PRE-QUALIFICATION

FOR

GLASSFIBER REINFORCED CONCRETE (GRC)

Contents

1. GRC Designing Factory L.L.C.:

1.1 Factory Office: GRC Designing Factory L.L.C

P.O. Box 11863, Ajman,
United Arab Emirates.
Tel: 00971 6 8827634
Fax: 00971 6 8827624
Email: info@grcdesigns.net

1.2 Auditor: **Qadi** Auditors Dubai

1.3 Principal Bankers: 1.3 a **Dubai Islamic Bank**

1.3 B **Emirates Islamic Bank**

1.3 c **Invest Bank**

1.3 d EmiratesNBD

1.4 Manpower Profile:

S/ No.	Man Power Type	Nos.
1	Senior Managerial Staff	5
2	Engineering / Technical Staff	5
3	Executives	10
4	Administrative Staff	8
5	Skilled Technicians	52
6	Semi-Skilled Workers	78
Total		**158**

Note: For erection, painting, repairing & welding, many sub-contractors will be available on request.

2.0 Company Objective & Quality Policy Statement:

2.1 Company Objective

To continue in execution of our works to the best service and quality. Highly innovate and upgrade and diversify into specialized activities of GRC and its derivatives.

GRC Designing will be defined as a customer oriented enterprise committed to meeting customer requirements with value added services.

Staff and Technicians of GRC Designing are of importance to company and their well being in health and safety well taken care of.

GRC Designing supports on its part for the environment, city and country.

2.2 Quality Policy

To deliver high quality finished product in acceptable time frame. Provide ultimate satisfaction to our client, with a quality product irrespectively.

Ensure a quality product, meeting all and surpassing relevant standards and technical requirements through excellent management, coordination and performance delivery system.

GRC DESIGNING will upgrade, implement and acquire soon Quality Management System as per the requirements of ISO 9001 and shall be committed to maintain it.

3.0 Introduction

GRC Designing Factory is a dedicated GRC products manufacturing organization, engaged in production and installation since the year 2007. We specialize in Decorative Glass Reinforced Cement & Gypsum works; GRP Glass reinforced plastics, suspended ceilings and partitions.

Started with a modest group of about 158 personnel this company with grate ambition of full projected manpower inclusive all staff in to 350 in near future.

Commitment to quality and innovative finishes have given us a boost in getting prestigious GRC projects and been awarded to a tune of AED10 million during 2008.

GRC Designing Factory L.L.C has a current production capacity of producing 100,000 m2 per year, and equipped with a **qualified design team** capable of producing detailed work/shop drawings with Auto-Cad & Micro Station Software.

4.0 "GRP" Division (Glass Fibre Reinforced Plastic):

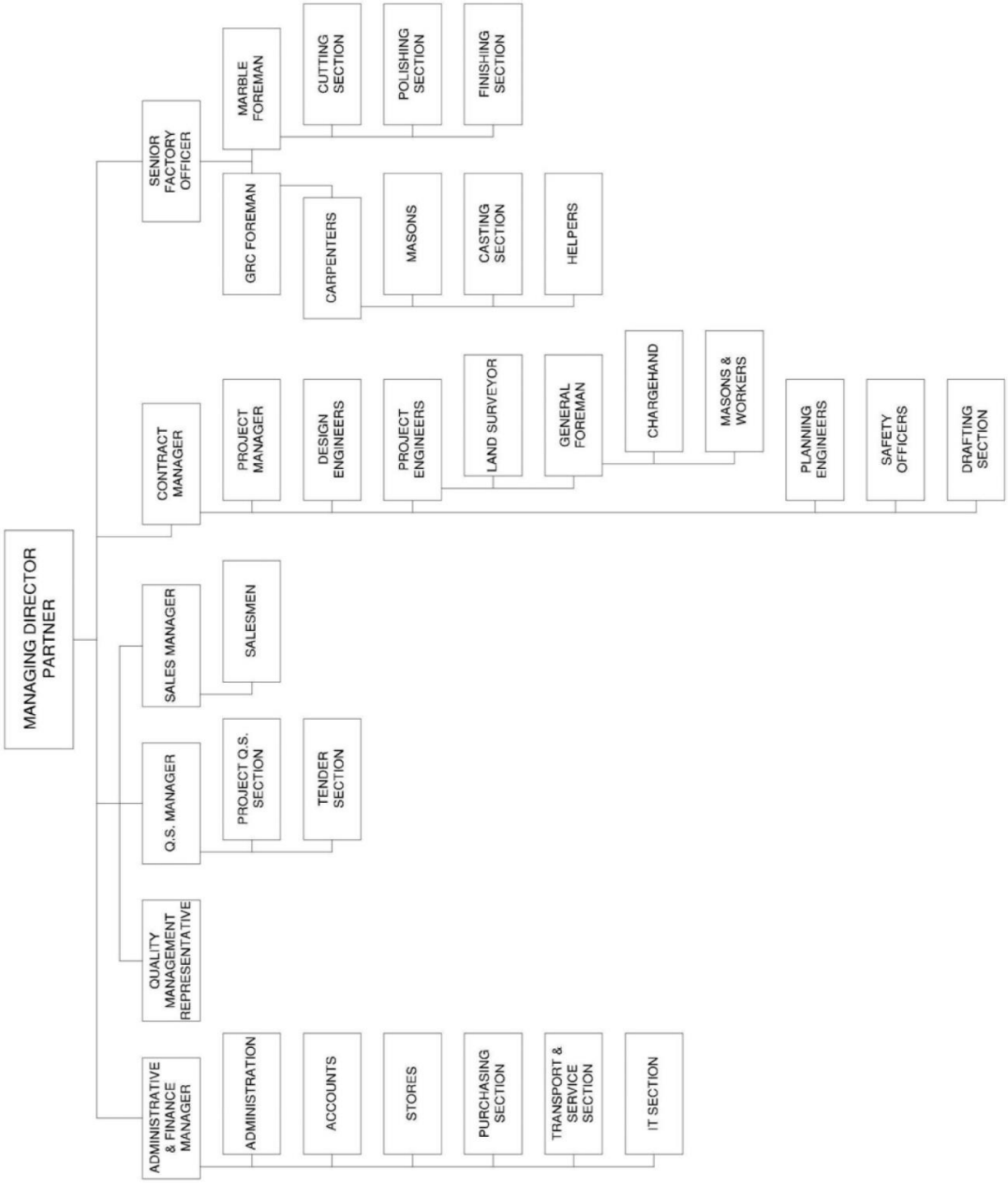
GRC Designing has a separate division for GRP, with a 15,000sft facility and 60 dedicated technicians producing various kinds of water tanks and septic tanks, bathtubs, washbasins, sewerage items like benching seal plates and ladders and including lining works.

Apart from this GRC Designing undertakes production of beautiful garden furniture, landscaping products and decors like counters chairs etc.

5.0 GRC Range of products

5.1 Claddings
5.2 Fascia panels
5.3 GRC Interiors, Cornices, railings
5.4 GRC False Ceilings, Domes, Columns
5.5 GRC Furniture, Screens, patterns
5.6 GRC Garden Furniture
5.7 GRC Road Partitions
5.8 Partitions, A/c covers
5.9 Bath tubs
5.10 Shower Trays

6.0 Organization Chart, Factory and Worker Photos


MANAGING DIRECTOR
PARTNER
SENIOR FACTORY OFFICER
MARBLE FOREMAN
CUTTING SECTION
POLISHING SECTION
FINISHING SECTION
GRC FOREMAN
CARPENTERS
MASONS
CASTING SECTION
HELPERS
CONTRACT MANAGER
PROJECT MANAGER
DESIGN ENGINEERS
PROJECT ENGINEERS
LAND SURVEYOR
GENERAL FOREMAN
CHARGEHAND
MASONS & WORKERS
PLANNING ENGINEERS
SAFETY OFFICERS
DRAFTING SECTION
SALES MANAGER
SALESMEN
Q.S. MANAGER
PROJECT Q.S. SECTION
TENDER SECTION
QUALITY MANAGEMENT REPRESENTATIVE
ADMINISTRATIVE & FINANCE MANAGER
ADMINISTRATION
ACCOUNTS
STORES
PURCHASING SECTION
TRANSPORT & SERVICE SECTION
IT SECTION

7.0 GRC Method Statement of Performance:

7.1 Pre-Start Procedures

After receiving the contract document start the submittals:

a) Material sample submittal for –
- ☒ Finish & Color
- ☒ Fixtures

b) Technical submittals for –
- ☒ Shop Drawing
- ☒ Design Calculation
- ☒ Project specification compliance
- ☒ Site Activity master Program

One set of the above submittals will be retained by the Contractor and one set issued to GRC Designing factory.

c) After receipt of the approval on the above submittals, the Staff / Production Staff will be deputed and the technical data are issued to them as follows:
Factory ---------- for Production
Site ---------- for Installation

7.2 Quality Control Measures:

All according PCI MNL130 "Manual for Quality Control for Plants and Production of Glass Fiber Reinforced Concrete Products"

7.2a Checking design, dimension, profile and quality of master pattern.

7.2b Checking design, dimension and quality of mould.

7.2c **Checking** design, dimension, thickness and straightness, fixing point and lifting hook etc. of the produced unit.

According PCI MNL128 "Recommended Practice for Glass Fiber Reinforced Concrete Panel"

7.2d To check whether design calculations of secondary support system has been approved or not.

7.2e Checking fixed accessories, sealant etc. has been approved or not.

7.2f Checking the site dimension: with reference to the dimensions in the approved shop drawings, any major deviations to be brought to the notice of the main contractor.

7.2g Check if the site location is ready for erection and free from hindrances.

7.3 PRODUCTION

7.3a On receiving the approved drawings prior to commencing the patterns & moulds the dimensions to be agreed in advance with the main contractor's engineer if the site is not ready so that pattern, mould work and production can progress independently without waiting for the site to get ready.

7.3b To prepare pattern work and to prepare a positive panel is made in plywood/gypsum on a wooden platform.

7.3c To construct side shutters to the positive panel and make it ready formaking GRP mould /rubber mould.

7.3d To prepare GRP mould by giving proper built in wooden stiffeners to achieve enough strength during casting process.

7.3e Finish the mould properly to the satisfaction of quality controller and firmly fix on the floor to prevent distortion.

7.3f Apply a coat of mould release agent on the mould prior to commencing the actual production (casting) to enable damage free and easy demoulding.

7.3g Mix GRC mortar as per mixed design using high speed slurry mixer and pour on the mixing hopper (pump). GRC mortar is sprayed on a mould by spray gun to form a mist coat of 2 to 4mm thickness.

7.3h The GRC mortar with fine silica sand is mixed from high speed slurry mixer and poured on to mixing hopper (pump). GRC mortar sprayed on the mould along with AR Glass Fiber chopped by the chopper attached with spray gun.

7.3i Thickness of GRC shall be kept 12 to 15 mm with stiffeners of required size and spacing. Stiffener is formed using polystyrene placed on backside of GRC skin with another layer of sprayed GRC on the polystyrene.

7.3j Cover the casted mould with polyethylene for curing.

7.3k Demoulding the panels after 6 to 8 hours once the panels are strong enough and allow to dry. Check the dimensions /strengths upon demoulding.

7.3l Keep the panels under shade for further curing. sprinkle the water on the panels for another 7 days and covered with polyethylene for moist curing

7.3m Check the completion of curing the panels are checked for finishing if finishing required is carried out using white cement with polymer agent. The trimming is done if required and the panels are marked and numbered for the location according to the drawing and placed in sequence according to site erection Program.

7.3n Stack the Panels properly to avoid any distortion.

7.3o Panel then are stacked on steel pallets vertically one beside the other by keeping polystyrene sheet in between to avoids damages while transportation. Panels are tied properly and covered by polythene covers and kept in stockyard by lifting pallets.

7.3p Panels are then loaded on a vehicle by lifting the pallets with extreme care so that no damages and pallets are tied to the vehicle and transported to site. The panels which are numbered /sequenced and required first, are delivered first.

7.3q Care is to be taken to avoid any excessive stresses to panels during handling and transportation. If required, lift the panels at three lifting points instead of two and lift the panel vertically.

7.4 INSTALLATION

7.4a Check all the panels dispatched from the factory thoroughly for the dimensions, fixing points surface finishes prior to commencement of actual erection. If necessary remedial measures will be carried out and completed prior to installation, especially those which cannot be carried out after installation.

7.4b Unload the panels with extreme care so that no damages occur and stored in appropriate places which is near to the erection area and easily accessible. Protect the panels by protecting the area using warning tape around.

7.4c. Carryout the initial site survey with main contractor prior to commencing erection work and agree as built elements.

7.4d Installation in elevations shall start depending on erection schedule agreed with main contractor

7.4e Ensure all safety precautions are undertaken, daily get checked by concerned supervisor, the scaffolding, lifting capacity of crane & protective equipment to the workers on site like helmets, safety shoes, safety belts, gloves etc. safety induction for all employees to be carried out before starting work . Red Hi – vit jacket to be used . safety harnesses to be used while working at site

7.4f After establishing the levels and position of individuals panel, fixing of bracket/fixture is carried out on precast concrete /RCC as per approved shop drawing with skilled technicians.

7.4g Check the positions & levels of the G.I brackets.

7.4h By means of crane, GRC units are lifted using required capacity of lifting hooks and placed over steel brackets. Bolts are lightened as per approved shop drawing. At the same time, required packing as plastic shims are placed in position to achieve desired line and level.

7.4i In case of GRC panels with caste-in rods, holes are drilled in precast Concrete/RCC work as per template of the caste-in rod. These holes are filled up with fast setting Epoxy mortar and panels if caste-in rod slide on position and temporarily supported till the epoxy motor is Hardened. Crane or similar hoist equipments are used to place GRC in position till permanently installed.

7.4j The panels are aligned according to the approved shop drawings. The levels, alignment &orientation of the panels are checked and ensured that they are within specified tolerances. Inspections request to be raised time to time for main contractor/engineer inspection.

7.4k Upon completion of the minor repair after installation, the panels are inspected for final line, level & alignments.

7.4l Sealant is applied between the joints of the panels keeping backing rods strictly in accordance to the approved methods &materials.

7.4m Upon completion of erection of particular area, GRC work is handed over to main contractor's engineer.

7.5 Codes and References for GRC Manufacturer

7.5.1 MOLD MATERIALS

A. Molds: Rigid, dimensionally stable, non absorptive material, warp and buckle free, that will provide continuous and true GRC surfaces; nonreactive with GRC and capable of producing required finish surfaces.

1. Mold-Release Agent: Commercially produced liquid-release agent that will not bond with, stain, or adversely affect GRC surfaces and will not impair subsequent surface treatments of GRC.

B. Form Liners: Units of face design, texture, arrangement, and configuration indicated. Provide solid backing and form supports to ensure that form liners remain in place during concreting. Furnish with manufacturer's recommended liquid-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent surface treatments of GRC.

C. Form Retarder: Chemical liquid set retarder capable of temporarily delaying final hardening of newly placed GRC face mix to depth of reveal specified.

7.5.2 GRC MATERIALS

A Portland Cement: **ASTM C 150**, **Type I or III**, of same type, brand, and source for entire GRC production.

1. For surfaces exposed to view in finished structure, select and use color required to obtain finished GRC product color indicated.
2. Metakaolin: **ASTM C 618**, Class N.

B Glass Fibers: Cem-fil products.

C Sand: Washed and dried silica, successfully used in GRC production, complying with composition requirements of **ASTM C 144**; passing 0.85-mm sieve with a maximum of 2 percent retained on 0.10-mm sieve.

D. Facing Aggregate: **ASTM C 33** and **PCI MNL 130**, from same source for entire GRC production, and with coarse aggregate complying with Class 5S requirements, 10-mm nominal maximum size.

1. Coarse Aggregates: Selected, hard, and durable; free of material that reacts with cement or causes staining; uniformly graded.
2. Fine Aggregates: Selected, natural, or manufactured sand of same material as coarse aggregate, unless otherwise approved by Engineer.
3. Coloring Admixture: **ASTM C 979**, synthetic mineral-oxide pigments, temperature stable, non-fading, and alkali resistant.
4. Water: Sharjah Municipality Water.
5. Chemical Admixtures: **ASTM C 494**, containing not more than 0.1 percent chloride ions.

7.5.3 GRC MIXES

A. Backing Mix: Proportion backing mix of portland cement, glass fibers, sand, and selected admixtures to comply with design requirements, and as follows. Provide nominal glass-fiber content of not less than 5 percent.

1 Flexural Properties: Average yield strength of 6 MPa, and average ultimate strength of 15 MPa at 28 days; **ASTM C 947**.

2 Maximum Water-Cementitious Ratio: 0.35.

B. Face Mix: Proportion face mix of portland cement, fine and coarse aggregates, and selected admixtures to comply with design requirements, and as follows:

1 Moisture Absorption: 6 percent maximum; **ASTM C 948**.

C Coloring Admixture: Not to exceed 10 percent of cement weight.

7.5.4 MOLD FABRICATION

A. Construct molds that will result in finished GRC complying with profiles, dimensions, and tolerances indicated, without restraining shrinkage or damaging GRC during stripping. Construct molds to prevent water leakage and loss of cement paste.

1 Coat contact surfaces of molds with form-release agent.

B. Place form liners accurately to provide finished surface texture indicated. Provide solid backing and supports to maintain stability of liners during GRC application. Coat form liner with form-release agent.

7.5.5 GRC FABRICATION

A. Proportioning and Mixing: For backing mix, meter sand/cement slurry and glass fibers to spray head at rates to achieve desired mix proportion and glass content according to **PCI MNL 130** procedures.

B. Spray Application: Comply with Cem-fil Procedures.

7.5.6 FABRICATION TOLERANCES

A. Manufacturing Tolerances: Manufacture GRC units so each finished panel complies with the following dimensional tolerances. For dimensional tolerances not listed below, comply with **PCI MNL 130.**

1 Overall Height and Width of Units, Measured at the Face Adjacent to Mold: As follows:

a) 3 m or under, plus or minus 3 mm.
b) More than 3 m, plus or minus 3 mm per 3 m; 6 mm maximum.

1. 2 Edge Return Thickness: Plus 13 mm, minus 0 mm.
2. 3 Engineerural Facing Thickness: Plus 3 mm, minus 0 mm.
3. 4 Backing Thickness: Plus 6 mm, minus 0 mm.
4. 5 Panel Depth from Face of Skin to Back of Panel Frame or Integral Rib: Plus 10 mm, minus 6 mm.
5. 6 Angular Variation of Plane of Side Mold: Plus or minus 0.8 mm per 75 mm of depth or plus or minus 1.5 mm total, whichever is greater.
6. 7 Variation from Square or Designated Skew (Difference in Length of Two Diagonal Measurements): Plus or minus 3 mm per 1800 mm or plus or minus 6 mm total, whichever is greater.
7. Local Smoothness: 6 mm per 3 m.
8. Bowing: Not to exceed L/240 unless unit meets erection tolerances using connection adjustments.
9. Length and Width of Block Outs and Openings within One Unit: Plus or minus 6 mm.

11 Location of Window Opening within Panel: Plus or minus 6 mm.

12 Maximum Permissible Warpage of One Corner out of the Plane of the Other Three: 1.5 mm per 300 mm of distance from nearest adjacent corner.

B. Position Tolerances: Measured from datum line locations, as indicated on Shop Drawings.

1 Panel Frame and Track: Plus or minus 6 mm.
2 Flashing Reglets at Edge of Panel: Plus or minus 3 mm.
3 Inserts: Plus or minus 13 mm.
4 Special Handling Devices: Plus or minus 75 mm.
5 Location of Bearing Devices: Plus or minus 6 mm.
6 Block Outs: Plus or minus 10 mm.

C. Panel Frame Tolerances: As follows:

1 Vertical and Horizontal Alignment: 6 mm per 3 m.
2 Spacing of Framing Member: Plus or minus 10 mm.
3 Squareness of Frame: Difference in length of diagonals of plus or minus 10 mm.
4 Overall Size of Frame: Plus or minus 10 mm.

7.5.7 FINISHES

A. Finish exposed-face surfaces of GRC units as follows to match Engineer's design reference sample. Panel faces shall be free of joint marks, grain, or other obvious defects.

1 Smooth-Surface Finish: Provide free of pockets, sand streaks, and honeycombs, with uniform color and texture.
2 Textured-Surface Finish: Impart by form liners to provide surfaces free of pockets, sand streaks, and honeycombs, with uniform color and texture.
3 Retarded Finish: Use chemical-retarding agents applied to concrete forms and washing and brushing procedures to expose aggregate and surrounding matrix surfaces after form removal.
4 Acid-Etched Finish: Use acid and hot-water solution equipment, application techniques, and cleaning procedures to expose aggregate and surrounding matrix surfaces.

7.5.8 SOURCE QUALITY CONTROL

Third party inspection upon request.

7.5.9 EXECUTION

7.5.9.1 ERECTION

A Install clips, hangers, and other accessories required for connecting GRC units to supporting members and backup materials.

B Lift GRC units at lifting points established by manufacturer and install without damaging units.

C Install GRC units level, plumb, square, and in alignment. Provide temporary supports and bracing as required to maintain position, stability, and alignment of units until permanent connections are completed.

1 Maintain horizontal and vertical joint alignment and uniform joint width.
2 Remove projecting hoisting devices.

D Anchor GRC units in position by bolting or welding, or both, as indicated on Shop Drawings.

7.5.9.2 ERECTION TOLERANCES

A Erect GRC units to comply with the following noncumulative tolerances:

1 Plan Location from Building Grid Datum: Plus or minus 13 mm.
2 Top Elevation from Nominal Top Elevation: As follows:

a Exposed Individual Panel: Plus or minus 6 mm.
b Non exposed Individual Panel: Plus or minus 13 mm.
c Exposed Panel relative to Adjacent Panel: 6 mm.
d Non exposed Panel relative to Adjacent Panel: 13 mm.

3 Support Elevation from Nominal Elevation: As follows:

a Maximum Low: 13 mm.
b Maximum High: 6 mm.

4 Maximum Plumb Variation over the Lesser of Height of Structure or 30 m: 25 mm.
5 Plumb in Any 3 m of Element Height: 6 mm.
6 Maximum Jog in Alignment of Matching Edges: 6 mm.
7 Maximum Jog in Alignment of Matching Faces: 6 mm.
8 Face Width of Joint: As follows (governs over joint taper):

a Panel Dimension 6 m or Less: Plus or minus 6 mm.
b Panel Dimension More Than 6 m: Plus or minus 8 mm.

9 Maximum Joint Taper: 10 mm.
10 Joint Taper in 3 m: 6 mm.
11 Differential Bowing, as Erected, between Adjacent Members of Same Design: 6 mm.

7.5.9.3 REPAIRS

A Repairs will be permitted provided structural adequacy of GRC unit and appearance are not impaired, as approved by Engineer.

B Blend and mix patching materials and repair GRC so cured patches match color, texture, and uniformity of adjacent exposed surfaces.

C Prepare and repair damaged galvanized coatings on metal framing, anchors, and subsystems with galvanizing repair paint according to **ASTM A 780**.

D Wire brush, clean, and paint accessible scarred areas, welds and rust spots on prime-painted metal framing, anchors, and subsystems. Paint with same type of shop paint used on adjacent surfaces.

E Remove and replace damaged GRC units when repairs do not comply with requirements

7.5.9.4 CLEANING AND PROTECTION

A Perform cleaning procedures according to GRC manufacturer's written instructions. Clean soiled GRC surfaces with detergent and water, using soft fiber brushes and sponges, and rinse with clean water. Prevent damage to GRC surfaces and to adjacent materials.

B Provide final protection and maintain conditions that ensure GRC is without damage or deterioration at time of Substantial Completion.

7.6 Handing Over

Check for initial defects and rectify the snags before calling Consultant for inspection

Request for inspection after completion of the finishing. Sealants and initial snag and obtain the approval/consultant accordingly to the Inspection requirement of the project.

De-snag all the comments (if any) and request for final inspection for the Handover in an Elevation / floor wise sequence according to the site.

8.0 GRC Quality Control Test Methods

8.1 Introduction

This document supersedes the 1st edition of Pilkington Application Data for use with Cem-Fil Fibre – Quality Booklet.

British Standard BS 6432:1984 describes methods for determining properties of glass fibre reinforced cement as a material both in its cured and uncured stages, primarily for quality control procedures and these test methods supersede the equivalent methods given in the 1st edition of the Quality Control Test Booklet.

This edition of the quality Control test booklet lists the methods given in BS 6432:1984 and gives details of test methods not covered by this standard. Some general notes on Quality Control System are given in Section 4, indicating the controls and procedures which should be adopted to ensure that a GRC meets the required specification.

8.2 Testing

A- Determination of Slump Value of Cement Slurry

Equipment

Open – ended Perspex Tube ID 57mm CD 65mm Length 55mm

Perspex Target Plate 30cm x 30cm engraved with a series of Concentric Circles of diameters 65, 85, 108, 125, 145, 165, 185, 205 and 225 mm numbered 0-8 respectively.

Method

The dry tube is placed on the target plate coincident with innermost ring and is then completely filled with the slurry under test. Care must be taken to expel any air bubbles, if necessary, by gently Roding the mix.

The tube is then lifted vertically off the plate by hand thereby allowing the slurry to flow over the target area of concentric circles. The slump value is given by the extent of flow of the slurry and is expressed on the scale 0-8. 3 tests are carried out and the results should agree within 1/2 a ring.

Calculation

The slump values are read directly from the target plate.

Note

1. The chopped fibers from the test are scrap and cannot be use in a premix.

2. Where there is a device used to continuously monitor the delivery rate of a glass fibre chopper . This test method should be used for the initial calibration and subsequent check calibrations.

B- Measurement of Delivery Rate of Cement Slurry from a Spray head.

Equipment

Balance ……..Capacity (Not less than 12 Kg weighing to 10 g or better).

Polythene Bucket……1 1/2 gallons (approx. 6.7 Litres capacity).

Methods

The weighed bucket (W1) is positioned under the spray nozzle and the slurry is collected for a period of 30 seconds under actual operation conditions. The bucket and its contents are weighed (W2)
At least 3 such measurements are made and the mean delivery rate is calculated in KG per minute.

Calculation

Delivery Rate (Kg/Min) = 2(W2-W1)

Where , W2 = Wt of bucket + Slurry (Kg)
W1 = Wt of bucket (Kg)

Note

1. The slurry can be returned to the pump hopper.

C- LOP Measurement

It should be noted that the LOP as determined by BS 6432 is lower than if determined by CEM/QC/007. The relationship between the two vales is:
LOP (from BS 6432) = LO (From CEM/QC/007) x 0.8
This occurs because in the BS 6432 method the load / deflection curve is seen in the greater detail than it is in CEM/QC/007. Consequently the point at which the first part of the load / deflection departs from a straight line is detected earlier in BS 6432 method and hence a slightly lower LOP is found.

BOTH BS 6432 and CEM/QC/007 give the same value of MOR.

Test Specimens

Test specimens (or coupons) should be accurately cut from the cured GRC board using a cutting wheel. Specimens should be the thickness of the board, 50mm (±1mm) in width and of the appropriate length (see "setting up of Jig" on page 3). They should be cut from region of a board which is of uniform thickness and smooth surface.

Typical Specimen dimensions will normally be in the range of 200mm x 50mm x 6mm to 300mm x 50mm x 15mm.

Condition of Specimens

Specimens should be immersed in water at room temperature for 4 to 24 hours prior to testing. The testing should be carried out within 2 minutes of removing the specimen from the water. Removing the surface water with a towel is permitted. It is important to ensure that the ratio of Major Span: Sample thickness is not less than 16:1 and ideally 20:1. the outer rollers of the jig and therefore positioned correctly to achieve this ratio. This is done by measuring the thickness of the individual coupons of a sample and moving the rollers accordingly to the correct position.

The minor span distance must always be one third (1/3) of the major span distance since the equations used to calculate L.O.P. and M.O.R. assume this condition:

Thickness of Specimen (mm)	Major Span (mm)	Specimen Length (mm)
Up to - 6.7	135	200
6.8 - 10.0	200	250
10.1 - 12.5	250	300

Recording of Load / Deflection Curve

The specimen is placed in the jig with the lower edge resting on a small piece of flexible plastic foam so that the specimen overlaps the outer rollers by approximately the same distance.

The mercury column is brought up to Zero and the crosshead is moved by hand until a slight load is registered at which point the crosshead is reversed slightly to release this load and the motor drive is engaged.

D- M.O.R. Measurement

The M.O.R. Load is the maximum load obtained during the Test.

It is important in determining L.O.P. that a spring beams is chosen which gives an appreciable deflection at the L.O.P. load in order to obtain as much precision as possible. For hand spray non-dewatered G.R.C. using a specimen size of 50mm wide x
10mm thick on a major span of 200mm a spring beam of 1.2kN full force is recommended.

The L.O.P. and M.O.R. are calculated as follows:

$$\text{L.O.P or M.O.R. (W/mm2)} = \frac{WL}{BD2}$$

Where W = L.O.P or M.O.R Load (Newton)
L = Major span (mm)
B = Specimen Width (mm)
D = Specimen Thickness (mm)

As previously mentioned the above equation assumes that the minor span length is one third (1/3) of the major span length.

Expression of Results

The Arithmetic Mean (AM) of the sample set is obtained as follows:
Arithmetic Mean (AM) = Total of the Individual results / Total no. of results
= x / n

At about point B (The L.O.P Load) very fine faintly visible cracks form on the tension face of the specimen. The growth of these cracks is controlled by the presence of the glass and in this way brittle failure of the GRC is prevented. As the load is progressively increased the cracks which formed on the tension face move through the specimen until at point C the GRC fails completely (MOR Load)

Equipment

Supplier	List no.	Description
Monsanto Limited Instruments Group, Edison Road, Durcan Swindon Wilts. SN3 5HN Tel. No. (0793)31315 Telex 449686 (please contact above or local agent)	A220	Monsanto Tensometer type "W" in Newton complete with 2 spring beams of 1.2 KN and 2.5 KN maximum force
	A80	Motor Drive unit
	A130	Single Counter Shaft assembly
	A110	Automatic Recorder
	B60	Light Compression attachment
	A260-1	Chart Paper (800 sheets)
	A110-88	Heat sensitive Paper (400 sheets)
	D260	Variable Span 4 point bend test attachment for Cem-FIL
Procured through local supplier	-	4 point bend jig (Alternative to D260 above)
	-	Tensometer stand
	-	Calipers
	-	Micrometer Dial Guage

E- Flexural Strength Testing of GRC

Board No. Date of Manufacture
Machine Identification Method of Manufactured
Details Cure Schedule
Cement Additive ……..in air
Sand Fiber …….. days…….'C……RH
Water ……water immersed..

Face in Tension	Width (B) mm	Thickness (D) mm	D2	LOP Load (N)	MOR Load N	LOP N/mm2	MOR N/mm2
					Mean		
Span Beams Operator					Mean		
					Overall Mean		
					Std. Dev.		

Comments:

8.3 Product Record (Q.C.)

Contract No.

Date

Mould No. Team: Date of Manufacture:

Component Code

Mould Conditions		
Mould Dimensions Fixed Sockets / Inserts		
Mist Coat Front Face Test Board	 Yes / No	
Core Thickness Core Position	mm mm	
Fixing Socket Position Back Face Finish		
Component weight	Kg	
Dimensions Length Dimensions Breadth Dimensions Depth Dimensions: Twist/Bow	mm mm mm mm	
Skin Thickness : Front Skin Thickness : Back	mm mm	
Surface Appearance		
Pass / Reject		

8.4 Glass Content Measurement

Spray Team no		Cement Kg		Water	Additives	Others
Date	Matrix Details	Sand Kg		Additives		
Samples	Basket no	Basket no	Basket no	Basket no	Basket no	Basket no
Specimen & Basket						
Basket Weight						
Specimen						
Dry Glass & basket						
Basket Weight						
Dry Glass						
Glass %						
Average Glass						

9.0 Health & Safety Plan

9.1.Health and safety Statement

The Health, Safety and Work Environment of all Employees and Contractors, Personnel employed by the GRC Designing Factory is a major concern of the management. The management is also concerned with the prevention of property damage, fire and security damage as well as production losses. The Managing Director is firmly committed to taking effective action on this concern with full regard to Federal Laws, Ministerial Decrees and the Company Safety Policy.

Managers, Executive, Foremen and Supervisors are responsible for the safety of their sub-ordinates and are required to treat occupational health, safety and loss control as a subject of major importance. They shall ensure that all practical steps are taken to prevent accidents and maintain healthy & safe places of work.

In support of commitment to safety, the Management monitors safety information and updates the information as required by corporate development or legislative change and ensures that safety rules are enforced, promotes awareness of safe working practices by induction courses, safety training Program and liaising with safety committees.

The Management firmly believes that safety comes first.

9.2 Health and safety Policy Statement

Following are all key management objectives & responsibilities for the GRC Designing:

- ☒ Prevention of all injuries and occupational diseases.
- ☒ Health and safety is a line management responsibility.
- ☒ Health and safety are of equal importance as other business objectives.
- ☒ Creation of a safe and healthy work environment.
- ☒ Establishment of safe and healthy work practices.
- ☒ Ensuring effective health and safety communication.
- ☒ Creating interest and enthusiasm in health and safety.
- ☒ Developing personal responsibility for health and safety.

We believe that every job can be done safely and that is every one's responsibility.

9. 3 - Health and Safety Program.

The management considers no phase of its operations or administrations of greater importance than accident prevention. To accomplish this goal an effective and understandable **SAFETY POLICY** has been formulated and enforced.
Safety shall be an integral part of each job and every employee shall be responsible for the safety phase in his work just as much as any other phase. Every employee has to contribute towards this team effort.

The policy of GRC Designing is to strive towards achieving a safe and healthy environment for all its employees at all the work sites and abide by all rules and regulations formulated for the type of work / industry (as set forth in state and local standards.)

Safety is of utmost importance in performance of all operations and must be an integral part of each work task. Safety should not be neglected because of undue haste, no job is so important or services so urgent that they cannot be performed safely. All employees must recognize their responsibilities in incorporating safety into their daily routine.

The management of GRC Designing Factory is committed to provide complete support in order to develop and maintain a safe and healthy working environment.

The company safety Program is designed to prevent human suffering, pain and economic loss from work place accidents, injuries or property damage.

The company strives as far as possible to provide a work place safe from recognized hazards by adhering to local regulations and industry safety standards and have a workforce aware of workplace hazards that confront them and their safety responsibilities to themselves, their fellow workers and the company.

9.4 - Management's Commitment to Safety

The management actively supports the safety effort at all the levels. The policy is enforced by taking action to identify and control hazards so that everyone gets a clear message that safety is important.

Clearly defined responsibilities are fixed for all levels of management & it is an integral part of every task and is used evaluation of the overall performance of a team.

9.5 - Accident Reports

Division:……
Location:……
Date & Time Accident:……..……
Circumstances & Description of the Accidents:..……
Name of the Injured:…….Employee No.……
Nature /Extent of Injury:……..……..
Action Taken:…..……
Witness of the Accidents:……..……

Form No. (4): Informing an accident as per article (24) at the ministerial decision no.(32)for 1982

1. Name of the Establishment Owner……..
2. Address…… ….
3. Economical Activity…….
4. Date of the Accident…….
5. Nature of the Accident……
6. Mention the following information:
   a)Name of the machine or thing, which caused the accident……..……...

..……..
b) Mention how the accident happened……..
.……

7. Mention the following data about the injured persons:

a)Name……..
b)Male……...
/Female……..
c) Age……
d) Address…….
e) Salary……...
f) Date of Appointment…….

8. Mention the following data about the damage in case of fire or explosion or breakdown:

   a) Causes of fire, Explosion or Breakdown:
   b) The damage due to the accident.
   c) Valuating the total losses:

Date……
Signature of

Establishment Owner

Analysis of accidents report

SAF:104:00										
ANALYSIS OF ACCIDENTS										
Location:…… Period……..20										
A-Major Injuries B-Reportable Accidents C-Non Reportable Accidents D-Recordable Occurrences & and Near misses E-Time Lost c/o from Previous period	A See note (A)		B See note (B)		C See note (C)		D See note (D)		E Give details See note(E)	
Fall from Height	No	Hour Lost	No	Hour Lost	No	Hour Lost	No	Hour Lost	No	Hour Lost
Stopping or Falling on Flat										
Manual Handling of goods or materials										
Electric Shock/ electrocution										
People striking against objects										
Machinery or hand tools										
Splinters of wood or metal										
Burns and scalds										
Inhalation of toxic fumes										
Pallet truck										
Road vehicles on site										
Miscellaneous										

Total										
Accident Frequency Rate:…… Calculate by adding the total no. of accidents Under columns 'a' columns multiplying by 1.00.000 and dividing by the total man hours				Accident Incident Rate …….. (Calculate by multiplying the total number of accidents under columns 'A' and 'B' by 1000 and dividing the result by the average number of manual workers employed during the period						

9.6 First – Aid and Medical Treatment

Training and instructions in life –saving techniques like resuscitation, care of unconscious and control of bleeding are given. Employees are sent for first aid training courses organized by Ministry of Health and the medical facilities include a doctor employed by the company who in addition to providing medical services provided refresher courses on first – aid and other health related problem. Awareness campaigns in regard to use of tobacco, alcohol, drugs and inadequate nutrition are also conducted.
Sickness and absenteeism are monitored by proper record keeping for identification of employees after prolonged illness.

Site Checks

1. Safety helmets to be worn by all personnel at site. This includes all sub-contractor labour and consultant's representative. Training courses organized by Ministry of Health.
2. Footwear to have an adequate had sole so as to provide sufficient protection.
3. Safety bells, goggles and masks are provided to all workers to use when required.
4. Edge protection to all slabs by the erection of safety barrier. When safety barriers are not feasible, personnel must wear a safety harness at all times.
5. Electricity supplied throughout the site is connected through circuit breakers in the main distribution board and comply with Dubai Electricity Company regulations.
6. Hoardings: The site will be surrounded by a suitable hoarding so as to restrict the entry of any unauthorized personnel. The entry and exit gates will be closed and padlocked during non-working hour.
7. Edge protection around excavations will be given by GRC Designing as deemed to be sufficient by the Project Manager.
8. Protection of buildings and public outside the building area will be given by GRC Designing as deemed necessary and will comply with municipality regulations.
9. GRC Designing will provide full time personnel on site suitably trained in elementary aid.
10. A First Aid box will be present at all times on site with contents of:

- Panadol
- Tinture Iodine
- Burnol
- Cut Band
- Lotion Dettol
- Cotton
- Deep Heat
- Riko cut spray
- Salt tablets
- Scissors
- Vicks Vapourub

11. Regular checks of the site are made by the GRC Designing Safety Officer with penalties being imposed, if the company policies are not being adhered to.

12. Sub-contractors will be responsible for the purchase of Safety Equipment required by their personnel as instructed by GRC Designing Project Manager
and will incur any associated costs regarding safety during their working practice on site.

9.7 Health Program

The objectives of the GRC Designing Factory health Program are firstly to protect employees, contractors personnel and others from health hazards that may be associated with the work and working environment and secondly to promote the health of the employee. These objectives are not important only for ethical reasons but also because the employee's health status influences his ability to perform his job better.

The Health Risk at work is managed by the following activities of the Group:

i) Health Hazard Identification i.e., Identification and making inventory of the potential, physical, chemical, biological, ergonomic and psychological health hazards associated with the work and working environment.

ii) Health Risk Assessment: i.e., Evaluation of Risk to health associated with exposures to health hazards and then deciding on the action needed to remove or reduce the risks.

iii) Control Measures – By substituting hazardous materials with less hazardous materials. By means of technical measures or by changes in work practice. Usage of personal protective equipment like uniforms, goggles, ear plugs etc.

iv) Monitoring of Health: Where risk to Health cannot be reasonably excluded. This includes a pre-employment medical examinations and examinations of periodic intervals.

Information, Instruction and training of employees regarding the policy and procedures relating to occupational health, specific instruction and training are provided hazards in the work environment and potential health hazards at work.

Potential hazardous work areas clearly indicated, company staff and sub-contractor personnel are trained in appropriate safe work procedures / techniques and use of personal protective equipment.

Check List

The following checks are conducted before starting of site work:

- ☒ Are workplaces security measures like fencing, lighting, and watchman arrangements complete. ?
- ☒ Is the electrical grounding in place?
- ☒ Are sanitary fittings and drinking water available as per regulations?

Following records / papers are to be made available at the site:

a) Safety signs, notices, posters, and a copy of the Safety Handbook.
b) The required maintenance and testing records for equipment at site like cranes, excavators, compressors dumpers etc.
c) Accident report forms.
d) Warning signs, No smoking, hard hat area, No trespassing etc.
e) Certificate of First Aider site.
f) First Aid Register – Recording all minor / major injuries and how they have occurred.

Following protective materials checklist is also used:

a) Hard hats / Helmets
b) Safety Glasses, Goggles and fact shields.
c) Safety Boots
d) Hearing Protection
e) Gloves
f) Fall protection (safety belts)
g) Flash Lights
h) Storage containers for inflammable and combustible materials.
i) Logs for detective tools and equipment.

Practical demonstrations are made in areas for lifting techniques, fire fighting, emergency procedures and first aid. Incentive Schemes are in force such as What's wrong competitions and prizes for minimum man days lost on account of accidents.

Analysis of accidents and man hours lost are calculated at half yearly intervals to arrive at the accident frequency and the accident incident rate. Methods used for calculation of accident rate and severity rates of accidents are given on the following pages.

All works and operations are periodically reviewed to determine if any additional safety equipments are necessary. Inspections of all equipment, tools and supplies are made prior to each use.

Disciplinary Action

If employees do not adhere to safety standards despite repeated warnings a system of imposing lines is being evolved with the rate of line being proportional to the severity of the safety violation

Safety Training Communication

Safety training and orientation are necessary elements of any effective safety Program.

Supervisor and workers must understand the company's safety policy and procedures and hazards associated with work.

Training is provide to workers when they arrive on the site in the form on informal lectures on the safe usage of tools and other equipment and the necessity of using personal protective equipment. Training covers the company and protects safety policies and safety regulations.

Tool Box talks are also held weekly on the sites for First Aid courses to keep them updated. These trained persons then communicate the knowledge gained by them to other employees.
Films on safety are screened in the labour accommodation provided.

Posters carrying the message of safety are put up in accommodation areas and in the pickup transport provided for workmen.

Notice boards are put up on all sites with the safety regulations on them.

Pocket safety hand-books containing safety rules are given to each site.

Calculation of accident rates:

To compare the safety performance of one workshop with another or one site with another the following formula is used for calculation of the frequency of the rate of accidents represented by letter F.

F= Number of Injuries x 1,000,000 / Total works hours (Man Hours)

Example:

An undertaking with 500 workers working 50 weeks of 48 hours each had 60 accidents causing injury during one year. Owning to various factors like illness, accidents and other reasons workers were absent for 5% of the aggregate working days. Thus, the total number of working hours (500 x 50 x 48 + 1,200,000) has to be reduced by 5%, to giving total workers as 1,140,000..

F = 60 x 1,000,000 / 1,140,000 = 52.63

This frequency role indicates that about 53 accidents causing injury occurred per million working hours.

Severity rate of accidents.:

To obtain better idea of the situation the severity rate is calculated on the basis of total number of days lost per thousand man hours of work.

Example:

If in the example given for frequency rate the total days lost as a result of the 60 accidents was 1200, the severity rate (s) would be;

s = 1,200 x 1000 / 1,140,000 = 1.053

This means that about one day was lost per thousand man hours of work or on basis of 2400 work hours per year per worker 2.4 days was lost per worker per year.

As supervisors know that safety is one of the yardsticks to measure their performance. They become more involved in the safety effort of the company. The lines communication between the management and the employees are always open and the workers are encouraged to participate in actively identifying and controlling workplace hazards as the employees at job sites are best people to know the problem and conditions of site.

Hazard identification informal / formal inspections

Informal inspections are made on a daily basis by supervisors and works before the commencement of work by examining their own work area and correcting any problems found before and injuries result.

GRC Designing encourages workers to report problems to project management attention. Formal inspections are internally conducted by the company's safety personnel. This helps in remaining the line supervisors their responsibilities of the safety effort. The inspection serves to keep everybody on his toes. A formal inspection report is included during this inspection with copies marked to the General Managers and Management.

Planning for Safety

Planning for safety starts during the process of mobilization of the project and continues till all works are completed and last workman leaves the sites. If safety is left to chance and considered an after thought, it will not be effective. Written guideline are provide for all employees to follow in the safety handbook of the company. A checklist is available during the planning stage for consideration in implementation of the safety Program.

Project safety planning Check List

1. Will there be full time safety person assigned to the site?.
2. Are copies of accident report sheets & emergencies phone number posters available on site?
3. Are medical emergency services available?
4. Is there sufficient communication system in the work place?

Presentation of statistics

Accident statistics are presented to all persons concerned to keep their interest alive and make them inclined to safety. It has been felt that the effect is better if the statistics are presented in picture so that even the not so literate workmen can understand the.

Accident investigations and statistics

Total number of accidents per year by cause (in thousands).

Handling Goods	
Miscellaneous Causes	
Handling Goods	
Power Driven Machinery	
Person Falling	
Struck by falling body	
Use of Hand Tools	
Stepping on or Strikes Objects	

Number of fatal accidents per year by cause

Persons Falling	
Miscellaneous Causes	
Power Driven Machinery	
Struck by falling body	

LIST OF PROJECTS

PROJECT NAME	LOCATION	CLIENT/ CONTRACTOR	CONSULTANT	STATUS
Mosque, Plot No. 617-4919	Nad Al Shiba, Dubai	**Bin Lahej Contracting Co Dubai - UAE Tel: 04-3241211, Fax: 04-3245644**	Cenyar Eng. Consultancy.	**Ongoing Project**
G+1 Villa in Al Souh Area Sharjah	Al Souh Area	**Al Marafeq Bldg. Contg, Sharjah - UAE Tel: 06-5639460, Fax: 06-5639470**	Gececo Gulf & Emirates Consulting Engineers & Architects.	**Ongoing Project**
Residential Building Basement + G+ 8 + Gym	Dubai - Silicon Oasis	**Becon Construction Co. L.L.C P.O. Box: 20091, Ajman - UAE Tel: 06-7422294, Fax: 06-7422295**	Al Khawajah Eng. onsultancy	**Ongoing Project**
Town Planning & PWD (G+1) Office Building	Sharjah- Kelba City	**Al Tameer Building Contracting. Co Fujairah - uae Tel: 09-2388705, Fax: 09-2388704**	CAB Eng. Consultants	**Ongoing Project**
Mosque (2000 Person)	Sharjah- Khorfakkan City		CAB Eng. Consultants	**Ongoing Project**
Khorfakkan Naturalisation & Immigration Bldg. as GRP Dome	Khorfakkan - UAE	**Aswar Eng. & Gen. Cont. Co. L.L.C P.O. Box: 4763, Abu Dhabi - UAE Tel: 02-6335266, Fax: 02-6335771**	Ministry of Public Works	**Ongoing Project**
Proposed Residential & Commercial Buildings (Ground +Mezz.+ 41 Storeys)	Al Majaz, Sharjah	**Becon Construction Co. L.L.C P.O. Box: 20091, Ajman - UAE Tel: 06-7422294, Fax: 06-7422295**	Adnan Safarini Consultant	**Ongoing Project**
Residential Building on Plot no. 20-014 at Dubai silicon oasis	Dubai - Silicon Oasis	**AB Building Contg. Co, Dubai UAE Tel: 04-3264671, Fax: 04-3264672**	ARC International Consultants.	**Ongoing Project**

Mosque for Mubarak Abdullah mohd al muhaira	Al Ain - UAE	**Al Muhairy Group Al Ain, UAE Tel: 03-7641719, 03-7669157**	Parc International Consultants	**Ongoing Project**
Naturalisation & Immigration Bldg. at Khorfakkan	Khorfakkan - UAE	**Aswar Eng. & Gen. Cont. Co. L.L.C P.O. Box: 4763, Abu Dhabi - UAE Tel: 02-6335266, Fax: 02-6335771**	Ministry of Public Works	**Ongoing Project**
G+3 Building Block Commercial Area Muwailah plot no 1255	Muwailah, plot no 1255	**Al Wathba Building Cont. Co. L.L.C Sharjah, P.O. Box:3984 Tel: 06-5726770, Fax: 06-5726244**	AL Gowair Consulting Architects And Engineers	**Ongoing Project**
Building G+ 4.2p + 17 Typ.(Building 2)	Sharjah - UAE	**Al Zamalik Contg. L.L.C Sharjah- UAE Tel: 06-7423706, Fax: 06-7443426**	Gulf Consultants Engineers P.O. Box: 6316, Sharjah - UAE	**Ongoing Project**
G+1 Villas (10 Nos), Health Club(2 Nos), Majlis & Compound Wall	Zaabeel Area Dubai - UAE	**Bin Dhaen Contracting, P.O. Box: 11737, Dubai - UAE Tel: 04-3986668 Fax: 04-3986863**	SAS Engineering Fax: 04-3219329	**Ongoing Project**
Gate for Al Zaher Palace, Ajman - UAE	Ajman- UAE	**Construction Tech Contg. Co, Ajman UAE Tel: 06-7446455, Fax: 06-7446451**	A.J. Designs Consultants	**Finished Project**
Proposed Mosque Ablution & Emam House - Hayawa plot no.11	Khorfakkan - UAE	**Dar Al Amara Eng. Consultants, Fujairah - UAE Tel: 09-2384373, Fax: 09-2386373**	Dar Al Amara Eng. Consultants, Fujairah - UAE Tel: 09-2384373, Fax: 09-2386374	**Finished Project**
4B+G+4 Parking + Health Club +3 Service + 64 Res. on Marsa Dubai	Marsa, Dubai	**Tiger Contg. Co. L.L.C, P.O. Box: 25411, Shj - UAE Tel: 06-5771112 Fax: 06-5771113**		**Finished Project**

Proposed 200 Prayers Masjid	Khorfakkan - UAE	**Al Qasr Bldg. Contracting, P.O. Box: 18006, Khorfakkan - UAE**		**Finished Project**
G+5P+30 Typ Building for Mr. Sameer Al Mahmoud Al Ali	Al Khan - Sharjah	**Sameer Al Mahmoud & Sons Contracting P.O. Box: 52, Sharjah - UAE Tel: 06-5331118, Fax: 06-5328008**	Art of Architecture Consultant / Sharjah	**Finished Project**
Residential Villas	Abu Dhabi - UAE	**Bin Ham Gen. Contg Co.P.O. Box: 34909, Tel: 02-4492034, Fax: 02-4492037**	Arch & Planning Group	**Finished Project**
Private villas				**Finished Project**
Building 30 Typ. Floor 15	Sharjah - UAE	**Tiger Contg. Co. L.L.C, P.O. Box: 25411, Shj - UAE Tel: 06-5771112 Fax: 06-5771113**	Shaban Abu Seego Conulatant	**Finished Project**
Proposed Residential Apartment	Sharjah-UAE	**Yousuf Ibrahim Bldg. Contg. Co, P.O.Box:1211, Ajman Tel: 06-5689912 Fax:06-5693914**	KAD Eng. Consultant	**Ongoing Project**
Hotel Building	Sharjah-UAE	**Mohammed Bin Jassim Cont. Co P.O.BOX:949 Tel: 06-5745444 Fax: 06-5745511 Sharjah, UAE**		**Finished Project**
Mosque, Fujairah	Fujairah - UAE	**Hateen Building Contracting Fujairah - UAE Tel: 09-2382709, Fax:09-2385220**		**Finished Project**
G+2 Municipality Building	Khorfakkan-Shj	**Al Tameer Building Contracting Tel: 09-2388705, Fax: 09-2388704**	CAB Engineering. Consultants	**Finished Project**
Proposed Mosque G only	Um- Suqum second, Dubai.	**Gaz Tec Building Contg. LLC, Dubai P.O. Box: 87400 Tel: 04-2699700 Fax: 04-2699757**	Eng. Adnan Saffarini	**Ongoing Project**
Proposed Construction fo Villa (B+GR+1)	Al Sharghan.	**Al-Khawajah eng. Consultancy, P.O. Box: 49229, Dubai - UAE**	City Consultants P.O. Box: 23334, Sharjah- UAE	**Finished Project**

Al Sawan Residential Tower (G+5P+20 Residential + Mechanical floor)	Ajaman-UAE	**Al Zamalik Contg. L.L.C Sharjah- UAE Tel: 06-7423706, Fax: 06-7443426**	AJ Engineering Consultant.	**Finished Project**
Villa	Dubai - UAE	**Mr. Khalid Al Kaitoob**		**Finished Project**
Villa	Sharjah, Al Noof Area, UAE	**Tefco International Company Sharjah- UAE Tel: 06-5620622, Fax: 06-5620632**		**Finished Project**
Proposed (G+2) Building for Town Planning & PWD Dept.	Sharjah-Korfakkan City	**Al Tameer Building Contracting Tel: 09-2388705, Fax: 09-2388704**	CAB Eng. Consultants	**Finished Project**
Villa Design Abu Dhabi. Sector SE-23/Plot No. 11	Abu Dhabi - UAE	**Yesa Abu Dhabi Contracting Co Tel: 02-6676630, Fax: 02- 6676629**		**Finished Project**
Proposed Ground Floor Villa and Compound Wall. Plot no. 971,972,973,& 974	Dhaid City	**Patriot Building Contracting Co. Tel: 06- 8823455, Fax: 06-8822646**	Al Hamra Consultant	**Finished Project**
Proposed Fish Market.	Al Bataeh Area, Sharjah	**Al Sayes Building Contg.Co Sharjah- UAE Tel:06-5633701, Fax:06-5633702**	Sharjah Muncipality Tech. Division	**Finished Project**
Proposed Vegetable Market.				**Finished Project**
G+4 villa	Ras Al Khaimah, Al Khail Area	**Al Noor Contracting Est. P.O.Box: 12141 Ras Al Khaimah Tel: 07-2281171, Fax: 07-2283133**	ART Eng. Consultant	**Finished Project**
G+1 Building	Sharjah, UAE	**Sulaiman Hussain Mohd Contra.co P.O.box: 3643, Sharjah-UAE**		**Finished Project**

Proposed Villa G+1	Sharjah, UAE	**Tel: 06-5543996 Fax: 06-5543996**		**Finished Project**
Residential Building Basement +G+8 Typ.	Dubai Silicon Oasis, UAE	**Al Kaitoob Buildg.Contracting. Dubai - UAE Tel: 04-2285725 Fax: 04-2211148**	Al Khawajah Eng. Consultancy	**Finished Project**
Construction of 246 villas & 367 town ships on Jumeirah village circle.	Jumeirah Village Circle -District 12 &16, Dubai - UAE	**Al Meraikhi General Contracting Est. P.O.Box:211, Abu Dhabi, UAE Tel: 02-6770590 Fax: 02-6725475**	Dynamic Engineering Consultant	**Ongoing Project**
G+ M+4P+15 Bldg	Al Majarrah, Sharjah, UAE	**Al Saud Contracting Co.(Ltd), P.O.Box:907 Sharjah, UAE Tel: 06-5688100, Fax:06-5688103**		**Finished Project**
Proposed Building GR + 5P +15 RES	Al khan Street Sharjah	**Mohammed Bin Jassim Cont. Co Tel: 06-5745444 Fax: 06-5745511**	Al Aofok International Eng. Consultant	**Finished Project**
3 Villas G+1	Mirdif, Dubai	**Gaz Tec Building Contg. LLC, Dubai P.O. Box: 87400 Tel: 04-2699700 Fax: 04-2699757**	Future Design consultant	**Ongoing Project**
4 Villas G+1	Al Safa Second	**Gaz Tec Building Contg. LLC, Dubai P.O. Box: 87400 Tel: 04-2699700 Fax: 04-2699757**	Adnan Safarini consultant	**Ongoing Project**
Three villas	Opposite Sharjah Airport	**Mr. Aly Al Hayyal Fax: 06-5332666**	Universal Design Office Engineering And Consulting	**Finished Project**

Villa G+1	Um- Suqaim second, Dubai.	**Gaz Tec Building Contg. LLC, Dubai P.O. Box: 87400 Tel: 04-2699700 Fax: 04-2699757**	Al Khawajah Engineering Consultancy	**Ongoing Project**
4 Villas G+1	Mirdif, Dubai, UAE		Al Ajmi Consultancy	**Ongoing Project**
Proposed IB+GR+2 Typ.	Khaldiya, Sharjah, UAE	**Mohammed Bin Jassim Cont. Co Ph: 06-5745444 Fax: 06-5745511**	Al Aofok International Eng. Consultant	**Finished Project**
Proposed Residential Building GR+4 Res	Sharjah, UAE	**Mohammed Bin Jassim Cont. Co Ph: 06-5745444 Fax: 06-5745511**	Al Aofok International Eng. Consultant	**Finished Project**
Villa G+15 Rooms Type B	Near Burj Tower Dubai, UAE	**Gaz Tec Building Contg. LLC, Dubai P.O. Box: 87400 Tel: 04-2699700 Fax: 04-2699757**		**Ongoing Project**
G+1 Villa (4 Villas)	Mirdif, Dubai	**Dektor Contracting L.L.C, P.O.Box:125734, Bur Dubai, UAE Tel: 04-3558337, Fax: 04-3558338**	Abdul Rabim Consultatnt	**Finished Project**
Villas	Al Juraina Area, Sharjah	**Conforce Cont. Co. L.L.C, P.O.Box:1870, Tel: 06-5347044, Fax:06-5347041**		**Finished Project**
Residential building (G+8P+HC+46 Floors+Duplex)	Al khan Street Sharjah	**S.S. Lootah Contg Co, P.O.Box:553, Dubai-UAE Tel: 04-2972222, FAX: 04-2972772**	Horizon International Consulting Engineers	**Finished Project**

UNITED ARAB EMIRATES
FUJAIRAH GOVERNMENT
FUJAIRAH MUNICIPALITY

دولـة الإمـارات العـربية المتحـدة
حـكـومـة الـفـجـيـرة
بلـديـة الـفـجـيـرة

تعديل مع التجديد
Modify and Renew

رخصة تجارية
Commercial License

License Number	18464	رقم الرخصة	Federal Registry No	10029582	رقم السجل المركزي الموحد
			Chamber Membership No	M11595	رقم العضوية في الغرفة
				مصنع تصميمات جي آر سي ذ.م.م	الاسم الاقتصادي
Business Name	GRC DESIGNING FACTORY LLC				
Legal Type	Limited Liability Co.			شركة ذات مسئولية محدودة	الشكل القانوني

Business Activities / الأنشطة الاقتصادية

ملاحظات Remarks	اسم النشاط (انجليزي) Activity Name (En)	اسم النشاط (عربي) Activity Name (Ar)	رقم التسلسل Serial #
	Fiber Glass Cement Products Manufacturing	صناعة المنتجات الأسمنتية المقواة بالألياف الزجاجية	1

Address / العنوان

Unit / وحدة	Building / عقار	Street / شارع	Area / منطقة فرعية	Main Area / منطقة أساسية
	سعيد عبيد فارس عافان الدهماني		توبان	السيجي

Fax		فاكس	Tel	0551673333	هاتف	P.O Box	11863 صندوق البريد
Expiry Date	21/07/2015	تاريخ الانتهاء	Issue Date	04/09/2014	تاريخ الإصدار	Est. Date	07/02/2008 تاريخ التأسيس
			Receipt Date	24/06/2014	تاريخ الإيصال	Ext Receipt No	131118 رقم الإيصال الخارجي

Remarks ملاحظات

مدير البلدية

رئيس القسم

Govt. of Fujairah • بلدية الفجيرة • حكومة الفجيرة

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تقوم هذه الرخصة بمثابة شهادة سجل تجاري

Fujairah Chamber of Commerce & Industry

غرفة تجارة و صناعة الفجيرة

شهادة عضوية
Membership Certificate

رقم الرخصة Licence No.	رقم العضوية Membership No.	رقم السجل التجاري Commercial Register No.
18464	M11595	10029582

إن غرفة تجارة وصناعة الفجيرة وبناءا على قانونها رقم (1) لعام 2007م قد سجلت.
Fujairah Chamber of Commerce & industry and in accordance with its Law No. (1) for 2007 here in registered

الإسم التجاري : مصنع تصميمات جي ار سي ذ.م.م
Trade Name : G R C DESIGNING FACTORY L.L.C

النشاط : صناعة المنتجات الاسمنتية المقواة بالالياف الزجاجية
Activity : FIBER GLASS CEMENT PRODUCTS MANUFACTURING

العنوان :
Address :

الفجيرة - ثوبان	TEL - هاتف	FAX - فاكس
P.O.BOX - ص.ب 11863 عجمان	06-8827634	06-8827624

الفئة : الخاصة
Category : Special

الشكل القانوني : شركة ذات مسئولية محدودة
Legal Status : Limited Liability Company

جنسية الشركة : الإمارات العربية المتحدة
Co. Nationality : United Arab Emirates

تاريخ الإصدار :
Issue Date : 2014/09/03

تاريخ الإنتهاء :
Expiry Date : 2015/09/03

جنسية الشركاء : اريتريا
الإمارات العربية المتحدة
Partners Nationality : Eritrea
United Arab Emirates

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