Technical and Dangerous V Collapse

By Battalion Chief Joseph R. Downey

Manhattan Box 0751, transmitted on October 30, 2015, at 1028 hours, for a "ceiling fell down," turned into a complicated and dangerous collapse rescue operation for FDNY companies. The buildings located at 25 and 27 West 38th Street were both in the process of demolition, making room for a new luxury high-rise hotel. While workers were cleaning up debris on the first floor, there was a sudden and unexpected collapse of the rear portion of 27 West 38th Street.

On arrival of first-due companies, initial reports indicated one worker trapped and one worker was black-tagged. Rescue 1 was the first special unit on the scene, followed by Squad 18. By the end of the three plus hours of rescue operations, there were three rescue task forces working, in addition to numerous rescue operations support units and companies assigned on a *10-60* signal.

A rescue task force includes a rescue company, collapse rescue, squad company with second piece, SOC support ladder, rescue Paramedic unit and Haz-Tac Officer. The Rescue Battalion also is assigned to serve as the task force leader anytime the rescue task force responds. In the revised SOC unit response policy, a rescue task force responds to a "major" technical rescue. A major technical rescue includes transit incident-major, plane down or off airport, trench rescue, building collapse-major, explosion and confined space.

As first-due units perform their size-up of an incident, members of the Rescue Operations Command perform a technical rescue size-up. A 10-step technical rescue plan is used for all technical rescues and was implemented for this collapse.

Step 1, Preparation
Readiness and planning started long before Box 0751 was transmitted. Members of Rescue Operations are required to attend more than 800 hours of technical rescue classes, including collapse rescue operations. Rescue and Squad companies have transformed their firehouses to mini-training centers and are capable of performing many rescue disciplines in quarters. Hose towers, pole holes, firehouse roofs and basements have built-in props simulating collapses, confined space and high-angle emergencies. Drills are conducted each tour to keep members' skills sharp and test equipment.

Step 2, Response
The initial assignment for a "ceiling fell down" was one engine, one truck and a Battalion Chief. Once it was determined that there was a significant collapse, specialized units were required. The first-arriving Battalion Chief requested the major collapse matrix signal be transmitted. This was an excellent start to get additional engines and trucks, as well as the specialized units. On a building collapse-major technical rescue, the Incident Commander (IC) will have a total of three engines, two ladders, tactical support unit, Rescue Battalion, Safety Battalion, field communications unit (FieldComm), one rescue task force, one additional rescue, SOC compressor, SOC logistics, Haz-Mat 1, Haz-Mat Battalion and Haz-Mat Tech Unit. Once the Rescue Battalion and Division Chief arrived on the scene, it was determined that a *10-60* was required, due to the scope and complexity of the incident. The transmission of a *10-60* signal following the building collapse-major response results in the balance of the appropriate *10-60* units being assigned. At this collapse, most of the units assigned were given a task that contributed to the successful rescue.

***View from Above**. FDNY members are positioned on the second floor, above the debris pile, monitoring the movement of the collapse.*

Step 3, Assessment
On arrival, members performed a size-up and collected information to provide to the IC. Some of the initial concerns were cause of collapse, number of workers trapped and structural integrity of the building. Workers on the scene were able to provide accountability and communicate to FDNY members that two workers were trapped. Members were able to identify and locate both workers quickly. Unfortunately, one worker was black-tagged. Rescuers left this worker in place and it was determined the rescuers should concentrate on the worker who was alive, but pinned under the collapse. Companies were assigned to the floors above and exposures to evaluate conditions above rescuers and trapped workers. Rescuers then had to devise a plan regarding how to extricate the viable worker and provide medical care until he could be removed.

Step 4, Hazard Control
The stability of the building had to be assessed immediately because rescuers would be operating in a very dangerous area, while extricating the trapped workers. The main hazard at this point was secondary collapse. Due to the amount of debris hanging from the collapsed floors directly above the pinned worker, companies were positioned on the upper floors and exposures as lookouts. These companies were positioned to identify possible shifting of the unstable floors and collapse pile. It was decided early in

***Collapse Factors**. Workers stacked bricks on the roof for removal into shafts. Heavy brick piles overloaded the rear of the roof (left). The Safety Chief on the roof was assigned to assist with monitoring the stability of the collapse building (right).*

the operation that no one would disturb conditions above the collapse. All overhanging debris was left untouched, while rescuers worked under the collapse to free the worker. Although the floors above were hanging dangerously over the rescuers and trapped worker, the decision was to leave it alone and not cause additional collapse. Shoring was built and Paratech struts were placed on the first floor in the area where the rescuers were working to stabilize the collapse area from below. The shoring and struts were positioned to provide the rescuers and trapped worker protection in the event of a secondary collapse.

Step 5, Support Operations
This incident turned out to be manpower-intensive and a rescue branch was established to manage additional resources. Support operations played a critical role in providing manpower and equipment. The rescue and squad companies handled the technical rescue and removal of the trapped workers, while other units were assigned support roles. SOC logistics responded with its new box truck and provided tools, equipment, replacement batteries, blades and five-gallon buckets to assist with removal of debris. SOC support ladders worked the cutting stations and transported tools and equipment to stabilize the collapse and safely shore debris surrounding the collapse. Ladder companies assisted with the placement of struts outside the collapse area and helped erect shoring. Engine companies stretched precautionary lines and helped move garbage containers so companies could access the collapsed area, as well as post members in adjoining buildings. A third rescue task force was requested to be used as a FAST unit in case of a secondary collapse with rescuers becoming trapped. FDNY Paramedics assessed the worker while he was pinned and started advanced medical care in the collapsed area. It was truly a team effort by all companies that responded.

Step 6, Gaining Access
This act proved to be extremely challenging for the rescuers. The area where the worker was trapped had very limited access and the location was extremely dangerous due to the numerous twisted and broken floor joists and beams hanging from the floors above. Rescuers had to tunnel through the precariously positioned collapse pile and operate, at times, on their stomachs in voids that were only 12 to 15 inches high. The jagged and splintered wood was directly over the rescuers as they carefully traversed in the narrow voids around the trapped worker. A two-sided approach was taken with the rescuers working from the front and rear of the building. Each move was calculated and controlled and everyone operating in the collapse area was knowledgeable regarding the rescue plan. This proved extremely beneficial because the worker was pinned by debris that could be accessed only from both positions.

Step 7, Disentanglement
The worker was trapped under three floors of construction materials and rescuers had to cut, remove, shore and lift debris on and around the worker. This required a tremendous amount of coordination and specialized rescue equipment. Most of the actual rescue operations for this incident occurred during this part of the plan. Rescuers operated for more than three hours to free the worker from underneath the collapse without disturbing the unstable debris pile and possibly causing a secondary collapse and injuring the worker or rescuers. Rescuers carefully cut, lifted and stabilized repeatedly with specialized tools until the worker was cleared and enough clearance was obtained to extract him from underneath the collapse.

Step 8, Packaging
The worker had to be removed from beneath the collapse before he could be packaged appropriately. Webbing initially was placed around the worker and used to pull him from under the collapse to an area where a backboard and stokes could be used. Once the worker was freed and removed from the void, he was stabilized and handed off to FDNY EMS. EMS personnel provided medical care in a safe area within the building outside the collapsed area. Crush syndrome care was provided and the worker was examined by an EMS doctor before he was moved to an ambulance. It was important to have EMS work on the injured worker as soon as he was removed from the collapse.

Step 9, Removal
Once FDNY EMS treated the worker within the building, he was transported to an ambulance and provided continual care from extrication to arrival at the hospital. The second worker who was pronounced dead on arrival was extricated by rescuers who had to cut one joist that pinned his head against a garbage container. This removal took less than a minute and the second worker was packaged by rescuers for transportation by the coroner.

Step 10, Termination
Once both workers were removed from the collapsed area, companies recovered their equipment. Some shoring was left in place because rescuers did not want to disrupt the debris pile or put members in danger. Rescuers took some time to review operations and conduct an informal debriefing at the scene. Two weeks after the collapse, a formal after action review was conducted with the Chief and company Officers of companies that responded.

Conclusion
All FDNY members who operated at the collapse on 27 West 38th Street worked cooperatively and showed tremendous professionalism when faced with a challenging rescue. The worker trapped for more than three hours survived due to the commitment and dedication of all the rescuers who responded to Box 0751. ■