On November 21, 1985, at 1300 hours, Manhattan Borough Commander Matthew J. Farrell convened a meeting at Manhattan Borough Headquarters, with personnel from the Bureau of Fire Prevention, the Manhattan Borough Command staff, and chiefs of the 1st and 3rd Divisions in attendance. All those present had expressed concern over the problem of the many uncompleted high-rise buildings that were being partially occupied. This condition resulted from the fact that these uncompleted buildings were being granted temporary certificates of occupancy.

In recent years, there has been a tremendous upsurge in high-rise construction, concentrated in Manhattan and in Battery Park City. Although most of this construction was of the Class "E" type office building, many were residential high-rise structures. As these structures neared completion, building after building was granted a temporary certificate of occupancy.

The chiefs who were gathered at this conference were very concerned over the perceived problem of scattered occupancy in buildings that still contained floors that were in the early stages of interior construction. In their view, this situation meant serious hazards to life safety. At 1840 hours that same day, the transmission of Manhattan Box 846 proved that their fears were not unfounded.

10-76* TRANSMITTED

Units responded on a phone alarm for a fire on the 3rd floor of an office building located at 12 East 49th Street in Manhattan. A subsequent Class 3 alarm was received by the dispatcher, who provided a three and two response.

Lieutenant Peter Sheridan, the officer in command of Engine Co.8, the first unit to arrive at the scene, transmitted a 10-76 for a heavy fire condition on the 3rd floor of a partially occupied, 45-story, high-rise, Class "E" office building. The fire had originated near some work sheds that were situated in an open area that was approximately 200′ x 200′. The fire spread rapidly to the sheds and then to construction material located nearby.

The members of the first arriving ladder units, Ladder Co.2, under the command of Lieutenant Henry Wojcik, and Ladder Co.4, under the command of Lieutenant Joseph D'Amico, along with the members of Rescue Co.1, commanded by Lieutenant Anthony Limberg, encountered heavy heat and smoke conditions in both stairwells (scissor stairs† in a center core) on the floors immediately above the fire.

EVACUATION BLOCKED

Upon his arrival at the scene, Battalion Chief Patrick Foley, 9th Batt., went directly to the Command Post and assumed command of the operation. He was informed that approximately 200 people had evacuated the building prior to, and during, the arrival of our first due units. He also received reports that office workers were trapped on scattered floors above the fire.

Chief Foley ordered Lt. D'Amico and the members of Ladder Co.4 to survey the fire situation and report on conditions. After receiving their report, he informed first alarm units that stairway "A" of the scissor stairs was to be used as the attack stairway, and that stairway "B" was to be used as the evacuation stairway. The intent was to allow occupants to exit safely without being exposed to the smoke and heat rising from the opened door on the third floor being used for the fire attack. All units were also informed that stairways "A" and "B" were scissor stairs, with openings on opposite sides of the center core.

Battalion Chief Arthur J. Kelly, 8th Batt., arrived as the 10-76 operations chief, taking his position in the "A" stairway on the fire floor. The members of Engine Co. 8 were ordered to stretch a line to the fire floor. Lieutenant Robert McQuade, commanding Engine Co. 21, was ordered to stretch a back-up line via the same stairwell. The members of Engine Co. 65, commanded by Captain Robert Kearns, were assigned to standby for relief. Because of the scissor type configuration, standpipe outlets exist in a particular stairway (A or B) only on every other floor. In this instance, it meant coming back to the first floor, since the third floor, containing a standpipe outlet, was involved in fire.

First reports from the members of Rescue Co. 1, who were operating above the fire, were not encouraging. The pre-planned strategy of utilizing the scissor stairs as attack/evacuation stairways was ineffective. Rescue Co.1 members found both stairwells heavily charged with smoke and heat. As they extended their search, they encountered numerous occupants who had been driven out of the stairwells, and had taken refuge on various floors. In fact, even the members of Rescue Co. 1 had to temporarily seek relief on the 7th floor level. (It was determined after the operation that both stairway doors on the third floor had been in the opened position.) At this time, further evacuation past the fire to the safety of the street was no longer possible.

MULTIPLE ALARMS TRANSMITTED

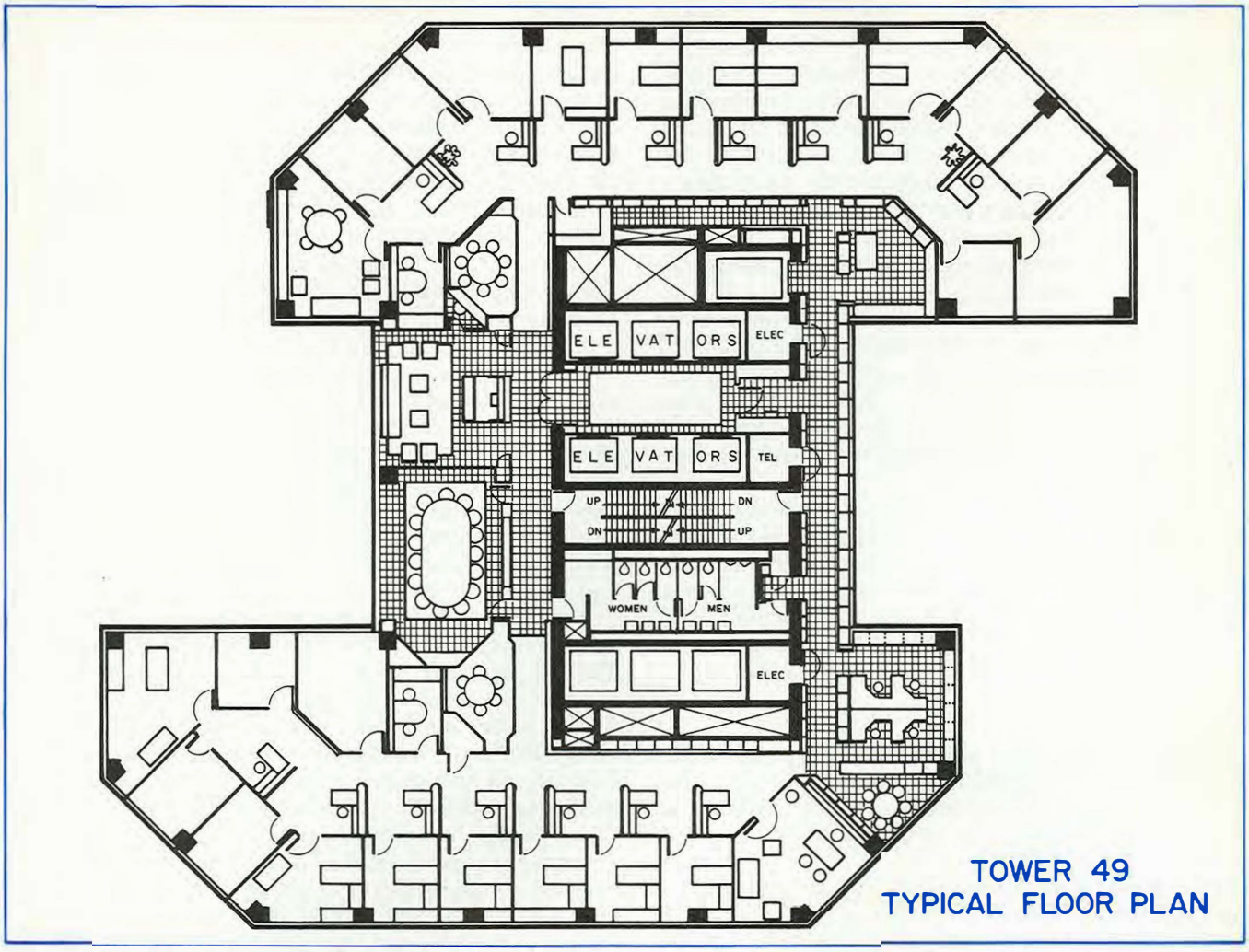
Deputy Chief Angelo A. DeCaprio, 3rd Div., arrived on the scene and assumed command as continuing reports on the numbers and locations of trapped office workers were being transmitted to Chief Foley at the Command Post.

Chief DeCaprio immediately assigned Battalion Chief Robert Harkins, 7th Batt., the search and evacuation position on the 19th floor. The members of Ladder Co. 24, under the command of Captain John Casey, and the members of Ladder Co. 16, commanded by Captain Raymond McGowan, were assigned to Chief Harkins for this upper floor search position.

The members of Ladder Co. 24, on their initial survey, indicated that there was a heavy smoke condition on all floors above the fire. The search of the upper floors was complicated by the fact that water, flowing into the elevator shaft, had caused the failure of the low bank of elevators. The shaft had become flooded due to water flowing from the first line, and from sprinklers that were operating on the Exposure #2 and #4 sides of the building. These sprinklers did not operate on the fire, but did fuse due to the extreme heat. Shortly thereafter, water was discovered flowing into the shaft of the high-rise bank of elevators, and units were ordered not to use those elevators. Members were faced with an arduous climb (45 stories) to the upper floors.

*10-76—Request for four engine companies, four ladder companies, a rescue company, a deputy chief, two battalion chiefs, the Field Communications Unit, and the High-Rise Unit.

†For a diagram of the construction of scissor stairs, see *"Sliver Buildings"*, WNYF Mag., 1st Issue, 1984, p.16.)



TOWER 49
TYPICAL FLOOR PLAN

In the interim, Batt. Chief Kelly had assembled his attack force, but reported that they could not move out of the stairwell. A very heavy fire condition existed on the fire floor, holding them at bay in the stairwell. Despite the intensive conditions, members of Engine Co. 8 attempted an attack. They were forced to retreat, with three members receiving burns of the neck and ears. Engine Co. 8's back-up, Engine Co. 21, could not advance due to a burst length, caused by glass shards.

As Chief DeCaprio received reports from the 8th and 9th Battalions, and the various search units, the full extent of the fire problem was brought to his attention by Fr. Richard Martinsen, 9th Batt. Aide. The Command Post was on the East 48th Street side, and a visible size-up was possible by stepping through the revolving doors and looking up. The bright red glow from 200 feet of fire could be seen across the entire third floor. Fire had complete possession of the floor and was already venting out one window. It was apparent that all windows would soon fail and expose the floors above to fire extension. Within a short interval, 2nd and 3rd alarms were transmitted. (Dispatchers were mandated to transmit a 10-77* for a high-rise 3rd alarm.)

The interior attack was not progressing. Office workers and Department members were in vulnerable positions above the fire. The potential existed for a serious loss of life. It was a grim moment, indeed.

*10-77—Request for one additional deputy chief, two additional battalion chiefs, one additional rescue company, a Command Post company (E.7 for Midtown), and the Mask Service Unit.

EXTERIOR ATTACK INSTITUTED

Deputy Assistant Chief Anthony R. DiMartino arrived on the scene and assumed command of the operation. He quickly evaluated the strength of his firefighting force, taking into consideration those units that were, at that moment, responding on the multiple alarms. He designated Chief DeCaprio in command of interior operations, and Deputy Chief Eugene Dockter, 1st Div., operational chief on the 3rd floor. Batt. Chief Kelly was assigned the task of supervising the attack team. Batt. Chief Foley remained at the Command Post, maintaining radio communications and control of the search teams. Batt. Chief Robert Harkins, 7th Batt., assisted by Batt. Chief George Conley, 45th Batt., and Batt. Chief Michael F. Kearney, 12th Batt., were assigned the arduous task of supervising the search teams who were covering the 42 floors above the fire.

Chief DiMartino made the decision to prepare for an exterior attack, using Tower Ladder 21, under the command of Lieutenant Richard Bittles. Tower Ladder 21 was responding via East 48th Street and, upon their arrival, were ordered to set up for a ladder pipe operation. The members of Engine Co. 39 were directed to supply T.L.21 with an adequate water supply.

With Tower Ladder 21 ready to operate, fire began breaking out of more windows on the southwest side, lapping up to the floor above. As units were being withdrawn from interior 3rd floor positions, fire took possession

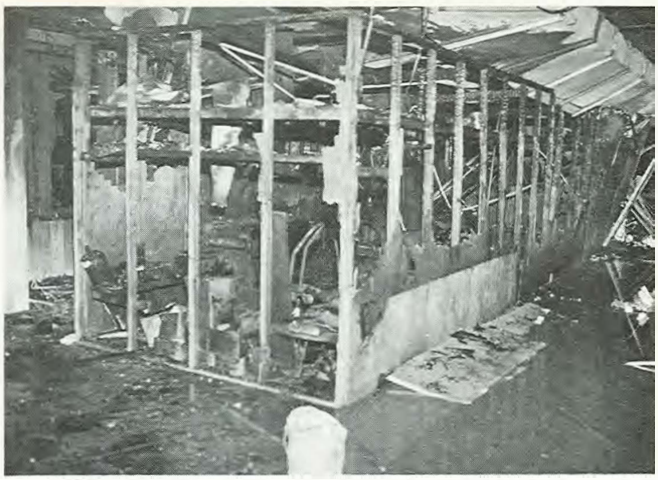


Photo above: Completely destroyed construction shed that was located on the fire floor. Fire originated in this area, spreading rapidly to the shed and to other construction materials in the area. *Photo left:* A typical wooden construction shed situated below several occupied floors in *Tower 49*. Construction material is strewn about the shed and throughout the entire floor, creating a potentially serious fire hazard. A fire, starting in a cluttered area, such as was the case in this instance, would spread quickly, gaining complete control of the entire floor. Occupants located above that floor would be in extreme jeopardy.

of the entire 48th Street side, bursting out of all windows. Windows on the 4th floor were starting to crack from the intense heat. It was, however, necessary to await confirmation that all units were clear of the fire floor, and that the stairwell doors were closed, before allowing the members of Tower Ladder 21 to start their attack. Only when these conditions were met could an outside stream be safely used.

Reports from units above the fire were still coming in, as search units came upon various groups of people seeking refuge on the upper floors. The presence of Department members did much to dispel the panic of these trapped occupants. A group of fifteen occupants on the 7th floor were exposed to a particularly heavy smoke condition, and permission was granted to vent a window at that level. The public address system was activated to inform all workers within the building that the Fire Department was operating to extinguish the fire, and that their safety was ensured. Previous messages had been transmitted informing the occupants of the actions being taken for their protection.

The exterior attack by Tower Ladder 21 proved very successful. Their heavy calibre stream quickly extinguished all fire across the East 48th Street side. The same factor that had allowed the fire to extend so rapidly—the large open area—allowed 21's heavy calibre stream to reach both sides of the core. From their vantage level, they were able to effectively extinguish almost all visible fire.

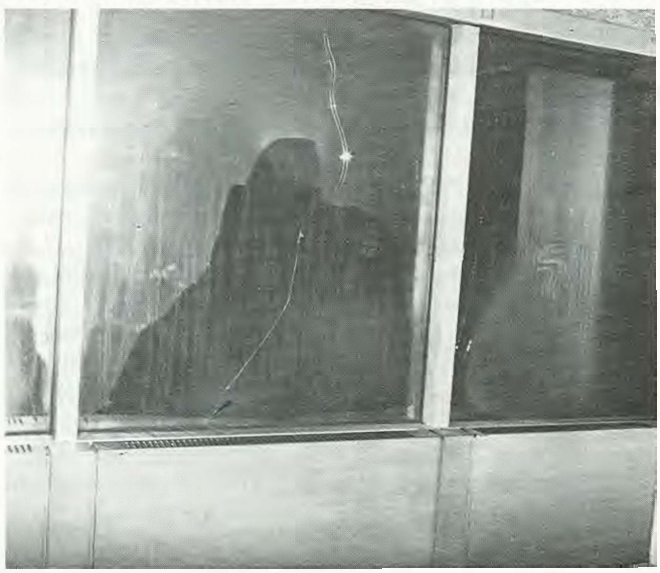
With Chief DeCaprio coordinating the shutdown of the exterior stream, engine and ladder units within the stairwell were able to move rapidly down both sides of the 3rd floor and extinguish the remaining pockets of fire. Some caution, however, was still necessary. Cylinders of compressed gas—acetylene and propane—used during the construction phase, had fused their plugs, ignited, and released their contents to further fuel the fire. Hazardous Materials Unit 1 was special-called, and operated to isolate the containers and remove them from the fire area.

UNDER CONTROL

Chief of Department John J. O'Rourke arrived on the scene and assumed command of the operation. He was informed that the fire was under control, but that the status of all the occupants was still uncertain. The primary search had, indeed, placed all of the various groups of trapped people under the control and protection of Fire Department members; however, two construction workers were still unaccounted for.

Prior to the extinguishment of the fire, engine companies that had responded on the multiple alarms had been used to relieve operating units, and to stretch additional lines to floors above the fire. With the fire now under control, these units were released from that duty and ordered to become part of the search units. Two

Fire extension through auto-exposure became a definite threat as the fire took possession of the entire third floor, breaking all the windows on that floor and lapping up the outside of the building. Shown here is one of the fourth floor windows, which was cracked by the intense heat of the fire from below. Fortunately, before these windows failed completely, Tower Ladder 21 was able to mount their exterior attack.



engine companies were assigned to each of the three chiefs in the search areas. Carrying forcible entry tools, they were a welcome addition to the hard-pressed members of ladder units. All the search teams had to rely on the use of self-contained-breathing-apparatus as they moved from floor to floor.

The last two missing workers were finally located, almost two hours after the initial alarm had been transmitted. In all, some sixty workers had been trapped between the 5th and 26th floors. All were rescued.

Chief of Department O'Rourke declared the fire under control at 2010 hours.

PROBLEMS ENCOUNTERED

Temporary Certificate of Occupancy for High-Rise Buildings. The afternoon Manhattan Borough conference, and the "Tower 49" fire of the same day established that the present procedures and restrictions for allowing a partial occupancy under a Temporary Certificate of Occupancy should be tightened. There are many high-rise buildings, of thirty to sixty floors, averaging 20,000 square feet per floor, that are under construction in the Borough of Manhattan. (Similar construction is expected in other boroughs in the near future.) The areas of the floors are so huge, and the construction time so long (often four years), that while many floors in these buildings are completed, others remain in the basic stages of construction. To initiate the use of the completed floors, building owners and agents have been requesting temporary certificates of occupancy.

The Building Code is very thorough and complete in establishing high standards of construction, fire protection, and life safety. Occupancy should not be allowed in buildings where many protective systems are incomplete, or where their status may change during construction.

Some of the problems involved with these buildings include:

- The storage and use of combustible gases.
- Wooden construction sheds situated below occupied floors.
- The random use of occupied floors (not grouped together).
- Inadequate record keeping by building personnel. (Status of occupancy not kept up to date.)
- Large open floor areas, with unenclosed openings (i.e., for access stairs*) below occupied areas.
- Stairway doors that are chocked open.
- Rubbish and other materials that are strewn around the exits.
- Inadequate markings of doors and floors, and the lack of exit signs.
- Unprotected floor areas. (Although these buildings will be completely sprinklered, unoccupied floors are only protected in the core areas.)

As a result of this fire, Chief of Department John J. O'Rourke ordered that a task force be established, consisting of members of the Manhattan Borough Command and the Bureau of Fire Prevention. This task force is to meet with personnel from the Department of Buildings to remedy some of the problems. The most immediate goal is to eliminate any delay in notifying the Fire Department of the occupancy, or intent of occupancy, of these buildings.

*For description of access stairs, see *High Rise Office Buildings + Access Stairs = Problems*, W.N.Y.F., 3rd Issue, 1981.

A view of the exterior of the fire floor after the blaze was extinguished. All windows on the 48th Street side of the building were destroyed by the fire. This condition allowed the effective use of an outside heavy calibre stream, which extinguished almost all of the visible fire.

Scissor Stairs. The introduction of scissor stairs, plus the concentration of building utilities, elevators, HVAC* shafts, storage areas, washrooms, and electrical and phone shafts, all within the core area, have given builders increased usable floor area. This condition may be all well and good for the builders, but there is little doubt that it is detrimental from a firefighting point of view. Our concept of a two engine company attack team in buildings with scissor stairs has been found to be ineffective. There is simply not enough room for two 2½" handlines, and the personnel of two engine companies and one ladder company to operate in a scissor type stairwell. Consider also that operating units require relief, which means the two-way movement of members. At this operation, it was necessary to pass injured members over the heads of the operating units in the stairwell, so that they could be brought to the street for medical attention. It should be noted, however, that overcrowding in scissor stairs can be diminished somewhat by maintaining maximum control of units and members.

Another problem with scissor stairs is that in moving up one flight of stairs to the floor above, members will be on the opposite side of the building. Therefore, sending a line to the floor above to stop fire extension (auto exposure or through shafts) becomes difficult, because members must then find access through partitions in order to come back over to the fire area. The use of designated 'evacuation' stairs for additional lines will endanger exiting occupants using that stairwell. It is very probable that the chief in command will have to give priority to evacuation over the fire attack, then make use of both stairs when ensured that evacuation is completed.

Search. Search in a high-rise building can be a very difficult, exhausting, and time-consuming operation. Fire in a lower floor adds to the problem. Smoke will spread rapidly, and require maximum effort by members on arrival. Standard procedures require that first alarm

*Heating, ventilation, and air-conditioning.

A good view of the fire ravaged third floor as seen from the interior, facing the 48th Street side of the building. In addition to the construction materials that fed the fire, many cylinders of compressed gas, both acetylene and propane, had fused their plugs and ignited to further fuel the blaze. Haz-Mat 1 was special-called and operated to isolate these dangerous containers and remove them from the fire area.

ladder units concentrate on the fire floor as the area of greatest danger to occupants. They can make a preliminary search of the floors immediately above, but full search efforts must be undertaken on the fire floor. Ladder units arriving on a 10-76 must immediately be split into as many as three teams, and be Handi-Talkie equipped. Their assignment may cover as many as five to ten floors each, if reports do not pinpoint life hazard at a specific level. A battalion chief (10-76 assignment) must control the search, recording floor numbers, areas, and search results. This preliminary search effort must cover as many floors as possible. Its main purpose is to make a survey, identifying fully evacuated floors, and/or floors with occupants in varying degrees of danger.

Although this area of the fire floor (elevator lobby in the center core) was not directly involved with fire, the heat was so intense on that floor that three sprinkler heads, protecting this corridor, had fused.

At a high-rise fire, it would not be unusual for the Command Post to receive many calls for help from various sources. Calls for assistance could come from the Fire Safety Director; trapped occupants; the dispatcher, relaying calls from trapped occupants; and even from occupants of adjoining buildings, who, from their apartments or offices, are able to see trapped occupants in the fire building. The Command Post Chief must record, evaluate, and transmit that information to the battalion chief in command of the search. All such reports must be recorded by both chiefs (a pencil and pad is a must at high-rise fires).

The chief in command of the search area must evaluate all the reports he receives and, if in his judgment they are needed, call for additional ladder companies. (Engine companies can be used if they are not committed to the fire operation.)

Units that are assigned to one floor may be called upon to search additional floors, or be regrouped to concentrate on one floor. The shifting of units for search purposes is dependent on the quality of the reports that are received. It must be kept in mind, that once the call for additional help is transmitted, it may take as long as twenty minutes for that help to arrive where they are needed, ready for operations.

Calls for additional help from occupants must be evaluated as to the urgency, giving priority to those areas evaluated to be the most life threatening. Again, all reports must be recorded, and all must be investigated. At the early stages of the fire, it is very possible that a thorough search may dominate the operation, depending on the volume and seriousness of the reports received. Be aware of the duplication of reports, and evaluate them accordingly.

At the present time, the Department is in the process of evaluating a magnetic display board that will be carried by the Field Communications Unit. This board will visually indicate areas where search is in progress, areas where search is completed, and floors that have been evacuated. It will also indicate which units are operating on the various floors.

LESSONS REINFORCED

Critical Information Dispatch System (CIDS). The use of CIDS is a must when an alarm is received for a fire in a partially occupied high-rise building that is operating with a temporary certificate of occupancy. Units should record data pertaining to the location of construction sheds and building materials, as well as all information relative to the occupied floors. Knowledge of the status of the sprinkler system is essential. The CIDS will indicate which floors have full sprinkler protection.

Many of these high-rise buildings cover an area of one complete city block, having two separate addresses and entrances on two separate streets. Prior knowledge of this fact is advantageous, allowing for the efficient distribution of responding units. At this operation, only two units responded via East 48th Street. Fortunately, Tower Ladder 21 was one of these units.

Elevators. Heavy water flow at a fire and the continued use of elevators have been found to be most incompatible. Past experience has proven that once water flows into

(Continued on page 18)

ADMINISTRATION AWARDS

Chief of Fire Prev. Joseph M. DeMeo
Administration Medal

Supvr. Fire Marshal Stephen Piersynski
Martin Scott Medal

Captain Salvatore Canale
Lowenstein Award I

Malachy Corrigan & Counseling Ser. Unit
Lowenstein Award II

Act. Deputy Chief Michael Cronin
Geo. F. Mand Award

Mr. Domenick F. Favuzza
Bur. Fire Communications
Thos. P. O'Brien Award

Ms. Linda Kleinbaum
Bur. Fire Prevention
Moe Ginsburg Award

Captan Richard P. Saccomanno
Fire Comm. Award for Outstanding Services

Dep. Ass't. Chief Anthony Fusco
James J. Johnston Memorial Medal

Fire Marshal James McSwigen
Dep. Comm. Godek Award

(Tower 49 continued from page 9.)

elevator shafts, continued operation of those elevators becomes doubtful. At this operation, one bank of elevators failed almost immediately. The other was shut down as a precaution. The decision to shut down elevators is an important one. It will, obviously, affect the ability of units to proceed to upper floors; however, it will prevent the entrapment of members in hazardous locations at, or above, the fire.

Exterior Streams and Inside Operations. Where a decision is made to use an outside stream for fire control, complete coordination between interior and exterior forces is imperative. The use of a heavy calibre tower ladder stream, without adequate interior precautions, will, inevitably, result in serious injuries to interior forces. No matter what the urgency, units must be removed from the floor, or directed to a sheltered area prior to the use of an outside heavy calibre stream. In most instances, the use of an outside stream will be of short duration. Coordination is again required when moving the interior attack forces back in on the fire floor.

Communications. Handi-Talkie communications at this operation were satisfactory. The Command Post received most of the messages that were transmitted. However, during the critique that was conducted after the fire, several chief officers indicated that the use of the repeater esystem and command channels would have separated and concentrated the areas of command. As reports on the searches dominated Handi-Talkie transmissions, a separate channel would have eased documentation of all the search messages, while keeping attack units informed on the operational reports. A heavy use of Handi-Talkies should be anticipated, and command channels should be assigned in the earliest stages of the fire. Past high-rise fires have proven that command channels are required before communications are overwhelmed by the many units that are on the scene.

CONCLUSION

The location of this fire, on the third floor level, presented the opportunity for an outside stream operation. The interior attack had proven too difficult and, had not an exterior operation been mounted, the fire would probably have extended to the upper floors.

Due to a thirty foot lobby height, the maximum effective reach of the tower ladder on the scene was only to the 5th floor of the building. A special-called 100 foot tower ladder would possibly have been able to reach the 8th floor. Above that, the only resource left would have been the use of engine companies that have been provided with the Lorenzo High-Rise Ladder (see Department Order 67, 1985, par. 2.7). Six engine companies in Manhattan and two engine companies in Brooklyn have been equipped with this special device, and have been trained in its use. This device can provide an exterior stream at upper floors, and can be used when all efforts for a successful interior attack have either failed, or have been found to be ineffective.

The extinguishment of this fire, thanks to that ever versatile piece of equipment, the tower ladder, was accomplished with efficiency. A special note of recognition must be extended to the members who operated at this fire. Their efforts, especially in the early stages the blaze, can be credited with preventing many serious injuries and/or fatalities. That often used phrase, "a job well done," certainly applies here. ▲