COMMUNITY

BY DINESH SHAH

HOUSTON: AMERICAN SOCIETY OF INDIAN ENGINEERS & ARCHITECTS (ASIE) consistently strives to promote professional development by organizing monthly technical events. For the first time ever, the skeptical idea of technical tour of a religious structure was a great success. Over 80 visitors including more than fifty architects and engineers were amazed to learn about the ancient architectural and related unique engineering was applied for the construction of this monument.

Ashwin Dave and Ketan Inamdar of BAPS welcome the group, ASIE President Raj Basavaraju, thank BAPS for their hospitality and introduce two speakers Dinesh Shah and Jatin Desai, both professional Engineers and Life members of ASIE.

Dinesh Shah started the architecture design presentation with slides for the beginning to the completion of the project, and continued that this first traditional Hindu Mandir of 21st century in North America required the perfect combination of state-of-the-art engineering methodology, ancient carving techniques, guidelines outlined in ancient Shilpa-Shastras. This Monument 95’ x 125’ x 78’ high and 25,620 square feet of area is built with 33,000 pieces featuring Pinnacles, a Central Dome with 22 ft. in diameter and other small Domes, 70 ceilings with 24 unique designs, 11 Garbha Grathas, and 122 Arches. The structure is supported by 136 load bearing Pillars and each pillar is made of six sections and 7 types of unique designs. It has a Mahamandap near idols, Mandap in the middle, Ardha-mandap at front, and outside area open or covered for Pradakshina.

He continued that a special team of architects and engineers surveyed the area and weather, and chose Turkish limestone for the exterior and Italian marble from Turkey for the interior stone for the Mandir. More than 2000 skilled artisans and craftsmen precisely hand-carved marble slabs and pieces of stone in India. After carving, all the pieces were subsequently numbered and shipped to Houston. All the pieces were organized to begin the process of assembling the Mandir similar to a jigsaw puzzle - piece by piece. So each piece of stone set in place here in Mandir has travelled from Europe to India to Houston, a distance for more than 20,000 miles.

In year 2000, the design work in Houston and fabrication of stones in India started parallel. The actual construction commenced on March 25, 2002 and completed only in 28 months.

Jatin Desai explained the engineering design concept for Mandir to last thousands of years without using any rebar in the foundation. It is amazing that the entire structure with thousands of hand carved delicate stone pieces is still standing without using any steel framing or any steel anchors. After a large number of soil tests, it was decided to excavate the existing soil in and around the foundation area and replace it with special soil. A special concrete mix with lesser cement and more fly-ash was developed and tested for all seven phases of the foundation with eleven feet deep and 5000 cubic yards of concrete. A total of 244 piers are supporting this heavy foundation raft and enormous weight of about 60,000 cubic feet of stone. Each pier is 30 ft. deep with diameters ranging from 30 to 54 inches.

During Q & A, Dinesh gave additional technical information for Los Angeles Mandir located in Chino Hills, the hottest for seismic activity. It is protected to last thousands of years by using the base isolation system technology. It consists of steel plates stacked together with viscous liquid to allow for lateral movements in the event of an earthquake. The Mandir is supported by 40 base isolators, which allow the upper portion of the Mandir to remain separate from the foundation. Engineers and architects have deemed it as the “floating” Mandir.

At the end, Ashwin Dave made the spiritual portion of presentation, and added that during the construction everyone has devoted countless man-hours as their labor of love which has created the beauty and history of this Mandir. The seminar was concluded with lots of appreciation. Then everyone was invited to the assembly hall to enjoy the spiritual and cultural festival celebration. The ASIE group was welcome and Raj Basavaraju, the current President of ASIE was honored on the stage by Pujya Shwetman Swami with garland. As a token of appreciation, Raj presented a memento to Swami with a remark, “The Houston BAPS Mandir is a place of Paramount Peace for all, but for ASIE, it is a mind boggling magnificent monument built with 33,000 pieces using Sacred Architecture and Science and Unique Engineering Design without any steel framing and rebar in foundation to last more than 1,000 years.”

The program was concluded with dinner of Maha-prasad.