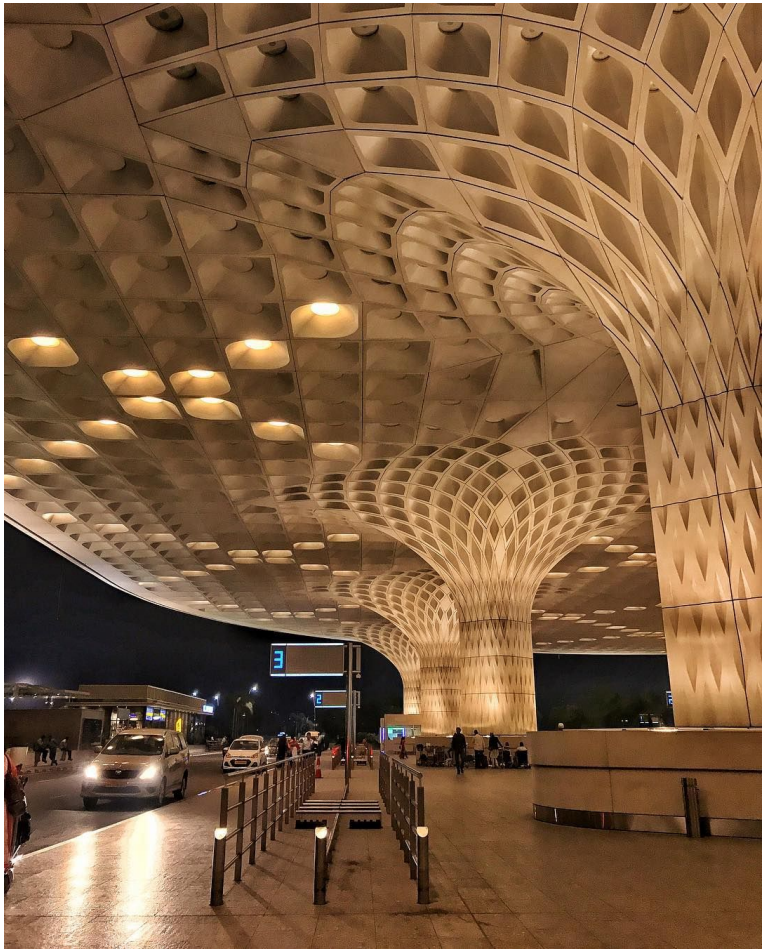
PETRA™

ARCHITECTURAL MOLDED COMPOSITES

Agenda



01 Introduction

Where Innovation Meets Tradition In Crafting Timeless Spaces.

Petra Design, where architectural excellence meets a legacy of over 25 years of delivering premium
GFRC, UHPC, FRP, and Precast Architectural products. We take pride in supplying a diverse range of solutions to both commercial and residential projects across North America.

At Petra Design, our extensive product line includes but is not limited to exterior cladding solutions, columns, cornices, door surrounds, sills, porticos, domes, balustrades, and more.

Whether you're an architect, interior designer, contractor, builder, or homeowner, we collaborate with you on new constructions and renovations, ensuring your project receives the highest quality and aesthetic appeal.

PETRA™
ARCHITECTURAL MOLDED COMPOSITES

02

Why GFRC/UHPC

PETRA™

ARCHITECTURAL MOLDED COMPOSITES

GFRC	Mesh GFRC	UHPC	Precast
Shape is a priority	Shape expensive	Mostly flat panel, some forming	Status Quo, well understood, locally sourced - low $
Cost is in mould repetition	Cost is in manufacturing	Cost is in mould repetition	Weight, leads to structure
Any colour or finish, incl brick	20+ colours, 4-5 textures	Any colour or finish	Some colour and texture flexibility eg brick
Light, Easy to install	Light, Easy to install	Light, Easy to install	Heavy, but install well known
Custom, no waste	Standard sizes, waste	Custom, no waste	Custom, no waste

UHPC

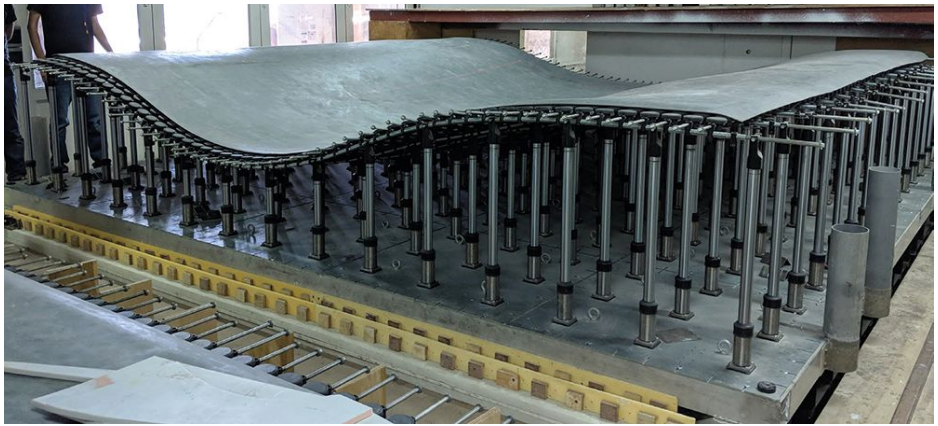
Ultra High Performance Concrete

Innovative composition allows for slender designs, making it a preferred choice for robust, long-lasting structures.

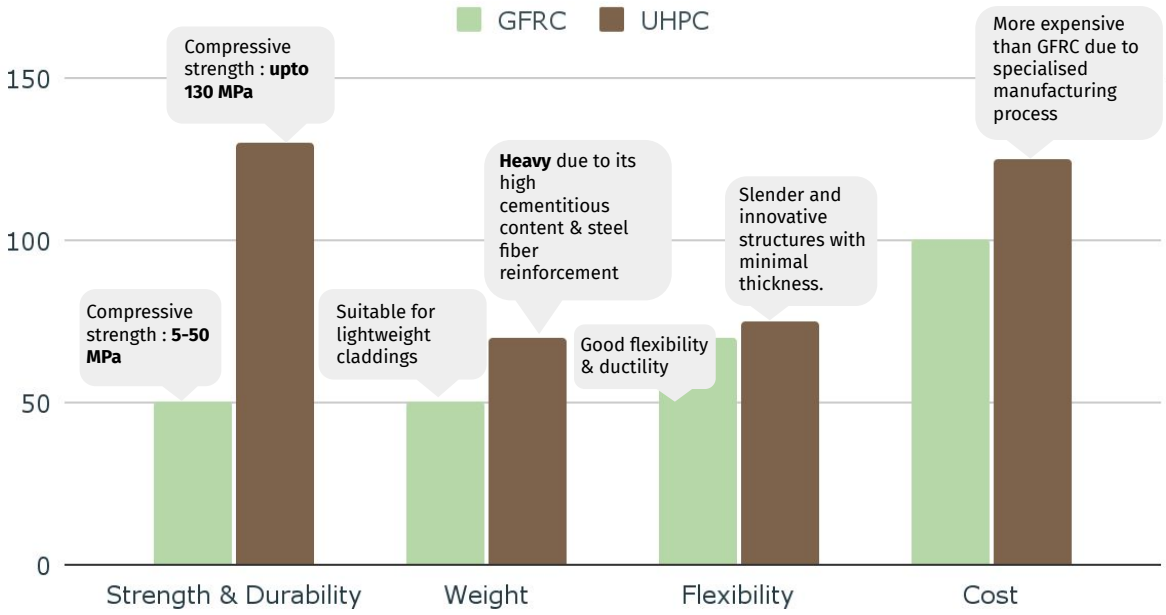
Boasting exceptional strength and durability. With compressive strengths surpassing **130 MPa**

Unparalleled resistance to corrosion and wear.

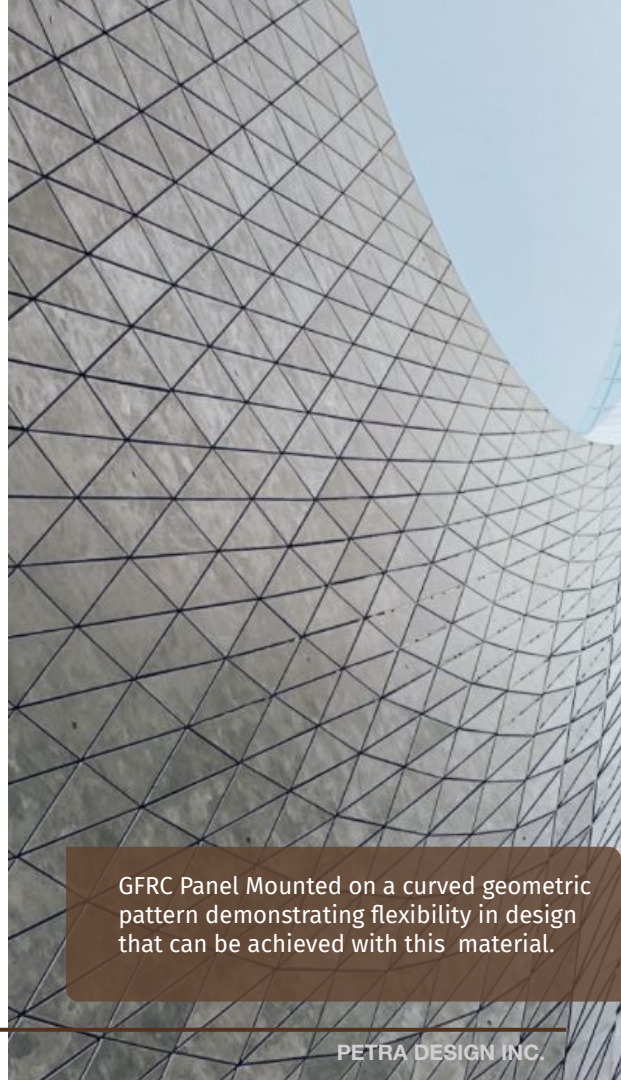
Use of Programmable Molds



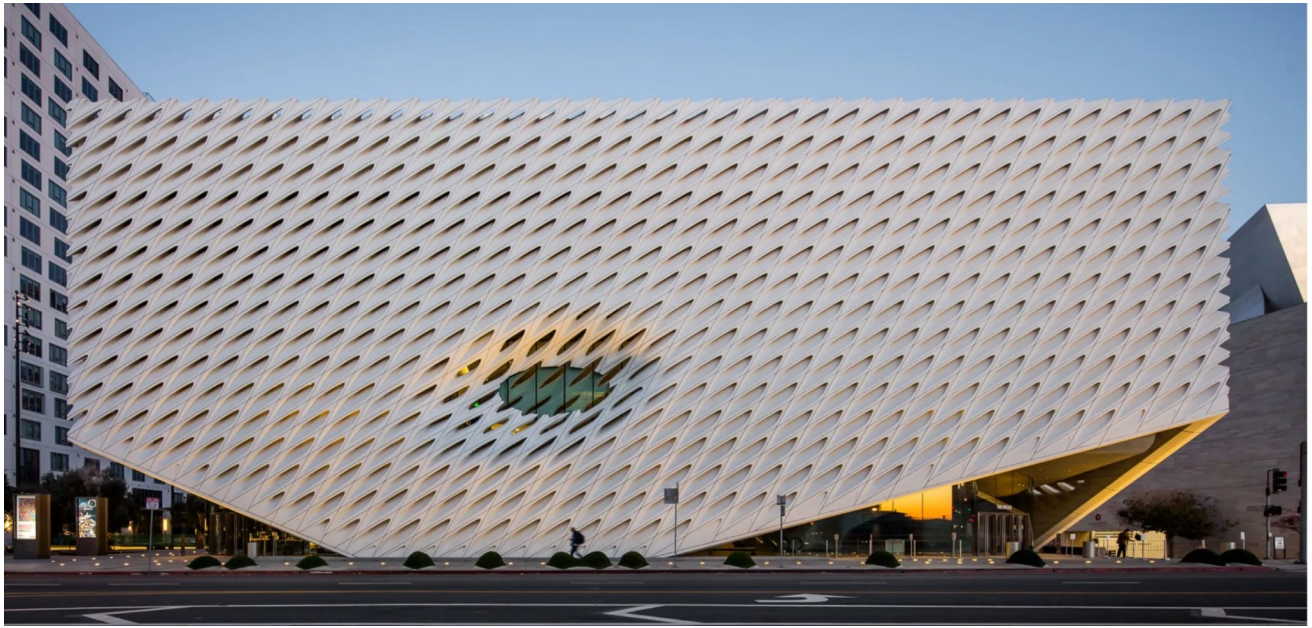
The distinct characteristics - GFRC vs UHPC

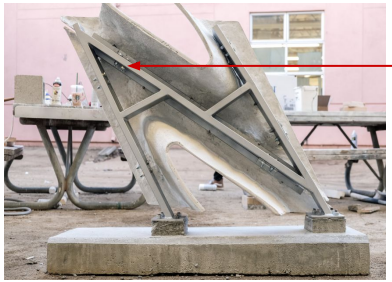


Both GFRC (Glass Fiber Reinforced Concrete) and UHPC (Ultra-High Performance Concrete) possess fire-resistant properties and are considered environmentally friendly materials.

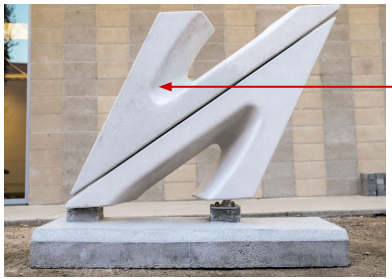


GFRC Panel Mounted on a curved geometric pattern demonstrating flexibility in design that can be achieved with this material.





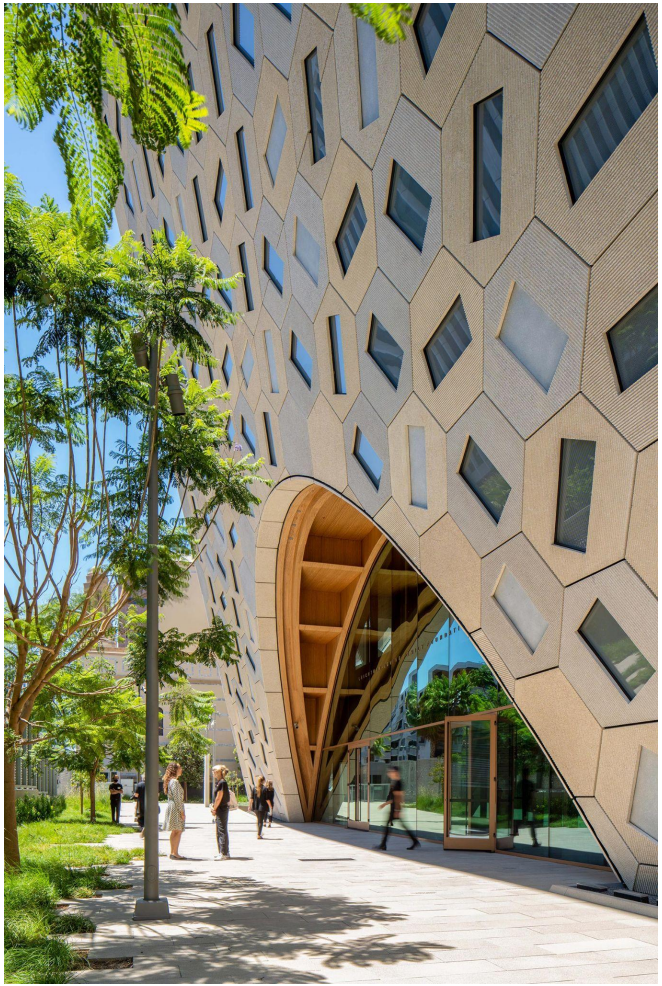
Metal Stud Framing



GFRC Design Cladded to back frame

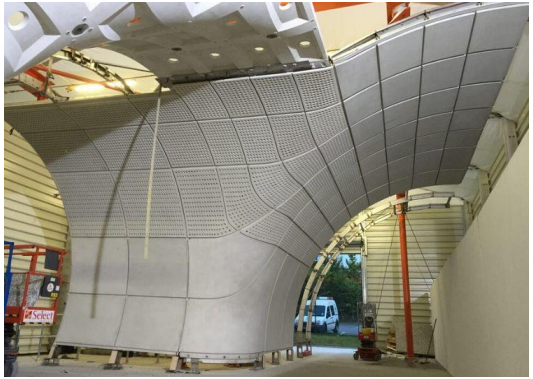
The Broad Museum

The design of the structure is very clean and crisp.The design is narrowed down to its basic structure and unveiled the inside of the building by carefully drawing and executing it. The main structure which is the steel, concrete and GFRC panels. And how these three work together to make a strong and workable structure for the public when is at full scale.



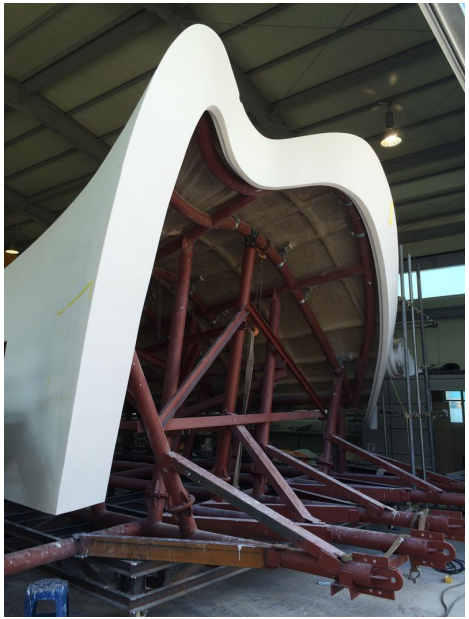
The Audrey Irmas Pavilion

Clad in hexagonal stone tiles, the Audrey Irmas Pavilion at the Wilshire Boulevard Temple.
The 55,000-square-foot structure is clad in 1,230 hexagonal panels, some of which have rectangular glass openings that are arranged to create a pattern across its sloped facades.



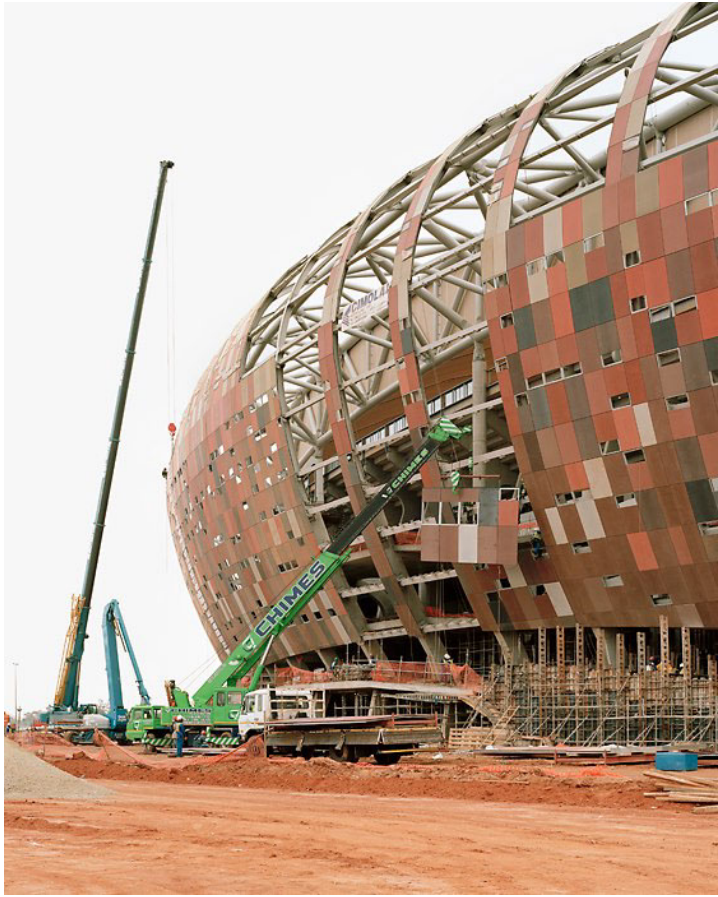
Crossrail Tunnel London

The fitting out of the Elizabeth Line stations on the London Underground included the creation and installation of glass fibre reinforced concrete cladding panels. These were used to negotiate and accommodate complex shapes as well as to ensure structural strength



DIOR Flagship Store

The exterior of the building features a sculptural white facade, that was inspired by the shapes and movement of the fabrics in Dior's fashion collection.
The fabric inspired facade, was made from large panels of GFRP (glass fiber reinforced panels).



the Soccer City Stadium

Elements made a significant contribution to the construction of the world cup stadium in Africa by realising the glassfibre reinforced concrete façade in native African colours. **30.000 m² fibreC panels** in typical african colours (sandstone, terra, mocca brown, terracotta, haima red, sahara...) were installed.The fibreC cladding promotes the Soccer City Stadium eco-responsible construction by using less material and extending building life.

Heydar Aliyev Cultural Center

the manufacture of 16,150 cladding panels. These panels generate a single curving surface that appears to emerge from the topography. It rises, undulates, and wraps inward at its base to completely envelop the building's various volumes.

Inlaid Real Brick

05

PROJECTS

Petra Work Examples

PETRA™

ARCHITECTURAL MOLDED COMPOSITES

ELLIE CONDO

North York, ON

Commercial Tower Cladding
LARGE SCALE GFRC EXTERIOR CLADDING
Fabricated by: Petra Design, Toronto

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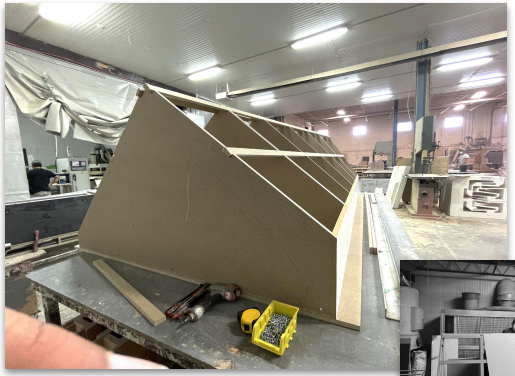

Image: *Mold production for Ellie Tower podium by Petra Design*

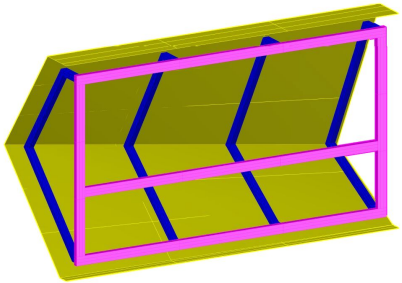

Image: *3d Model Generation for Tooling and Precise size for part*

Image: *HSS Frame Connections works as a armature for GFRC*

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Commercial Tower Cladding
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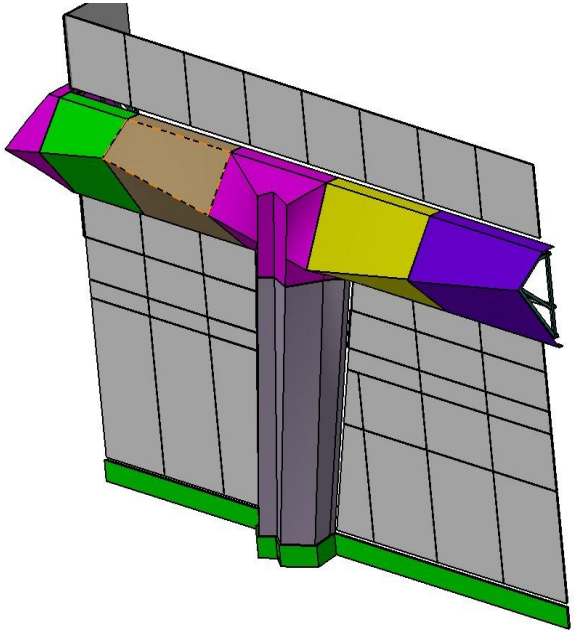

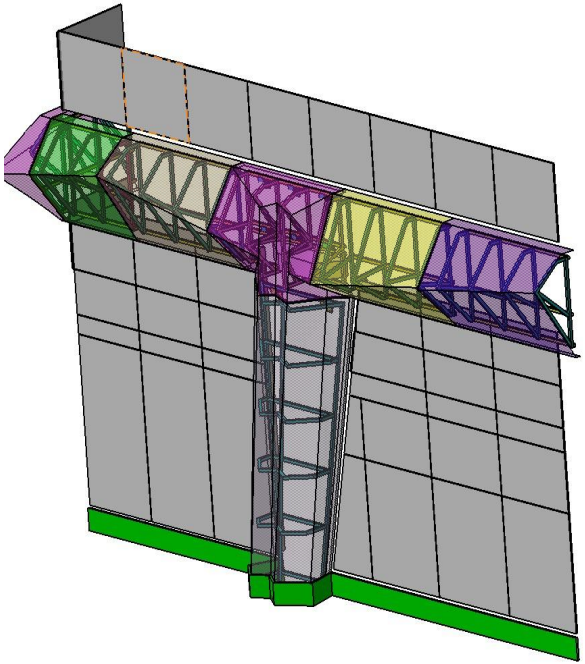

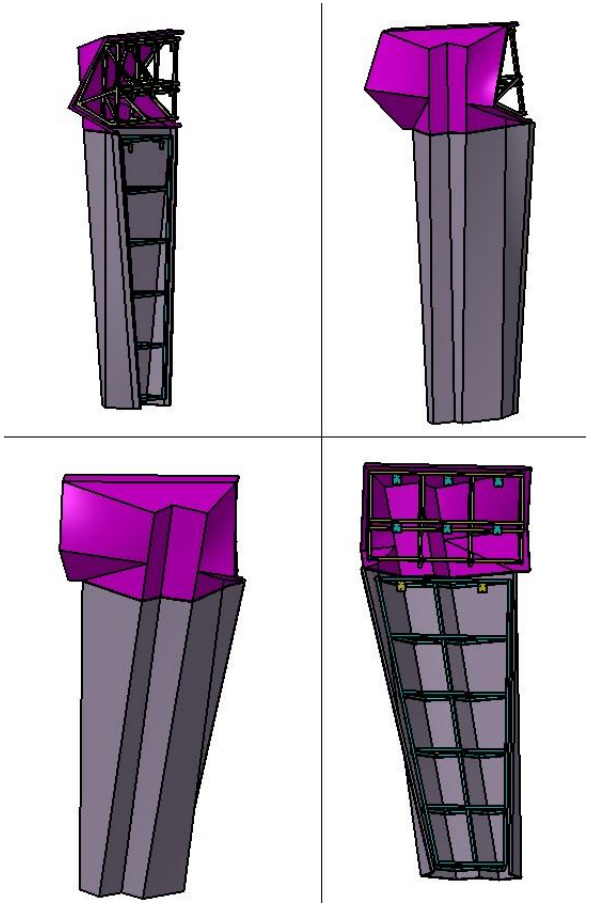

Commercial Tower Cladding
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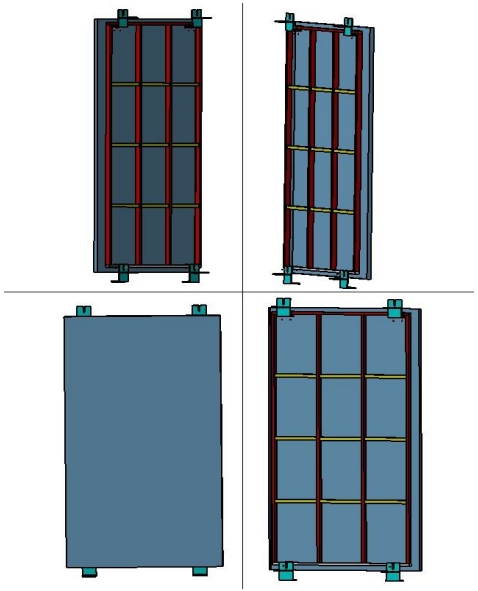
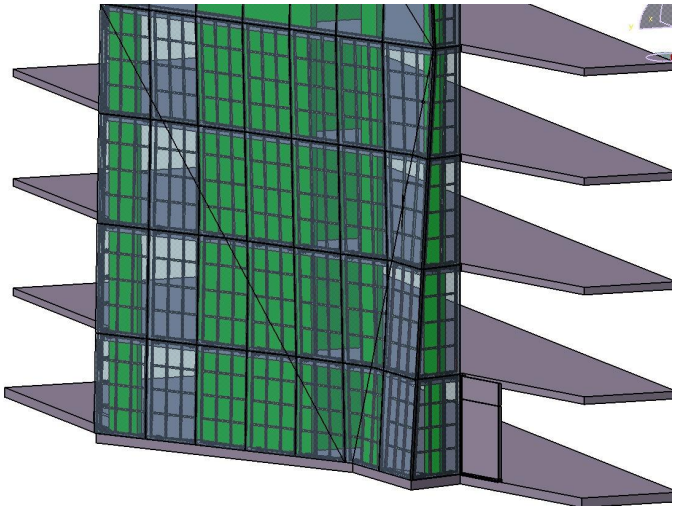
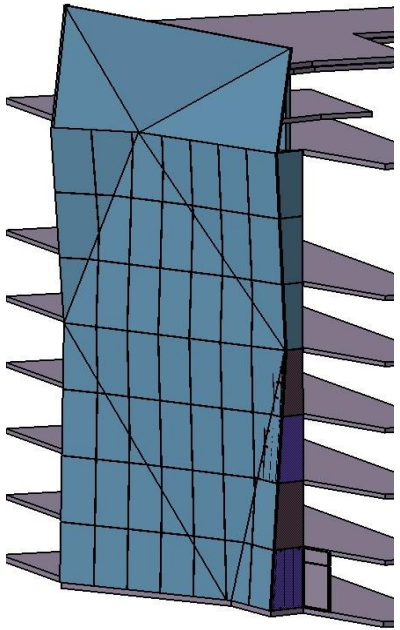
ELLIE CONDO

North York, ON







Commercial Tower Cladding
LARGE SCALE GFRC EXTERIOR CLADDING
Fabricated by: Petra Design, Toronto

Is it stone?

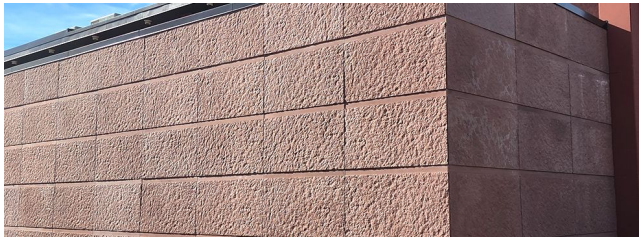
Case in Point:
SETON HALL UNIVERSITY
GFRC EXTERIOR CLADDING

Petra Design works with clients to:

Petra Design works with clients to:

1. Design
2. Engineer
3. & produce

Unique solutions to challenging problems!



Challenge

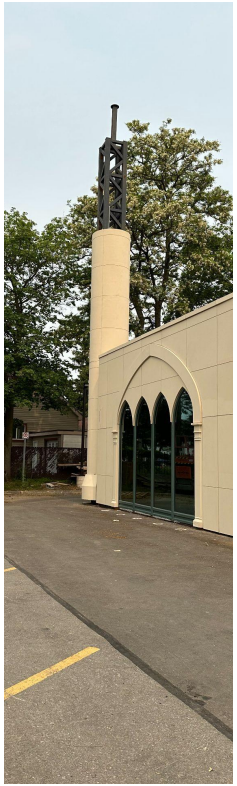
- EXTRA LARGE panels exceed capacity of available solutions

Solution

- Petra Design designs, engineers, and produces a custom embedded attachment system

OLD KINGSTON MOSQUE

Scarborough, ON



Religious Building

GFRC Cladding + FRP Dome
Fabricated by: Petra Design, Toronto

OLD KINGSTON MOSQUE

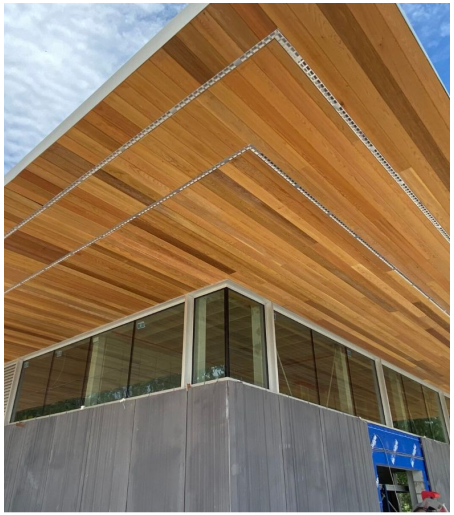
Scarborough, ON

Religious Building

GFRC Cladding + FRP Dome
Fabricated by: Petra Design, Toronto

BROWNS BAY REVITALIZATION

St. Lawrence Park, Kingston



Recreational

GFRC Cladding
Fabricated by: Petra Design, Toronto

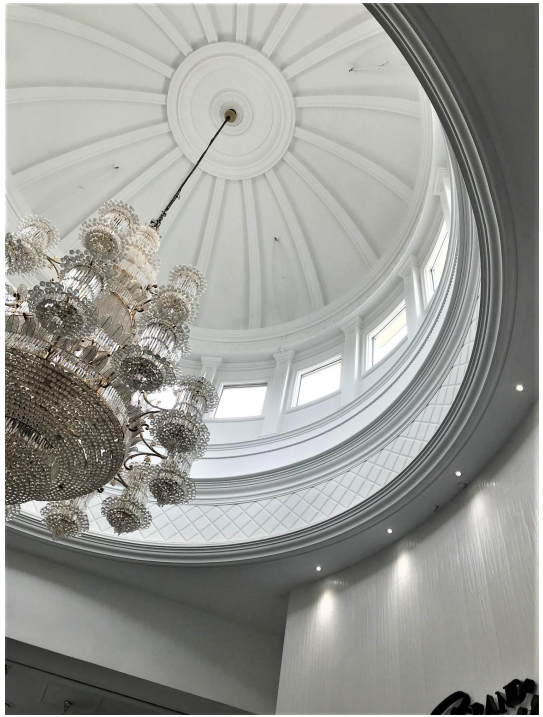
URBAN BENCH

Toronto, ON

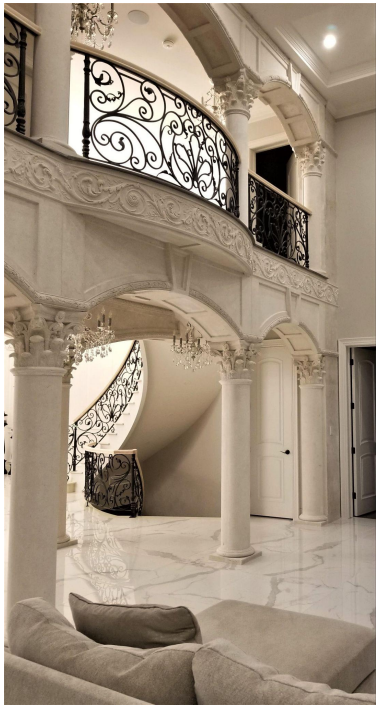
Exterior landscaping

GFRC BENCH AND PLANTER
Fabricated by: Petra Design, Toronto

INTERIOR PROJECT HIGHLIGHTS

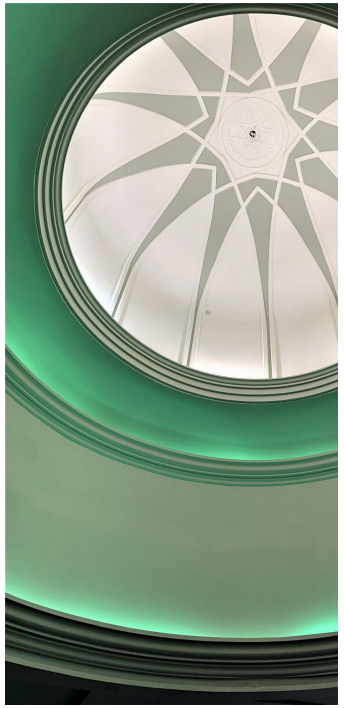


Banquet Hall Dome



Pilaster decoratives

Fireplace Design



Mosque Dome

Interior Works

Material: GRG
Fabricated by: Petra Design, Toronto

Cast Stone Project Highlights

Entrance Porch Design

Dormer Window Design

Window surrounds & Soffit Banding

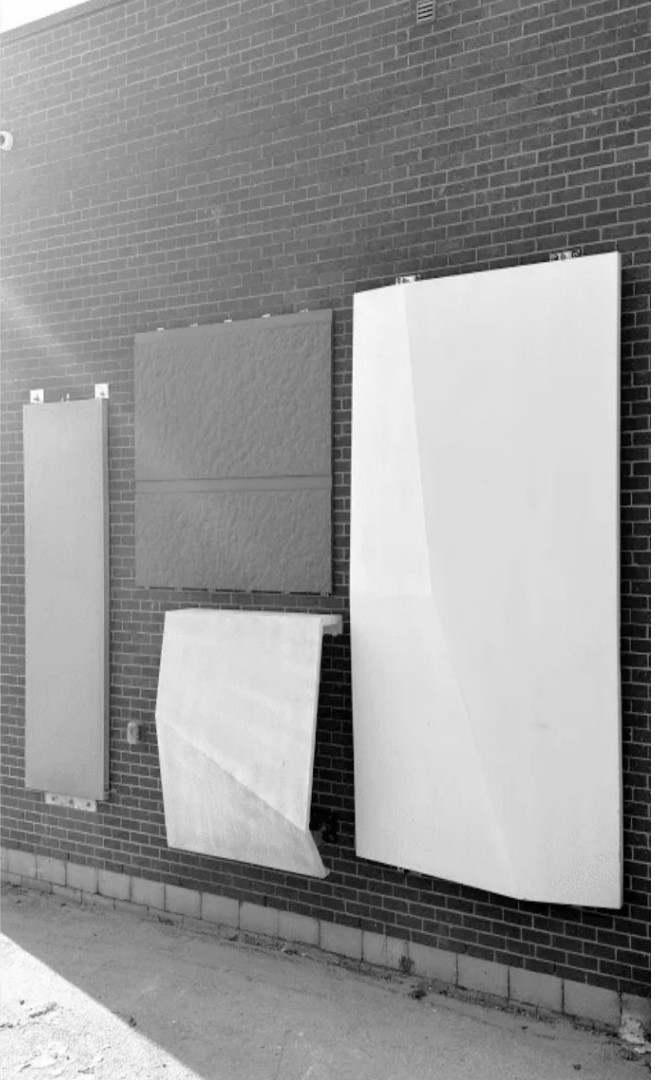
Exterior Cast Stone Projects

Material: Cast Stone/ Precast Concrete
Fabricated by: Petra Design, Toronto

GRAPHIC CONCRETE

Toronto, ON

Fabricated by: Petra Design, Toronto



We Simplify Unique Solutions

Want to see more?

https://petracast.com/

https://petradesign.ca/

VISIT OUR SHOWROOM!

47 St. Regis Crescent
North York, ON M3J1Y6

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Comparison

To GFRC vs Conventional Precast

GFRC

Strength & Flexibility: High due to the mixture of concrete reinforced with glass fibre.

Weight: It's lighter than precast concrete due to the lower density of glass fibre.

Flexibility: Offers great flexibility and ductility. Less prone to cracking and useful for producing complex shapes.

Cost: More expensive than precast concrete for simple flat panels, but wildly successful for creative designs.

Conventional Precast

Strength & Flexibility: Less strength because it lacks reinforcing fibres found in GFRC

Weight: Heavier and denser than GFRC.

Flexibility: More susceptible to cracking under tension.

Cost: Generally more cost effective in simpler, flat panels, much more expensive for shaped systems.