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FIRE INCIDENT ANALYSIS: 977-981 Jefferson Avenue, Brooklyn, New York
INCIDENT DATE: March 9, 2008

INTRODUCTION:

I am currently the Vice President of the Guardian Investigations Group, Inc. and I am a nationally recognized expert consultant in fire cause and origin, fire protection and fire safety with over twenty-nine years of combined experience in the fire operations and fire investigation field. While assigned to the New York City Fire Department I held the rank of Firefighter, Fire Lieutenant and Fire Marshal. During my tenure as firefighter/fire officer I conducted over 6000 building inspections in all five boroughs of New York City. During my tenure as a New York City Fire Marshal assigned to the FDNY Bureau of Fire Investigation I was assigned or assisted in the investigation of over 1,200 fire incidents and fire related cases. As Vice President of Guardian Investigations I have provided consultation/investigation services for an additional 3,500 fire incidents and fire related cases. I hold numerous certifications and licenses including New York State Level I and Level II Fire Investigator, Certified Fire and Explosion Investigator (National Association of Fire Investigators), New York State Private Investigator and New York State Police Instructor Certification. I have instructed in the field of fire investigation, fire operations and incident management at numerous academic and professional entities to include the NYC Fire Academy Captain's Management Course, the NYC Bureau of Fire Investigation Training Academy, the NYPD Academy (Criminal Investigators Course), College of Southern Nevada, International Association of Arson Investigators, New York University, Suffolk County Community College and Virginia Commonwealth University. From 1992 through 2006 I was an instructor at the FBI National Academy. While assigned to the FDNY Bureau of Fire Investigation I was the subject of the DISCOVERY CHANNEL documentary "ARSON: CLUES IN THE ASHES." In addition, I have written extensively in the field of fire investigation to include the Department of Justice publication "An Introduction to Fatal Fire Investigations for Police Personnel," which is included in the course material at the FBI National Academy.

A complete copy of my curriculum vitae is annexed hereto.

SCOPE: At the request of Thermo-Tek LTD. President Ben Feinsod, the undersigned investigator conducted a post-fire physical examination of the subject premises on May 19, 2008. The purpose of said investigation is identified as the following:

1. To analyze and sequence the dynamics associated with the fire that occurred on March 9, 2009 in 977 Jefferson Avenue.
2. To assess, from a fire investigative perspective, the effectiveness and fire protective qualities of the Thermo-Tek Radiant Barrier Ceramic Coating product which had been applied to the exterior walls and roof of the attached structure located 981 Jefferson Avenue, in preventing fire extension and damage from the associated by-products of the fire to said structure.



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BUILDING DESCRIPTION:

981 Jefferson Avenue is identified by the New York City Building Code as a four story, non-fire proof, Class A, occupancy group J-2, walk-up 30'W X 80'L, tenement type multiple dwelling containing two apartment units on each floor. The subject premises is further identified as a wood frame structure with brick and masonry exterior walls. There is a decorative metal tin alloy cornice affixed to the premises front exterior wall at roof level directly above the top floor window openings. The building roof consists of rolled roofing paper over wood structural members and plywood. Primary access to the roof from the building interior is attained by means of a roof bulkhead. A secondary means of egress from individual apartment units is provided by means of a fire escape attached to the rear exterior wall of the building. A similar four story structure is attached to the west side of the subject premises. An open center light shaft with window openings is located at mid-point between the two buildings.

977 Jefferson Avenue is a similar attached structure. The primary physical difference between the two structures is that there is no cornice above the top floor front windows of 977 Jefferson Avenue.

FDNY BUREAU of FIRE INVESTIGATION (Fire Marshal Investigation Report):

A check with the FDNY Bureau of Fire Investigation disclosed that the fire that occurred in 977 Jefferson Avenue on March 9, 2008 had been investigated by Fire Marshal Russell Ridky and said investigation had been designated BFI Case #30346/08.

Fire Marshal Ridky determined that the fire originated in the public hallway of 977 Jefferson and had fully involved the entire hallway and had extended through the building roof bulkhead upon arrival of the first fire department units. Fire extension into the building apartment units and cockloft areas had already been initiated by the time the first fire department units arrived at the scene.

The fire was of such severity that the structural integrity 977 Jefferson Avenue was compromised which precluded a further investigation of the fire by Fire Marshal Ridky.

Fire Marshal Ridky did determine that this fire was caused by an deliberate intentional act by person/ persons unknown. He therefore classified the cause of this fire as "Incendiary" and filed a criminal complaint #01905 at the 81st Police Precinct listing the crime of second degree arson thereon.



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INCIDENT RECONSTRUCTION:

At the time of my May 19, 2008 scene examination I observed that no post-fire repairs had been made to the fire damaged areas of 977 Jefferson Avenue, therefore said building remained essentially as it existed immediately after the fire had been extinguished.

My fire burn and vector pattern analysis confirmed a vertical extension of the fire up the interior public hallway stairs to the top floor and roof bulkhead of the building. At this point the closed roof bulkhead door and building top floor ceiling formed a confining vessel that concentrated the superheated gases generated by the fire at the top floor/bulkhead level of the structure. A flashover then occurred causing the failure of the top floor apartment doors and roof bulkhead door. The fire extended into the top floor apartments located on the east and west sides of the building. The fire fully involved the front (south) half of each apartment. The intense fire now burned through the hallway ceiling and the ceiling areas in the front half of top floor apartment and extended therefrom into the building cockloft. The fire caused a thermal shock failure of the four top floor windows and fire, heat and smoke vented through the top floor window openings directly impinging on the exterior wall brick/masonry surfaces adjacent to said windows. Fire vented through the shaft windows in the front half of the third and fourth floor right (east) apartments. The fire also fully involved the building roof bulkhead. A column of flames twenty to thirty feet in height now extended through the bulkhead door opening.

Be advised that my incident sequencing confirmed that all of the above described fire conditions occurred before the first fire department units arrived at the scene.

Shortly after the arrival of the first fire department units, the fire in the building cockloft completely burned through the front/center section of the building roof causing the roof bulkhead to collapse into the building top floor. In order to confine the fire to the front (south) half of the building top floor and cockloft firefighters used multiple power saws to cut exploratory openings in the rear half of the building roof whereupon they operated hoselines into said openings. Firefighters coordinated the operation of hand-held hoselines with the operation of heavy caliber tower ladder streams directed through the building front third and fourth floor window openings, which ultimately resulted in the extinguishment of the fire.

The fire caused complete destruction of the building apartment areas in the front (south) half of the premises third and fourth floors as well as a collapse and destruction of the premises roof and bulkhead in the front/center section of the roof. All wood structural members supporting the roof in the front half of the building were destroyed or heavily damaged by fire. Plywood roof underlayment sections in the front half of the building that survived the fire were observed to be heavily charred. Virtually all the rolled roofing paper, that covered the plywood roof underlayment in the front section of the roof were either heavily damaged or destroyed by fire. Flashing and aluminum roofing cement that had been applied to the sides of the building parapet wall and dividing wall were either heavily damaged or consumed by fire. When viewed by the undersigned during my May 19, 2008 scene exam, the entire front section of the roof was observed to be structurally unstable and in danger of immediate collapse.



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ANALYSIS:

I concur with the determination of Fire Marshal Ridky that the fire that occurred in 977 Jefferson Avenue on March 9, 2008 was the result of a deliberate intentional act.

The full involvement of the relatively non-combustible public hallway and the rapid extension of the fire through the roof bulkhead prior to the arrival of the first fire department units it is my opinion that this fire was caused by the introduction and ignition of a flammable liquid accelerant in the building public hallway.

My investigation disclosed that on the date of this fire the exterior walls, cornice and roof of the adjoining structure at 981 Jefferson Avenue had been coated with a protective layer of Thermo-Tek Radiant Barrier Protective Ceramic Coating.

As indicated heretofore in this report, the fire in 977 Jefferson Avenue resulted in a complete destruction of the front half of the premises third and fourth floor apartments; a burn-through of the front half of the premise roof; and caused the total destruction and collapse the building roof bulkhead. I estimate that at specific points within the top floor and cockloft areas of 977 Jefferson Avenue temperatures reached the upper temperature range of 1900F to 2000F for residential type fires. Be advised that the rapid extension and heat generated by the fire was further intensified by the introduction and ignition of flammable liquid accelerant. My burn pattern analysis confirmed a primary west to east fire vector from 977 Jefferson Avenue towards 981 Jefferson Avenue. It is my opinion that the fire column that vented through the roof bulkhead door of 977 Jefferson Avenue was easily capable of directly impinging on and igniting the adjoining roof surfaces and bulkhead of 981 Jefferson Avenue. Radiant heat generated by said fire column and by the fire extending through the roof of 977 Jefferson Avenue reached temperatures sufficient to ignite any unprotected roof area of 981 Jefferson Avenue. Under the conditions described above, extension to the 981 Jefferson roof and/or bulkhead was a virtual certainty. However, my scene examination confirmed that the roof and bulkhead of 981 Jefferson Avenue exhibited absolutely no evidence of the expected fire or radiant heat damage. In my estimation, this condition can only be attributed to the application of a protective layer of the Thermo-Tek product.

My scene examination disclosed a clear area of demarcation between the heavily burned roof area of 977 Jefferson Avenue and the adjoining roof areas of 981 Jefferson Avenue that had been coated with a layer the Thermo-Tek product. I observed that areas of the 981 Jefferson Avenue roof directly abutting the heavily burned areas of the 977 Jefferson Avenue roof that were located in the direct path of the venting flames and radiant heat vector not only showed no signs of heat induced damage but failed to show even the slightest any evidence of discoloration or smoke staining. I also observed that although the metal alloy frame, wires and plastic fittings of the television antenna affixed to the west wall of the 981 Jefferson Avenue roof bulkhead exhibited evidence of discoloration and melting due to extreme heat exposure, the Thermo-Tek protected walls of said bulkhead were completely devoid of any heat induced damage, discoloration or smoke staining.



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ANALYSIS:

There was no heat induced damage or discoloration to areas of the subject premises light shaft walls that were protected by the Thermo-Tek product in close proximity to the heat and flames that vented from the third and fourth floor shaft windows of 977 Jefferson Avenue.

Be advised that a fire of the type that occurred in 977 Jefferson Avenue which resulted in an a burn-through of the premises roof and collapse of the roof bulkhead would have generated a high volume of brands and hot ash, a substantial amount of which would have fallen directly onto the roof and bulkhead of 981 Jefferson Avenue. Falling brands and ash are a common source of secondary fires which often result in the ignition of adjacent structures. I found no evidence of any secondary fire ignition caused by falling ash and/or brands on the roof of 981 Jefferson Avenue that had been protected by the Thermo-Tek product.

Perhaps the most illustrative example of the protective qualities of the Thermo-Tek Ceramic Coating is exemplified by the condition of the decorative metal cornice located at roof level above the top floor windows of 981 Jefferson Avenue. This thin gauge, tin alloy cornice was protected by a layer of the Thermo-Tek product on the date of this fire. Although the cornice was located in the direct path of the heat and smoke venting from the top floor windows the surface of the cornice exhibited no sign of heat induced metal deformation and remained completely undamaged by fire.

During my scene examination I failed to find any evidence of heat induced separation or blistering involving the Thermo-Tek product even in those areas that were exposed to either direct flame impingement or were in close proximity to radiant heat generated by the fire.

I also noted with interest during my scene exam that the areas of the 981 Jefferson Avenue roof, roof bulkhead, shaft walls and cornice that were exposed to directly to smoke generate by the fire were curiously devoid of smoke staining normally associated with such exposure. The absence of smoke staining would appear to indicate that smoke and other by-products of the fire do not readily adhere to the surface of the Thermo-Tek product.

CONCLUSION:

Based upon my incident reconstruction and analysis it is my opinion that the Thermo-Tek Barrier Protective Ceramic Coating product that was applied to the roof, bulkhead and exterior walls of 981 Jefferson Avenue formed an extremely effective protective fire barrier. It is also my opinion that, under the previously described circumstances of this fire, had the Thermo-Tek Barrier Protective Ceramic Coating product not been applied to the roof, bulkhead and exterior walls of 981 Jefferson Avenue fire, said structure would have sustained significant fire, heat and smoke damage that would have been sufficient enough to render the building both uninhabitable and structurally unstable.

Signed: _____