

COMPANY

gkkworks

LOCATION

Mumbai, India

SOFTWARE

Autodesk®Revit®

Creating a landmark.

gkkworks delivers the Design Development of KOHINOOR SQUARE, a 52-story skyscraper on Revit.

“The sophisticated geometry of this exceptional building – diamond shaped – a combination of different planes, all meeting together in harmony and congruity - was a unique challenge. The task was to create a building for which there was no earlier example”

—**Mr. Amit Bhargava**
Managing Director
gkkworks cpl, India



Image courtesy of gkkworks

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BIM Manager
gkkworks cpl, India

Build for the Future

Established in 1991, gkkworks is a multinational firm offering professional services in architecture and construction. The firm provides reative and innovative solutions in the field of architecture, interior design, planning, construction, construction management, program management and design-build services. The sectors they cater to include K-12 and higher education, healthcare, hospitality, commercial, government, aviation and civic facilities.

The firm has its offices throughout the United States and in India. Currently, gkkworks has over 120 employees. The firm has won numerous awards for its projects and is listed on Zweig White’s Top 100 fastest growing design firms in the US. They are also listed as the top 100 struction management firm, by the Engineering News Record. Today, gkkworks is sought after by clients as an industry leader and business partner in planning, excellence in design and quality construction.

Central Mumbai Landmark

gkkworks won the design competition for Kohinoor Square Towers, a mixed-use high rise commercial tower in Mumbai, India. This concept, called The Diamond, was the winning design selected to move forward into design development. The source of inspiration for this design is the meaning of the name Kohinoor - mountain of light. Kohinoor is also the name of

the largest diamond in the world. The diamond is the ultimate gemstone, the hardest substance found in nature, yet the most transparent. Diamonds have always had a long history in India.

Kohinoor Square is a 52-story 203-metre (666 ft.) semi-twin, mixed-use skyscraper located in the heart of Mumbai. The Council for Tall Buildings and Urban Habitats (CTBUH) has certified Kohinoor Square to be the tallest commercial tower in India. It is one of the first skyscrapers in India designed to achieve a LEED (Leadership in Energy and Environmental Design) gold rating for environmental sustainability. The Kohinoor Square complex comprises of a main tower and a residential tower.

gkkworks, USA - is the Design Architect and SSA, Mumbai - is the Executive Architect for this iconic and challenging project.

Challenges Create Capabilities

The tower’s design objectives challenge the typical glass office building by the abstract pattern created by diamond geometry and triangulation. The triangular shapes are layered onto the building’s mass and facades, through clearly defined planes and opposites: void and solid, opacity and transparency. The result is a building design that not only has symbolic meaning but creates a unique and powerful presence worthy of the name “Kohinoor”.

BIM Technology helped gkkworks to have better understanding of projects, its process and manage them efficiently.

Kohinoor Square is an awe-inspiring project: The project was challenging, due to the complexity of designs and tight schedule. The Autodesk BIM tool, Revit was widely used for massing studies, for area calculations/analysis, for quick design versus cost-of-project analysis and implication. Extremely fast turnarounds from mass to actual floor plans were achieved. This helped meet tight and demanding deadlines.

“The sophisticated geometry of this exceptional building – diamond shaped – a combination of different planes, all meeting together in harmony and congruity - was a unique challenge. The task was to create a building for which there was no earlier example” said Amit Bhargava, Managing Director, gkkworks cpl, India, a wholly owned subsidiary of gkkworks, CA, USA.

In addition to the architectural design, gkkworks was responsible for coordinating the work of all the design consultants at the design development stage. Layering the structural, the MEP and other services and trades into this complex architectural landmark required a new and project - specific methodology. To overcome the traditional file exchange services, a better collaboration tool for everyone in the project team including consultant and the client was required to keep track of the project.

As a mixed used development project, the separation of the private and public areas was a key factor in the design of the building, to ensure the privacy and independence of the various stakeholders. During the permitting process it became evident, that due to the scale of the project it was very challenging to meet the standard set of requirements outlined by the municipal corporation and other norms by government agencies.

Commitment to a Sustainable World

gkkworks has a very strong and resolute commitment to contributing to a more sustainable world. In this project, the target was to achieve gold rating for environmental sustainability and fulfillment of the norms for green building requirements. Interior green walls acting as air filters and coolers, low flow faucets, dual flush toilets and grey water systems, storm water & rainwater management systems are part of the sustainable measures implemented. Façade glazing is designed for optimal exterior view and maximizing interior cooling and natural light. Unique Compass Management System is used, to manage vertical transportation efficiently. This has helped project over 20% energy efficiency as compared to conventional buildings, thereby translating into cost and energy saving.

BIM for all Stages

A successful Architectural project arises from clear, concise understanding between the Architect, Owner, Engineers, Construction personnel and the Facility managers. A disconnect between design and construction could lead to disastrous end results. The BIM (Building Information Model) platform helps break the barriers between these players and relays consistent and reliable information at any phase of the project.

BIM is an integrated process that sees a building through its entire life-cycle, from its inception to completion. It uses three-dimensional, real-time, dynamic building modeling technology which encompasses building geometry, spatial relationships, geographic information, and quantities and proper ties of the building components. This process enhances project understanding, enables fore- seeing predictable outcomes, while providing cohesive information and documentation on different mediums.

Working Smarter with Autodesk BIM Solution

gkkworks is an early adopter of BIM in all its offices, including India. Since 2007, the firm is using Autodesk BIM solutions for their projects worldwide. BIM Technology helped gkkworks to have better understanding of projects, its process and manage them efficiently. It helped team members and various consultants, stakeholders involved in the project, to communicate better, arrive at informed decisions, and have full control of the project.

Radhika Ekbote, BIM Manager at gkkworks cpl, India, explains “gkkworks utilizes the Building Information Modeling (BIM) process to design, coordinate and execute our projects. It has become such a successful way for us to manage a project’s constructability, that it is engrained in the way we do our work.”

She further adds, “The largest benefit we gained from using the Autodesk BIM Solution was the ability to view the building in a 3D image right in the office! We can locate the area of concern, view from every possible angle, see apparent clashes highlighted, then to communicate issues to the client, consultants and our field team.” She continues “Most of our partners, consultants are now implementing BIM. We have a great belief that the utilization of building information models will become more popular in offices and on sites. Given that buildings are getting more complex, the BIM way of working is inevitable.”

Specifically related to Kohinoor, she has this to say - “Using Revit allowed the project team to deliver a complex, angular facade system for the diamond shaped Kohinoor Square Tower

project that might not have been possible otherwise. Autodesk BIM gave the firm the ability to describe and analyze the complex form of the tower.”

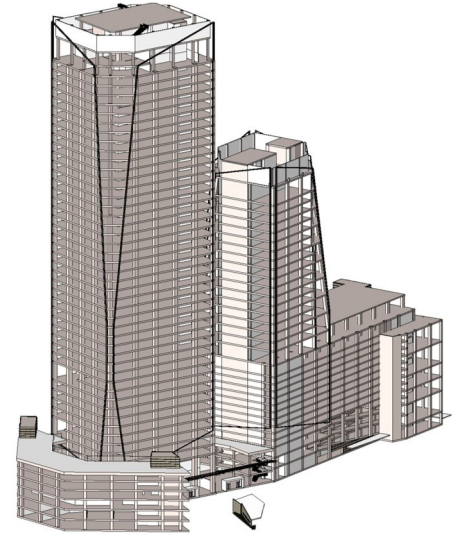


Image courtesy of gkkworks

“We are proud to be associated with the Kohinoor Square project – India’s tallest mixed-use building. Autodesk BIM solution enabled us to balance and optimize the complexity of this revolutionary project and brings us heightened kudos amongst our clients. This project now serves as an excellent example of the firm’s capabilities.”

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Utilizing BIM to its Fullest Capability

Using Autodesk BIM solution gkkworks was able to investigate and resolve a number of unique design issues and respond quickly to client requests and requirements. Autodesk BIM tools significantly increased project team efficiency and productivity, while ensuring project delivery exceeded client expectations.

With projects characterized by great design, exceptional speed, quality, and innovation, gkkworks has earned a rock-solid reputation for designing India's tallest mixed-use building.

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