

## *RJA's Expertise Balances Code Compliance with LEED® Guidelines*

**Challenge.** The Genzyme Center, a 12-story, 350,000-square-foot high-rise office building featuring a striking all-glass exterior and a soaring, skylit internal atrium, is home to Genzyme Corporation headquarters. Wanting to create a building that combined innovative design and cutting-edge technology, Genzyme set out to create an exciting new workplace for more than 900 Genzyme employees, and in the process set a new standard in environmentally responsible architecture. The Genzyme Center sought to synchronize sophisticated engineering and careful design to meet the five core features of the LEED standard's framework for environmental design. With the intent to design a "green" building under the LEED guidelines, a unique aspect was presented: the building needed to be more energy efficient than required by code. In essence, the code does not anticipate the challenges of green building issues. The complex 12-story atrium was one aspect that provided fire and life safety design challenges in order to comply with the higher LEED standard.

**Solution.** Rolf Jensen & Associates (RJA) was brought in at the conception of the building design, which included the schematic design, design development, construction documentation and construction administration phases of the project. RJA provided fire protection, life safety, and accessibility code consulting services for the Genzyme Center. In addition, RJA services encompassed design and code compliance for the automatic sprinkler/standpipe, fire alarm and performance-based smoke control systems. This included both the shell and core of the building and the tenant fit-out. RJA also designed the fire alarm and sprinkler systems in order to reflect the tenant fit-out configuration.

Two important aspects of the green building design approach were the "double skin" exterior wall design and the requirement to have the atrium open on all levels (for HVAC purposes). The double skin provided an exterior frame buffer to enhance the building's heating and cooling. This provided egress challenges that RJA overcame with one effective egress design.

The building code only anticipated an atrium to be open to three stories. In this case, RJA had to meet the code intent for covering all 12 stories open to the atrium and follow the intent of LEED. The Genzyme building's central atrium acts as a huge return air duct and light shaft. Fresh air moves into the atrium and is drawn up and out of smoke exhaust fans near the skylight. Natural light from the fully glazed facade and from the atrium (brought in by solar-tracking mirrors above the skylight) is reflected deep into the building. The challenge was designing the atrium fire protection systems in combination with the architectural features. RJA designed the system to prevent smoke from a fire on one floor from affecting the egress from another floor. By allowing the fire shutters, openable windows and doors to remain open during normal mode and close to seal the atrium from the rest of the building during alarm mode, the air system integrity remained intact.

**Result.** The Genzyme Center was able to meet all the fire/life safety and building code provisions as well as achieve a LEED Platinum rating while keeping the integrity of the atrium's unique design in the center of the building. The project's success comes in the form of the bright atrium, which visually unifies the work areas. The project team and the client balanced aesthetics, cost, constructability, and reliability to create an environmentally responsible corporate headquarters. RJA's services addressed several building issues and were able to embrace the green building concept.



- Sustainable Design
- Code Consulting
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