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DIGITAL PROJECT Frank Gehry’s Vision - arcspace.com

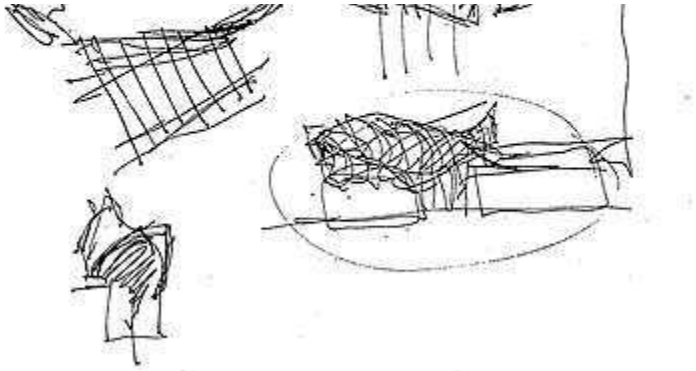
Kirsten Kiser

7-9 minutos

Photo: Thomas Mayer

I started making shapes that were hard to draw. That led us to the computer and to Catia software which made me realize the possibilities and the level and degree of accuracy you could create in your documents and your relationships because of the software.

/Frank Gehry



Sketch courtesy Gehry Partners, LLPFish sculpture for the 1992 Olympics, in Barcelona, Spain.

Catia is Dassault Systèmes 3D modelling and fabrication software used by the aerospace industry. Digital Project, a new software that is simpler, more usable, and able to interface with other systems, was developed by Gehry Technologies to disseminate his Catia enabled design and construction methodologies to the rest of the world.

Ten “Talking Heads” on monitors hanging from the ceiling talk about the different aspects of Digital Project. When visitors use the attached earphones the installation resembles an ongoing cocktail party.

A fast forward video, courtesy of Boeing, demonstrates how the parts come together using Catia.

Photo: arcspace

Photo: arcspace

Select a subject ranging from Evolution, Collaboration, Design, Digitizing and Tools, to Virtual Building, Engineering, Contracting and Construction, and hear what "They" have to say.

Photo: arcspace

To convey how solutions often begin as simple sketches and diagrams the first gallery is wallpapered with blown up hand drawn sketches that illustrate the spontaneous and immediate outcomes

of conversations with clients and project team members.

Photo: arcspace

The model is usually built by the architect. The architect who is coordinating the project will establish a skeleton. Building off this generic skeleton, the structural engineer will then dimension and design and build his columns or his concrete structural system. The cladding fabricator will devise and design and build a model of his cladding system and integrate that. So all the different people participating in the project begin to derive information from the model and contribute information back into the model. So the model is almost like a living thing that keeps growing through the project life cycle.

/Cristiano Ceccato, Director, Research & Consulting

Gehry Partners begin the design process by creating hand-built models in order to capture the design intent. Once these models have been reworked and refined, they are digitized to create three-dimensional computer models, also known as building information models (BIM) or master models.

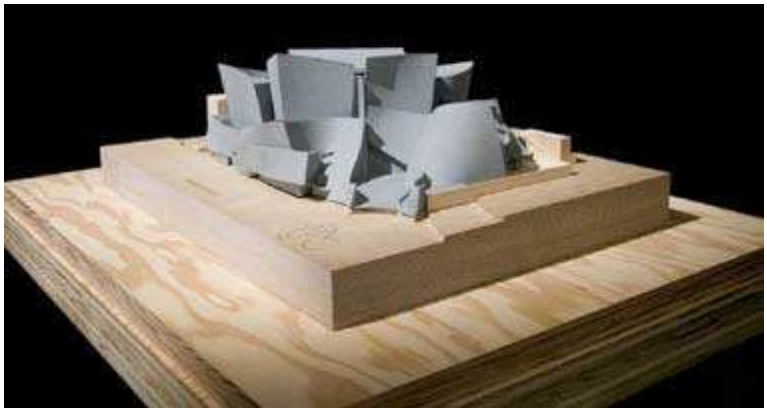


Photo courtesy Gehry Partners, LLP

Small SLA (Stereolithography Apparatus) models are used to physically verify the digital geometries to Gehry Partners and their consultants and accurately represent the design intent to clients.

Photo: arcspace

Four very different projects, a skyscraper in Hong Kong, the Sagrada Familia Church in Barcelona, a small project for the Danish Cancer Society, and the MIT Stata Center in Massachusett demonstrate, with models and photos, how Digital Project has been used as a process tool.

Photo: arcspace

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Gehry Technologies became the BIM process consultant for the 70-story Swire building in Hong Kong and used Digital Project to create the virtual 3D model prior to construction.

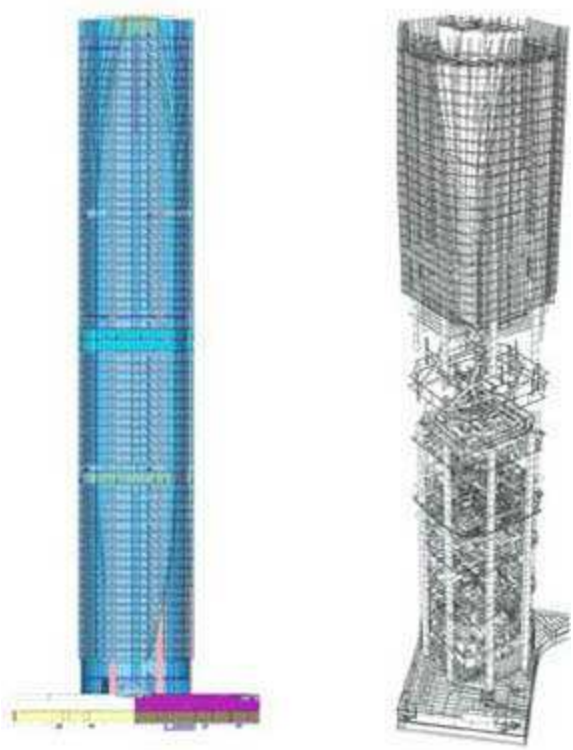


Photo: arcspace

We had infused a very precise discipline into the whole design process where architects, engineering consultants, structural engineers, all had to design to the same precise vocabulary. I think it has been an incredible process of intuitive collaboration.
It is all about project certainty. We know what we’re designing, we know how much it’s going to cost, we know how it’s going to be built, and for us as a developer that is paramount to total success.

/Stephen Fong, Managing Director Swire Properties Ltd.

Photo: arcspace

The Sagrada Família Church in Barcelona has been under construction since 1882 and is still some years from completion.

As part of an ongoing involvement with the Sagrada Família Church researchers in SIAL (Spatial Information Architecture Laboratory) lead by Professor Mark Burry are currently working on investigation into Antoni Gaudí’s final design models.

Photo courtesy SIAL

By using Digital Project to create designs that are consistent with all

of the available historical information on the church, new insights are gained into Gaudí's own generative system. The results from these investigations are used to specify how the Church is actually being completed, thus making the church itself a statement of Gaudí's design intent.

Photo courtesy SIAL

We don't have to worry about whether or not we are fitting in with a paradigm of planned sections and elevations, all the other typical drawings that architects are obliged to use. We can go straight from our computer to the stonemason's yard, to their computer and we only sort of, negotiate though the prototypes that we make, and what we look at on our screens.

/Mark Burry

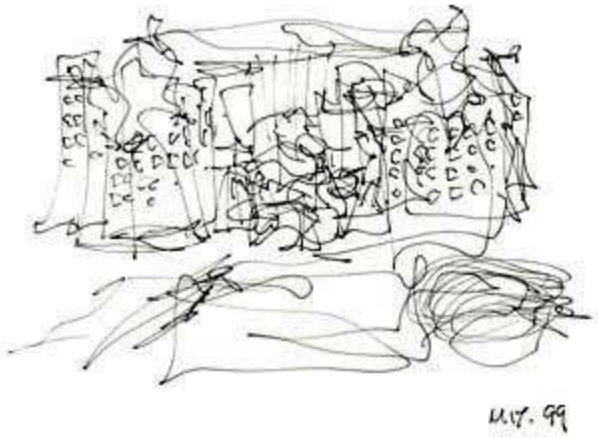
Photo: arcspace

Photo: arcspace

By choosing Gehry Partners for the Stata Center, MIT, Massachusetts Institute of Technology, made a statement not only about the campus plan, but also about the process of design and construction. Project team members were asked to work in unique ways, with slightly different tools and varying regulations about how to work together.

Photo: Roland Halbe

At the center of those "unique ways" was the use of 3D modelling to guide the design, engineering, fabrication, and construction of Frank Gehry's avant-garde design.

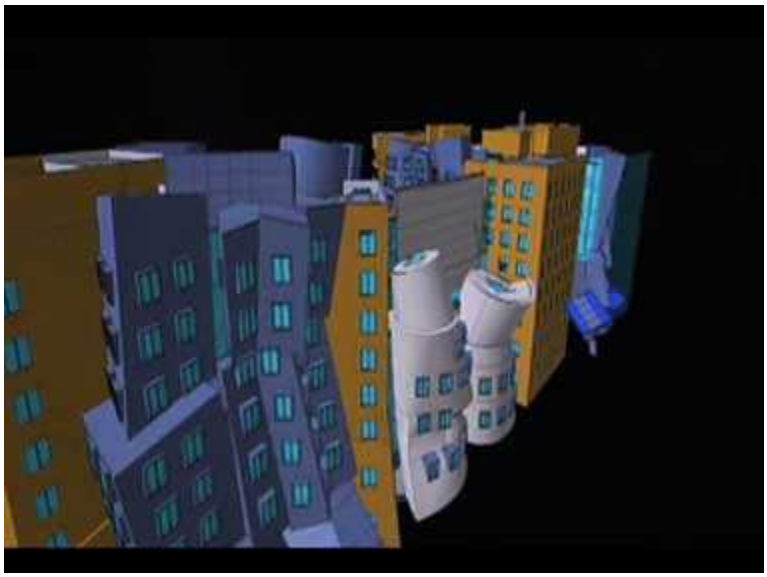


Sketch courtesy Gehry Partners, LLP

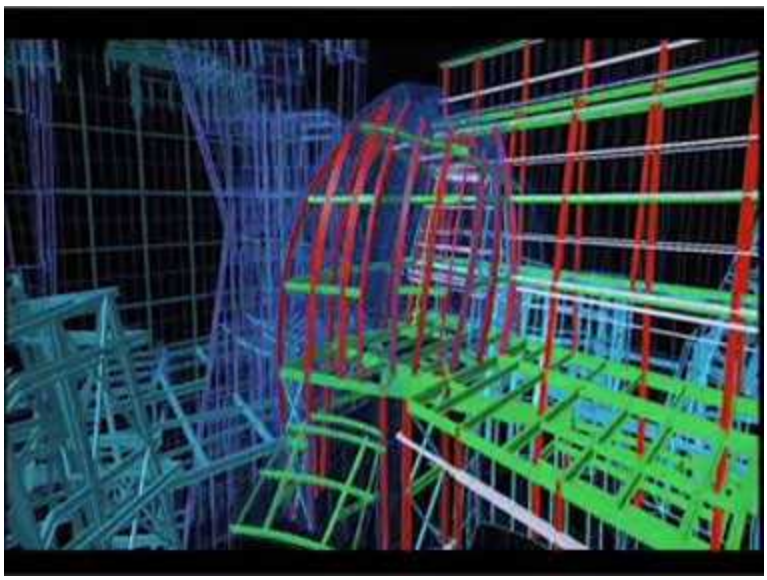
On MIT where the 3D model was a tool almost from the beginning, there can be a conversation about how the building is going to be put together in terms of detailing, but also in terms of construction sequence, much earlier in the process, because the understanding of what we're trying to achieve technically and architecturally is starting to take place a lot earlier.

/Marc Salette, Partner, Gehry Partner, LLP

Photo: arcspace



Catia image courtesy Gehry Partners, LLP



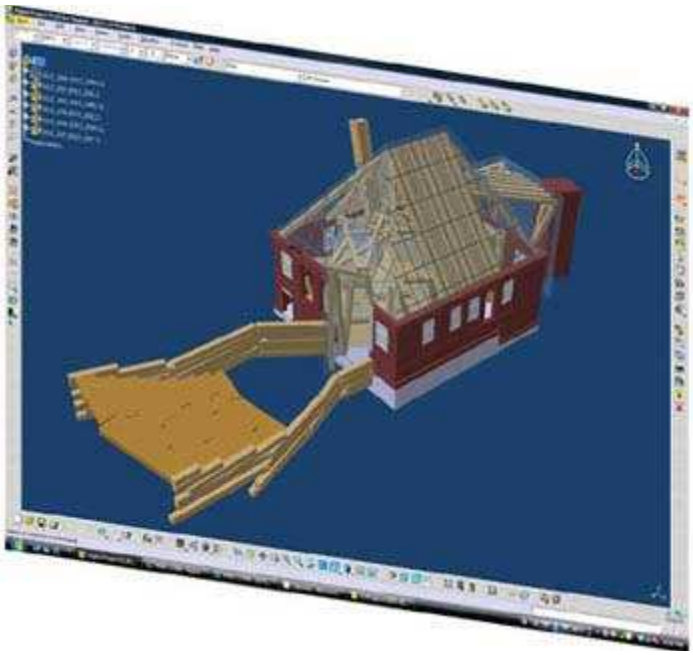
Catia image courtesy Gehry Partners, LLP

Photo: Richard Sobol

The proposal for the Danish Cancer Society turns a 1908 building, designed by Danish architect Rudolf Clausen, into a modern, open 'house with no doors' for patients and their relatives.

Photo: Richard Sobol

Photo: arcspace



Digital Project image courtesy Gehry Partners, LLP

Since the very beginning, in the initial phase when we spoke to our local architect, we have already talked about the possibility of using Gehry Technology. But the question is, how does one use the technology in the context that is not like Bilbao, that is not like Disney Hall, that has no curve? I think that the possibility is endless in the sense that, although it’s modest in scale, the idea, the premise of creating a digital model that everybody can work on, is an asset.
Using Digital Project allows everybody in the team to collaborate on the design, to work out the structure. So the opportunity to use the technology, the software, to allow us to collaborate with our local architect, and with the structural

engineer, to try to come up with a solution and reach a point where we can implement the project in a timely way is very important.

/Edwin Chan, Partner, Gehry Partner, LLP

The exhibition, DIGITAL PROJECT – Frank Gehry’s Vision, is a collaboration between Frank Gehry, Gehry Partners, LLP, Gehry Technologies, Curator Kirsten Kiser and the Danish Architecture Centre. The exhibition is sponsored by the foundation Realdania.