

Zaha Hadid Architects

MeiXiHu International Culture and Art Center
Changsha, China

Nanjing Youth Olympic Centre
Nanjing, China

Sky Park Complex
Bratislava, Slovakia



Landmarks featuring **AALBORG WHITE®**

CHANGSHA MEIXIHU INTERNATIONAL CULTURE AND ART CENTRE

Changsha Meixihu International Culture & Art Centre, the largest and most versatile public cultural complex in Hunan province, China, is a building designed by Zaha Hadid whose outlooks coexist perfectly with the surrounding environment while providing full functionalities.







A contemporary art museum, a grand theatre and a small theatre looking like 3 hibiscus mutabilis blooming on the bank of Meixi Lake, is not only a testimony of Zaha Hadid architectural concept but also a showcase of her astounding aesthetics. By adopting the concept of "ripples" of the flower petals falling into Meixi Lake, this 3-part complex is uniquely defined and exquisite.

Mimicking the beautiful curves, seamless and flowing lines of a flower pedal, means unimaginable engineering difficulty for the design and construction team. A total of 11,924 unique pieces of GRC cladding panel were used. To create such pieces in the first place, BIM technology was used for accurate and unique modelling. However, the hardest part was the installation process, during which, the deviation between each cladding panel and the designated position was controlled within plus/minus 2mm tolerance to ensure the integrity of the whole building.



The building is located next to Meixi Wetland Park, a natural ecological park with which, the building's concrete texture blend in perfectly. White concrete claddings were selected due to its natural texture and the symbolic representation of freshness and simplicity in its colour.

“To achieve flawless architectural aesthetics, the uniformity of the colours is the key. Thanks to the strict quality management system and standards of Aalborg White, our GRC panels have no colour variations between batches. The consistency of white cement also freed us from formula adjustments, which saved us a great deal of time. The high purity and chemical stability enable white cement easily to have a full reaction with different additives to produce high quality and high durability GRC panels. Thus, it gives us a great confidence to use Aalborg White in the international large-scale and high-quality projects.” Stated by Jiru Xiong, the president of Nanjing Beilida New Material.



Project Information:

Year: 2019

Location: Changsha of Hunan, China

AALBORG WHITE® cement Application: GRC in cladding

Precaster: Nanjing Beilida New Material, Shandong Jinguang GRC

Architects: Zaha Hadid Architects

Area: 115000 m²

**ZAHA HADID
ARCHITECTS**



AALBORG WHITE®

NANJING INTERNATIONAL YOUTH CULTURAL CENTRE



From a far, a spaceship shaped building composed of two towers overlooking the Yangzi River shore. At a closer look, this International Youth Cultural Centre, another masterpiece designed by Zaha Hadid in China, also the most stylish landmark in Nanjing, seems to be telling young people a story of adventurous spirits, breaking the wind, and sailing through the waves. With a total area of 5.2 hectares, and a building area of roughly 480,000 square meters, this landmark has added another astonishing achievement through Aalborg White cement based GRC cladding coverage of 110,000 square meters.

The building façade gradually transforms into a grid of rhomboid concrete panels where tens of thousands Aalborg White cement based GRC panels, single and double curved, were used. It has fully reflected the versatility and integrity of the building. This partition design not only requires both the roof and the floor to be aligned on a uniformed oblique line, but also corresponding to the panel gap of concave glass windows, making it one of the most challenging GRC cladding projects in the world. The project also marks the beginning of the internationalization of China's GRC technology.



Project Information:

Year: 2018

Location: Nanjing of Jiangsu, China

AALBORG WHITE® cement Application: GRC in cladding

Precaster: Nanjing Beilida New Material

Architects: Zaha Hadid Architects

Area: 480000 m²

SKY PARK IN BRATISLAVA

The internationally renowned studio Zaha Hadid Architects are setting their landmark SKY PARK on Bratislava, using glass fibre reinforced concrete (GRC) based on Aalborg White cement. The Danish company BB Fiberbeton A/S is the GRC producer of this project. SKY PARK is a complex project integrating 20,000m² of public park, a community with more than 700 apartments and 55,000 m² office and retail space, connecting to city transportation network.



BB Fiberbeton A/S has recently produced the last façade elements for the three high-rise buildings in Slovakia. GRC elements are used as part of the facade solution for the three organically shaped towers, the SKY PARK.

“The large design studio is known for its exciting forms and for constantly challenging the boundaries of architecture with an experimental design language. That is why it has been an interesting project for us. The organic shapes are exactly what is unique about glassfibre reinforced concrete”, says co-owner Nikolaj Aalund Brandt, BB Fiberbeton.

The last GRC elements have just been produced at the Danish factory outside Copenhagen. More than 220 trucks have transported the +3,000 elements made with Aalborg White cement from Denmark to Slovakia. The high-rise buildings are expected to be completed in 2020.

“We prefer Aalborg White cement for our GRC production due to its color consistency and chemical properties. High quality white cement is a key parameter for us to achieve the specific color and surface finish. We work with a lot of different surfaces and Aalborg White cement is a good starting point.”
Adds by Nikolaj Aalund Brandt.

SKY PARK by Zaha Hadid Architects is a development by Penta Real Estate.

The GRC material is extremely formable and durable. It is very versatile and can be suitably shaped into a wide variety of complex shapes. Selecting GRC, architects have complete freedom of design in terms of geometry, texture, and surface – without high costs.

“GRC is eco-friendly. The green production with low energy consumption and without any toxic materials ensures low CO2 per square meter. Further the light weight of the material, as it is produced in typically 12 mm thickness, and the extreme durability of GRC, contributes significantly to sustainability of the building”, says Nikolaj Aalund Brandt, BB Fiberbeton.

At the factory in Denmark, they have already progressed with other projects, including facade elements for another large building project in Bratislava. Just across the street from SKY PARK.

Surface Treatment of GRC

GRC elements from BB Fiberbeton A/S are a mixture of sand, water, cement, fibers and additives. The elements do not require any maintenance to fulfill technical requirements.

GRC is virtually maintenance-free and is due to its very tight - but permeable - structure stronger than conventional concrete, and more dirt resistant. But if for reasons of environmental character or extreme pollution (sod, sulfurous air, etc.), a high pressure wash becomes relevant, it must be carried out with care. Light sanding with fine sandpaper is also an option.

GRC elements can, as other concrete elements, be coated to achieve better soiling resistance and a better base for easy subsequent cleaning. Coating also usually has the effect that it limits efflorescence on the surface, which is particularly visible on darker elements.

GRC from BB Fiberbeton A/S is very durable, with high strength and requires no maintenance.



Project Information:

Year: 2020

Location: Bratislava, Slovakia

AALBORG WHITE® cement Application: Stud-frame GRC elements

Architect: Zaha Hadid Architects

Prefab: BB Fiberbeton A/S