

# Industrial Hygiene Case Study: Waste Management and Occupational Health Oversight for Apartment and Condominium Renovations

**Client:** Whiting-Turner Contracting Company

**Industrial Hygiene Services Provided by:** KES

**Project Locations:** Washington, D.C., Virginia, North Carolina, Georgia, Pennsylvania, Maryland

**Project Type:** Renovation of Apartments and Condominiums

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## Project Overview

KES was contracted by Whiting-Turner Contracting Company to provide waste management and occupational health oversight for a large-scale renovation project that spanned multiple states, including Washington, D.C., Virginia, North Carolina, Georgia, Pennsylvania, and Maryland. The project involved the renovation of multiple apartment complexes and condominiums, which included the removal of hazardous materials, site deconstruction, and the implementation of comprehensive safety protocols. KES played a critical role in ensuring that workers and the environment were protected from potential health hazards related to waste disposal, material handling, and site conditions during the renovation process.

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## Key Health and Safety Challenges

### 1. Hazardous Waste and Material Removal:

- The renovation work involved the removal of potentially hazardous materials, such as lead-based paints, asbestos, and mold. These materials presented significant risks to workers' health if not managed properly, especially during demolition and deconstruction activities.

### 2. Construction Dust and Airborne Particles:

- As renovation activities took place in aging buildings, workers were exposed to elevated levels of dust and airborne particles, including silica dust from concrete, wood, and other construction materials. Prolonged exposure to these particulates could lead to respiratory issues and other health concerns.

### 3. Noise and Vibration Exposure:

- Demolition activities and the use of heavy equipment on site led to significant noise and vibration exposure. Prolonged exposure to high noise levels could cause hearing damage, while vibration from equipment could lead to hand-arm vibration syndrome (HAVS) and other musculoskeletal injuries.

#### **4. Ergonomic Hazards:**

- Workers were required to perform physically demanding tasks, such as lifting, carrying, and handling heavy materials, which posed risks for musculoskeletal injuries if proper lifting techniques and ergonomics were not followed.

#### **5. Environmental Concerns:**

- The handling, disposal, and recycling of renovation debris needed to be done in accordance with local, state, and federal environmental regulations. In addition to health concerns for workers, proper waste management was essential to ensure that hazardous materials were disposed of safely and that the surrounding environment was protected.
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### **KES Industrial Hygiene Response**

To address these hazards, KES implemented a comprehensive suite of industrial hygiene services and safety management practices that were customized for the specific needs of each renovation site. KES's role included developing and overseeing health and safety plans, conducting worker training, ensuring compliance with local and federal regulations, and monitoring site conditions.

#### **1. Development of Health and Safety Plans (HASP):**

- KES wrote tailored Health and Safety Plans (HASP) for each renovation site, outlining safety procedures for handling hazardous materials, dust suppression, noise control, and personal protective equipment (PPE) requirements.
- The HASPs included emergency response procedures, guidelines for working in areas with potential exposure to lead, asbestos, and mold, and detailed steps for managing waste materials to minimize environmental impact.

#### **2. Hazardous Materials Management:**

- KES worked closely with Whiting-Turner to identify and assess hazardous materials that could be encountered during demolition and renovation. KES provided expert guidance on the safe removal and disposal of asbestos-containing materials, lead-based paint, and mold.
- Specialized training was provided to workers on the correct procedures for handling and disposing of hazardous materials, and KES ensured that waste disposal was done in compliance with local, state, and federal regulations (such as OSHA, EPA, and local environmental agencies).

#### **3. Air Quality Monitoring and Dust Control:**

- KES implemented air quality monitoring programs on all renovation sites to track levels of airborne dust and other particulates, particularly silica dust from

demolition activities. Real-time monitoring equipment was used to ensure that air quality remained within permissible limits.

- Dust control measures, such as water spraying and dust collection systems, were deployed to minimize airborne particulate exposure. Additionally, KES recommended the use of high-efficiency particulate air (HEPA) filters in respiratory protection equipment for workers involved in demolition and material handling.

#### **4. Noise and Vibration Control:**

- KES conducted noise assessments to identify areas of high noise exposure and recommended engineering controls, such as sound barriers and quieter equipment, to mitigate noise levels.
- Workers were provided with appropriate hearing protection devices (HPDs), including earplugs and earmuffs, to reduce the risk of noise-induced hearing loss. KES also monitored vibration levels from hand-held power tools and heavy machinery, ensuring that workers were equipped with anti-vibration gloves and were educated about proper tool handling techniques to minimize musculoskeletal risks.

#### **5. Ergonomic Safety and Training:**

- KES provided ergonomic assessments for workers involved in physically demanding tasks such as lifting, carrying, and moving heavy materials. Recommendations for proper lifting techniques, use of mechanical lifting aids, and job rotation were implemented to reduce the risk of musculoskeletal injuries.
- Training on safe lifting techniques and ergonomics was conducted across all renovation sites, ensuring that workers understood how to minimize strain and avoid injury.

#### **6. Environmental Compliance and Waste Management:**

- KES ensured that all renovation debris and waste materials were disposed of in accordance with federal and state regulations. This included the proper segregation of hazardous and non-hazardous waste and the use of certified disposal facilities for materials like asbestos, lead, and contaminated soil.
- KES also guided the implementation of recycling programs to reduce the environmental impact of construction debris, helping Whiting-Turner comply with green building initiatives and sustainable practices.

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## **Outcomes and Achievements**

### **1. Improved Worker Health and Safety:**

- Through the successful implementation of health and safety protocols, there were no significant incidents of injury or exposure to hazardous materials at any of the

renovation sites. The use of PPE, engineering controls, and worker training minimized health risks related to dust, noise, vibration, and hazardous waste.

**2. Regulatory Compliance:**

- All renovation projects complied with relevant federal, state, and local environmental and occupational health regulations, including those set by OSHA, the EPA, and state environmental agencies. KES ensured that all waste management practices met or exceeded compliance standards.

**3. Effective Waste Management:**

- KES's waste management strategies helped Whiting-Turner successfully divert a significant portion of construction debris from landfills through recycling and proper disposal methods. This contributed to the sustainability goals of the project while ensuring environmental protection.

**4. Reduced Environmental Impact:**

- Air quality monitoring, dust control systems, and proper disposal of hazardous materials resulted in minimal environmental impact from the renovations. KES helped to ensure that all hazardous waste was managed responsibly, reducing contamination risks for the surrounding community and environment.

**5. Enhanced Safety Culture:**

- Through ongoing safety training, monitoring, and support, KES fostered a culture of safety and awareness on all job sites. Workers were well-equipped to identify and mitigate hazards, which contributed to a safer working environment overall.

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**Conclusion**

KES played a vital role in ensuring the health and safety of workers and compliance with environmental standards during the extensive apartment and condominium renovation projects managed by Whiting-Turner Contracting Company. Through the development of tailored health and safety plans, air quality monitoring, noise and vibration control, and effective waste management, KES helped minimize risks related to hazardous materials, construction dust, and physical hazards. The successful implementation of these measures not only protected workers but also supported Whiting-Turner's commitment to environmental sustainability and regulatory compliance across multiple states.