



Session 4A:

Carvana: Performance-Based Design of an Automated Vehicle Storage & Retrieval System

The Case Study will detail the efforts by a car sales company to utilize an automatic storage and retrieval system in a glass “Car Delivery Tower” to display and deliver passenger vehicles to customers. The Car Delivery Tower is part of a configuration referred to as a “Car Vending Machine” and it is being built in 12 cities in North America. The Car Delivery Tower is a unique structure that is not well addressed by today’s building and fire codes and therefore one cannot look at this structure and directly or indiscriminately apply today’s prescriptive fire protection schemes/approaches; they don’t directly translate. This Case Study compares the fire hazard presented by the Tower’s storage configuration to known and codified occupancies, and then extrapolates the required methods of protection and hazards experienced to create a unique and specific protection scheme.



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Tom holds a BS in General Science from Fordham University and a BS in Fire Protection Engineering from the University of Maryland. He is a registered Professional Engineer (Fire Protection Engineering) in 13 states and has over 38 years of experience. He was the editor of the 6th and 7th Editions of the NFPA 99 Handbook, and co-authored two editions of NFPA’s Fire and Life Safety in Health Care Facilities. Tom is the Past Chair of the SFPE’s Engineering Education Committee, Past Chair of the NFPA’s Health Care Section, is a Fellow in the Society of Fire Protection Engineers, and is a fire protection team leader for GHD Inc in Duluth, GA.



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James M Hodges is President of WHN+ Architects, PA in located in Charlotte NC. Jim serves as Master Architect for Carvana and has worked closely with Carvana, GHD and other team members on the development of the car vending machine concept.