



Mimar Sinan 4-Storey Underground Parkade



2023

ABOUT THIS PROJECT:

Market Segment:
General Construction,
Marine Structures

Waterproofing:
Topsit A.S.

Products Used:
Xypex Admix C-1000 NF
Xypex Concentrate
Xypex Modified
Xypex Patch'n Plug

Location:
Üsküdar, Istanbul,
Türkiye

Engineering:
Baru Construction A.S.

General Contractor:
Baru Construction A.S.

The Mimar Sinan Underground Parkade, completed in 2023 as an initiative of the Istanbul Metropolitan Municipality, lies beneath the newly developed Mimar Sinan Square in Istanbul's historic Üsküdar district. Extending over four underground levels and accommodating up to 956 vehicles, this facility directly addresses long-standing parking shortages, eases local traffic congestion, and bolsters urban infrastructure.

Thanks to the building's unique location – built at sea level on reclaimed land along the Bosphorus Sea – "The whole structure is built in chloride rich reclaimed land – namely, you have a four-story parking lot immersed in the saltwater sea," noted Esen Turan, Sales Coordinator at Xypex Türkiye Topsit A.S. This highly challenging environment, marked by elevated hydrostatic pressure and high salinity, demanded robust and enduring solutions to mitigate the risk of chloride-induced corrosion.

In addition to environmental difficulties, the project team had to navigate a dense and vibrant urban environment and respect the nearby historic sites. The Üsküdar district traces its origins back to at least the 7th century BC, historically serving as a strategic junction between Asia and Europe, and functioning as a commercial and cultural hub for millennia. Balancing modern construction needs with the area's rich heritage was integral to the project's success.

The engineering team employed a top-down construction method to build a very large below-ground structure in record time. This enabled the construction teams to work efficiently in Üsküdar's high construction density, minimize disturbance to the surrounding community, and safeguard the district's historical integrity.



To overcome the challenges posed by saltwater, elevated hydrostatic pressure, and a tight construction schedule, the engineering team from Baru Construction A.S. chose the Xypex Crystalline Technology for its ease of use and proven effectiveness in waterproofing, even under extreme hydrostatic pressure, while enhancing the concrete's chloride resistance and durability.

When applied to concrete, Xypex's active components react with moisture and unhydrated cement particles, forming a network of insoluble crystals within the concrete's pores and capillaries. This internal barrier effectively blocks water, chlorides, and other harmful chemicals from entering the structure. Unlike conventional waterproofing methods, Xypex continues to enhance the concrete over time by reactivating whenever water contacts the concrete matrix, allowing crystal growth and self-healing of any new static cracks up to 0.5 mm. This ongoing protection significantly reduces maintenance needs and greatly extends the concrete service life.



The Baru Construction A.S. engaged Topsit A.S. to ensure a state-of-the-art application of 50 tonnes of Xypex Admix C-1000 NF, 10 tonnes of Xypex Concentrate, 3 tonnes of Xypex Patch'n Plug.

Selecting the Xypex Admix C-Series proved to be a strategic choice, yielding substantial time and cost savings for the project. As Xypex is added to concrete during the time of batching, it eliminates the need for waterproofing membranes or coatings. Following the concrete placement, Xypex Concentrate and Xypex Patch'n Plug were then applied to seal construction joints, tie holes and repair concrete defects, such as rock pockets. This comprehensive approach provided robust, long-term waterproofing and protection, tailored to the project's demanding conditions.

By combining advanced construction techniques with high-performance materials, the Mimar Sinan Underground Parkade emerges as a resistant, long-lasting asset that enriches Üsküdar's evolving urban landscape. It stands as a forward-looking model of urban infrastructure, capable of meeting the pressing challenges of a growing city while preserving the region's historical and cultural fabric.

