



**OKLAHOMA CITY FIRE DEPARTMENT  
FIRE PREVENTION SERVICES  
FIRE INVESTIGATION UNIT**

**2300 General Pershing Blvd.  
Oklahoma City, OK 73107  
405-297-3321**

**ORIGIN AND CAUSE REPORT WRITTEN BY FIRE INVESTIGATOR J. HOFFMAN:**

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**Date Written: June 23, 2022**

**OKC Police RMS Number: N/A**

**OKC Fire Suppression Incident Number (ERS#): 2022-10149**

**Incident Date:** February 8, 2022

**Incident Address:** 6161 N Western Ave.  
Oklahoma City, OK 73118

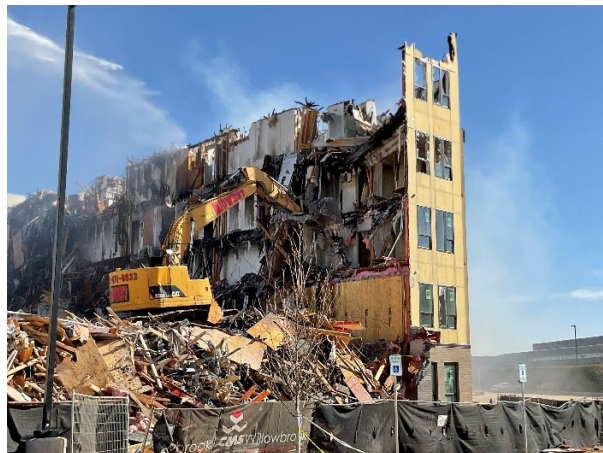
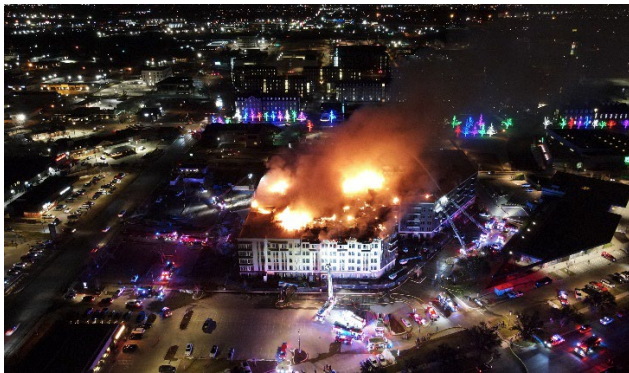


6161 N Western Ave., Oklahoma City, OK (Pre-Fire Photo)

## SUMMARY OF EVENT:

On February 8, 2022, at 1833 hours, Oklahoma City Fire Department (OKCFD) Fire Dispatch Communications were notified of this fire via a 911 call from phone number [REDACTED]. The Oklahoma City Fire Department responded to a commercial fire at 6161 N Western Avenue. This address located in the corporate city limits of the City of Oklahoma City, in Oklahoma County, in the State of Oklahoma.

Oklahoma City Fire Investigators Major Chris Hoffman, Major Chad Adams, and Major William Hunt responded and was briefed by the Incident Commander, (602-A) Battalion Chief Kyle Durham. Initial exterior photographs were taken by the fire investigators at approximately 2000 hours. Fire investigators were not able to look at the interior of the structure as OKCFD Operations encountered a rapidly growing fire in inaccessible areas. The incident commander rendered the structure as not tenable and unsafe to enter. On February 9, 2022, Fire investigators Major Ronnie Barbee & Major Mark Davis arrived on scene. They contacted Special Agent Chad Oubre with the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) to ascertain if the ATF National Response Team (NRT) could be utilized for the origin and cause determination. Special Agent Oubre called for the NRT. Shortly after, the incident commander ordered the construction company (CMS Willowbrook) to demolish the structure. This decision caused the cancellation of the NRT. No deaths or serious injuries were reported as a result of this fire.



## **LEGAL PRESENCE AND SCENE SECURITY:**

This fire scene was located in the corporate city limits of Oklahoma City, in Oklahoma County, in the State of Oklahoma. The Oklahoma City Fire Department maintained the fire scene until OKCFD Fire Investigators arrived.

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### Oklahoma City Municipal Code:

#### **§ 20-3. - General powers of Fire Chief.**

*The Fire Chief shall have general supervision over all property and employees of the Fire Department and shall see that each employee does his/her duty. The Fire Chief shall designate which position and what employment each employee shall take in the department. The Fire Chief shall have the power to suspend any employee of the department, subject to the approval of the City Manager.*

#### **§ 12-21. - Adoption of the International Fire Code 2015, as amended.**

##### IFC 2015, 104.10:

*The fire code official, the fire department or other responsible authority shall have the authority to investigate the cause, origin and circumstances of any fire, explosion, or other hazardous condition.*

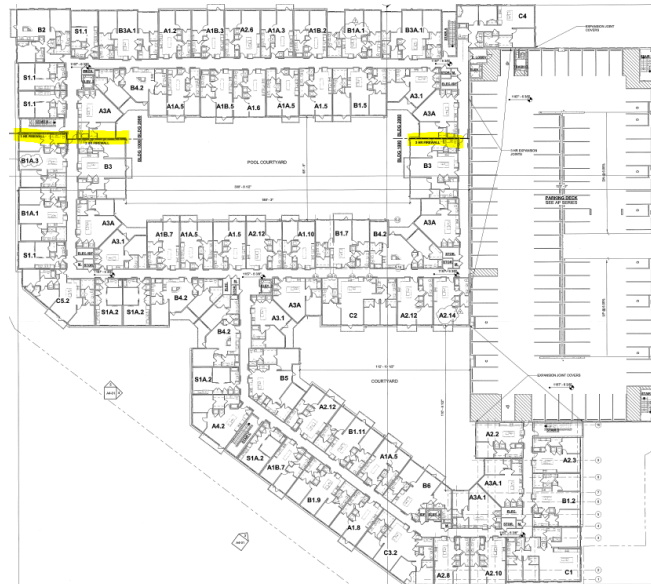
#### **§ 20-41. - Generally.**

*Investigator and Inspector functions.* Members of the Fire Department may be required to carry out investigation and inspection functions to accomplish the duties imposed by this article. Those investigators and inspectors, as designated by the Fire Chief, are authorized to enforce the provisions of this article. Subject to the requirements of this section and any and all requirements and regulations which shall be given at the Fire chief's discretion, the fire investigators and inspectors shall be deemed peace officers and have and exercise all the powers and authority of other peace officers, relative only to the following: 1) the investigation of fire; 2) the inspection of buildings only for the purpose of fire prevention and fire protection; and 3) the enforcement of State statutes and municipal ordinances only for the purposes of fire prevention and fire protection.

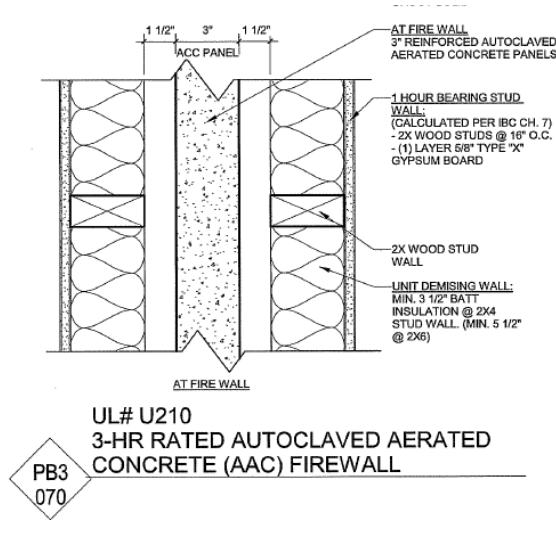
## **BUILDING CONSTRUCTION:**

This was a five story, wood frame structure with a solid slab foundation which was still under construction. The intended use for this structure was an apartment complex (The Residences at Classen Curve). This structure had a flat roof with a 60 mm thermoplastic polyolefin (TPO) covering surrounded by a parapet wall. The TPO sat on top of four inches of thermal board. The exterior had a mixture of brick veneer and Stucco. The structure also had a five-story parking garage of type 1 construction. The

structure had 374,507 square feet in all of the buildings, and the parking garage was 176,896 additional square feet. The building plans indicated a fire wall on the west and east portions of the structure.



Highlighted Areas with 3-Hour Fire Walls



3 Hour Firewall Construction Details from the building plans

## FIRE PROTECTION SYSTEMS:

This construction of this building was incomplete as of the date of the fire. The structure had no final inspection but was current with the International Fire Code 2015 having one dry standpipe with a temporary or permanent fire department connection. This information was confirmed with the OKCFD Assistant Fire Marshal in charge of Fire Code Compliance. It was discovered in interviews with CMS Willowbrook

personnel, the valves were all opened on the standpipe. This was done due to freezing weather prior to the fire.

**WEATHER CONDITIONS:** (from WeatherUnderground.com for 02/08/2021 at 1752 hours:

Temperature	Humidity	Wind	Condition
63F or 17.2C	26%	17 MPH out of the Southwest	Fair Skies

**FIRE SUPPRESSION ACTIVITIES:**

The Oklahoma City Fire Department was dispatched to this call for fire suppression. An interview with fire suppression personnel (Lieutenant Johnathan Akright) advised some of the firefighters received an electric shock when touching metal inside the structure on February 8, 2022. OKCFD Fire Operations were on scene several days applying water while the building was being demolished. For more information see Oklahoma City ERS Report # 2022-10149.

**OKCFD FIRE INVESTIGATION ACTIVITIES:**

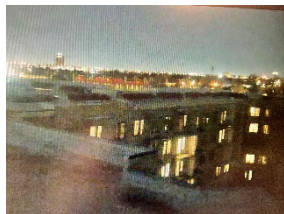
OKCFD Fire Investigators who arrived on scene observed and photographed the exterior of the structure. Fire investigators did not have the opportunity to observe the interior due to safety concerns and suppression activities. This investigation involved several visits to the site for photographs, meetings, interviews, viewing news footage, and retrieval of video surveillance footage from multiple locations. This fire investigation was kept open and classified "UNDER INVESTIGATION" to obtain all available data to analyze.

**FIRE DYNAMICS:**

Determining the fire dynamics involved in this fire was hampered by the inability to examine the interior. I used news footage, video surveillance footage, witness observations, and photographs (during fire suppression activities and during demolition) to best accomplish this task.

The fire was called in via 911 by [REDACTED] at 1833 hours. She indicated she had seen smoke coming from a fifth store window near the center of the west side of the building. Fire first burned through the roof on the southwest area of the structure at approximately 1835 hours.

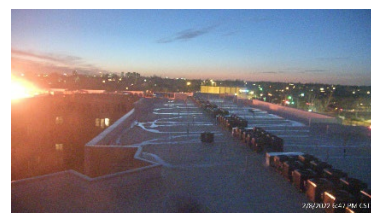
A comparison of footage the night before the fire and prior to the fire assisted in evaluating smoke and fire effects through windows.



Night before



Day of at 6:46 PM



Day of at 6:47 PM



Picture from video from the Washington Prime Group

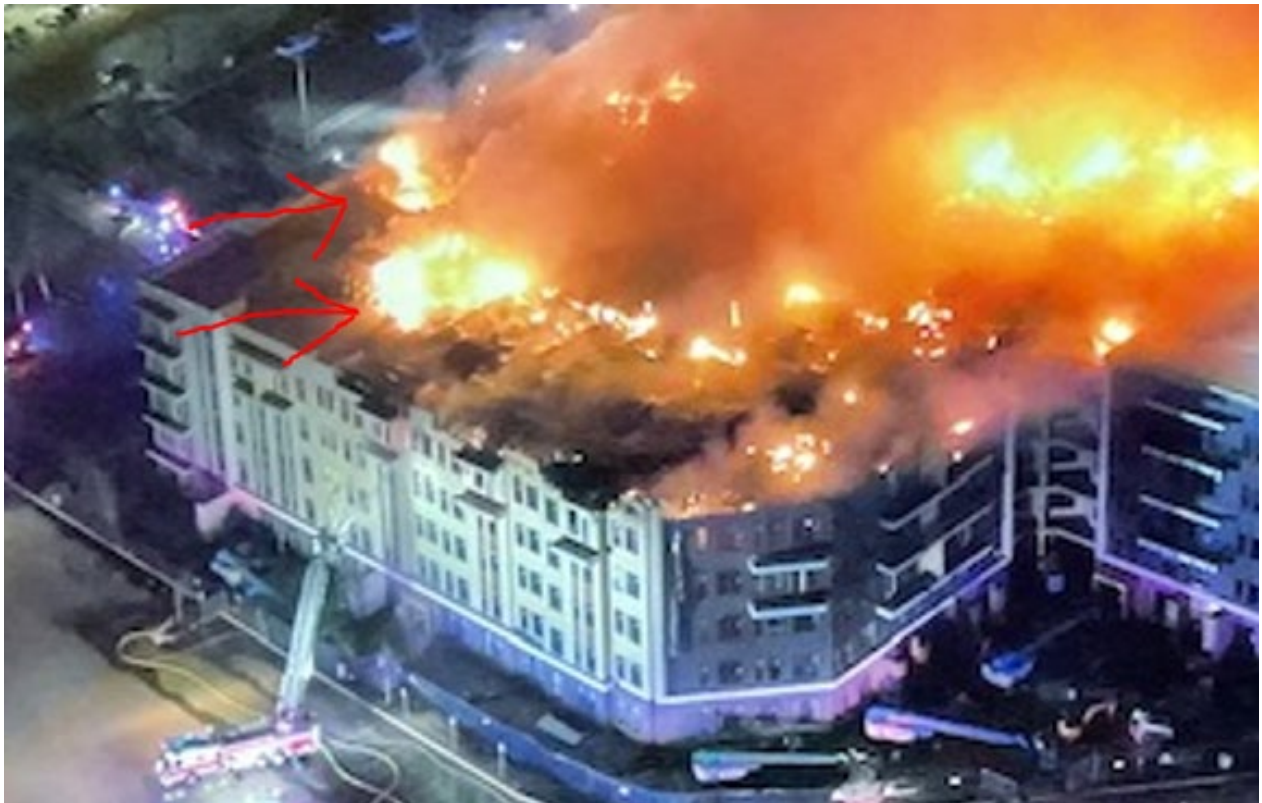
The fire on the roof quickly spread to the east (as the wind was blowing in that direction).





Pictures from video provided by CMS Willowbrook. The camera is located on the north side of the parking garage and is facing southwest.

The fire broke through the roof at two other locations, near the northwest area of the building on the other side of the firewall.



Pictures taken with city issued iphone from helicopter news footage.

I was on scene several times while the building was being demolished to take photographs and look at debris. When the excavator was demolishing the southwest area, I observed the twenty-four-inch interstitial space between floors 3 and 4 had

extensive charring, but the rooms above & below the interstitial space had not caught on fire. I also retrieved a electric sub-panel with the conductors & conduit which had run down beneath the floor. The flooring the conduit and conductors had run into was also retrieved. The flooring was not burned on the top but was heavily charred on the bottom. The sub panel was damaged from the demolition but had no signs of flame impingement or soot deposits. The conduit had also melted away along with the insulation sleeve from the conductors inside the interstitial space. I also observed burning in the interstitial space between the fourth and fifth floor. (See the following four pictures).



Photo taken with city issued iPhone. Picture of southwest area facing southeast.





4<sup>th</sup> floor sub-panel and a piece of flooring



Top of flooring from 4<sup>th</sup> floor electrical room; southwest area of building



Bottom of flooring from 4<sup>th</sup> floor electrical room; southwest area of building

The initial reports from OKCFD Operations assigned to the interior investigation crews advised fifth floor smoke conditions to be light smoke from the west stairwell and light to medium smoke from the south stairwell. The south stairwell team reported fire in the forty-eight-inch interstitial space above the fifth floor.

In my experience this data indicates multiple areas of origin with no path for communication (fire spread).

**OWNER INFORMATION:**



444 W. Lake St. Ste. 2400  
Chicago, IL 60606



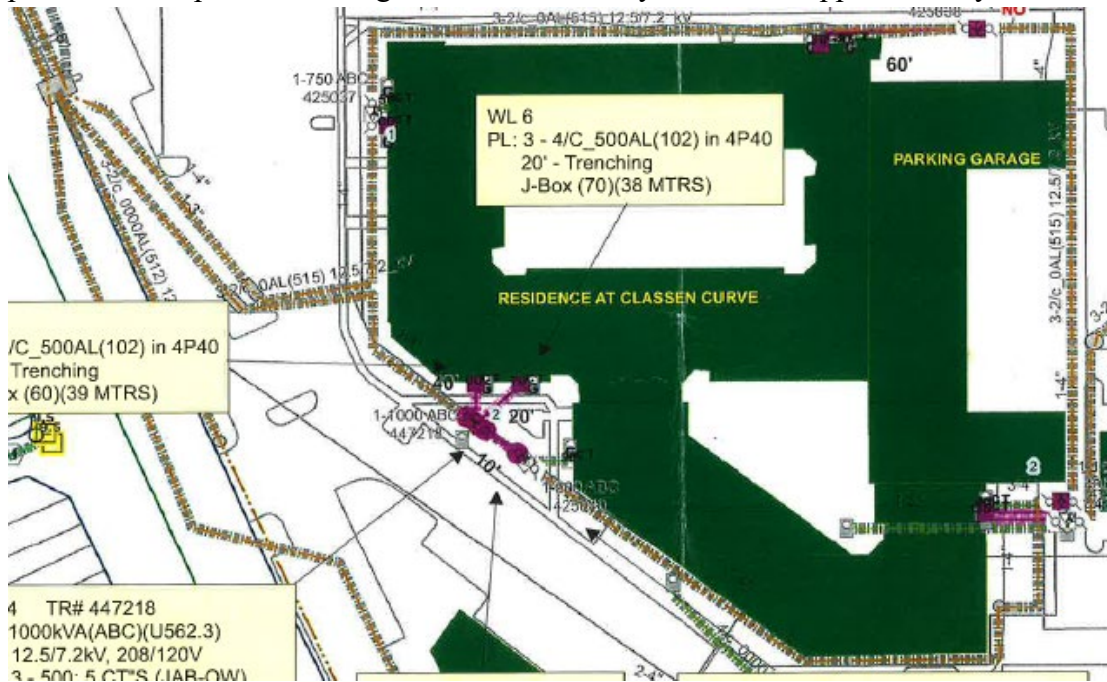
**OCCUPANT INFORMATION:**

This structure was still under construction and did not have any occupants.

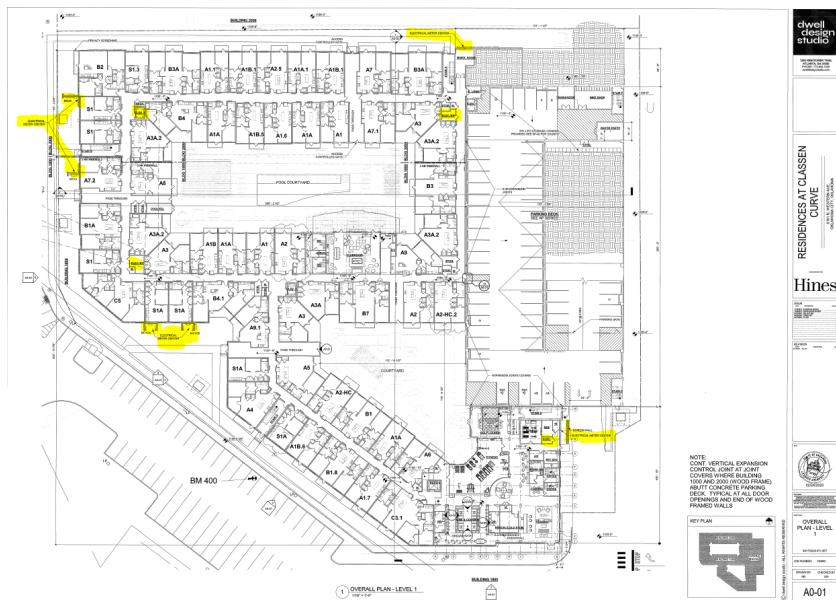
**UTILITIES:**

Electric:

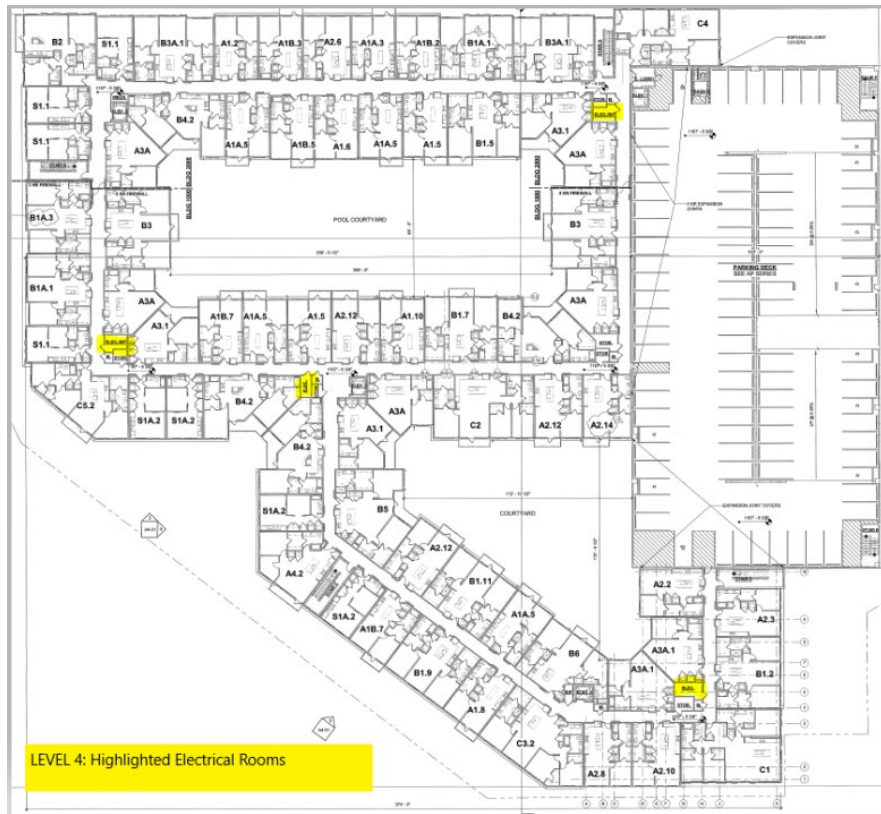
The structure was supplied by three-phase electrical service having five pad mounted electric transformers and six service laterals to six disconnect boxes/meter bases. The five transformers were connected in series (Figure 1). An interview with the manager of Red Dirt Construction's manager, [REDACTED] (sub-contractor for OG&E), advised his company did work on the transformer on the west side of the building and turned the power on to it prior to leaving the site on February 8, 2022, at approximately 1600 hours.



(Figure 1) Diagram showing all of the five transformers were connected in series.



(Figure 2) LEVEL 1: Highlighted Electrical Meter Centers and Electrical Rooms



(Figure 3) Level 4: Highlighted Electrical Rooms

Natural Gas: The structure did not have natural gas utilities.

**COLLECTION OF DATA AND INFORMATION:**

A systematic approach was used in the scene investigation. The on-scene examination conducted comparison examinations of areas of less damage to areas of greater damage with emphasis on recognition, identification, and analysis of fire patterns. Additionally, investigators interviewed witnesses, obtained video surveillance footage, photographed the scene, analyzed fire debris, and viewed a test of the electrical system for the purpose of determining the area(s) of origin and fire cause.

**EXTERIOR EXAMINATION:**

Fire burned through the roof on the southwest area of the building and spread eastward. Fire then burned through the roof on the northwest area of the building, across a firewall. This was seen on video footage. Video footage (from CMS Willowbrook) from a camera which was on the north side of the parking garage shows light white smoke visible on the northwest area of the roof at 1847 hours (The video footage is one hour ahead; actual time is 1747 hours). This time is forty-six minutes prior to the 911 call.

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› Video.Photo from construction company › 2-8-2022 Fire Video › Trulook Camera

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Location of video in FD-400 Electronic File



White smoke seen coming from this area at 17:47 hours

#### **INTERIOR EXAMINATION:**

The interior of the structure was not examined due to safety concerns and the demolition of the structure.

#### **INTERVIEWS:**

Several interviews were obtained throughout the course of the investigation. All interviews were recorded on an audio file. The relevant data from the interviews has been articulated into this written report.

#### **AREA(s) OF ORIGIN:**

The structure had two areas of origin which were separated by a firewall. This was determined with video footage observed at the roof level before & during the fire, photographs taken during demolition, and witness accounts.

#### **MATERIAL FIRST IGNITED:**

The first material ignited could not be ascertained due to not having access to the interior of the structure. The structure was under construction at the time of the fire. Considered materials which could have first ignited: Saw dust, wire insulation, & wood.

#### ***NFPA 921, Edition 2022:***

##### ***19.1.3 Ignition Source.***

*The ignition source will be at or near the point of origin at the time of ignition, although in some circumstances, such as the ignition of flammable vapors or in circumstances involving remote ignition, such as from convection or radiation, the two may not appear to coincide. Sometimes the source of ignition will remain at the point of origin in recognizable form, whereas other times the ignition source may be altered, destroyed, consumed, moved, or removed. Nevertheless, the ignition source should be identified in order to determine the fire cause. However, in instances involving remote ignition, there will be no physical evidence of an ignition source at a hypothetical origin (see 5.9.2.2).*

*In instances such as these, the source of ignition and ignition sequence can be hypothesized based on other data.(np\_0ca355d2-4cd4-11ea-b5e5-176131c58cf4.html#ID009210000517)*

**HYPOTHESES CONSIDERED AND RULED OUT:** Examinations were conducted to identify and consider all potential ignition sources within the area(s) of origin. The following details only the hypothetical ignition source(s) deemed most reasonably worthy of consideration, given the available data and information associated with the incident under investigation.

1. Fire occurred by human intervention utilizing an open flame device - This was considered due to multiple areas of origin which were separated by a “firewall”. I interviewed multiple people who were at the site. None observed anyone inside or outside the structure who did not belong there. I also reviewed several hours of surveillance video of the outside of the structure. I did not observe anything which would deem out of the ordinary or suspicious. Therefore, this ignition scenario was ruled out.
2. An exothermic reaction from paint thinner. – Prior to the fire workers were painting on the fifth floor within twenty-five yards of where the fire first burned through the roof. I interviewed all of the painters and have concluded all the paint used was water based. Therefore, this ignition scenario was ruled out.

**HYPOTHESES CONSIDERED AND UNABLE TO BE RULED OUT:**

1. The fire occurred as a result of an electrically energized neutral (energized neutral) within the structure - An energized neutral was considered due to multiple areas of origin which were separated by a firewall. An energized neutral has been shown to cause fires. In normal building construction electrical power is supplied to the structure via the energized (hot) conductors and returned to ground via the “neutral” conductors.

An energized neutral happens when the neutral conductor is connected to the hot side. The neutral was a continuous run with no means of disconnect. When a neutral conductor is energized, the current flow will bypass any over-current protection devices present within the system and energize any conductive material attached to the ground system throughout the structure. A fire can occur due to a high resistant connection through these unintended electrical pathways.<sup>1</sup>

To test this hypothesis, on June 14, 2022, this investigator participated in an examination of a transformer which supplied electrical power to the structure. This

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<sup>1</sup> Stern, M. C., O’Hern, S. C., Morse, T. L., Bishop, J., & Kytömaa, H. (2017). Fire risks due to unintentionally energized metal structures. *Journal of Fire Sciences*, 35(5), 415–426. <https://doi.org/10.1177/0734904117702670>

examination was conducted by representatives from CMS Willowbrook, and OG&E. During this test engineers determined that an energized neutral was present in two separate meter bases. These separate meter bases had conductors ran to the areas of origin (on both sides of the firewall). Therefore, this ignition scenario could not be ruled out.

### **NFPA 921, Edition 2022:**

#### **19.1.1 Fire Cause Factors.**

The determination of the fire cause requires the identification of those factors that were necessary for the fire to have occurred. Those factors include the presence of a competent ignition source, the type and form of the first fuel ignited, and the circumstances, such as failures or human actions, that allowed the factors to come together and start the fire. Device or appliance failures can involve, for example, a high-temperature thermostat that fails to operate. The device may have failed due to a design defect. Human contributions to a fire can include a failure to monitor a cooking pot on the stove, failure to connect electrical wiring tightly resulting in a high-resistance connection, or intentional acts. For example, consider a fire that starts when a blanket is ignited by an incandescent lamp in a closet. The various factors include having a lamp hanging down too close to the shelf, putting combustibles too close to the lamp, and leaving the lamp on while not using the closet. The absence of any one of those factors would have prevented the fire. The function of the investigator is to identify those factors that contribute to the fire.

#### **CONCLUSION:**

Based on the information gathered from processing the fire scene the cause of this fire is classified as **ACCIDENTAL**. The data contained in this investigation summary is true and accurate based on information available at the time it was written. Findings, opinions, and conclusion may change if additional information is discovered after this report was written. If new information is discovered during the course of investigation, then alternate conclusions should be considered.

**END OF REPORT; JIH**