And the winner is...ARCHICAD!

Case Study on Implementing BIM in an Architectural Office: The Silence House by First Design Studio

First Design Studio was established in Isfahan (Iran) in 1998, designing residential, educational, cultural, commercial and office projects. The firm has made a considerable effort to employ qualified and professional personnel from among students of architecture and specialists in other, architecture-related fields.
Challenge and Competition

When First Design Studio initially raised the idea of migrating to BIM and ARCHICAD, like most design offices, fear of change and uncertainty about the results of the change were the greatest challenges to overcome. In order to ensure that everyone was on board with the decision, company executives decided to run a pilot project.

To assess the benefits and challenges of using ARCHICAD, the principal architect suggested that two teams work in parallel on the “Silence House” project. Team A, using the traditional 2D method, consisted of one design manager and 3 draftsmen; Team B consisted of one design manager and one BIM technician using ARCHICAD.

The expected outcomes focused on three main areas:
• Increasing the quality of design and documentation;
• Production of integrated and accurate documentation;
• Reducing project delivery times.

Given that this was the first experience using ARCHICAD in the office, familiarity with the new tool and concerns about the length of the training were issues that needed to be dealt with head on. However, following basic training, ARCHICAD’s interface and ease of use greatly eliminated previous concerns about working with the new BIM tool. The Silence House project, which was in the final stages of the conceptual design phase, was nominated as the pilot project to be completed; both the design development and detailed documentation would be carried out using the two different methods.

The deliverables of this project were construction drawings such as floor plans-sections-elevations and details up to 1:10 scale, and renders of different views of the project, all within 4 months. The complexity of the relationship and circulation between the spaces of the design concept made it difficult to transform it into 2D documents in order to present it to the client and submit to the authorities for construction permits. So, producing accurate and high-quality 2D documents from the concept within a given time turned this pilot project into a challenging competition.
Design Concept

The flow of the interior spaces, despite the simplicity of the exterior structure and form - is the main focus of the project; this motion and dynamism is improved by organizing the traffic flow in horizontal and vertical paths, so that the yards in these paths, which are the parts of the main ideas of design, are considered a destination for this sequential movement path. In short, this project can best be described as a movement-based project.

The simplicity of structure and form, despite the flow of the interior space, and an effort to harmonize with the urban texture in order to design the repeatable but exclusive building, are some of the features that were considered in the design process. The connection with the surrounding environment with both solid and empty spaces, and the inclusion of greenery inside the project seeks to coordinate the connection between the inside and the outside of the building. The green spaces inside (private) and outside the project, are the key features relating to space in this project. The abundance of yards and the use of semi-open spaces in the depths of the project, allows natural light to shine through, creating a sense of tranquility throughout the central space. Also, these open and semi-open spaces, in collaboration with the yards, allow for natural ventilation. Elements like staircases and corridors play the main role in protecting the spaces from direct sunlight of the East, while residential activities transferred to the West side -- which was protected by neighboring buildings- and South side, in order to guarantee the quality of light and heat in main spaces. Also, the kitchen’s ribbon windows placed on the East facade are covered by a brick lattice pattern, to protect the kitchen from direct sunlight, while still guaranteeing natural light.
The Competition Begins

While Team A (2D team), in accordance with the firm’s usual practice, was working on completing and designing the project, Team B (ARCHICAD team) was developing the 3D model to produce 2D drawings directly from the model. In the beginning, it seemed that Team A was moving faster: in the first 3 weeks after the start of the project, the primary floor plans were ready, while Team B was still working on design reviews and modeling. But after Team B completed the modeling and launched the automatic drawings from the model, they were closer to final delivery more quickly, while Team A’s speed gradually decreased because of design errors and revisions.
And the Winner is...

Six weeks after the start of the project, Team B finished and delivered all project requirements, while Team A completed only 40% of the project-deliverables.

Eventually, the teams evaluated the results based on parameters such as performance speed, design quality, design integration with documentation, and number of participants on the team. Team B was selected as the preferred option – ARCHICAD won the competition. In this regard, Mr. Shamaeizadeh, director and founder of First Design Studio said:

“By focusing on design instead of spending time on the production of drawings and documentation, the quality of the design from a qualitative aspect improved and integrated the design concept and drawings through 3D BIM modeling. This workflow greatly assisted the design process more than a 2D workflow ever could.

Using tools such as BIMx makes the communication between the client and the architect very easy, and provides a new experience for the client to navigate through the project before spending a penny on construction.

A remarkable point in using ARCHICAD is that all design-related activities, such as modeling, visualization and generating drawings and documentation, are seamlessly done using only one software.”

“An attractive interface and ease of use and ease of learning of ARCHICAD for architects are among the points that make it the best choice as the main tool for an architectural firm.”

Mr. Shamaeizadeh, Director and Founder of First Design Studio
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About BIMISER
BIMISER is a company dedicated to BIM implementation and consulting services using GRAPHISOFT solutions in Iran’s construction industry. BIMISER enables consultants and architects to strengthen their skills, efficiency and business using BIM as a working method. The firm has the necessary experience and tools to inspire, advise, implement and deliver technology and services for the design phase of construction projects.

About GRAPHISOFT
GRAPHISOFT® ignited the BIM revolution in 1984 with ARCHICAD®, the industry first BIM software for architects. GRAPHISOFT continues to lead the industry with innovative solutions such as its revolutionary BIMcloud®, the world’s first real-time BIM collaboration environment; BIMx®, the world’s leading mobile app for lightweight access to BIM for non-professionals. GRAPHISOFT is part of the Nemetschek Group.

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