

13 Fibrobeton, Quarter Century in the GRC Industry

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ABSTRACT

This text is about the strides that Fibrobeton has taken in design, production and installation in the GRC sector that has spanned to a quarter of a century. Preserving the past and keeping history alive is the reflection of the civility and cultural wealth of a nation. This is especially true for one of the most spectacular kinds of visual art, architecture. On the other hand, increasing the life quality and adding up to the cultural heritage by adding durability, aesthetics and spirit to new buildings is a social responsibility.

Fibrobeton creates innovative solutions for facades and cladding with this philosophy in mind.

Fibrobeton has been creating architectural facades using GRC for over 24 years. To date, they have completed over 3500 projects in over 20 countries.

The R&D and innovation effort of Fibrobeton has pushed them to the front of the GRC sector by creating insulated, earthquake resistant cladding systems, and has played the most important role in developing the industry in Turkey and the surrounding region.

As an architectural association stated while awarding Fibrobeton; "their ability to transform all designs into cladding by using GRC" has done a great deal for the architectural community.

Anthill Residences Project is about the 54 storey high 210 meters tall twin towers which are the highest Fibrofombeton GRC heat insulated exterior wall panel covered buildings and the technology behind it. It has been completed in 14 months and consists of 13.000 panels total of 70.000 sq.m.

In Mardan Palace Hotel project Fibrobeton used over 55.000 materials. Ornamentation and carvings on the exterior façade has been remade after the historical buildings in Bosporus. 1500 molds out of 2500 have been prepared with the help of carving and handmade art.

GRC on Organic Façade with Fibro Multiform Technology; This product of an Architectural genius will be reminiscent of a Star Wars Ship, a high-tech yacht or anything related to flying, in the first sight. It was inevitable to be a part of this project for Fibrobeton with its Fibro Multiform technology and their 24 years of experience. Approximately 1100 unique pieces come from unique molds and casting.

Key words: Fibrobeton, Fibrofoambeton, Fibro Multiform, GRC, innovation, Turkey, precast, architectural concrete, GRC sector, brand, façade cladding, façade, heat insulated, GRC design, Moscow, Fire resistance, Organic Form, Organic Design, ZHA Architects, Capital Hill,

Fibrobeton became one of the most prestigious brands in the global sector with its numerous patents about the use of the products as building material, its innovations and its operations supported with other systems. Fibrobeton that is the leader company not just in Turkey but also in the region started this quarter century long journey with the mission of

“renewing by preserving the historic fabric of the past”.

Preserving the past, maintaining the historic fabric are actions that are two indicators of civilization and great richness for the country. Especially, this has great significance for architecture, which is one of the most glorious fine arts.

Fibrobeton that was founded back in 1987 with this philosophy aims to offer creative solutions by preserving the historic fabric of the past in facade coatings.

Moreover, another thing that is adopted in the mission of Fibrobeton that believes that adding new structures to the cultural heritage not just the historical structures is a social responsibility is

“to leave permanent works to the next generations”.

The objective of Fibrobeton that started this journey 24 years ago with this mission is

to open new horizons to the architecture profession and building sector,

to enable all imagined architectural forms to be realized.

All designers and architects want to use the architectural forms they designed in their projects. However, mainly the construction of these designs is restricted with the availability of building technologies and materials.

After almost a quarter century later, today Fibrobeton feels the right proud of offering service to the world architecture and achieving its goal by

- Removing the restrictions with the facade coating materials it produces with the GFRC technology it developed,
- Enabling all designed forms to be converted into facade coating material.

FIBROBETON

IN THE GLOBAL MARKET

In Fibrobeton Group that continues its operations in the areas of international construction, building materials and know-how export, industrial material manufacturing and foreign trade; there are Fibrobeton, Fibrobeton-Panel, Fibro-SIM and Fibrocon Precast USA companies.

Fibrobeton that was founded in 1987 and overtook the role of being the leader in the group attaches great importance to product development and created methods, patented products by contributing to its sector by keeping its technology always state-of-the-art. Today, Fibrobeton is not just Turkey's or region's leading company; it is also one of the leading companies of the world GFRC sector with its patented innovative products and the technology it developed.

Within these 24 years, Fibrobeton put its signature on the facade of more than 3500 buildings in more than 2500 projects of more than 20 countries in 4 continents. Fibrobeton that owns the patented GFRC technology used in the whole world sells not just products, but also know-how and patent to the world. And Fibrocon Precast USA continues its activities since 1997 in USA.

Large product portfolio of Fibrobeton that attaches great importance to R&D and innovation are grouped under the following heading:

Fibrobeton® - Steed Framed Facade Coatings

Fibrofombeton® - Thermally Insulated Facade Systems

Fibrobeton® - Decorative Building Elements

Fibrobeton-Trans® - Concrete Transmitting Light

Fibrobeton-Reflex® - Shining Concrete

SETTING EXAMPLE FOR INNOVATION

The difference of Fibrobeton that is recently invited to many meetings discussing the subject of "innovation" as a company setting an example in this subject is resulting from its past.

Since the day it is founded, Fibrobeton has a great interest in innovation that became the core subject of conversations with the expansion of competition from local to global.

Fibrobeton that was founded with an innovation 24 years ago constantly improved and created differences in

BUSINESS, PRODUCTS, SERVICES and TECHNOLOGY under the leadership of Founding Honorary President Ayhan Babacan.

The activities that are referred as "innovations" today actually compose the development story of the company. These innovations are as follows:

➤ **BUSINESS INNOVATION:**

By bringing the use of GFRC products in external walls to Turkey, **lead the creation of an industry branch and market employing thousands of people today.**

24 years ago, both Turkey and the world were very different. In that day's Turkey that doesn't yet know stainless steel and aluminum facade, a different and unknown material was presented to the people. First, the entire sector was trained. The priority was training in order to convince Turkish building sector. By organizing seminars with academicians in the universities, the material was introduced, its properties were presented, its uses and benefits were displayed. Test results were shared.

➤ **PRODUCT INNOVATION:**

In this field that FIBROBETON stepped in back in 1987, it started to create today's GRC concepts by priorities being innovative and leader.

And an important step was taken in the global GFRC sector:

With **FIBROFOMBETON® - Thermally Insulated Facade Systems** a product that enables energy saving; durability, strength and aesthetics are combined with thermal insulation in the external facade.

The company that accelerated its R&D activities back in 1994 continued to improve this thermally insulated product.

And in 1997, the company obtained the patent right of Fibrofombeton® thermally insulated facade panels.

Thus it started to sell know-how and patent to the world, not just the product. And then the process continued and the properties of Fibrofombeton were improved constantly with R&D:

- **Resistant to an earthquake at the magnitude of 9** - This reliability of FIBROFOMBETON Facade Panels against an earthquake at the magnitude of 9 were proven and certified with internationally required tests.
- **Class A1 incombustibility document** was received thanks to superior production technology.
- The product made resistant to **high wind loads**.

Today, light and thermally insulated Fibrofombeton[®] is used in the highest buildings of Turkey and world.

Moreover, as a result of the R&D activities:

Light transmitting transparent concrete **Fibrobeton-Trans[®]** and

Light reflecting **Fibrobeton-Reflex[®]** branded products were offered to the services of the building sector.

➤ **SERVICE INNOVATION:**

There is a popular saying used widely: **SOLUTION PARTNER...**

Architects are creative people; they image the project first and design it later. It is not enough to just offer the suitable product for the realization of these designs. That product shall also be applied to project in the best possible way. And you can only achieve this with the team that manufactures the best material. That was the point Fibrobeton was innovative about. Many times, it supported construction companies in details they couldn't solve. With its experienced teams, Fibrobeton was the solution partner in service not just in words for the past 24 years.

No serial production, only serial assembly

Fibrobeton that is a company providing boutique service as the nature of the business requires adds a new face and a distinct soul to each structure. And mostly, it uses different products and styles. And this requires manufacturing numerous molds.

(If the image is used in the presentation) Here is an example... In 2002, we completed 12 thousand precast elements with more than 350 different molds in a record time like 6 months for **Antalya Kremlin Palace Project**.

For many years, Fibrobeton products are used in thousands of projects in every aspect of life from villa to place, skyscraper to airport, hotel to shopping center, mosque to museum, Formula 1 facility to bridge. But it was not just its products.

Fibrobeton also provided a complete service to different projects in more than 20 countries with its architectural and technical teams.

➤ **TECHNOLOGY INNOVATION: Fibrobeton - Multiform[®] Technology**

Fibrobeton that achieved its goals mentioned at the beginning developed Fibro-Multiform Technology by realizing the designs that world precast manufacturers in the mold technology cannot even dream of. With **Fibrobeton - Multiform[®]** technology that is the last innovation of Fibrobeton, facade coatings at the requested form that don't repeat itself can be manufactured.

As a result of the improvement studies conducted in both mold technologies and Fibrobeton manufacturing techniques; Fibrobeton expands its solution partnership with designers with brand new products that are

- As free as possible in terms of dimension, form;
- Solved with all its details in terms of building physics and assembly techniques;
- Include all kinds of geometric forms and patterns;
- Have various color and texture options.

...

By realizing one more dream, it offers the architecture world to design more freely and more uniquely.

(If the image is used in the presentation) A striking example to the technology that challenges designers to be extraordinary is the huge egg drawn by famous Turkish designer Sema Topaloğlu. And this design was implemented with the Fibro-Multiform Technology.

HIGHEST CAPACITY: 600 THOUSAND SQUARE METERS IN A YEAR

In this path followed with a sustainable growth despite of all the internal and external global crises, Fibrobeton made another huge investment this year. Just in 15 months, the production activities are initiated in Düzce Fibrobeton Facilities started to be constructed in November 2009. 22 thousand square meters of area that is the first phase of the 50 thousand square meters planned indoor area of the facility which will have the total area of 127 thousand square meters. With its new phases that will be commissioned gradually, the indoor space will be completed to 50 thousand square meters and the production capacity of the factory will reach 600 thousand square meters per year. FIBROBETON DUZCE that is equipped with state-of-the-art machines will offer advanced products to the world market from Turkey as a fully integrated production facility.

Examples from Fibrobeton Projects

1- Decorative building elements example:

Mardan Palace Project

Antalya/ 2008

- **Mardan Palace Project located in Antalya, the tourism center of Turkey in the Mediterranean Coasts, is a striking example for the application of decorative building elements with its use of 55 thousand pieces of Fibrobeton products custom manufactured with 2500 different molds.**

Symbol of luxury and glory, Mardan Palace...

With the opening ceremony that welcomed Hollywood stars, its famous guests from world jet society and its international awards, Mardan Palace Antalya is known as "a global hotel". With its luxury and glory, the hotel is Mediterranean's top and one of the world's few hotels. In all facade coating processes of Mardan Palace constructed on 180 thousand square meter area by being inspired from the historical structures of Istanbul, Fibrobeton products were used.

With the design in which all of the facade application projects were solved by Fibrobeton; Bosphorus, waterside residences, historical buildings, squares and harbors of Istanbul are carried to Antalya. Fibrobeton products were preferred to realize the dreams of AST Group President, Azeri

originated Russian businessman Ismailow, who says “I dreamed of Istanbul while building the hotel”.

All facade decorations were designed by being inspired from the buildings in Istanbul.

In the middle of the hotel, whose main building is just like Ottoman Dolmabahçe Palace with its glamorous gate and structure, there is 16 thousand square meters large pool in the shape of Bosphorus. The architectural appearances of the waterside residences and classical Turkish houses on the coasts representing European and Asian sides of the Bosphorus are identical with their originals.

All the decorations and engravings on the external surfaces are the motives based on the relievos and photographs of the current structures of Istanbul. In 1500 of the 2500 molds produced individually by Fibrobeton, meticulous handcraft and engraving methods were used.

By preparing more than 1500 special hand engraving models and more than 2500 different molds, all the decorations, coats and patterns on the facades reflected the reinterpretations of their similar in Istanbul buildings in the scale of these buildings.

By producing art oriented more than 55 thousand pieces of Fibrobeton materials, the facade application was carried out exactly in line with the project. Among the works that were achieved, there were materials in many different sizes such as facade coatings rich in decorations, classical column, patterned cornice moldings, wooden textured coatings, frames in different forms, moldings and cap stones, safety rails and unique patterned framework in terraces, arcades, curvilinear and arc forms, large facade and balcony panels from floor to floor.

These materials that are custom made for the project were produced in approximately 12 months. Each piece was packaged individually and transported to the construction site. For 14 months, approximately 100 people worked on their assembly.

Many different styles in a single project

In Mardan Palace project of Fibrobeton, many different architectural styles were used in a single project for the first time. Only in the main block at the center, 15 different Istanbul structures were reinterpreted. And the lobby of the hotel was designed by being inspired from the “Grand Bazaar”. In this lobby and amphitheater with a seating capacity of 3000, Fibrobeton was the solution partner.

2-Thermally insulated Fibrofoambeton example:

Anthill Residence Project

Istanbul / 2010

- **Fibrobeton’s innovative product; thermally insulated, wind and earthquake resistant Fibrofombeton product proved its success one more time by ensuring insulation at 210 meters in Anthill Residence Project composed of 54-storey twin towers.**

Fibrobeton that reached to the 210th meter in the Anthill Residence Project composed of two 54-storey towers constructed as the highest buildings of Turkey with precast coating put its signature to the top one more time in Istanbul skyline. Thus Fibrobeton that was holding the record of the highest precast facade application with Metrocity and BJK Selenium Twins broke its own record and reached the 54th floor with Anthill Residence Towers.

Fibrofombeton in Brem Certified Environmental Structure

210 meters high Anthill Towers designed by MM Proje and constructed by Ant Yapı became the second highest structures of Istanbul. The structure that is defined as "a project that combines intelligent building concept with emotional intelligence" is ambitious with its high EQ and technology as well as its height. Anthill that is the first residence project in Turkey with Brem certificate reveals its environmental aspect. In the facades of the 400 million dollar project, thermally insulated Fibrofombeton was used. Thus energy loss was prevented and environment was protected by saving thermal energy.

Anthill Residence Project is located in Şişli-Bomonti, one of the oldest districts of Istanbul. The project built on a 25 decares of land is composed of two towers and a social facility. With this project, ANT Yapı that is the 70th Contracting Company of the world reflected its international experience to Turkey. In Anthill Residence that ANT Yapı completed in a record time of 24 months, all details are considered for a beautiful life.

The superiorities of Fibrofombeton is also valid at the top

The project including a 70,000 m² coating with a total of 13,000 GRC panels were completed in just 14 months. The panels were mounted to the 54-storey and 210 meter high buildings with custom designed cranes. In the project, Fibrofombeton thermally insulated wall system that is one of the innovations introduced by Fibrobeton to the GFRC sector was used. The greatest advantage of this system is the system to combine extremely reliable studies for fire resistance, optimum thermal and sound insulation, and earthquake and wind resistance, with Fibrobeton aesthetics. The project has many firsts for the GFRC sector both in terms of its project dimension and high building concept, and there are many innovative approaches within the project.

The wind and earthquake resistance tests of the Fibrofombeton[®] materials produced for this project was carried out carefully. Fibrobeton[®] that completed the highest precast coating project of Turkey until now put its signature to the top one more time with its successful and on time assembly.

From the towers that stand against the wind the assurance and strength of Fibrobeton, you can watch the unique panorama of Istanbul.

2- Fibrobeton - Multiform[®] Technology Example:

CAPITAL HILL by Zaha Hadid

Moscow/ 2009 -

- **A global example to Fibrobeton-Multiform[®] Technology developed by Fibrobeton is all internal and external facades of Moscow Capital Hill Project designed as the "fairy tale house of the twenty first century" by the world famous architect Zaha Hadid, to be coated with this technology developed by Fibrobeton.**

Capital Hill... When you first see this work of this architectural mastermind, it reminds you a "Star Wars" ship, state-of-the-art yacht or something about flying... However regardless of the thing you remember, you definitely image the technology of the future. You cannot have any other thought since the architect of this project is Zaha Hadid. She is the first female architect who won Pritzker Architecture Prize. With this avant-garde perspective and radical line, it was inevitable for this house to be the subject of legends.

Fluid spaces rise to the bed section in the 3rd floor as soft or sharp. You will not be able to forget this spectacular view. Different and unique views, spaces and lines that challenge your imagination...

However this project, solution, opportunity, production and finally construction can only be achieved by pushing the boundaries of humanity and technology.

Hadid & Fibrobeton = Limitless design freedom

Right at that point Capital Hill and Fibrobeton joined their forces. Fibrobeton that started its journey to remove the restrictions in architectural design managed to turn profound imagination of Hadid to reality with the Multiform Technology it developed. In today's world, **fairy tales can also be real.**

Thus all the internal and external facades of Capital Hill Project of Zaha Hadid defined as the "fairy tale house of the twenty first century" were taken from the world of fair tails and brought to the "real world" with Fibrobeton-Multiform® Technology.

The structure that is the winter house of a Russian businessman is designed in the Barvikha Forests around Moscow by being inspired from the tropical atmosphere of the region. Fibrobeton joined the project, which is constructed by Turkish Contracting Company Ant Yapı, one month after the project was announced. Selection of GFRC that was the main material of the facade was an easier choice since its manufacturer is Fibrobeton. GFRC material became "essential" for this project with its production freedom and flexibility, ease of design, wind, snow and A1 fire resistance. With Fibrobeton Multiform Technology and 24 years of experience, Fibrobeton become one of the most important parts of the project.

Thousands of square meters of facade from Istanbul to Moscow...

First the external walls of the project that has a fluid geometrical structure discussed in the world architectural forums with its surprising form are solved with Fibrobeton-Multiform® Technology.

It is really important to talk about the work of manufacturers of the facade material that shape the outer shell, skin and final shape of the structure in detail. Panels that are all different, three dimensional and digitally designed can only be manufactured after repeated controls; wind, snow, fire etc. tests and by considering and checking every point of each section over and over again.

Approximately 1100 units and each coming from a different mold... And hard work on all of them... Thousands of m2 materials were manufactured in facilities of Fibrobeton in Turkey.

In this project, Fibrobeton Multiform Technology became one of the essential elements of the design. In the details and solutions of the facades that are the main building blocks of the unique appearance of the building, this technology offered very important contributions both to the designer and the constructor.

All internal - external facades are Fibrobeton

In the project whose facade coating is about to be complete, Fibrobeton's premium technology was also preferred for all internal spaces.

Since the thousand square meters of panels produced with Fibrobeton-Multiform® Technology in the Fibrobeton facilities in Turkey provided the exact requested form and assembled with great success, Fibrobeton became the primary choice also for the internal spaces of the structure.

The coating materials required for special designs for interior spaces of this multi-storey building with different geometrical properties are still produced with Fibrobeton-Multiform® Technology. Custom production can be made with different molds to obtain the imagined special forms for interior spaces as for exteriors.

















