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GLENWOOD MIDDLE SCHOOL FIRE RESTORATION (report)

January 20, 2016

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Prepared for: Howard County Public School System

1.0 Executive Summary

On January 5, 2016, an electrical fire occurred at Glenwood Middle School (GMS) and smoke spread through a portion of the building. No classrooms were affected. Smoke damage was limited to the Boiler Room, Custodial Office, Kitchen, Cafeteria, Gym, Boys' Locker room, Main Office (back hall, rest room and work room only) and the corridors adjacent to the cafeteria. The fire generated contaminants typical for most home and building fires. Elimination of combustion residues was completed following procedures consistent with Restoration Industry Association guidance. Building Dynamics, LLC cleared GMS for re-occupancy based on surface streak testing per ASTM Standard D6602 and elimination of soot odor. As part of this report, next steps are included.

2.0 Introduction

At approximately 11:20AM on January 5, 2016, an electrical fire occurred at Glenwood Middle School (GMS) and smoke spread through a portion of the building. Students and staff were immediately evacuated and the fire extinguished. Classes were relocated pending restoration of smoke damage and power. HCPSS had a restoration contractor onsite within a few hours to initiate assessment, containment, disposal of damaged materials and cleaning.

HCPSS brought Building Dynamics, LLC onsite the afternoon of the fire. BDL was tasked with:

1. Identify areas contaminated by fire residue (soot, ash, char)
2. Recommend remedial procedures.
3. Recommend containment measures to isolate affected areas from the rest of the building.
4. Evaluate impact on HVAC systems.
5. Periodically inspect building to ensure safety of visitors to non-affected areas and confirm cleanup and containment procedures are followed.
6. At completion of work, re-assess the building and clear areas for re-occupancy when they are fully restored and there is no exposure to fire residue.

Primary objectives of smoke damage restoration are to eliminate surface residues of combustion products (i.e., soot) and smoke odor. There are no governmental standards health criteria for smoke damage restoration. Guidance is provided by, RIA Guidelines for Fire and Smoke Damage Repair (Restoration Industry Association, 2007). A procedure for clearance testing (surface streak testing) is included in ASTM Standard D6602.

3.0 Smoke Damage

Assessment of damage was performed consistent with RIA Guidelines. Fire residue was identified by surface wipe testing per ASTM Standard D6602. Eye witnesses were interviewed as to where smoke was observed. Potential pathways for smoke distribution were identified based on building construction and HVAC designs. Areas with detectable smoke odor were also identified.

Based on this assessment, smoke damage was limited to:

- Boiler room
- Custodial office
- Kitchen
- Cafeteria
- Gym
- Boys' locker room
- Main Office back hall, rest room work room
- Corridors adjacent to cafeteria

No classrooms were affected.

The fire generated contaminants typical for most home and building structure fires. Structure fires produce a variety of chemical products and particles. Materials burned included plastic components of the electrical system. Chemicals from burned plastic generally adhere to combustion particles. Building Dynamics Incorporated reported that no hazardous materials (i.e., asbestos, PCB's) were present in affected areas.

Regarding inquiries about asbestos or mold, Building Dynamics determined that neither substance was detected in Glenwood MS. There are no known asbestos containing materials located in the electrical room where the switchgear fire occurred.

4.0 Remediation

HCPSS retained several restoration contractors to do the following in impacted areas

- Dispose heavily smoke-damaged materials and non-cleanable furnishings
- Vacuum with high efficiency filters (HEPA-vac) and wipe down surfaces with smoke residue
- After cleaning, seal porous surfaces (i.e., drywall under decking and insulation on chilled water pipes)
- Fog areas where surfaces might retain smoke residues (i.e., boiler room, crawl space)
- Clean ducts and clean/seal air units
- Launder affected clothing and furnishings
- Shampoo/Extract carpets
- HEPA-vac and wipe down affected furniture and other materials
- Clean kitchen and electrical equipment
- De-odorize above ceilings in rooms adjacent to affected areas

Contractors erected barriers and isolated work areas in negatively pressurized containments. Air scrubbers and deodorizers were operated in these areas during remediation.

Standard products commonly used in smoke damage restoration were used by HCPSS contractors. These included cleaning solutions and surface treatments. In most cases, these products do not leave a residue after cleanup. A paint used to seal cleaned surfaces left acrylic paint dust above some ceilings. This is isolated from occupied space and will be re-sealed next summer.

HCPSS personnel did the following:

- Cleaning of electrical, plumbing and HVAC controls
- Reconstruction
- Custodial cleaning of non-affected areas and final cleaning of impact areas

Custodial cleaning of non-affected areas and re-construction by Building Services personnel used products approved through the Office Safety and Risk Management and are Green Seal 42 certified.

After classrooms had been cleaned and isolated from affected areas, parents and staff were allowed to retrieve materials on January 6 and 7.

The air unit serving the kitchen was heavily damaged and could not be completely cleaned. This was locked off and sealed up to prevent building contamination, and Kitchen air diffusers were left sealed with plastic. The kitchen can continue to operate with supplemental heating and cooling units and the damaged air unit will be removed during next summer's HVAC renovation.

5.0 Clearance for Re-Occupancy

After contractors completed the cleaning of each area, BDL conducted a detailed inspection to determine if all combustion residue had been eliminated. This included a streak test as specified by ASTM Standard D6602. Following this procedure, surfaces are wiped and the absence of dark stains on the media is considered negative for the presence of combustion residue. In several cases, BDL would not accept an area until it was re-cleaned by the contractor. A similar process was used to check cleaning of ducts and air units. After it was noted that one of the sealers used by contractors left a residue of acrylic paint dust, BDL would not clear areas until surfaces were free of white dust.

At the completion of cleanup, BDL based approval for re-occupancy on two detailed odor evaluations. During the first walkthrough, all HVAC systems were operating and air discharging from diffusers in each zone were evaluated for soot odor. During the second walkthrough, all ventilation systems were off. Without dilution, any odors emanating from the structure are concentrated, and thus easier to detect. The latter survey was conducted below and above ceilings in all building areas. No soot-type odor was detected in either survey.

BDL will also re-evaluate cleaned contents as they are returned to GMS (i.e., check the cleanliness and odor of laundered items).

6.0 Mold Update

Mold growth in GMS was eliminated in 2015 (see Building Dynamics, December 01, 2015 report). The electrical fire was outside the school and the only water released inside GMS was from a sprinkler head in the electric room (porous materials were not wet). BDL investigated parent concerns that smoke restoration work uncovered additional mold growth and found that this was not the case. The gym ceiling was cleaned for soot and no mold growth was present.

7.0 Next Steps

HCPSS Facilities Department will work collaboratively with BGE to conduct an analysis of each facility's electric usage and ensure the BGE's electric service is appropriate for the demand of each location.

Equipment Purchased

The Howard County Public School System is attempting to recover all losses incurred by the fire. Although a list of equipment is being finalized, lists of materials were purchased as part of the restoration in order for the building to fully function as a school. According to the fire department incident report, a 13,000-volt underground BGE electrical feed was the source of fire in the switchgear inside the school's electrical vault. BGE's underground wire, where the fire began, and the switchgear, where BGE's wires enter the building, have been replaced.

- Kitchen manager desk, file cabinet and chair
- Ice maker
- Walk-in freezer
- Switch gear
- Electrical room lights
- Ceiling tile replaced in kitchen, cafeteria, custodial office, halls
- Walk off mat at boiler room
- Stage curtains cleaned
- Duct Bank
- Incoming Power Cables from Transformer
- BGE Set New Larger Transformer
- New Power Cable to Sprinkler/Fire Pump/Underground Vault
- Fire Alarm System; Duct Detectors (several), smoke Detectors (several)
- Security System: New Key Pad & Three Motion Detectors
- Sprinkler Heads; 15 in Mechanical room
- New Phone Lines/Service From Street Into Building
- Filters for all HVAC Systems throughout Building (Over 150 Filters)
- Pneumatic Air Dryer

ELECTRICAL INSPECTIONS
Dept. of Inspections, Licenses & Permits
Howard County

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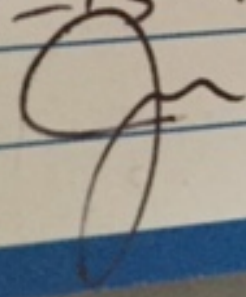
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APPROVAL FOR

BGR only

Date 1-15-16

Inspector 

IE-11-291

HOWARD COUNTY
DEPARTMENT OF INSPECTIONS, LICENSES & PERMITS
INSPECTIONS & ENFORCEMENT DIVISION

INSPECTED

Remarks: GAS TEST OK.
GLENWOOD MIDDLE SCH.

Date: 1/8/16. Nick Saucedo
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