

Navigating Code Compliance with Chinese Officials

Challenge. Rolf Jensen & Associates (RJA) was commissioned to assist the design team in developing cost-effective fire safety solutions for the Suzhou Convention and Exhibition Center in Suzhou, China, which was a complex, multi-phase, multiple-occupancy project.

The proposed convention center building was to be two stories in height and have about 249,800 square meters in floor area. The building would contain the following elements: 120,000 square meters of exhibition space on two levels; 10,700 square meters of meeting rooms on two levels; multi-story, interconnected pre-function areas; and below-grade parking with a connection to a future light rail station.

Solution. RJA understood that the key to the project's success from a code compliance standpoint would be a well-defined and well-coordinated fire and life safety approach that would satisfy regulatory authorities and diverse ownership interests.

RJA's basic services included providing consultation on fire protection-related code compliance issues to the project team. In this role, RJA acted as an advisor to the design team on local fire protection-related codes and standards and supported the architect, who was responsible for gaining all required regulatory approvals.

Based on RJA's experience with projects of similar size and complexity, RJA decided that the suitable approach would be to: establish fire safety objectives acceptable to the owner and the code authority; prepare a fire protection and life safety program that identified the building features and systems to be incorporated into the design; and identify and resolve fire protection and life safety-related code compliance issues with local building and fire officials.

In the schematic design phase, RJA identified the applicable fire safety codes and fire protection issues for the project and prepared a code summary and schematic design documents that detailed the fire protection requirements of the applicable codes. As part of the drawing review process, RJA developed alternative approaches for the project team's review, as well as priorities for these alternatives, and strategies for code compliance.

RJA met with local code officials to discuss the overall fire protection features of the project and its proposed approach. During this meeting, RJA confirmed that certain elements of the project design, including fire compartmentation and floor openings, did not meet Chinese code requirements and would be designed using a performance-based fire engineering approach.

During phase two of the project, RJA completed two reviews of design development drawings to spell out general fire protection compliance with the applicable codes and to identify specific issues that may arise. In its fire and life safety report developed during this phase, RJA addressed: sprinkler and fire alarm system design criteria, structural fire resistance and fire barriers, smoke control and management systems, and means of egress, among other points.

Result. RJA correctly anticipated that smoke modeling and timed egress studies would be needed to gain approval for fire and life safety systems that would protect the center's building design, which featured two floors open to each other with oversized fire compartments. By smoke modeling two fire scenarios – a fire within the pre-function atriums and a fire in the exhibit hall or meeting room space adjacent to the atriums – RJA successfully received approval for its approach, which differed from Chinese code requirements.



- Fire Protection Design
- Code Consulting
- Performance-Based Design



rjainc.com

