

SOC Operations at Brooklyn Helicopter Crash

by Battalion Chief Fred LaFemina

Special Operations units had a vast amount of work to accomplish at Brooklyn Box 3729. (See "FDNY Mitigates Helicopter Crash in Brooklyn," by Battalion Chief Richard Alles, on page 5 of this issue.) The helicopter was sitting on the roof of the building and had penetrated the roof sheathing and roof joists, causing extensive damage. Many SOC units were used at this incident, including the Rescue Battalion, Rescue Companies 2 and 5, Squads 1 and 252, Hazardous Materials 1 and SOC Support Ladder 132.

Ladder 123 was put to work to assist Squad 1 in the shoring operation that took place on the first floor. Support units from SOC also were used to bring equipment--such as portable light towers, since the operation had progressed from daytime to nighttime--to the scene. Hazardous Materials Company 1 handled the fuel off-loading operation. Rescue 2 and Squad 1 installed the shoring at the second- and first-floor levels and in the basement. When the scene was deemed safe and secure, a crane rigging operation commenced, making this a dual response for Rescue 2.

There were three separate phases of the operation involving SOC units. These included shoring, hazardous materials and heavy rigging operations.

Shoring Operation--Shoring is installed for the temporary support of only that part of a damaged, collapsed or partially collapsed structure that is required for conducting search and/or rescue operations at reduced risk to rescuers and victims. If there is no life hazard, FDNY generally will not shore. When there is a life hazard or the risk of significant property damage, FDNY may shore. A shoring system needs to collect the load with headers/sheathing, deliver it to the posts/struts and then deliver it safely into the supporting structure below. A general rule of thumb when installing shoring systems is that one undamaged wood- or steel-framed floor will support one damaged floor. The thickness of rubble/debris on the damaged floor also must be taken into account.

Shoring had to be installed directly below where the helicopter landed on the roof. Factors considered were determining the type of shoring and the number of systems needed to stabilize the building. For example, how much did the helicopter weigh? How much fuel was in the fuel storage tank? How much did the fuel weigh? What was the impact of the helicopter violently coming down to rest on the roof? How much damage did it cause to the roof system and the rest of the structure?

The shoring systems to be installed had to support the weight of the helicopter to prevent it from collapsing the entire roof to the floors below. Vertical shores were placed directly below on the top floor, on the first floor and the basement area as well. While this may seem like overkill, it assured that the load would be supported properly and then evenly distributed. Dangerous operations continued on the roof area for many hours and the shoring that was installed created a solid foundation for the working members.

A shoring station was set up outside the collapse zone and supervised by Lieutenant Bob Chiusano, Squad 252. His members and Ladder 132 performed all the cutting and delivery of the lumber to build the shoring systems. Eight vertical shoring systems were installed, including three in the top-floor apartment. Rescue 2 conducted this operation, assisted by Squad 252.

The next area that required shoring was the first-floor apartment; two in the kitchen area and one shoring system in the hallway area. This operation was conducted by Squad 1 and assisted by Ladder 123. SOC Support Ladder Company 132 set up a cutting station outside the collapse zone and supplied all the properly measured and cut lumber to the units constructing the shoring systems. The importance of the SOC Support Ladder Companies directly assisting the SOC units at technical rescues such as these cannot be overemphasized. These units acquire a great deal of experience during training and actual operations, while establishing a close working relationship with the SOC units.

The last two shoring systems were installed by Rescue 2 in the basement area. They were located directly in line with the shoring systems installed on the two floors above. After all eight shoring systems were installed, the building was stable and safe for FDNY members to conduct the rest of the operations. The shoring also provided a safe work area for NYPD, as well as the National Transportation Safety Board (NTSB), both of whose members conducted investigations.

Hazardous Materials Operation--With the helicopter secured in its roof position, the issue of fuel off-loading became a concern. The helicopter could not be lifted off the roof until the fuel was off-loaded. Possible ignition of the fuel and its weight and volatility dictated it be removed from the helicopter. This would assure a safe operation during rigging, which would commence with daylight the next day.

Lieutenant John Berna of Haz-Mat 1 and Battalion Chief Fred LaFemina, SOC, conferred and decided to off-load the fuel through gravity. The helicopter was grounded to alleviate the possibility of creating a static spark and causing ignition of the fuel. A foam line on the roof that had been stretched in the initial stages remained in position during the entire off-loading operation. After the heli-



The shoring systems installed were a critical component to the overall success of this operation.

photo by FF Michael Gomez

icopter was safely grounded to prevent static sparks, the fuel off-loading operation commenced.

A small fuel hose was removed from the bottom of the fuel tank and the fuel was transferred into a three-gallon container. It then was transferred into a 55-gallon over-pack drum. It was a long, drawn-out process, but it was the safest way to conduct the operation. The total amount of fuel off-loaded was approximately 80 gallons. The drum then was transferred to the street via a tower ladder. Haz-Mat 1 performed this operation during the early-morning hours when no other operations were taking place. This provided an additional, built-in safety factor during a dangerous operation.

Rigging Operation--Assistant Chief Thomas Galvin, the Incident Commander for the rigging and removal operation, decided to remove the helicopter the day after the incident to preclude a more dangerous operation. This eliminated the life hazard and took place during daylight, providing a safer working area for FDNY members. There was no reason to remove the helicopter during the night since the scene was secured and any fire or emergency problems that could arise had been alleviated.

The Office of Emergency Management (OEM) contacted a private crane company to remove the helicopter from the roof of the building in the early-morning hours. The Rescue Battalion Chief and Rescue 2 were special-called back to the scene to assist and supervise the removal operation. Rescue 2 assisted the riggers with the removal.

It was a basic sling and pick operation, using wire slings with choker hitches to secure the helicopter. With an extensive background in crane operations, FF Sam Melisi of Rescue 2 directly assisted and placed the wire slings to haul the load. The helicopter was removed in two pieces--the tail section and the main section. The rigging operation was completed, with everything going smoothly.

Lessons learned

- Incident Commanders should use the expertise of the units on the scene, especially the SOC units. Additionally, engine or truck members may possess certain certifications or licenses in the construction field, too. It doesn't hurt to inquire about possible talent available to the Incident Commander at the scene.
- Think about scene safety. If there is no life hazard and the scene is secured, it may be better to await the arrival of special equipment or wait until a certain time of day to perform operations. This will assure that injuries to FDNY members are greatly reduced or eliminated after the initial phases of the operation.

Considering the unique problem that confronted them, an outstanding job was done by all the Fire Department units at the scene. Expect the unexpected. The fire service is dynamic and as technology progresses, the dynamics of our functions should never be taken for granted. Believe it; a helicopter did crash-land on a building in Brooklyn.

About the Author...

Battalion Chief Fred LaFemina, Special Operations Command, is a 19-year veteran of the FDNY. Sixteen of those years have been spent in SOC, including assignments with Squad 1, Rescue 4, Rescue 1 and Squad 270. He is the former Director of the FDNY Tech Rescue School. He is the NY-TF1 Urban Search & Rescue Task Force leader. This is his second article for WNYF.

