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Title **“Durable Architectural Detailing in GRC”**

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This article focuses on Glassfibre Reinforced Concrete's, [GRC] ability to create durable, complex, architectural shapes and individual feature in a wide variety of finishes.

INTRODUCTION

For architects and engineers, GLASSFIBRE REINFORCED CONCRETE, offers a unique opportunity as an alternative material for cladding new or existing buildings. It is substantially lighter than precast concrete and it is ideally suited as an original or complementary material. Complex, sculptured panels can be made more economically than precast and their reduced weight makes fixing and transport easier for these complex shapes. Being relatively light, they also minimise the additional load on the structure during re-modelling of existing buildings. However, since the finish on GRC can be identical to any structural or non-structural precast panels, they are frequently used in conjunction with the latter on the same building. GRC can also reproduce, in texture and colour, most natural stones whether it is coral, granite, limestone or sandstone.

First introduced more than 30 years ago, GRC is now established worldwide as a proven alternative building material with a blend of properties which help to create unique new or restored buildings.

TYPICAL PROJECTS

Starting at the beginning, in 1974, GRC was used to spectacular effect by the architects, Whinney Son & Austin Hall, when they created the then new 7-storey Credit Lyonnais banking premises in the City of London. 1900 double skin GRC panels were made using a plain white cement finish. The building inclines outward by 5 degrees, possible because of the lightweight of GRC panels. As can be seen from this recent picture, Fig 1, it is still a landmark building.



Fig 1. “The lightweight of GRC panels allowed this building in the City of London, to incline outwards by 5 degrees thus increasing usable floor space. Nearly 30 years on, it is still a landmark building in pristine condition!”

There are many excellent examples of GRC panels and decorative elements in the UK. One small project in Birkenhead, Merseyside, highlights GRC's ability to faithfully reproduce natural stones many of which are now becoming rare or environmentally protected. In this case [Fig 2], Florida's coral was reproduced and is almost indistinguishable from the naturally occurring material.



Fig 2a &b “Imitation Florida Coral panels in Birkenhead, Merseyside [Panels by Stoneform]”

In Europe, the restoration of the prestigious Palace Hotel in Madrid, Spain [Fig3] is another fine example of how GRC can be used to replace decaying stone sculptured features to their former glory



Fig 3 “The highly ornate exterior of the prestigious Palace Hotel in the centre of Madrid, Spain was spectacularly restored to its former glory with the moulded GRC parts being almost indistinguishable from the original carved stone in appearance and texture”

Middle Eastern countries have, over the past 20 years, also created a large number of architecturally individual buildings using GRC panels and decorative details. Fig 4 is a fine example of this. The



Fig 5 “The falcon has landed – The Clubhouse in Abu Dhabi [Panels by Fibrex, UAE]

In the USA, 20 years ago, the light weight of GRC panels combined with it’s ability to be moulded into complex but durable shapes was used to good effect by the architects Daniel, Mann, Johnson & Mendenhall on the 32 storey **Parc Fifty Five** building in San Francisco. Originally constructed in 1984 as the Ramada Renaissance Hotel, it has survived the aggressive San Francisco urban environment for 19 years without a single refurbishment of the exterior and still looks as pristine as the day that it was

erected as can be seen from this recent photograph [Fig.5]



<-Fig 5. “For Parc Fifty Five, a variety of sculptured panels were created in GRC ranging from fluted, circular and oval column covers to delicately combed, three dimensional spandrels panels and large arches with deep rustic joints. 3624 GRC panels covering 17,000sq.m”]

Further examples of decorative elements in GRC are shown in Figs 6-8



<-Fig 6 “Rear view of a 1.3m capital unit in GRC”



<-Fig 7 “GRC columns, arches and Domes”

Fig 8 “Heathrow Express station lining panels”



In conclusion, GRC has been successfully used more than 30 years to create strikingly individual buildings because of its ability to be moulded into complex shapes and imitate natural stone finishes in both texture and detail. Its lightweight reduces transport and handling costs and allows for access to otherwise difficult locations. It also has excellent fire properties and is a low maintenance material