

Multiple First-Floor Collapses at Private Dwelling Cellar Fires

by Deputy Chief James DiDomenico, Division 13 Commander

It was 1800 hours on October 24, 2006, when Lieutenant Gary Velilla, Engine 303, Lieutenant Frank Burke, Engine 275, and Captain Phil Ciaravino, Ladder 133, held roll call at their quarters on Merrick Boulevard, Queens. This was the first tour with the three companies in the same quarters due to apparatus floor repairs underway at the quarters of Engine 303 and Ladder 126 on Princeton Street. Ladder 126 also was working their first tour at the quarters of Squad 270 and Division 13.

The night was an ordinary one for Engine 275 until midnight approached and several residents on 175th Street in Queens smelled a burning odor in the area. The neighbors came out of their houses looking for a fire, but could not locate the source of the odor, so they assumed it was a neighbor around the block who frequently barbecued late at night. At 0457 hours, another neighbor who was coming home from work found a house on fire.

Long-smoldering fire leads to delayed alarm

At 0457 hours, on what was now October 25, Queens dispatchers received an alarm for a basement fire. The unoccupied private dwelling at 115-30 175th Street had a smoldering electrical fire that had been burning in the cellar ceiling for about eight to 10 hours before the alarm was transmitted. Engines 275 and 303, Ladders 133 and 165 and Battalion 54 were assigned at 0458 hours.

Receiving a second source at 0459 hours, the dispatcher filled out the alarm with four engines, two ladders, a rescue and a squad and special-called Ladder 155, a tower ladder, due to CIDS information indicating window bars on the building. A 10-75 was transmitted by Lieutenant Burke at 0501 hours, as members rolled up to a heavy smoke condition showing in front of several buildings.

Initial actions

- There was a hydrant located just before the actual fire building, but because the heavy smoke conditions obscured which building was on fire, Engine 275 chose to back-stretch to the next hydrant, about 150 feet past the fire building.
- Size-up revealed a 2¹/₂-story, peaked-roof private dwelling, with a front stoop to the first floor. There were two additional entrances to the fire building--a ground-level kitchen/cellar

entrance on the exposure #2 side, toward the rear of the building, and a stoop to an entrance at the first-floor level on the exposure #4 side of the building.

- Captain Ciaravino performed an exterior size-up of the building and found serious fire showing in the cellar windows, indicating heavy fire conditions in the cellar.

- The front door was forced by Ladder 133 and members found heavy smoke conditions on the first floor, but no evidence of high heat on this floor.
- After Lieutenant Burke ordered the 1³/₄-inch line of Engine 275 charged, Captain Ciaravino checked heat conditions on the first floor.
- Engine 303 arrived at 0502 hours and took the hydrant just before the fire building. Lieutenant Velilla ordered a back-up 1³/₄-inch hose-line stretched to the front of the fire building.
- Ladder 165 arrived at 0502 hours and Lieutenant Joe Fallon initially positioned the inside team at the front stoop. Members began removing the front storm door.
- Battalion Chief John Maguire, Battalion 54, arrived on-scene at 0502 hours and made a perimeter size-up as the initial operations were being conducted. As he proceeded down the exposure #2 side of the private dwelling, he saw heavy fire and smoke conditions in the cellar windows, indicating a serious fire.

Sudden collapse occurs

As Ladder 133 members were making their way through the front room on the first floor, Captain Ciaravino, who previously had not felt any high heat on this floor, saw heavy fire suddenly erupting from the second room they were about to enter. He ordered his inside team to get out. Ladder 133's inside team came diving out the front door as a fireball erupted from the middle room on the first floor, blowing all the way out to the front stoop. The members on the stoop from Ladder 165's inside team, two members from Engine 275's nozzle team and Captain Ciaravino were burned.

Initially, members thought a flashover had occurred. What actually took place was a sudden, pancake-style collapse of the middle room floor deck over which the members were about to crawl. They were two to three steps from almost certain death when the entire room suddenly collapsed.

With conditions now worse, the members regrouped and Chief Maguire had Engine 303 quickly place water on the fire from a side cellar window on the exposure #2 side. Then, they attacked the fire through the side cellar entrance door. Members advanced this line through the cellar, knocking down the main body of fire, unaware that a major collapse had occurred.



Photo #1--115-30 175th Street. The exposure #4 side entrance to the upper floors. There are very few windows on this side of the building, indicating stairs to the second floor run on the exposure #4 wall.



Photo #2--115-30 175th Street. Note the side cellar entrance with a few steps up to the kitchen and half flight down to the cellar. Also note the side cellar windows at ground level. The multiple meters (arrow) indicate multiple apartments.

Second alarm transmitted

Deputy Chief James DiDomenico, Division Commander of Division 13, arrived on the scene at 0509 hours and transmitted a second alarm because of the heavy fire conditions, multiple injuries and fire extension to the first and second floors. The remainder of the fire operations required the usual arduous work of overhauling, searching for fire and victims and knocking down fire.

Two other noteworthy events occurred during these "routine" operations: 1. When Battalion Chief William Carew, Battalion 50, arrived on-scene, he was assigned to the first floor to supervise operations. While moving in and using his flashlight, he saw what he thought was the reflection of his flashlight in a puddle on the floor in front of him. As he moved his flashlight away from the floor to look up, the "reflection" did not go away. Then he noticed that "reflection" was actually the flashlight of Engine 303's Officer shining brightly upward through the 10- by 15-foot hole of the collapsed floor. 2. Lieutenant John Taylor, working in Engine 302, was ordered to stretch a hand-line to the second floor to knock down extending fire. Initially, the line went through the front stoop entrance, but the members soon realized that they could not access the second floor from the interior of the building. This was because the stairs to the second floor were enclosed and the only access to the second floor was from an exterior entrance on the exposure #4 side of the building. Once this entrance was found, Engine 302 quickly advanced their hand-line to the second floor and extinguished the fire.

Similar first-floor collapse--19 days later

On November 14, 2006, Battalion 51 and Division 13 responded to a two-alarm cellar fire that occurred at 0257 hours at 127-23 Hawtree Creek Road. At this fire, the entire rear bedroom floor collapsed in a V-shape style about 15 minutes from the time of the initial alarm. This fire appeared to be suspicious in nature. However, neighbors did report smelling smoke for several hours before the alarm was reported. The two-story private dwelling was detached and unoccupied at the time of the fire.

During initial operations, members had great difficulty locating the second-floor stairs because they were sealed off from the inside for an upstairs apartment. The fire building had a front stoop entrance to the first floor. There was also a side cellar entrance that allowed access to both the kitchen and the cellar, as well as a side stoop entrance on the same side of the building as the side cellar entrance, which provided the only access to the apartment on the second floor. Once again, members were delayed from reaching their destination on the second floor because the second-floor stairway was sealed off from the rooms on the first floor.

Five minutes after FDNY arrival, two members were forced to jump out a rear bedroom window due to high heat conditions and erupting flame. Shortly thereafter, members were removed for an exterior attack due to heavy fire conditions. Soon after their removal, the rear first-floor bedroom floor joists and floor deck directly above the main body of fire collapsed.

Similar first-floor collapse--28 days after the first fire

Again, on November 23, 2006, Battalion 54 and Division 13 responded to an all-hands cellar fire at 187-02 Newburg Street that occurred at 0416 hours. On arrival, the members of Engine 317 and Ladder 165 proceeded through the front door. As they were searching the first room on the exposure #4 side of the building, they noted that the flooring below them felt weak and spongy. Due to an extensive collapse of the floor deck and joists in this room, fire suddenly erupted from the room to their left. This collapse occurred just moments after FDNY arrival, during the initial attack.

The two-story private dwelling also was detached and unoc-



Photo #3--127-23 Hawtree Creek Road. The stoop and side cellar entrance on the same side of the building indicate an exterior entrance to the upper floor.

cupied at the time of the fire. This fire, similar to the first one, appeared to be electrical in nature and apparently was burning for quite some time before the alarm was transmitted.

All three fires and collapses had the following in common:

- A private dwelling.
- A detached building.
- An unoccupied structure at the time of the fire.
- Alarms transmitted during the early-morning hours of 0257, 0416 and 0457 hours.
- All three appeared to be long-burning fires, at least two of which neighbors reported smelling smoke for hours before the alarm was transmitted.

Well-known hazards of private dwelling fires

When fighting cellar fires, the following obvious hazards often are encountered:

- Dangerous descent through rising heat and flame to a below-grade area.
- Advancing down open, wood-framed stairs that may collapse or be burned.
- Build-up of toxic gases due to the confined area and the many combustible liquids and gases that are found either from storage or utilities.
- Limited ability by Firefighters to ventilate.
- Increased difficulty of Firefighter removal from a below-grade area that has narrow stairs, tight conditions and is easily overcrowded.

Other hazards are not as obvious to FDNY members:

*The possibility of a long-burning, advanced fire exists because the fire started in an unoccupied, detached building.--*In a multiple dwelling, an accidental cellar fire rarely will go unnoticed for hours because someone is likely to be in the building or in an attached exposure and detect the fire early. The City has thousands of one- or two-family, detached private dwellings that are much more likely to be completely unoccupied because everyone is at work or school, on vacation or the house is under renovation.

This allows an accidental fire to burn for hours before being detected, leading to a very serious condition on arrival of FDNY units. The possibility that structural floor joists may have been burning for several hours is a serious consideration when arriving at an unoccupied private dwelling cellar fire, particularly in the early-morning hours. These unoccupied building fires often are called in as "house on fire, next door."



Photo #4--187-02 Newburg Street. Corner view of the private dwelling as units saw building. Heavy fire showed in side cellar window on exposure #2 side cellar windows.

Early involvement of structure fire--Cellar ceilings in private dwellings often are partially or fully open-joist construction with no finished ceiling to protect the floor joists supporting the first floor. This allows a contents fire to quickly spread to the structure, particularly the first-floor joists and decking. The floor decking will fail before the floor joists and often will feel spongy or weakened, indicating the need for caution and the importance of checking the area below.

Delayed discovery of the fire floor--As Firefighters approach a private dwelling cellar fire from the front of the building, they often are met with heavy smoke and/or fire conditions showing from the first and second floors of the building. The cellar windows that might reveal the location of the true fire floor usually are on the sides and rear of the building. For this reason, the first-arriving engine and ladder companies initially may commit to procedures for first-floor fires. This can lead to members being out of position, delayed searches in the cellar and fire extending rapidly because of a delay in placing water on the fire.

Difficulty in locating stairways due to renovations--Years ago, a senior Chief shared why he was such an excellent tenement Firefighter; he grew up in an old law tenement. While there are renovations made to tenement buildings, there are limits on what can be changed. Finding access to the cellar or an upper floor is rarely an issue in a multiple dwelling. In private dwellings, variations are quite common. Sealed-off interior entrances to the cellar and second floor with an outside stoop as the only path to the upper floor are just two of the common variations that create difficulties and delays for FDNY members at fires in these buildings.

Tactical considerations at private dwelling fires

Size-up--When arriving at private dwelling fires, it is important to get a look at the exposure #2 and #4 sides of the building before making entry through the front door.

- Smoke or fire showing from a side cellar window will indicate a cellar fire.
- A side cellar entrance located on the exposure #2 or #4 side of the building would indicate which side of the building the cellar stairs are on and shows whether the stairs are found in the middle or rear of the building.
- A private dwelling with two side entrances--whether on opposite or the same side of the building--indicate the likelihood that there is a private, sealed-off exterior entrance to the stairs leading to the second floor. (For example, a side cellar entrance on the exposure #2 side and a stoop to the first-floor level on the exposure #4 side indicate the stoop on the exposure #4 side probably is a sealed-off stairway, with an exterior entrance to the second floor.)

- When entering the front door, smoke showing from under the saddle at the entranceway would indicate a fire that either started in the cellar or dropped down to the cellar. It is always important to ensure that basements and cellars are checked for fire.

Thermal imaging camera use

Use of the thermal imaging camera on the first floor often can help ladder company Officers at cellar fires in two ways: 1. Waves of heat on the camera seen rolling across the first-floor ceiling most likely indicate that the interior cellar door is open and the heat rising up the stairs is endangering members on the first floor. This would dictate the need to close the cellar door, if possible, and have a charged line in place on the first floor. 2. Ladder company Officers may use the camera to locate the interior cellar door by finding a closed door that shows significant heat.

If conditions allow, ladder company members should attempt to find the interior cellar door and ensure it is closed. No attempt should be made to descend the interior cellar stairs at an advanced cellar fire, especially when alternative attack points exist. When the thermal imaging camera is used on the exterior of a balloon-frame building and shows high heat from the ground level and up, it may indicate vertical extension.

Search

When arriving at advanced cellar fires in private dwellings that appear to be unoccupied, members operating on the first floor should be aware of the possibility of floor deck or floor joist collapse. As they search the first floor, they should proceed slowly and not place their full body weight on the floor in front of them until they have checked for floor integrity with an outstretched leg or tool. Using these techniques may help a member locate a weakened or spongy floor deck, indicating the possible need to halt the advance on the first floor until the fire below has been knocked down or controlled.

If possible, members should try to maintain contact with walls. Members should try to use all their senses--particularly hearing--when searching. They should be listening for the crackling of fire, cries of civilians and handie-talkie communications.

It is important to locate the interior stairs to the upper floors. It is important for engine Officers to operate from a safe, stable area and position a line that protects the first-floor operations and the interior stairs to the upper floors. The underside of these stairs may need to be cooled, extinguished and/or protected with a line.

Communications

Communications between members--especially between the first-alarm Officers--are critical at cellar fires. Consider the following example. Units arrive at the scene of a fire reported in the cellar of a private dwelling with a medium to heavy smoke condition showing on the first and second floors. The first engine and ladder make entry to the first floor via the front door and locate the interior cellar stairs. Will they be able to make the interior stairs? If not, who searches the cellar? Where does the second line get placed--as a back-up or attack line? Communication is critical!

- The first two ladder Officers must communicate. If the first ladder inside team makes the cellar, then the second ladder inside team is responsible for the first and second floors. If the first ladder inside team remains on the first floor because members do not make the cellar, then the second ladder inside team is responsible for VES of the cellar.
- If the first hand-line is attacking the cellar fire from the interior stairs, then a back-up line is required on the first floor to support their effort and cover possible extension. If the first line cannot make the interior cellar stairs, then the second line will become

an attack line from another cellar entrance.

Both of these actions require coordination and communications among the engine and ladder Officers and the first-arriving Battalion Chief.

Reminder: *The following are the proper emergency radio transmissions--For collapse feared, use an urgent message. For collapse imminent or collapse occurred, use a mayday message. Incident Commanders should be prepared to transmit a 10-66 when conditions warrant.*

Line placement at serious cellar fires

Chief Officers may need at least three or four lines stretched and charged at serious cellar fires.

- The first charged line must be with the first ladder company searching the first floor to extinguish extending fire, protect members in case of collapse and protect against fire venting up the interior cellar stairway via an open cellar door. Under serious fire conditions, the first ladder should wait for this line to be charged before advancing onto the first floor. They should ensure the line stays in proximity to them during the initial search when conditions are advanced on arrival.
- The second line will be the initial attack line when the fire is advanced on arrival, attacking the fire from either a side or rear cellar entrance. Side or rear entrances provide access to the cellar without descending a full flight of stairs. Flaking the line and calling for water can be accomplished outside the building, allowing members to conserve air in their SCBA. Before this tactic is used, it is critical that members on the first floor: 1. Have ensured that no one is on the interior cellar stairs. 2. Have closed the interior cellar door if possible. 3. Are operating with the protection of a charged hand-line.
- A third hand-line should be stretched immediately and *charged* for any of the following possibilities: 1. Back-up of either the attack line or the line protecting members on the floor above. 2. Advancement into the building for fire extending to the second floor and/or attic area. 3. Emergency knockdown of fire via a side cellar window should an unexpected collapse occur. 4. Protection of detached exposures. 5. Protection of members should they suddenly become trapped behind window bars.

It is important for company Officers to charge this third line outside the building as soon as it is ready. Frequently, Officers wait to charge the third line until they are told where they are going with it. At private dwelling fires in one- or two-story buildings, there is no advantage to waiting to charge the line. In fact, if an emergency situation occurs, it may be impossible to order this line charged over the handie-talkie and every second may mean life or death.

- Stretch and charge a fourth hand-line if the third line will be used.
- It is important to preplan additional access points for hose-lines. Placing portable ladders to porches or to the second and/or third floors always should be considered in advance. This allows units to circumvent the tight interior conditions and delays encountered when attempting to stretch additional lines through the interior of the building.

Quick knockdown from a side window

At advanced cellar fires, serious consideration also must be given to knocking down the raging fire from a side cellar window before entry is made on the first floor above the fire. This tactic must be considered when an attack line employed from a side or rear entrance is unsuccessful.

Placing members above an advanced cellar fire without any water being placed on the fire is a very risky tactic. At a fully involved cellar fire in a private dwelling, placing water on the fire

Members are urged to review the following:

- "Using the Thermal Imaging Camera," by Battalion Chief James Coyne, on page 12 in this issue of WNYF.
- "Thermal Imaging Cameras," by then-Battalion Chief Raymond M. Downey, in the 2nd/2001 issue of WNYF.
- The soon-to-be-released revised *Firefighting Procedures*, Volume 1, Book 6, Private Dwellings.

will make conditions inside the building better for both the occupants and Firefighters before continuing with the interior attack. It also delays the possible structural failure, permitting Firefighters to extinguish the fire from the interior, rather than a complete withdrawal for an exterior attack. When conditions are very serious on arrival, the benefits of fire knockdown and the resulting reduction of heat and smoke conditions may far outweigh the unlikely event of pushing fire and heat up the interior cellar stairway.

Preventing flashover

Engine Officers also must consider the following tactic. Under heavy smoke and high heat conditions, with no visible flame, the tactic of opening up the nozzle to cool the hot gases and smoke at the ceiling level can prevent rollover and flashover from occurring. The idea that Firefighters should not use the line until they see visible flame is a misconception. Under certain conditions, it is desirable to cool the smoke in order to cool the heat in the area above and in front of members.

Window bar concerns

When operating in private dwellings that have window bars, ladder Officers must be cognizant of the need to stay with the line and have the engine cool the ceiling when high heat is evident. Removal of window bars takes time and a charged line outside the building might be the quickest way to protect a member should he/she become trapped behind window bars.

Private dwelling fires are the most frequent residential fire occurring in many of the Divisions around the City today. They have special dangers due to their many variations, window bars, delayed alarms due to unoccupied buildings and fast-moving fires when the buildings are of wood-frame and balloon construction. Cellar fires have become more common and clearly are the most dangerous private dwelling fire.

It is important for company Officers to stress the importance of operational discipline, particularly stairway management. Access and egress routes must be kept clear. Engine companies must maintain proper spacing when advancing hose-lines. When a second engine is paired up with another engine, members must ensure they remain out of the way after initially assisting and be ready to provide relief if necessary.

FDNY members continually must critique fires and train as new developments occur, so these fires can be fought safely and members return back to quarters the way they arrived at the beginning of the tour.

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About the Author...

Deputy Chief James DiDomenico is a 24-year veteran of the FDNY. He is the Division Commander of Division 13. Prior assignments include Engines 260 and 53 as a Firefighter; Division 15 as a Lieutenant; Engine 263 as a Captain; and Battalion 16 as a Battalion Chief. He holds a BS degree in Athletic Administration from St. John's University. He is an instructor for Fire Tech. This is his first article for WNYF.

