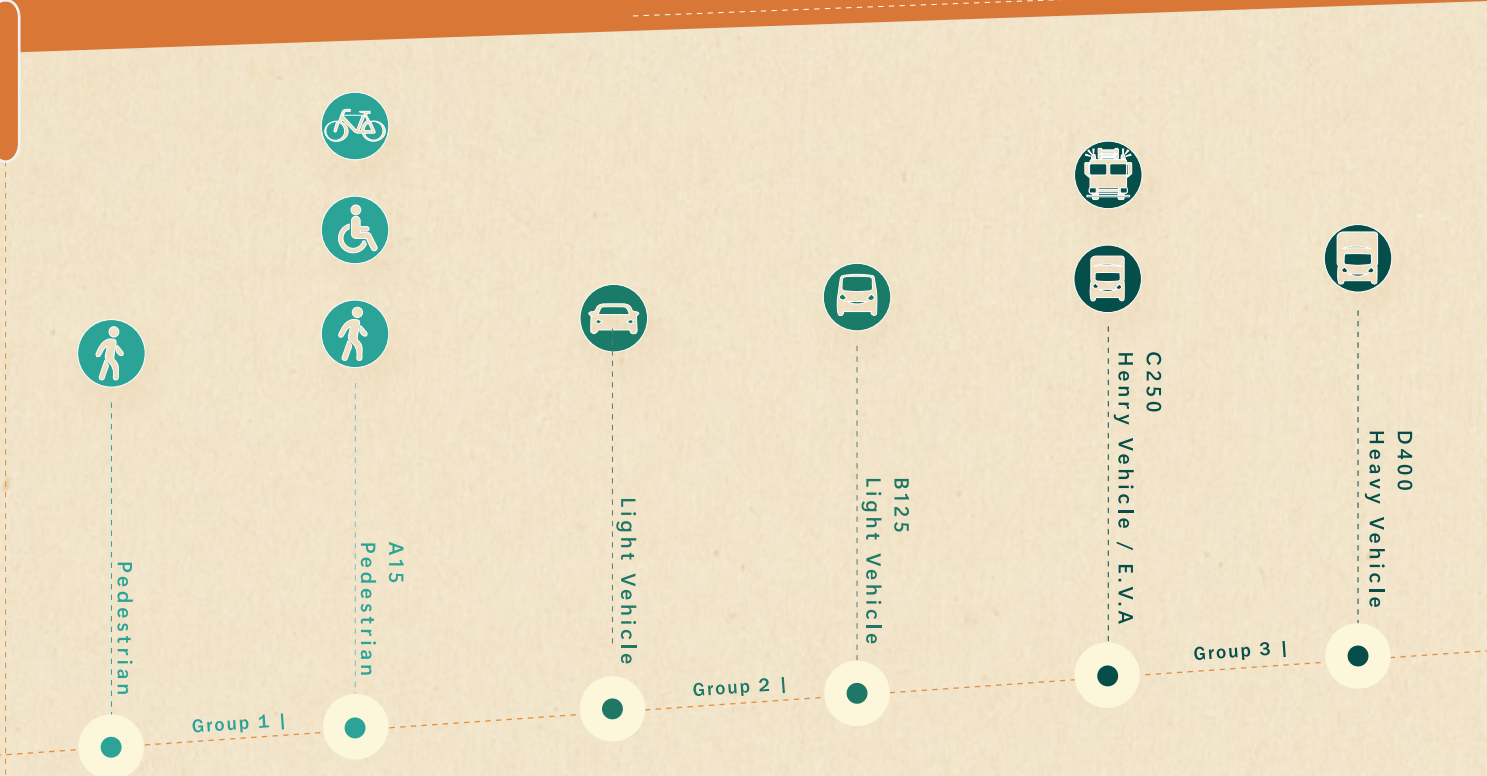
## D400 Heavy Vehicle

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

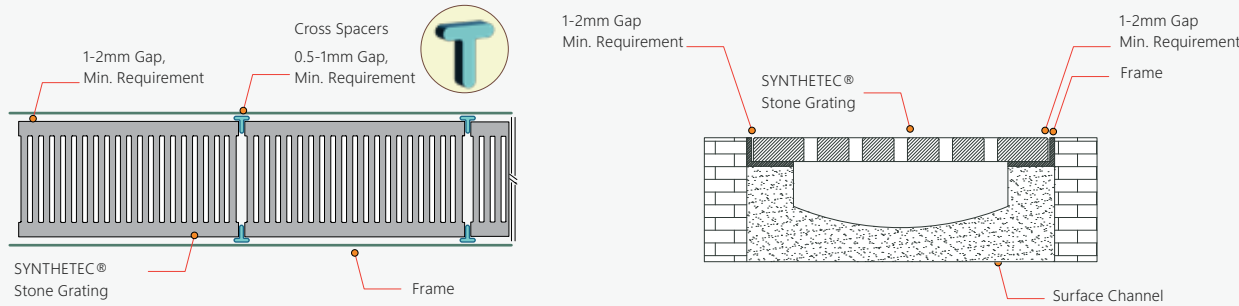
## EXECUTION

### 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.



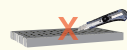
### 4. Installation

Install in accordance with manufacturer's instructions.



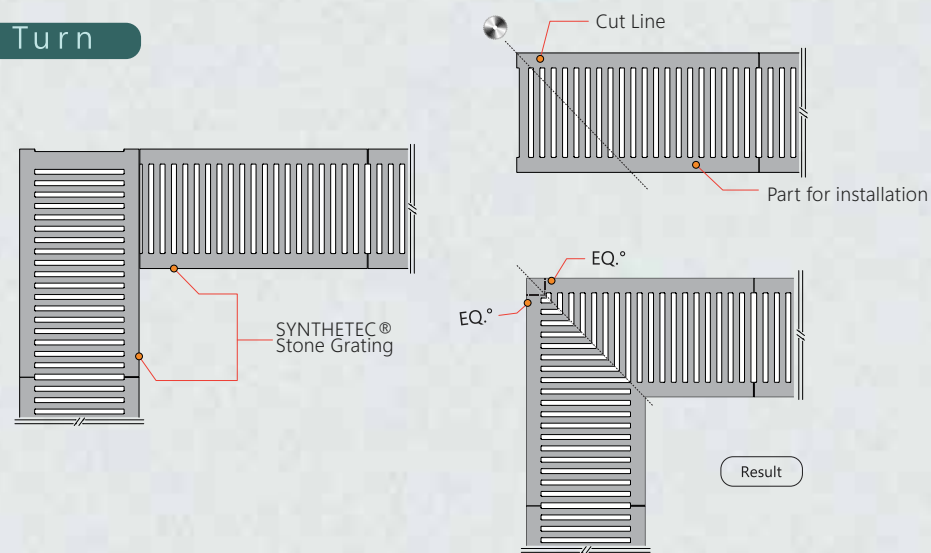
### 5. Cleaning and Protection

- 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.

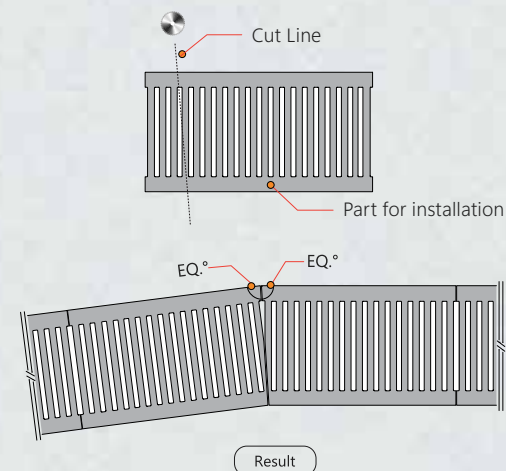




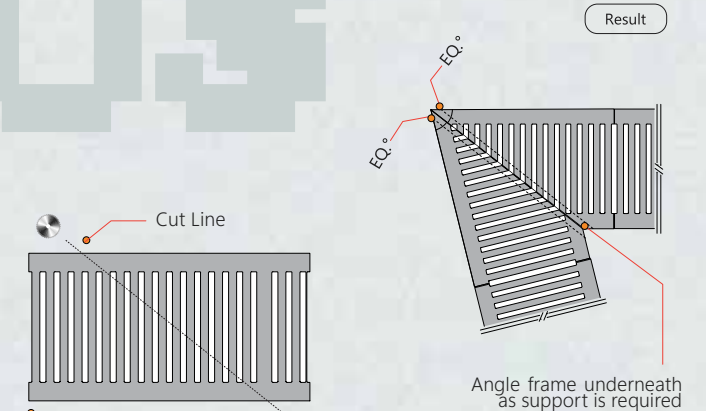
## 90° Angle Turn



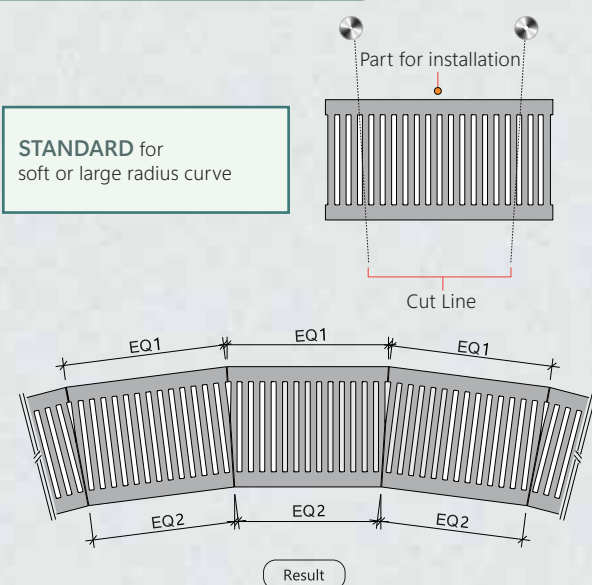
## Obtuse Angle Turn



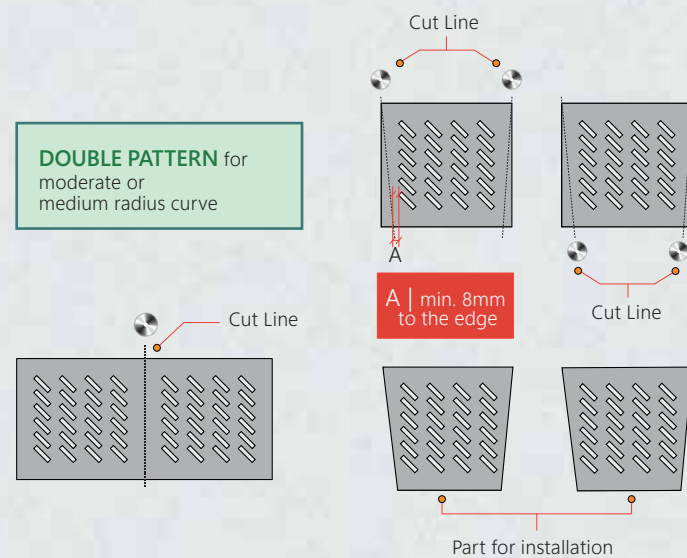
## Acute Angle Turn



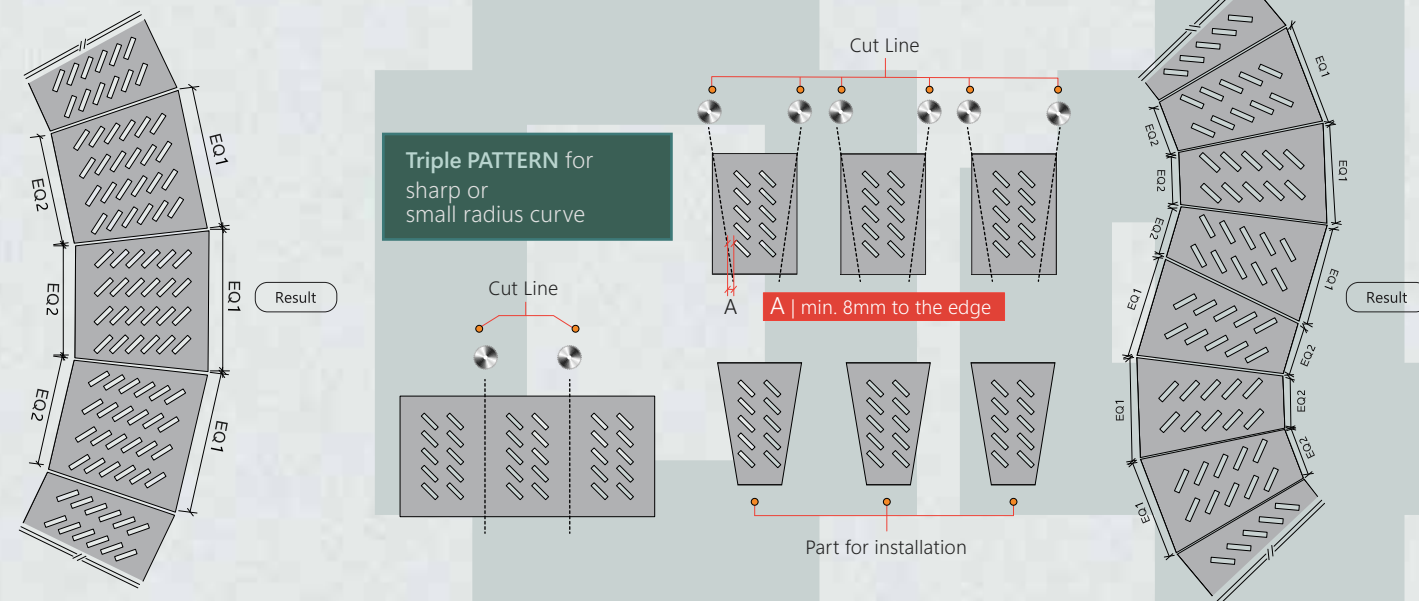
## Curve Channel



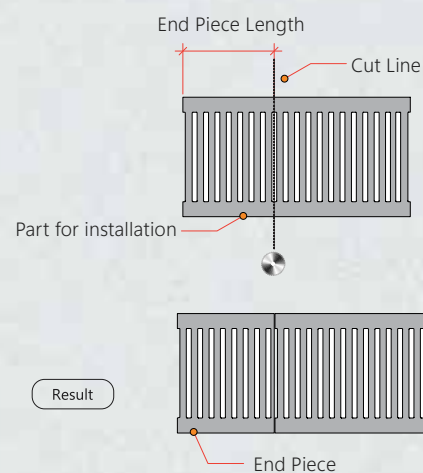
**DOUBLE PATTERN** for moderate or medium radius curve



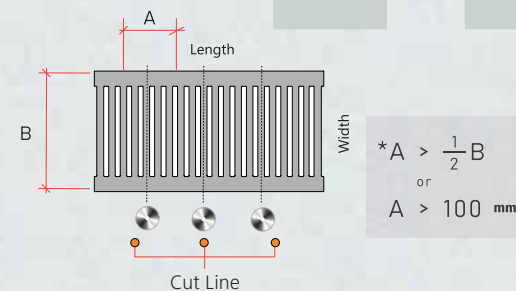
**Triple PATTERN** for sharp or small radius curve



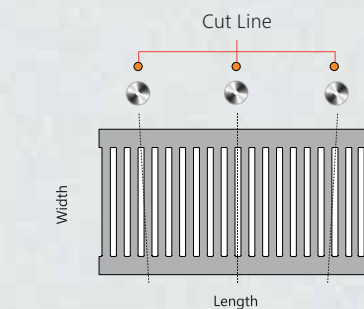
## End Piece



**CAUTION :**



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

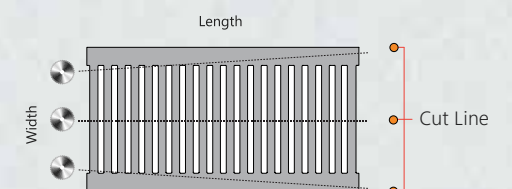


**Valid Cutting Direction**

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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