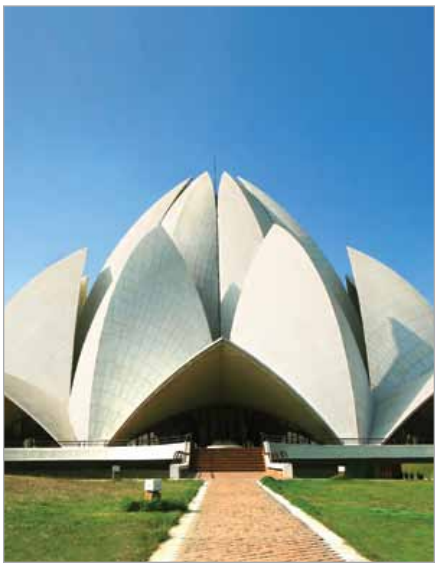

Recognized throughout the world for its one-of-a-kind, petal-shaped design, the Bahá'í House of Worship, better known as the "Lotus Temple," is an icon—both for architect Fariborz Sahba's award-winning design and its home to multiple religions. The architectural brilliance includes 27 free-standing marble clad "petals" arranged in clusters of three to form nine sides, with nine separate entrances to a grand hallway.

Tending to India's Prized Flower

GE SilPruf NB Restores Lotus Temple's Pristine Finish*

THE CHALLENGE:

Combating Pollution and Heavy Traffic

In 2006, after twenty years of exposure to New Delhi's pollution and more than 4 million visitors a year, the pristine white marble cladding was losing its luster. Running along the interior and exterior of the structure, 21,000 meters (68,900 feet) of the existing sealant—all tucked between the flower-like curves and slopes on the exterior of the building—needed replacing because the original silicone had stained the white marble.

The architectural layout not only provided a challenge due to the narrow spaces, but the pristine white Grecian marble holy building also stands in one of the busiest and most polluted cities on earth. Maintaining a constant state of respect and quiet to preserve the holy sanctity of prayer inside while work resumed outside was a critical consideration as well. Work had to happen quickly and respectfully to preserve the beauty of the exterior white marble while maintaining the daily order of a temple.

THE SOLUTION:

Meeting Key Requirements: Easy to Clean & Stain-Resistant

Lotus Temple management and its extended project team selected GE SCS9000 SilPruf NB as the weatherproofing silicone sealant. It offers key attributes for a white marble structure: a non-staining capability and special formulation to reduce or eliminate dirt pick-up, surface streaking and substrate staining.

Shaheen Jaavid, Managing Director of the Lotus Temple and J. P. Ambarle, Maintenance Director of the Lotus Temple assembled a global team of experts to complete the project. David Hadden, a U.S.-based architect and restoration expert who had worked on similar buildings of historic relevance, led a comparative study to determine the best product to meet the project's unique needs. "A white marble temple in the middle of New Delhi needs to be easy to clean and stain-resistant; and GE Silpruf NB had the lowest dirt pick-up in testing," says Ambarle who directed the testing process for the Lotus Temple.

Location:	New Delhi, India
Challenge:	The pristine white marble cladding was losing its luster; the existing sealant needed replacing because the original silicone had stained the white marble.
Structure:	27 free-standing, white marble-clad petals; 21,000 running meters (interior and exterior) of area in slopes and curves requiring sealing.
Product:	GE SCS9000 SilPruf* NB

Equally important to its non-stain capability is the fact that SCS9000 does not sacrifice silicone durability for aesthetic appeal. The silicone sealant exhibits outstanding weather resistance, durability, adhesion, and outstanding flexibility. The combination of these properties provides the two most critical attributes of effective weathersealing products: long-term efficacy in sealing out air and water, and the ability to withstand weather and atmospheric conditions without degradation.

From an application perspective, SCS9000 provided a long working time, allowing the team to work in extremely high heat and humidity without the silicone curing too quickly.

"Remedial sealing of this type of structure requires a balance of the right access and the right product," says Vikram Khanna, Proprietor, Falcon International. "I developed the platform around the atypical shape of the structure and load factors. GE Silpruf NB met our need for low direct pick-up resistance, but, just as important, its application process worked extremely well in tight and non-traditional spaces."

The application process was a complicated path to maneuver. The authorized applicator for GE sealants, Falcon International, also based in New Delhi, was well suited for the project. With guidance from the technical experts for GE sealants, Falcon quickly set forth on developing a safe access platform to cut and replace the 21,000 meters of old sealant, all within narrow gaps ranging from 15-17 millimeters in width. The custom scaffolding—something others attempted, but failed during execution—was created to accommodate the intricacy of the project.

In addition to removing all of the old sealant and applying the new sealant, several other issues, including one caused by the original sealant, had to be addressed. All of the original stone was from Greece and could not be damaged during the process of removing old sealant; stains from oil migration from the original sealant needed to be removed; and the white shade above the platform needed to be restored.

"We could not have achieved the results we did without the expertise of Falcon International and SilPruf NB," says Ambarle. "It is an unparalleled product for our specific needs."

THE RESULT:

Product Testing Proves True in Application

The entire project was completed in one year without any safety glitches—a feat given the intricate design and limited accessibility. The sealants technical experts assisted Falcon, which worked tirelessly, all while respecting the need to be discreet and silent so that the interior of the temple could be used, to remove the existing silicone sealant and apply a non-stain, non-bleed capable sealant for the pristine white marble. In testing, GE Sealants demonstrated its dirt resistance and cleanability. The final result did not disappoint. The structure was successfully restored and continues to exude regalness and endure New Dehli's harsh climatic conditions.