

Coal Combustion Product Type

Fly ash

Project Location

Abu Dhabi, UAE

Project Participants

Mandir Limited, Baps Swaminarayan Sanstha, RSP Architects, Ramboll

Project Completion Date

2022

Project Summary

Abu Dhabi, the capital city of the United Arab Emirates (UAE), is home to over 3 million people of Indian descent. As part of the UAE's Year of Tolerance, its government in 2019 gifted 14 acres of land for the construction of the BAPS Shri Swaminarayan Mandir, a Hindu place of worship. Construction of the first traditional Hindu stone temple in the Middle East was launched in 2020 with the continuous placement of a 3000-cubic-meter foundation. Upon its completion, scheduled for 2022, the pink sandstone complex will feature prayer and learning halls, gardens and water features, a children's sports area, visitor's center, dining facilities, and a gift shop.

Project Description

Adhering to architectural traditions for Indian religious stone buildings, BAPS Hindu Mandir will not contain any ferrous or steel reinforcements. As such, its construction began with the placement of a foundation mat incorporating a concrete mix of 55% fly ash to provide the strength required to uphold the temple's heavy masonry. The single placement of 3000 cubic meters of concrete, which was carried out over 20 hours, represented one of the largest-ever concrete placements in the UAE.

In the foundation and throughout the structure, more than 300 hi-tech sensors are being embedded at multiple levels to provide real-time data relating to stress, pressure, temperature, and seismic events for the next 50 years. According to BAPS, the structure will be the first Hindu temple in the world to be scientifically monitored in this way. The data will be shared with engineers at UAE's Khalifa University and BAPS Canada for research purposes.

The interior stone work for the Mandir is being sculpted from 5000 tons of Italian marble by highly skilled artisans in India known as "Sompuras," after which it will be shipped to the UAE for onsite assembly. Roughly 12,250 tons of durable pink sandstone, sourced from northern India, was selected for

the structure's exterior for its ability to withstand the UAE's searing summer heat. The first stonework is expected to arrive in the UAE by mid-year, just prior to the commencement of Expo 2020 in Dubai.

At the 13th annual MEP Middle East Awards in 2019, project engineer Ramboll was awarded "Mechanical Project of the Year" for the BAPS Hindu Mandir. "The main driving force of the project was to ensure that mechanical engineering systems were provided to create an environment that complements the spiritual experience of devotees," the award judges noted. "The Hindu Temple project has many challenges, including co-ordination among several disciplines, strict deadlines to allow for expedited foundation casting of the main temple building, and the authority requirements governing the one-of-a-kind project."



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