YEUNG'S fiberglass 楊氏玻璃纖維 est. 1983

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玻璃纖維增強混凝土
Glass-fiber Reinforced Concrete (GRC)

1. 材料簡介 Introduction

玻璃纖維增強混凝土（Glass fiber Reinforced Concrete）又名 GRC，是以耐鹼玻璃纖維作增強材，硫鋁酸鹽低鹼度水泥為膠結材並摻入適宜集料構成基材，通過噴射、立模澆注、擠出、流漿等生產工藝而製成的輕質、高強高韌、多功能的新型無機複合材料。

Glass fiber Reinforced Concrete, also known as GRC, is made of alkali-resistant glass fiber as a reinforcing material. Sulphate-aluminate low-alkalinity cement is used as a cement material and is mixed with suitable aggregate to form a substrate. Lightweight, high-strength, high-tough, multi-functional new inorganic composite materials made by casting, extrusion, and slurry production.

2. 材料性能及特徵 Performance

GRC 採用特種低堿水泥與特種玻璃纖維複合材料經過多種工序精製而成，其具有高強度、抗老化、品質輕、成型多樣化、施工簡單、耐火、耐候化、耐酸堿等優點。與混凝土同等性能及壽命，使其成為歐陸式建築及景觀等工程的新寵。

1. **無限可塑性:** GRC 產品是將原料按一定配比攪拌，在模具內噴射成型，可生產出造型豐富，質感多樣的產品。可根據客戶和設計師的不同需要，進行任意的藝術造型，完美實現設計師的設計夢想。

2. **輕、強度高:** GRC 的體積密度約為 1800-1900kg/m^3,8mm 厚標準 GRC 板重量僅為 15kg，抗壓強度超過 40Mpa，抗彎強度超過 34Mpa，大大超過國際標準要求。

3. **超薄技術、尺寸大:** GRC 板最薄可做到 5mm，標準寬度為 900mm 和 1200mm，長度不限，滿足運輸條件即可，亦可做成 5mm 至任意厚度，任意尺寸。

4. **色彩豐富、造型多樣:** GRC 產品採用同質透心礦物原料，可以根據客戶的需求做成各種不同顏色及不同造型的藝術效果。

5. **質感好、肌理多:** GRC 產品表面可做成噴砂面、荔枝面、光面等不同質感效果，也可以做成條形、鏤空、浮雕等不同肌理效果。

6. **環保 、無輻射:** GRC 屬可再生材料，有利於環保。原材料不含有放射性核元素，為國家放射性核素含量 A 類環保材料。

GRC is made of special low-alkaline cement and special glass fiber composite materials through various processes. Its advantages including high strength, anti-aging, light weight, diversified molding, simple construction, fire resistance, weather resistance and acid resistance. The same performance and longevity as concrete make it the new favorite of local architecture and landscape projects.

Here are the merits in using GRC as building and construction material:

1. Infinite Mouldability: GRC products are made by mixing raw materials in a certain ratio and injection molding in the mold, which can produce products with rich shapes and various textures. According to the different needs of customers and designers, any artistic style can be carried out to perfectly realize the designer's design dream.

2. Light weight, high strength: GRC's bulk density is about 1.8-1.9kg/m3. 8mm thick standard GRC board weight is only 15kg, compressive strength exceeds 40MPa, bending strength exceeds 34Mpa, greatly exceeding the international standard requirements.

3. Ulltra-thin technology, large size: GRC board can be 5mm thick or thinner, standard width is 900mm and 1200mm, the length is not limited, can meet the transportation conditions, can also be made 5mm to any thickness, any size.

4. Rich colors, diverse shapes: GRC products use homogenous and transparent mineral raw materials, can be made according to customer needs of a variety of different colors and different shapes of artistic effects.

5. Excellent texture and surface: GRC products can be made into sandblasted surface, litchi surface, marble surface, smooth surface and other different texture effects, can also be made into strips, hollow, relief and other different texture effects.

6. Environmental protection, no radiation: GRC is a renewable material, is conducive to environmental protection. The raw materials do not contain radioactive nuclear elements and are classified as Class A environmentally friendly materials for national radionuclide content.

3. 公司介紹 Company Introduction

楊氏玻璃纖維始創於 1983 年，目的在通過最佳的經濟固定解決方案為客戶提供最好的 GRC，GRP 和 GRG 產品。本公司自 1986 年以來成為香港政府專業承建商之一。在過去三十多年，我們已完成超過 500 個項目，成功香港及世界各地的為客戶及總承建商提供 GRC 一條龍服務。

我們擁有一支經驗豐富的建築師，工程師，註冊結構工程師，主管和技術人員團隊，可以處理任何規模的 GRC 項目工作，包括繪圖，細節設，計算，註冊結構工程師加簽，並獲得客戶和屋宇署的批准。項目完成後，我們將提供技術資訊，測試報告，運行和維護手冊以及竣工圖紙予客戶存檔。

Yeung's Fiberglass started in 1983 with an aim to provide the best GRC, GRP and GRG products to the client with the best economical fixing solution. As one of the approved government specialist contractor since 1986, we have completed over 500 projects successfully coordinating with the client, main contractors in Hong Kong and around the world.

We have a team of experienced Architects, Engineers, RSE, Supervisors and skilled workers which can handle GRC works for any scale of project from preparing ship drawing, fixing details, calculation, RSE endorsement to achieve approvals from client and the Buildings Department. After the completion of project, we will provide technical information, test reports, O&M manual and as-built drawings.

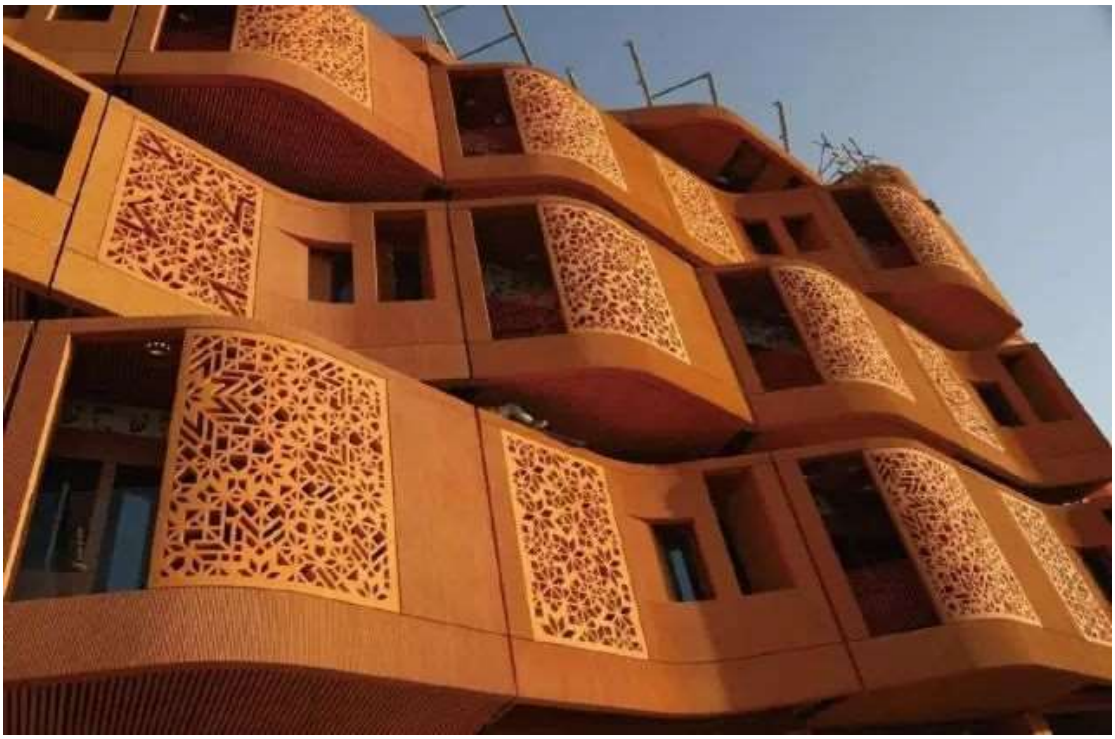
4. 項目介紹 Project Highlights

1. GRC 裝飾構件 (GRC Moulding)

建築裝飾構件是 GRC 運用最多的地方，由於這些年歐陸風情盛行，市場各種 GRC 構件製品，如 GRC 羅馬柱、GRC 簷線、GRC 裝飾線條、GRC 角線、GRC 門窗套、GRC 花瓶欄杆等。

Building decoration components are the most used places in GRC. Due to the prevalence of European style in these years, various GRC components such as GRC Roman columns, GRC twist lines, GRC decorative lines, GRC corner lines, GRC door and window sets, GRC vase railings, etc.

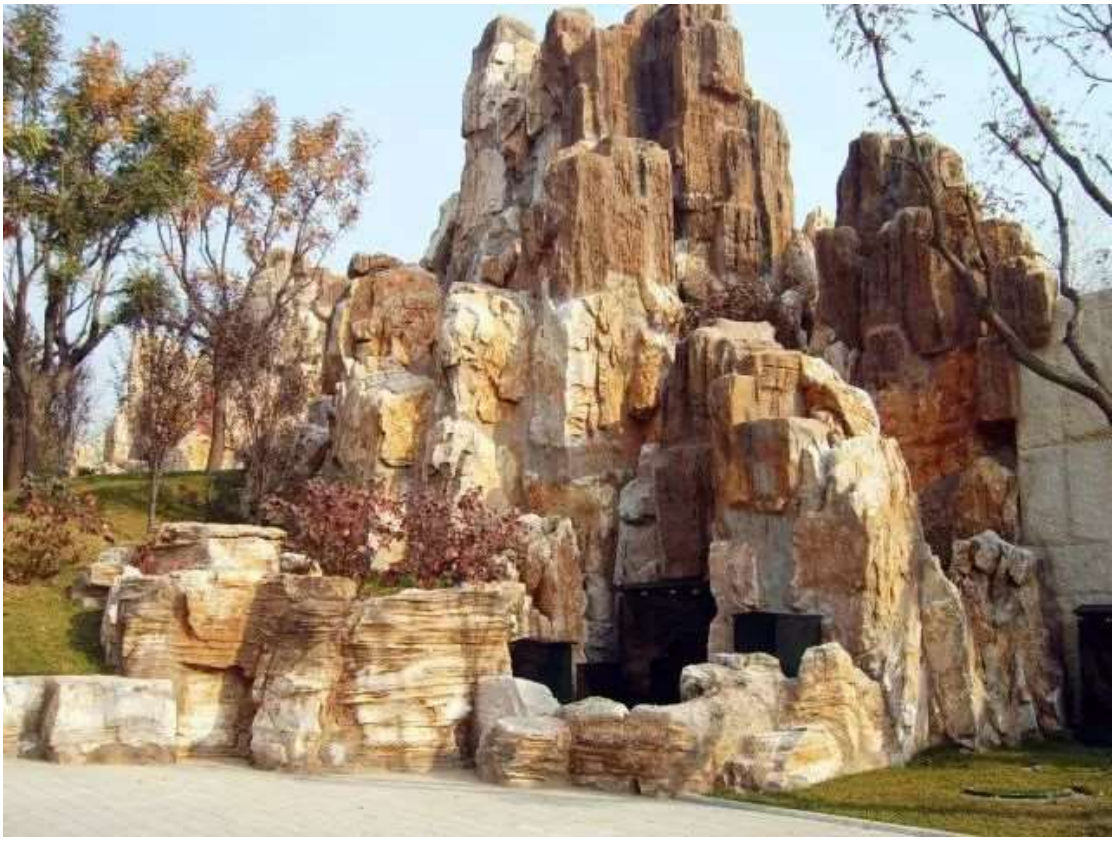
2. GRC 建築幕牆 (GRC Cladding)



GRC 材料因其成型幾乎不受形狀限制，在現代建築設計中，GRC 建築幕牆越來越多地被設計師應用于大型單曲與雙曲非線性建築設計中，實現其天馬行空的創意效果，最大限度的設計師的形態要求。目前最大單幅可達 20 平米左右。

GRC materials are almost unrestricted by shape or design. In modern architectural design, GRC building curtain walls are increasingly used by designers in large-scale single and hyperbolic nonlinear architectural designs to achieve their creative effects. The form requirements of the designer of the limit. At present, the largest single frame can reach about 20 square meters.

3. GRC 假石山 (GRC Artificial Rockscape)



GRC 因其材料自身品質輕，強度高，抗老化且耐水濕，形態易進行工廠化加工，同時其表面通過噴砂、酸洗、噴塗、氟碳漆、仿石漆等各種裝飾工藝，可以高度模仿景觀假山，為假山藝術創作提供了更寬闊的空間和可靠的物質保證。

Due to its light weight, high strength, anti-aging and water-resistant benefits, GRC is easy to be installed on site. At the same time, its surface can be highly imitated by various decorative processes such as sandblasting, pickling, spraying, fluorocarbon paint and imitation stone paint. The landscape rockscape provides a wider space and reliable material guarantee for the creation of rockery art.

5. 項目參考 Project References