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>
> —Roberto de Castro Mello
>   Senior Management and Facilities Assistant
>   Botti Rubin Arquitetos Associados

Ahead of the curve.

Botti Rubin Arquitetos Associados uses Autodesk design software to increase efficiency and win new work.

Rendering of Brookfield Towers against the São Paulo skyline. Image: Brookfield Photo Release.

Project Summary

The recently released book *Botti Rubin Arquitetos* highlights some of the most significant commercial and public buildings in Brazil. Each building was designed with a modernist flair by Botti Rubin Arquitetos Associados, one of Brazil's preeminent architectural firms. Lead by Alberto Botti and Marc Rubin since its founding in the late 1950s, the firm's success is firmly rooted in its creativity and its approach to design software. For more than two decades, Botti Rubin has relied on AutoCAD® software, and along the way, it has proactively embraced 3D features and complementary software, including Autodesk® 3ds Max® Design software. Even as the firm prepares to move to building information modeling (BIM) with Autodesk® Revit® Architecture software, Botti Rubin expects AutoCAD software to continue helping the firm to:

- Apply changes to complex designs faster and more automatically
- Win new projects by efficiently capturing and conveying innovative concepts
- Collaborate and share ideas more easily with engineers and clients
- Design creatively while keeping projects on schedule and on budget

The Challenge

The Brazilian economy has thrived over the last decade, spurring the country's need for commercial space. Botti Rubin's project load and reputation for exceptional designs has kept pace, with the firm designing large retail and office complexes across Brazil. As it pursues projects, Botti Rubin faces competition from international firms and other architects based in Brazil. While creativity plays a role in winning projects, the firm also stands out for its efficiency and ability to successfully overcome the challenges that often arise during large, complex projects.

"Our clients expect striking, harmonious structures that embody the original approach our founders take to architecture," says Roberto de Castro Mello, a senior management and facilities assistant at Botti Rubin. "However, style without efficiency doesn't work in a competitive environment. We must be able to address issues quickly, keep projects on track, and collaborate with clients and engineers."

Autodesk®

AutoCAD saves time and streamlines collaboration.

The Solution

The 30 architects at Botti Rubin use the latest version of AutoCAD software to design and document projects—and to help stay ahead of challenges. "We've relied on AutoCAD to help us succeed for two decades, and as it advances, so does our ability to respond to issues quickly," explains Roberto Klein, CAD consultant at Botti Rubin.

Botti Rubin's current Brookfield Towers project exemplifies some of the issues AutoCAD software helps the firm address. A 205,000-square-meter mixed-use project located in São Paulo, Brookfield Towers consists of two towers that feature a distinctive curving of the upper floors. "On the Brookfield Towers project, the city required that we reduce the tower heights late in the design process, but we could not simply remove floors," says Castro Mello. "We had to modify the area of every floor due to the curving element."

The project already consisted of hundreds of individual design sheets. However, since the geometries of the floors were linked through xrefs in AutoCAD, architects at Botti Rubin could more easily calculate how the changes would impact the area of each floor as they removed three floors from the design. They offset the loss of space in upper floors by adding area to lower floors and the basement. "The software automated many of the complex calculations required to modify the design while maintaining the integrity of the curving elements," notes Klein. "Without recent AutoCAD software, it would have been difficult, if not impossible, to make the changes in a reasonable timeframe."

From 3D to Photorealism

As AutoCAD software added 3D capabilities in recent years, the architects at Botti Rubin have eagerly incorporated 3D into their workflow. For instance, on the Brookfield Towers project,

architects leveraged 3D to develop and refine the curving element. And 3D inspired them to produce more sophisticated and realistic renderings, with the firm using versions of Autodesk 3ds Max Design software since 1993.

"We move AutoCAD files into 3ds Max Design software whenever we need a highly detailed rendering," reports Klein. "Within 3ds Max Design, we can explore lighting, finishes, and even textures. Clients love the presentations we develop in 3ds Max Design because they bring the design to life and help us all collaborate with clarity."

Designing More Freely with BIM

Despite Botti Rubin's history of success with AutoCAD software, the firm believes that BIM with Autodesk Revit Architecture software will occupy an increasingly prominent place in its design process. Today, the firm primarily turns to Revit Architecture early in the conceptual design process. Because Revit Architecture is entirely model-based, it enables the firm's architects to apply and modify their ideas more freely. As a result, Botti Rubin can develop richer concepts faster and win more new projects.

"We recently won a competition to design a 150,000-square-meter building in Brasilia," says Castro Mello. "Using Revit Architecture along with AutoCAD, we designed a concept for four large structures linked by underground elements. Then we moved the model to 3ds Max Design software to add photorealistic details. It only took us a fraction of the time it would have taken just a few years ago to create the winning submission."

Castro Mello adds, "As more engineers begin to explore BIM in Brazil, we expect to see projects designed and documented with Revit-based products from start to finish. Currently, the ability

Rendering of the exterior of Brookfield Towers. Image by Sandro R. Machado/bra

to move Revit models into AutoCAD allows us to adopt BIM in a way that is practical for us."

The Result

According to Castro Mello, Autodesk software, particularly AutoCAD, is an important contributor to Botti Rubin's leading position among architectural firms in Brazil: "For more than 20 years, we've relied on the AutoCAD platform to develop our ideas. It has helped us to create and refine innovative designs, save time, collaborate, and win work. Importantly, AutoCAD is also flexible, so we can use it along with Revit Architecture and 3ds Max Design. We put a great deal of effort into getting the most out of our investment in technology. With Autodesk software, our effort has paid significant dividends."

Learn More

Get more out of AutoCAD software as you move to BIM. Visit **www.autodesk.com/autocad** and **www.autodesk.com/revit** to find out how.

Rendering of the Brookfield Towers courtyard garden. Image by Sandro R. Machado/bra

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