



Session 3C

Stadiums and Arena Projects: Achieving the Code's Level of Safety Using Alternative Approaches

Fire protection for assembly occupancies has evolved over the last century from protecting hundreds of people from theater fires originating from a stage or flammable interior finish, to protecting tens of thousands of spectators from a wide variety of exposures and activities which occur in modern stadiums and arenas. Fire protection engineers working on these buildings are able to utilize a great many of their skills addressing the broad spectrum of fire protection needs of modern design. Because sporting and assembly venues compete for the public's entertainment dollar, each is designed to be more spectacular than the last, with complex and intricate design features that become harder and harder to align with the prescriptive requirements of the building and fire codes.

The development of the Smoke Protected Assembly Seating provisions in the late 1980's justified relaxed egress requirements of these high capacity venues by recognizing that the volume within the seating bowl creates a large smoke and heat reservoir, extending the Safe Available Egress Time. Additional safety provisions were also required, including sprinkler system installation, minimum roof clearance above the highest egress path, and evaluating non-fire hazards in light of an increased exit time from the building. Modern sports venue design has out-run even these specialized rules.

This presentation will discuss the design opportunities for the fire protection engineer that current sports venue design presents. The intent of the Legacy Code and Smoke Protected Assembly Seating requirements will be discussed, and common alternate engineering approaches will be presented. Evaluation of exposed structural steel performance in a fire, continuity of fire resistance, egress path arrangement and performance, calculation of fire and smoke threats, and how to present alternate approaches to the design team, project owner and authorities having jurisdiction will be included.



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As Henderson Engineers' Director of Life Safety, Paul serves as a mentor to others, including architects and engineers, building owners and operators, and project managers. He is a Registered Fire Protection Engineer in 22 states and the Province of Alberta, Canada, and has provided fire protection and code consulting services to a wide variety of clients for over 30 years. Focusing on large, complex assembly projects he has modeled fire and smoke development in buildings, conducted timed egress studies, calculated fire resistance of structural members, and applied and interpreted a broad range of fire and building code requirements. With his plan review, acceptance testing, construction administration, and inspection experience, Paul can identify, evaluate, and solve fire protection and life safety issues.

A graduate from Illinois Institute of Technology with a B.S. degree in Fire Protection and Safety Engineering, he has been recognized as a Fellow by the Society of Fire Protection Engineers. He has benefited from his activities within the Society, including serving as president and board member of the MO-Kan Chapter, sitting on the SFPE-PE question committee, and assisting in the establishment of local chapters in Denver and Indianapolis. His experience in Assembly venues includes over 300 new and renovated facilities, including major and minor league, university, municipal and privately-owned stadiums and arenas. He has also designed and evaluated convention centers, performing arts and theaters projects across the country.

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