

RJA Helps Georgia Institute of Technology Fulfill Lightwell Design

Challenge. The Whitaker Biomedical Engineering Building at Georgia Institute of Technology is a five-story laboratory/office building situated between two existing buildings: the Environmental Sciences and Technology Building and the Institute of Bioscience and Bioengineering Building. The Whitaker Biomedical Engineering Building is the third installment of a four-building, state-of-the-art research campus, totaling 800,000 square feet. One of the building design elements, the five-story vertical skylight with communicating stair, provided complex code-compliance issues. Since the vertical opening had a small building footprint, it presented unique fire and life safety design challenges in order to comply with the provisions of the appropriate codes for the State of Georgia. Aesthetically striking, the skylight brings natural lighting into the building environment.

Solution. As the fire/life safety and building code consultant on the project, Rolf Jensen & Associates (RJA) evaluated specific compliance concerns, especially the five-story skylight.

The 2000 International Building Code, the 2000 International Fire Code and the 1997 Life Safety Code, in conjunction with the relevant local code amendments, were all reviewed for Georgia Tech's proposed Biomedical Engineering Building.

By applying the prescriptive code for the smoke control system design, the design requirements were adjusted to accommodate a small footprint design. RJA demonstrated that safe egress of the building occupants could be achieved without the need for costly smoke removal equipment, while preserving an architectural element of the building.

In the case of the vertical opening (lightwell), code requires an additional smoke control system for the isolated area. But because the skylight occupied a small footprint, it did not fall into a specific code requirement. Still needing to achieve the equivalent level of protection, RJA identified fire rated separation in key areas. This solution fulfilled the requirements to the fire official having jurisdiction. RJA's measures went above and beyond code recommendations and demonstrated the effectiveness of a code equivalency.

Result. The Whitaker Biomedical Engineering Building was able to meet all the fire/life safety and building code provisions, as well as keep the integrity of the skylight's architectural features. RJA's development of an equivalent fire and life safety design was vital to the existence of the five-story skylight.

RJA was instrumental in providing an overall cost savings of \$1.2 million to the project by eliminating the need for a smoke management system, a reduction in the type of construction and mitigating the need for additional building emergency power.



- Code Consulting
- Fire Protection Design



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