



Table Top Training Drills

Table Top Training Exercise-December 2011

Building Collapse

Structural building collapse is an inherent danger faced by members of the fire service. The unknown hazards of the structure increase difficulties and these hazards can prove to be dangerous. As time progresses and the stability of the building are compromised, the safety of the members on scene must remain top priority. In near- miss report [07-875](#) the conditions of the structure have deteriorated and the crews were removed to begin a defensive operation. An excerpt is as follows;

“My truck was the 4th truck in and was assigned R.I.T sector and I was made safety officer. When I walked around the building to look for safety hazards I talked to the captain of the second crew. He advised me that conditions were getting worse and they were encountering heavy smoke and flame just inside the building. I radioed command and requested that we go to a defensive attack. He agreed and all crews were pulled from the building. Command confirmed with each crew that everyone was out. We then set up collapse zones around the building and confirmed them with every crew that was on scene. After a few minutes, the roof started to collapse and the captain on the north side asked me if we could get the chain link fence that was separating the adjoining property cut. I agreed, suddenly there were several explosions from inside the building and the north wall came down. Even though we were outside the collapse zone we couldn’t get any further away due to the fence, we all turned our back to the wall and covered up.”

It’s clear that the safety officer and a crew captain recognized some of the indicators and/or signs of an imminent building collapse. Through training, communication and coordination, precautions were taken and operating crews were successfully evacuated to safety. Retired deputy chief Vincent Dunne has written a book entitled “Collapse of Burning Buildings” that has become a must read in the fire service. His knowledge and lessons educate firefighters and enable them to do their jobs more efficiently and safer. A chart is listed below from the Fire Department of New York’s Collapse Operation Procedures. Review and discuss with your unit as well as reviewing your departments SOPs and SOGs regarding structural collapse.

Causes/Indicators of a Collapse:

Causes	Indicators/Signs
<ul style="list-style-type: none">• Fire/destruction of wood, heating of cast iron or unprotected steel• Water main breaks• Natural Causes: earthquakes, hurricanes, tornadoes, floods, heavy snow• Explosions: explosives, fuels, backdrafts• Collision impact• Vibrations, impact loads• Overload on floors and/or roofs, expansion of water absorbent stock• Structural fatigue, old age• Faulty construction, improper alternations, nearby excavations• Cutting or removal of load bearing elements	<ul style="list-style-type: none">• Prolonged burning for the class of construction• Heavy floor loading• Unsupported walls• Cracks, sagging or bulging walls• Cracking or groaning noises indicating a stain on structural members• Rumbling noises or heavy puffs of smoke• Walls leaking smoke or water• Soft or spongy feeling as you walk on a floor or roof• Walls or columns out of plumb• Plaster sliding off a wall, windows cracking or doors swinging open or close, indicates movement of wall• Clean wood at beam ends, indicating roof or floor pulling away from walls