



Daejeon Expo Aquarium



2020

ABOUT THIS PROJECT:

Market Segments:

Water Holding Structure

Owner:

MKASS (Marinescape Korea Aquarium Supply Service)

Products Used:

Xypex Concentrate
Xypex Patch'n Plug
Xypex Admix C-1000 NF

Waterproofing Contractor:

SHINWOO Consultant

Concrete Producer:

Gongdan Ready-mixed Concrete

Contractor:

YM Construction Company

Location:

Daejeon City, South Korea

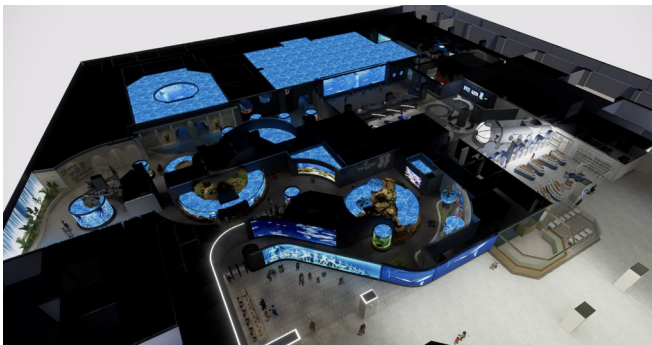
The Daejeon Expo Aquarium, located on the first basement floor of the Daejeon Science Complex in Daejeon City, Korea, spans 6,623 square meters and has quickly become a prominent attraction. This new construction features a unique two-floor design, including a 94-meter-long submerged tunnel offering panoramic views of marine life.

As some of the tanks would contain saltwater, the concrete needed to withstand marine environments. The diffusion or penetration of aggressive substances into concrete (such as saltwater chlorides) through interconnected capillary pores and cracks can lead to the degradation and deterioration of the structure.

Depending on the nature of the diffusive substances, they can attack concrete or steel reinforcement. Non-toxic and approved for use with potable water, Xypex forms a non-soluble crystalline structure that resists extreme hydrostatic pressure, making it the perfect solution for protecting, preserving, and repairing water-holding structures such as aquariums.

To ensure the aquarium's durability and protection, 6,500 kg of Xypex Admix C-1000NF was incorporated into 1,500 m³ of concrete at a dosage rate of 1% of the total cementitious material. The Xypex admixture was added during batching, streamlining the waterproofing process by eliminating the need for additional installation steps. This admixture creates a chemical reaction within the concrete matrix, providing permanent waterproofing, enhancing chemical resistance, and enabling the concrete to self-heal static microcracks that may occur over time. This approach not only saved time and money but also ensured the long-term integrity of the structure.

For the construction joints, square cross-section plastic bars were installed before pouring the concrete. After curing, these bars were removed, and the exposed grooves were cleaned with high-pressure water. The joints were then treated using 2,000 kg of Xypex Concentrate and 2,000 kg of Xypex Patch n' Plug, ensuring watertightness.





The use of Xypex Crystalline Waterproofing Technology in the Daejeon Expo Aquarium demonstrates its effectiveness in waterproofing and protecting concrete structures from seawater corrosion. This innovative approach has not only safeguarded the aquarium's structural integrity but has also extended the service life of the concrete, offering robust protection in the challenging marine environment.

