

LEGISLATIVE UPDATE



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Fire Safety Key to Capitol Renovations

Anyone who has visited the Illinois Capitol recently knows that a major renovation of the historic building is underway. What visitors may not realize is that life safety, and specifically fire safety improvements are a major driver of the multi-phase project.

The latest renovations to the Capitol's North wing are the second phase of a four-phase project, and follow renovations made to the building's West wing that were completed in 2013. Planning for this massive project began in 2007, when the state of Illinois commissioned Champaign, Illinois-based Henneman Engineering to do a comprehensive fire and life safety evaluation of the Capitol.

Henneman engaged Schirmer Engineering of Deerfield, Illinois to complete advanced computational fire and egress modeling, including the creation of a Fire Dynamics Simulator (FDS) model for the Statehouse rotunda. Engineers performing the modeling simulated two, five and 10 megawatt fires in the rotunda, House and Senate chambers and the Capitol's two largest hearing rooms. The fire sizes were governed by the parameters in NFPA 92B, Smoke Management System in Malls, Atria and Large Areas and included axisymmetric plume models to evaluate for variables including holiday decorations.

Schirmer also applied the FDS model along with the Simulated Transient Evacuation and Pedestrian Movements (STEP) model to predict how building occupants would behave in an emergency. In addition to welcoming tens of thousands of visitors each year, the Capitol is a working office building where as many as 600 to

800 people work during legislative session.

The findings of the fire and safety evaluations helped the Office of the Architect determine what changes would make the building safer for occupants and visitors. An important improvement to fire safety is upgrading the Capitol's aging HVAC, including replacement of all heating, ventilation, air conditioning, plumbing and electrical systems. In addition to HVAC improvements, the building will be getting a new fire suppression system with new fire alarms, fire sprinklers, emergency lighting, and improvements to egress including stairs that discharge directly outdoors. Generators capable of powering the entire building will be installed to keep all systems online and functioning in the event of an emergency.

Another major change will be the removal of mezzanines located throughout the Capitol, which will return these spaces to their original configurations. The mezzanines, which subdivided offices on the first and second floors of the Capitol, were constructed during a previous renovation in the 1960's to create additional office space. Removal of the mezzanines, which were constructed using combustible materials, will actually improve the building's fire-resistive ratings by reducing risk and fuel load.

Perhaps the most visible change during the current renovation of the Capitol's North wing are changes to the building's entrance. The North Entrance, previously accessed by stairs leading from an elevated circle drive, will be converted to a street level entry that will lead into the Capitol basement. This change will improve ac-

cess to the building by fire fighters and first responders, who will now be able to park emergency response vehicles directly on Monroe Street and enter the building at street level.

According to Andrea Aggertt, Architect of the Capitol, fire safety has been a key goal since the building's inception in the 1860s. Its principal architects followed the latest building science and innovations of that period when designing the building. The Great Chicago Fire of 1871, which occurred while the building was under construction, only heightened the call for increased fire safety. Materials used in its original construction included fire-resistant masonry walls, wrought iron trusses, brick and hollow clay tile and plaster. Having been constructed of non-combustible materials, the Capitol has withstood several fires over the past 150 years.

Aggertt says "As an example of architecture, the Statehouse is world-class and never fails to impress thousands of foreign tourists from around the globe." Aggertt adds "There is no record of anyone ever perishing in a fire in the Statehouse, and we would like to maintain that record." The current renovations including fire and life safety upgrades will ensure this beautiful and historic building remains safe and open to the public for many years to come.

Special thanks to Andrea Aggertt, Architect of the Capitol for her help with this article. ■