

## *RJA's Egress Travel Distance Studies and Code Consulting Satisfy Life Safety Requirements for Museum*

**Challenge.** The National Constitution Center is an independent, non-partisan and non-profit organization dedicated to increasing public understanding of, and appreciation for, the U.S. Constitution, its history and its contemporary relevance. The Center, which is the first ever museum dedicated to the Constitution, broke ground in Philadelphia's Independence National Historic Park on Sept. 17, 2000 – 213 years to the day the Constitution was signed.

The museum is a fully interactive, interpretive facility with numerous visitor experiences and exhibition halls. Within its total 160,000 square feet of public space, the center contains 75,785 square feet of exhibit space, which includes a 350-seat, star-shaped theater and an area with more than 100 interactive and multimedia exhibits.

Rolf Jensen & Associates (RJA) was commissioned by the architectural firm of Pei Cobb Freed & Partners to consult on code for fire and life safety measures at the museum. The numerous building components and connecting segments of the facility, as well as the high number of visitors – 1 million in the first 15 months of operation alone – presented a familiar, yet singularly unique challenge for RJA.

**Solution.** The National Constitution Center encompasses three building sections around a large volume atrium. For the most part, the standalone building with the open floor plan met code without difficulty. RJA consultants found, however, that the most intricate part of their life safety work was solving egress for the theater within the museum.

What made egress particularly difficult was that people must travel through adjacent galleries before they reach the front of the building to an outside exit. This made travel distance an issue. Although the travel distance exceeded what was allowable by code, RJA successfully resolved the travel distance issue by implementing a compartmentation approach, thus providing a safe travel distance that met the code allowances.

Travel distance wasn't the only issue, however. One of the galleries required for pass-through egress from the theater is Signers' Hall, which contains 42 life-size bronze statues of the 39 men who signed the Constitution, as well as the three men who dissented. In addition to the statues, which are peppered throughout the room, the gallery contains 3D images of the actual size castings.

Due to Americans with Disabilities Act requirements for accessibility, RJA had to go beyond simply ensuring that the room allowed for typical aisle widths and paths. Because of the 3D nature of the exhibit in this room, RJA also had to make sure that people walking through the room would be able to clear projections of the statues' hands so as not to be confused between what was real and what was not during an actual emergency.

RJA also worked closely in consulting on the first floor restaurant planned for the atrium. RJA advised the architects that they had one of two choices based on Philadelphia Building Code: they could either specify a one-hour fire rated boundary between the restaurant and the atrium, or they could call for a tempered, wired and laminated glass in a gasketed frame with sprinklers that could wet the entire glass surface. Once they knew their options, the architects found it easy to work within the parameters of the building code.

**Result.** The National Constitution Center, a government entity, acted as the Authority Having Jurisdiction and was satisfied that RJA more than adequately addressed the museum's fire and life safety requirements. RJA's code consulting and extensive travel distance and life safety studies, combined with the architects' full compliance to go beyond the limit of what was required to meet code, enabled the design team to accomplish its vision for the museum as a celebration of the Constitution in an appealing and educational, as well as safe, setting.



- Code Consulting
- Fire Protection Design



[rjainc.com](http://rjainc.com)

