

Morphosis Architects

Architecture, Engineering & Construction Case Study



Challenge

Morphosis Architects needed to manage the complexity of its designs and reinforce collaboration with clients and contractors.

Solution

The company adopted Dassault Systèmes' 3DEXPERIENCE Platform and used the CATIA Digital Project Application for architecture, engineering and construction design and project management.

Benefits

Designers have a flexible and powerful solution that encourages artistic freedom, preserves intellectual property and improves collaboration.

Sculpt. Adapt. Innovate. These are the goals of Morphosis Architects, an award-winning American firm that believes architecture is at the crossroads of art and function. It is a constant search for a unique solution to a specific problem. "A building's impact on our lives can be measured by the new questions it sparks as we interact with its form and function," Kerenza Harris, architect, Morphosis Architects, said. Placed in its urban context, Morphosis approaches every project globally by asking local questions. The result is architecture that is mindful of the shifts in social, political, economic and cultural considerations that form our society today and in the future. "At Morphosis, we are always aware of who we are, and where we are, locally, in our community, and internationally," Kerenza said. "Our objective is to design architecture that addresses the evolving needs of this community. We want to be leaders in terms of how we respond to these needs."

Morphosis is reinventing the idea of modern architecture by steering away from conventional notions. To support change, it feels that technology plays a key role. "Technology enables us to come up with the most appropriate architectural response to the changes that occur in culture and society," Harris explained. "With technology, we have more power. This allows us to push the limits of design, perform more iterations, propose more options, and to analyze and test these variations fully in a short amount of time before choosing the right solution. Each response to a customer's request is the result of a quest for uniqueness and originality. The result may be a more complex morphology but with the right technology it is within the realm of the possible," she said.

Morphosis architecture is unique because it responds to a unique situation. "We don't necessarily propose buildings that are standard, or that respond to usual expectations of what a building is," Harris said. "Our philosophy is to design buildings that will exist in space, in a certain context, and what is great is that we use technology to

support that." Morphosis customers sense that the company is quick and responsive to a variety of conditions. "They are confident that if there is an issue, we are on it right away. If there is a question, we know the answer. Technology allows us to do more and to rapidly respond to a variety of conditions," she said.

Systems and the architectural experience

According to Harris, a building is the sum of its outer structure and the systems that comprise its interior. A system is anything that works in an organized way and that can be played against other systems to produce a desired effect. It is what enables the building to do what it is intended to do. For example, it can be a spatial system like a system of voids versus a system of fills and what happens when a void hits a solid or when a structural element goes through a wall. "We combine systems together and the systems unite and become one. Or they play off each other so that the result generates a certain experience for people," Harris explained. "Sometimes this experience is aggressive because systems clash. Sometimes it is a peaceful experience because of the way we organize the empty spaces within the building. Hopefully the way we combine the systems enables us to create a memorable experience overall," Harris explained.

Morphosis Architects uses Dassault Systèmes 3DEXPERIENCE Platform for design and project management, in particular, Digital Project, a powerful suite of 3D Building Information Modeling (BIM) applications based on CATIA as its core modeling engine. "We won our bid to design the Phare Tower in Paris' La Defense region in 2006. 3DEXPERIENCE technology was instrumental in helping us model the structure's complex geometry and to rapidly implement design changes, thanks to its parametric capabilities," Harris explained. "It avoided having to remodel every time changes needed to be made. We were also impressed with its flexibility since we can use it in a variety of ways, depending on the situation and project requirements. Another key value of the Platform is that it is an enabler for collaboration and coordination. We are able to better communicate our ideas with consultants and contractors and to coordinate our projects with more accuracy," Harris said.



An architectural project is a journey and throughout this journey, we are able to tie everything together using the 3DEXPERIENCE technology to show our customers the future. It inspires trust.

Kerenza Harris, Architect, Morphosis Architects



Precast concrete facade of the Dallas Museum created with Digital Project, part of the 3DEXPERIENCE Platform.

For the Dallas Museum of Nature and Science, Morphosis designed the complex façade as well as its optimized fabrication logic. The precast contractor had doubts as to whether they could successfully see this through to completion. “So I took the Digital Project model that I had and I walked them through it, showing them how the model, complete with the precasting method logics, was organized in detail,” Harris said. “In that one hour session, their doubts were literally swept away and they walked away confident. That demonstration turned it around for everybody,” she said.

From the earliest phases of design

Kerenza sees unique opportunities for the 3DS applications and a way to differentiate Morphosis Architects from its competitors. “As a young architect working in another company, I was astonished to see how limited that firm’s use of Digital Project was,” she said. “It was essentially used in the construction documentation phases of a project. When I joined Morphosis Architects, I advocated using this application in the earliest phases of design, which was not habitually done. I strongly believe that its parametric capabilities can be used in the schematic phases of a design. It enhances creativity and enables us to capitalize all project information from the very beginning,” she said. “The advantage is that we create a history, a workflow. We can document the artistic process from the very beginning –starting from the initially sketched curves and lines of a building. Our intellectual property is capitalized. With 3DEXPERIENCE, we can be free as artists and rigorous as architects as well,” Harris said.

The technology instills a sense of trust in Morphosis’ customers, which is an essential component of any architect-client relationship.

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How do Morphosis Architects describe their experience working with the 3DEXPERIENCE Platform? “We work long hours at Morphosis. We are a very dynamic company. When our designers realize that what used to take them dozens of hours to create now only takes a few hours thanks to embedded intelligence and design history, they wish they had used the Platform from the start. But that was another time,” she concluded.

Focus on Morphosis Architects

Founded in 1972, Morphosis Architects is an interdisciplinary practice involved in rigorous design and research that yields innovative, iconic buildings and urban environments.

Products: Residential, institutional, civic buildings, and large urban planning projects

Employees: 50

Headquarters: Los Angeles, CA

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