

## COMPANY

**TATA Consulting Engineers Limited**

## LOCATION

**Mumbai, India**

## SOFTWARE

**Autodesk®InfraWorks 360®****AutoCAD Civil 3D®****Autodesk®Navisworks®**

# Jain Ashram International Head-quarter - A Modern Marvel

## TATA Consulting Engineers Limited delivers Ashram on Autodesk.

“Using Autodesk BIM made it easy for all team members including structure, MEP designers & Electrical Utility designers to understand the design intent seamlessly. This resulted in more efficient planning, designing and development of the entire project components. The software’s 3D capabilities enabled our team members to visualize a complex structures, that adds richness and diversity to every building and temple in the ashram,”

—**Group Sector Head**  
Urban Development at TCE

“Autodesk tools supported to complete ashram project in 3D with real-time visualization of the generated 3D surface, which allowed us to assess quality as we digitized the model.”

—**Engineer**  
TCE



Image courtesy of TCE

**TATA Consulting Engineers Limited is a wholly-owned subsidiary of TATA Sons Ltd, is an integrated engineering consultancy solutions provider since the 1962. The company offers engineering services from concept to commissioning in key industry segments such as Power, Nuclear & Advanced Technologies, Chemical, Infrastructure, Steel Mining & Metals and Construction management.**

Headquartered in Mumbai, the company has its offices in New Delhi, Pune, Jamshedpur, Kolkata, Bangalore, Chennai; South Africa, Qatar & USA. TCE has more than 7,150 successful Projects delivered to Global Clients, has established a good presence pan-India, Middle East, Africa & the USA. TATA Consulting Engineers’ consultancy solutions include engineering consultancy services such as feasibility studies, pre-project reports and technical studies, design, engineering, detailed engineering, environment impact assessment, sustainability and green technology solutions; project management consultancy services include EPCM services, project management services, equipment management and commissioning support; construction management consultancy includes construction support and safety management services.

The firm has an international reputation for its work into infrastructure sector, confirmed by many notable design awards for its environment

and sustainability contributions that reflect firm’s success in managing complexity and improving lives around the globe.

### The Project

The temple architecture in India reflects a synthesis of arts, the ideals of dharma, beliefs, values and the way of life cherished under religion. For TCE Infrastructure team, this is something greater than projects that came before. The Jain Ashram is an inspiring project with traditional structure having all modern amenities for devotees. The ashram management is developing this dream project as the Jain Ashram International Headquarter on 223 acres of sprawling layout located on a hilltop near Valsad, Gujarat.

This ashram is a global movement that endeavors to enhance the spiritual growth of seekers and benefit the society. The Spiritual Complex includes a grand Jinmandir and Rajmandir, an auditorium for 5000 people, a meditation hall with ekant cells, a lake and amphitheatre with Shrimad Rajchandraji’s majestic statue, a museum, a library, classrooms, a divine shop and welcome centre, administrative block, and specially designated area for large gatherings of over 15,000 people and a large kitchen with dining halls equipped to serve meals to 8,000 aspirants.

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The accommodation facilities comprise of studio apartments, 1, 2 & 3 BHK apartments and villas, designed to suit every budget and need. The Guest houses and suitable residential provisions for short term visitors all these structures spread over 223 acres and well connected with roads.

## The Challenges

As with most projects, there were several design challenges the team at TCE had to overcome.

The terrain at the site also presented a number of challenges for the design team. The project site is a hillock, having major valleys on all sides. To plan any kind of utility infrastructure and positioning of the buildings and roads on the critical slopes are the big issues.

Another challenge was planning the unique utility infrastructure and positioning of the buildings and roads on the critical slopes. Establishing the utility infrastructure considering the core components of the projects like Jin temple, big Satsang hall, the huge dining hall, Yagnasthal (Specific Ashram Activities), big monuments and landscaping along with effective utilization of the excavated material.

## The Solution

Due to the huge size and complexity of the project, planning, understanding differing interest and use of each structure created and accommodating it within the overall design were the major tasks. On receiving raw Geo-referenced survey data from the authorized survey agency of the Ashram, the various levels of concept planning were done using AutoCAD Civil 3D software. Using digital terrain model tool and various dynamic design tools multiple concepts were generated. For presentation and viewing purpose these concepts were converted into Infra-works which helped in taking decisions faster with all stake holders of the project. Sharing of concept models provided a valuable feedback from client at the earliest possible point of input.

Considering the final concept design of each and every component and related ball park estimates, the schematic design were prepared in using Autodesk products including schematic level BOQ & related costing.

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Further level optimization was done in detailed

design stage and then proceeded to release the tender documents and detailed BOQ including tender drawings. By following bidding process, various contractors were selected on board for the execution. TCE team released construction drawings for the execution purpose using civil 3D, by doing the clash analysis in Navisworks.

Further used various Autodesk design software, and prepared final up-to-date design model in Infra-works for the presentation purpose, risk analysis and importantly the execution of the complete project.

Connecting roads were designed considering the diverse group of people with varied needs and abilities visiting the ashram. The excavated soil would be used for filling trench on the right side of ashram and develop a flat surface for large gatherings.

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## Results

The project is one of the large, well-planned Ashram establishments in India. One of the benefits of using Autodesk IDS and BDS tool is the collaborative approach with the ability to flag and resolve potential issues at a much earlier stage in the design workflow, leading to a reduction in both requests for information (RFI) and clashes on site. The BIM solution

helped avoid miscommunication of information, and thereby reduced the amount of risk associated with changes at a later design stage.

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The project gets benefited due to quick solutions available in quantity assessment and cost evaluation, which extended the support hand of 3D visualization and the dynamism of the design model.

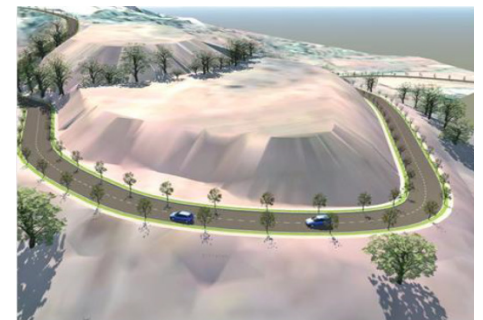


Image courtesy of TCE

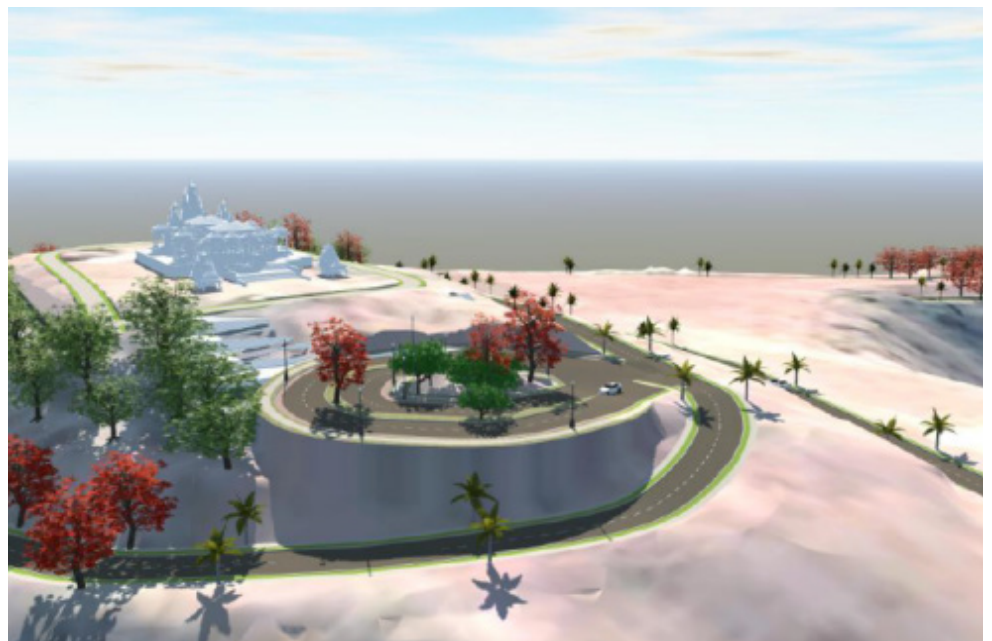


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