



Mimar Sinan 5-Storey Underground Parkade



ABOUT THIS PROJECT:

<p>Market Segment: General Construction, Marine Structures</p>	<p>Waterproofing: Topsit A.S.</p>	<p>Products Used: Xypex Admix C-1000 NF Xypex Concentrate Xypex Modified Xypex Patch'n Plug</p>
<p>Location: Üsküdar, Istanbul, Türkiye</p>	<p>Engineering: Baru Construction A.S.</p>	<p>General Contractor: Baru Construction A.S.</p>

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 five 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—“it is safe to say that the entire concrete structure is immersed in saltwater,” noted Ata Basaran, Xypex Regional VP for EMEA and CIS. 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 allied to a tight schedule, enabling the construction teams to work efficiently in Üsküdar’s densely built-up context, minimizing disturbance to the surrounding community and safeguarding the district’s historical integrity.



To overcome the challenges posed by salty water, elevated hydrostatic pressure, and a tight construction schedule, the engineering team from Baru Construction A.S. chose a Xypex Crystalline Technology system solution for its ease of use and proven effectiveness in waterproofing—even under extreme hydrostatic pressure—while also 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 any new static cracks up to 0.5 mm. This ongoing protection significantly reduces maintenance needs and greatly extends the concrete’s 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, as it yielded substantial time and cost savings for the project, as it is added to concrete during the time of batching, eliminating the need for post-curing waterproofing membranes or coatings. 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 modern cities while honoring and preserving the region’s historical and cultural fabric.

