

The Oppenheim Breakthrough

CUTTING EDGE AND SUSTAINABLE

BY LESLIE MCKERNS



The future of building technology is here and it's full of holes. The Swiss cheese exoskeleton shell of COR, the first sustainable, mixed-use condominium in Miami, Florida is a hyper-efficient smart skin simultaneously providing the building structure, thermal mass for insulation, shading for natural cooling, terrace enclosures, armatures for energy producing turbines and loggias for congregating at the ground level.

Rising 25 stories above Miami's Design District, COR extracts power from its environment utilizing the latest advancements in wind turbines, photovoltaic technology and solar hot water generation. With an estimated completion date of 2010, COR is 480,000 square feet with 113 residential units ranging in size from 700 to 2,000 square feet, with prices from \$300,000 to \$1,000,000. COR will have a café, two restaurants, office space and live/work spaces.

COR represents a dynamic synergy between architecture, structural engineering and ecology. The design is not only revolutionary in sustainable terms but in visual impact. The impression of this building is arresting even in light of the current architectural trend towards irregular, non-linear features exploding upon the recent architectural landscape. The building rises 400 feet and seems to float over the city as a futuristic and ethereal being punctuated by a multitude of round Swiss Cheese holes, which at times come together to form a living bubble-on-pond effect.

"The name COR grew out of the image it represents, an urban core and a producer of energy such as a reactor core," said Chad Oppenheim of Miami's Oppenheim Architecture + Design, known for cutting edge projects. "COR is creating great excitement and has become the poster child for sustainability."

Oppenheim's company created COR's groundbreaking design for a client they have worked with previously in Miami, Jeremy Green and Nexus Development. Collaboration on the COR team included energy consultant Buro Happold and engineer Ysrael Seinuk.

The architect credits the developer for being receptive to the unusual design wherein the structure of the building is both the skin and an aperture to hold the wind turbines. "The project is cutting edge in its design but is entirely grounded in project realities," added Oppenheim. He noted that COR evolved from a complex architectural study including careful analysis of its site. The surprise of the design arises from its functionality and its vision in creating an energy-efficient sustainable building. "As with all our buildings, we try to look at the materials as opportunities to provide dual uses—the skin of COR is not just cladding, it provides an armature for wind turbines, protection from the sun and forms an arcade at the ground level."

Sustainable design is architecture that creates a minimal impact on the environment and makes maximum intelligent use of the world's dwindling resources. Sustainability and green design also include creating healthy indoor environments.

Water is becoming the new frontier for concern, both through density and drought. Green and sustainable elements in COR include water harvesting, which captures rain water and roof runoff in cisterns and filtration systems, which recycle grey water produced by washing machines, dishwashers and other household and light business uses for use again in irrigation. The



wind farm on the roof of COR will generate power-reducing dependency on electric power and save energy by producing solar hot water. Energy-efficient appliances with Energy Star features will be using less water overall. LED lighting will be used instead of incandescent. Natural daylight will flood interiors through energy-efficient glass, and the multi-use building shell provides thermal mass for insulation and shading for outdoor terraces and cooking.

COR has been received with applause. Unanimously approved by the Urban Design Review Board of the City of Miami, the project represents the ideals fostered by Miami Mayor, Manny Diaz, for its properties of green and ecologically sustainable sound design. Oppenheim is part of Mayor Diaz's Green Committee. Acceptability has extended even to the schools of architecture, where Oppenheim receives daily calls for permission to use the building as a case study for education and study. "Professors call and ask, 'Can I show this to my class? Can I use it in a book?'" The project definitely has taken on a life of its own," said Oppenheim.

Oppenheim noted that this project may present solutions for the concerns of global warming, dwindling resources such as land and water and competition for fewer and fewer resources. The architect hopes that the concepts will come to the attention of the state government and possibly be considered as a way to go for the future. "Better late than never in the recognition of global warming and issues of toxicity. It was not that long ago that we embraced the use of asbestos and other toxic building materials," said Oppenheim. He noted that the interior of COR will lack the toxins and off-gassing of carpeting glues, paint and other products thus producing a healthy indoor air quality that is a hallmark of green and sustainable design. ☐