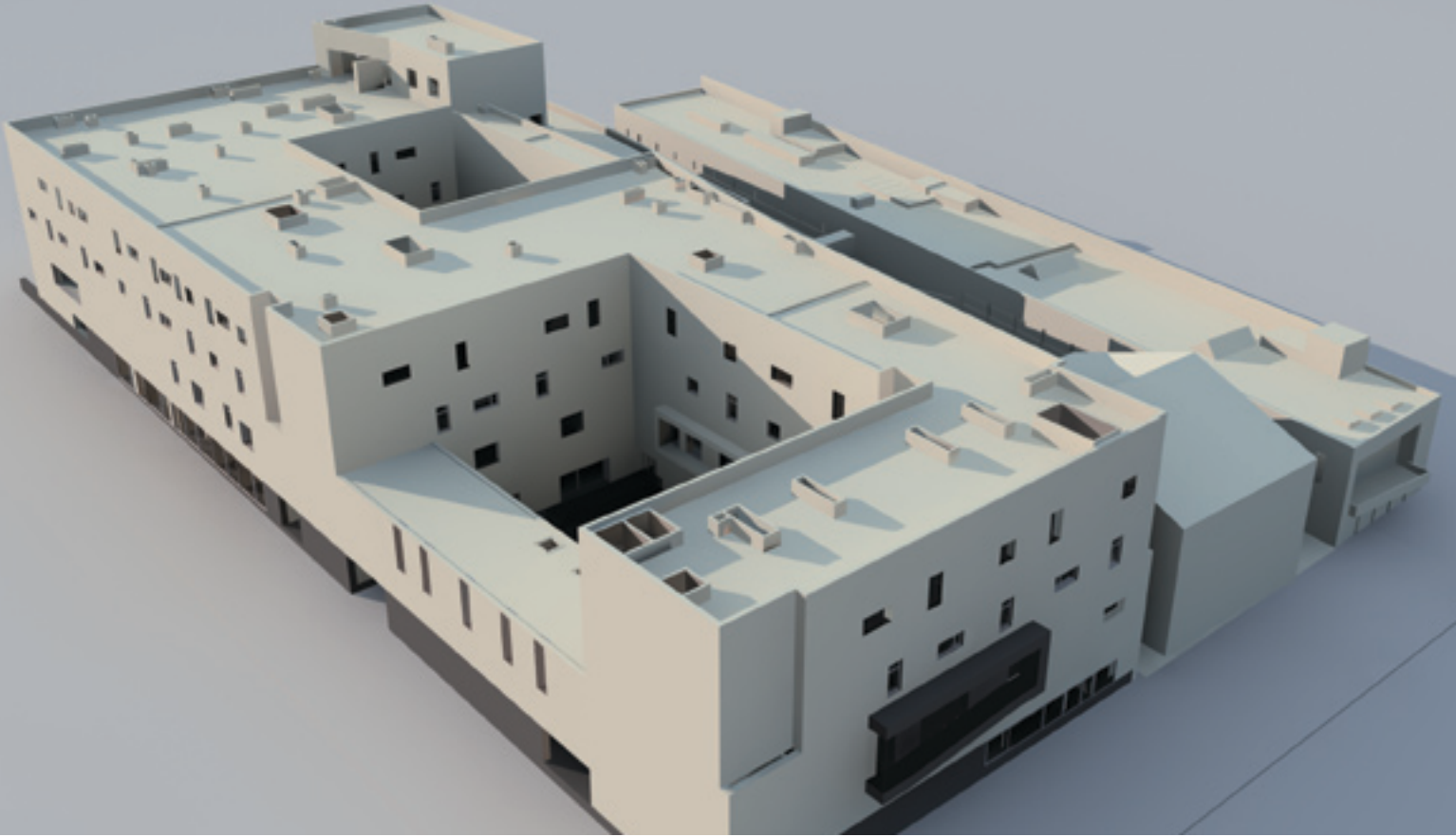


Case Study:  
Saving Significant Time and Money on the Soerad Clinic





White walls convey design simplicity.

*Paulo Fernandes Pedroso and his architectural team used the BIM process to create the design for the multi-use Soerad Clinic in record time.*

### Some Things Never Change

But most things do. Change is the one constant in architecture. For Portuguese architect Paulo Fernandes Pedroso and his team at Inoxidar, it was a constant that they learned to control when creating the design for a new hospital complex near Lisbon. Fernandes Pedroso estimates that they spent about 25% less time and money creating the design—in large part because they used a Building Information Modeling (BIM) workflow to handle the extensive number of changes required during the project, rather than relying on conventional processes.

### How It All Started

Fernandes Pedroso earned his architecture degree from Cooperativa de Ensino Universidade Lusíada (CEUL), The Lisbon Higher-Education School of Architecture, in 1994. He worked with several

notable architects and architectural firms between 1993 and 2002 as a freelance architect. Fernandes Pedroso founded Inoxidar in 2002 with his partner, architect Nuno Dias, and became the sole owner in 2005.

The firm prides itself on attracting new clients through referrals. They do not advertise—all new business is generated by Inoxidar's current portfolio of work. "Basically, we work for a 'restricted market' where we have been growing, step by step. . .the market is a complex structure of tastes and needs, and our conceptual idea of architecture tends to lend itself well to smaller businesses," Fernandes Pedroso says. The firm concentrates on constructing smaller public facilities and private housing across Portugal.

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*"We're extremely focused on a close relationship between the client and architect, with much of our time invested in dialogues with the client to discuss the most important aspects of their needs."*

*– Paulo Fernandes Pedroso, architect and founder,  
Inoxidar, Lisbon, Portugal*

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Fernandes Pedroso's style reflects a hybrid of several important influences, the first of which is the famous Oporto High School, a Portuguese style represented by Portuguese architects like Fernando Távora and Pritzker Architecture Prize winner Álvaro Siza. The Oporto High School approach derives its initial inspiration from the "genius loci," or spirit of the place. It uses simple solids to build a complex form, or vice versa—and incorporates white walls to denote simplicity. These walls are often painted with a different material or color in a small part of the design. The other approach that influenced Pedroso is the use of smooth, minimalistic surfaces which provide a unique texture both inside and out. Architects of this school work with natural light to highlight the different gradients of shadow and light on these surfaces.

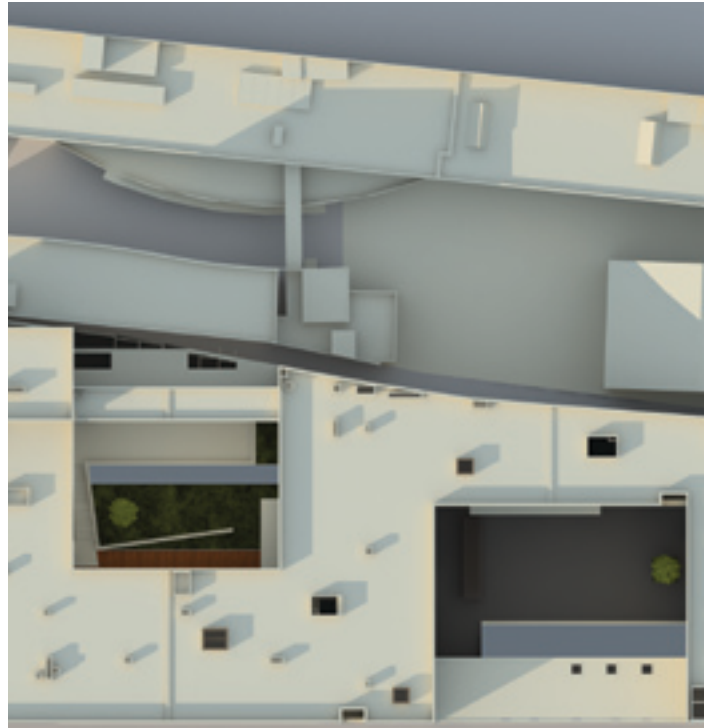
Fernandes Pedroso also admires Mexican architect Luis Barrágan's work, which is designed to produce a calming experience. Regarding Barrágan, Fernandes Pedroso notes that this "remarkable architect brings serenity and peace of mind to our lives through simple architectural design, like simple walls with natural light and good proportions. In a peaceful setting, our eyes are not bombarded...and we have a place where our minds can be at peace." Fernandes Pedroso strives to incorporate both schools of thought into his work every day.

### **A Medical Center With More—Done With a Lot Less**

In Torres Vedras, a fast-growing city just 50 km from Lisbon, Fernandes Pedroso and his team have designed a 24,000 square meter [258,000 square foot] hospital called Clínica Soerad (Soerad Clinic), which includes a large number of health-related facilities. No health-care buildings this comprehensive had been developed in this area before, so it's an exciting undertaking. The hospital features spaces for inpatient care, education and workshops, a restaurant, shopping area, auditorium, swimming pool, and doctors' offices for physiotherapy, hydrotherapy, surgery, and dental care, as well as 300 parking spaces. The team completed the design in just 18 months. The construction on this project started in February 2009 and should be finished by the end of 2011.

Soerad tasked the team with creating a concept that included two interior courtyards to give patrons private places to reflect and escape from the sometimes stressful hospital environment. It's in the two courtyards that one can really see the influence of Luis Barrágan. "The courtyards are like the soul of this project, where all of the body might be breathing in silence and peace," Fernandes Pedroso explains.

While the mood is peaceful, the project was not without its challenges. Fernandes Pedroso and his team's biggest hurdle was the sheer number of changes that needed to be made. As in any project, change was inevitable. But the changes to the documentation for such adjustments would have made the project very time-consuming and even cost-prohibitive. Taking advantage of the speed afforded by the Vectorworks® BIM process, the team quickly made changes to the



Massing derived from simple forms.



This plot insertion maximizes site constraints.

building model, automatically and accurately updating sections and elevations without errors. As a result, Fernandes Pedroso did not need to bring more people onto the project to complete the work, so he saved substantial amounts of time and money.

The team uses CAD applications for all of their projects, which range in scale from comprehensive urban planning to the fine-grained design of residential interiors. A Vectorworks software user since 2003, Fernandes Pedroso says that the software specifically helped them respond to their clients' needs and changes very quickly. He notes that the speed of the program sets it apart.



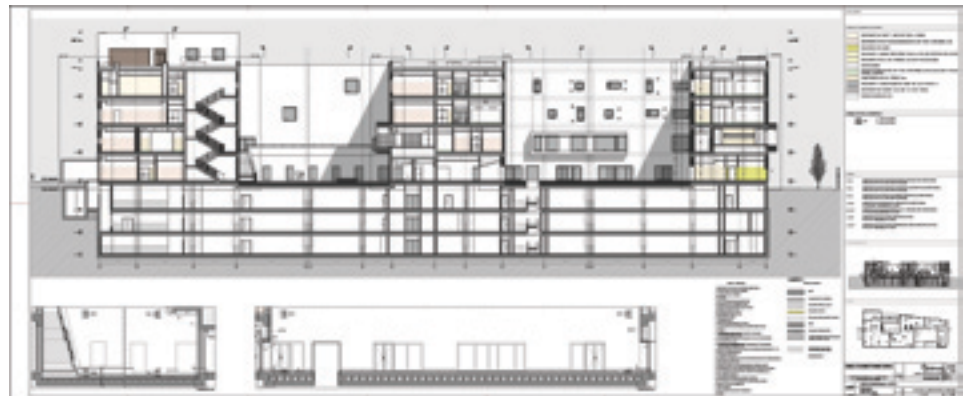
Peaceful courtyard for reflection.

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*“We couldn’t have done it without elevations and sections updating automatically. Imagine changing over 20 sections every time we received a change. It took us 18 months, but we think that without using the BIM capabilities it would have taken us 24 months. That’s a savings of about 25%.”*

*– Paulo Fernandes Pedroso,  
architect and founder,  
Inoxidar, Lisbon, Portugal*

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Interior sections for Soerad Hospital.



Hospital nestled in Torres Vedras.

The project also had other challenges. The site was small, yet it needed to accommodate a multi-use facility that required substantial space. The team contended with the common issue of height restrictions as well as restrictions on the number of floor levels and the building plan area. The local council also decided to use part of the site to create a new road across this private area, interfering with the hospital's plot.

Inoxidar overcame these challenges by designing in 3D. The virtual building used parametric walls, doors, windows, stairs, slabs, and spaces that were easy to manipulate, as well as exterior features that could be changed as the immediate environment changed. Through the BIM process, they were able to generate fully annotated plans, elevations, sections, and schedules, so they could communicate effectively with their client. The building model was spread across several referenced files for simultaneous, multi-user collaboration. Fernandes Pedroso enjoys working in 3D because “we can see the model and what we are designing immediately, so this gives us more creativity—more freedom.”

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*“Vectorworks Architect is a tool with flexible workflows that helps us keep an excellent response time in accordance with our philosophy, and this really helps us outperform competitors to win projects.”*

*– Paulo Fernandes Pedroso, architect and founder,  
Inoxidar, Lisbon, Portugal*

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The result? Fernandes Pedroso estimates that he saved about one quarter of the time and money he would have spent using conventional processes by instead using BIM capabilities and workflows to complete the massive hospital project. That goes a long way towards capturing the peace of mind he’s always hoping to achieve.

## Acknowledgements

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Founded in 2002, this Lisbon, Portugal based firm focuses primarily on designing public facilities and private housing. The Soerad Clinic incorporates the style that the firm is well known for—simple, clean lines and textures that evoke a peaceful feeling.

**Images:** Renderings courtesy of Paulo Fernandes Pedroso

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