

# CITY & COUNTY OF DENVER

## ASBESTOS SURVEY FOR DEMOLITION



**APRIL 1, 2010**

**DENVER PUBLIC HOUSING – S. LINCOLN PARK  
1000 NAVAJO STREET  
DENVER, CO**

HWS Consulting Group Inc.  
Project No. 73-60-2107

  
**HWS**  
HWS Consulting Group

# ASBESTOS SURVEY FOR DEMOLITION

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# ASBESTOS SURVEY FOR DEMOLITION

## 1. BUILDINGS

Denver Housing Authority (DHA)  
South Lincoln Park  
1000 Navajo Street  
Denver, CO

## 2. DETAILED SITE DESCRIPTION

The South Lincoln Park site consists of 39 buildings (270 units) constructed between 1952 and 1954. There are nine basic building types, two of which are unique. They are 2 story, slab on grade, poured concrete and brick/block structures which range from 4 to 10 units per building and 1 to 5 bedrooms per unit. Each unit has a recent forced air gas furnace and water heater, with no suspect thermal system insulation (TSI) identified. The original interior finish was plaster on metal lath and bare concrete floors, however subsequent site-wide remodeling has added wallboard and floor tile. The original roofs have all been covered with a newer façade, creating an attic which is only accessible from the exterior. These attics contain either fiberglass batt insulation and wallboard pipe chases, or blown-in insulation and wallboard/joint compound pipe chases. A layer of OSB covers the original roof.

One unit is used as the Assistance Office and one unit is appliance storage. There is a Main Office/Shop (one story) along with the Bridge Project tutoring center (1 unit down, 2 units up). Also, a 5 unit building was completely remodeled into a daycare (Little Munchkins – 2 adjacent units combined) and the Bridge Project (3 adjacent units combined).

## 3. NAME AND ADDRESS OF CONSULTANT

HWS Consulting Group Inc.  
7951 E. Maplewood Ave. Suite 122  
Greenwood Village, CO 80111

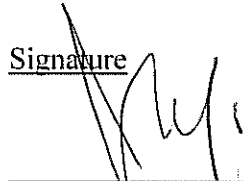
## 4. NAMES AND SIGNATURES OF PERSONS PERFORMING SAMPLING

Name

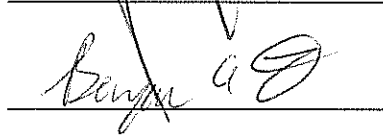
John Gaddis  
Project Representative

Benjamin Tuthill  
Project Representative

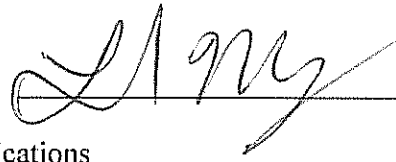
Signature

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Landon Moody  
Site Representative



Reference Attachment #1 for Consultant Certifications

## 5. DATES OF COLLECTION

Asbestos bulk samples were collected from February 1 to March 22, 2010.

## 6. SAMPLING STRATEGY

HWS performed an asbestos inspection in general accordance with the guidelines of the Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAPS), the Asbestos Hazard emergency Response Act (AHERA) and the Occupational Safety and Health Administration (OSHA) 1926.1101 and Colorado Department of Health and Environment (CDPHE) Regulation No. 8, Part B. The EPA recognizes material containing greater than one-percent asbestos to be ACM (asbestos containing material).

Since all of the buildings were built, remodeled and maintained from the same specifications they can be considered repeating functional units with the same type or types of suspect material. These similar units can be grouped together and identified as a single functional space and a representative number of the repeating units could be used for the inspection and sampling. The minimum number of repeating units is 20%. HWS discussed this approach with CDPHE to minimize the time and cost of the inspection and sampling. HWS proposed to inspect two units per building which is 30+% of the units which CDPHE agreed was acceptable. HWS also proposed to perform destructive testing in one unit to inspect for hidden thermal system insulation versus the destructive testing in all the inspected units. CDPHE agreed that this approach was also acceptable due to the information discussed above. Additionally, both the Main Office/Shop Bridge Project building and the daycare/Bridge Project building were completely inspected.

One thousand two hundred and fifteen (1215) samples of suspect ACM were obtained by HWS, along with sixty-one (61) QC samples. The types of materials sampled were wallboard and associated compound, floor tile and associated mastic, cove base adhesive, sink coating; sheet flooring and associated mastic, ceiling insulation, duct sealant, plaster; stair tread adhesive, window caulk, door caulk, roof tar, roof paper, roof shingles, attic insulation, stucco, texture and acoustic texture. The roofs for all nine building types were evaluated, and they were found to fall into two groups. Two examples of each group were sampled. Additionally, two units were destructively evaluated for TSI.

Each unit inspected was evaluated for loose fill insulation (vermiculite) in the wall cavities by drilling a hole into a north, south, east and west wall on the 1<sup>st</sup> Floor.

Underground pipes and conduits were excluded from the scope of work, as were electrical items and fire doors.

Reference Table # 1 for Asbestos Bulk Sampling Summary

Asbestos Sample Location Field Drawings – Not included in the report but provided separately on a DVD OR CD

Laboratory Analysis Reports - Not included in the report but provided separately on a DVD OR CD

## **7. TYPES OF ANALYSIS PERFORMED**

Asbestos bulk samples were submitted for analysis by Polarized Light Microscopy (PLM), visual area estimation (VAE) method in accordance with EPA-600/R-93/116, July 1993. Friable materials which analyzed as containing asbestos quantities of 1% or less were reanalyzed by quantitative PLM bulk sample analysis (point counting) performed in accordance with EPA 600/M4-83-020, 1982.

## **8. NAME AND ADDRESS OF LABORATORY PERFORMING ANALYSIS**

DCM Science Laboratory, Inc.  
12421 West 49<sup>th</sup> Avenue, Unit 6  
Wheat Ridge, CO 80033

Reference Attachment #2 for Laboratory Results (Provided on separate DVD/CD) and Accreditations

## **9. DISCUSSION**

The predominant ACM encountered was floor tile and mastic. There are up to three layers of tile in Kitchens with the tile frequently installed in patterns. For the purposes of evaluation, all floor tile and mastic should be considered to be ACM. This material can be left in place during demolition; however the site should be evaluated by a Colorado Department of Health and Environment (CDPHE) certified Asbestos Building Inspector immediately following demolition to verify that no floor tile or mastic is present on or in the soil. Any ACM left behind by demolition creates a liability and is regulated by CDPHE 6 CCR 1007-2 Section 5.5.

Underground piping and conduit were not within the scope of work and should be considered asbestos containing material (ACM) until proven otherwise.

Only two samples of wallboard joint compound contained more than 1% asbestos, which when composited with the associated wallboard still gives a result well below 1% asbestos and is therefore not an issue for demolition.

No asbestos was identified in any of the four roofs and attics which were sampled.

Three units were found to have ceiling finishes that were installed by the occupants which are considered surfacing material. One unit (905 Mariposa Street – Unit LS0250) has an acoustic/decorative spray applied ceiling finish that would require abatement prior to demolition. The other two units have a troweled applied material that appeared to be drywall joint compound that did not contain asbestos. Due to the discovery of these types of materials installed by the occupants, every unit of a given building will need to be evaluated by a CDPHE certified Asbestos Building Inspector before the demolition permit application can be signed. In most cases, no additional sampling will be required.

Several sinks were found with a coating that contained asbestos. However, only two sinks had a material that contained over 1% asbestos. The sink coating is a non friable tar-like material and could be left in place during demolition, much the same as roofing materials and floor tile and mastics. The two sinks with the sink coating with more than 1% asbestos were found in the Bridge Project - Units LS0024, 25 & 26.

No loose fill insulation (vermiculite) was discovered in the wall cavities.

No TSI was found to contain asbestos.

The materials found to contain trace amounts of asbestos are:

- Wallboard and joint compound
- Sink coating
- Plaster

Not all of these materials contained trace amounts of asbestos, but due to being unable to discern the presence of asbestos with the naked eye, one should assume these materials all contain trace amounts of asbestos unless stated otherwise in this report. The Occupational Safety and Health Administration (OSHA) 1926.1101 requires that employees be made aware of the presence of even trace amounts of asbestos in materials. This awareness allows the employees to deal with these materials in a knowledgeable manner and reduces the potential for exposure to the asbestos. If the material is disturbed, monitoring of worker exposure and protective measures could be required.

The thermostats are all new programmable units that do not contain mercury.

All light bulbs are the new compact fluorescent bulbs (spiral bulbs). These bulbs, although new and designed to be more environmentally friendly, still contain very small amounts of mercury.

Several units had portable or window type air conditioning units. All of these units are owned by the unit occupants and not a permanent installed fixture. Each unit has a refrigerator that will contain Freon or similar gas for cooling.

Each unit has two smoke or combination smoke / CO detectors.

Electrical items and fire doors were excluded from the scope of work.

No conflicts were noted in the QC sampling results.

Removal of the asbestos containing surfacing material and/or the floor tile and adhesive (if chosen to be removed) will need to be performed by personnel trained and certified to perform asbestos abatement in the State of Colorado.

#### **10. ITEMS OR MATERIALS THAT NEED TO BE REMOVED PRIOR TO DEMOLITION**

- Surfacing Material that is ACM (CDPHE Regulation #8 and NESHAPS requires that all friable asbestos containing surfacing material be removed prior to demolition)
- Refrigerators (CDPHE Regulation #15 – Control of Emissions of Ozone Depleting Compounds requires that appliances or equipment that contain Ozone depleting compounds be removed or that the Ozone depleting compound be removed and disposed of properly or recycled prior to demolition)
- Compact Fluorescent Bulbs (The Universal Waste Rule [*Colorado Hazardous Waste Regulations 6 CCR 1007-3 Part 273*])
- Any air conditioning units left behind by tenants after they have moved out (CDPHE Regulation #15 – Control of Emissions of Ozone Depleting Compounds requires that appliances or equipment that contain Ozone depleting compounds be removed or that the Ozone depleting compound be removed and disposed of properly or recycled prior to demolition)

#### **11. ITEMS OR MATERIALS THAT CAN REMAIN IN PLACE DURING DEMOLITION**

- Floor Tile and Mastic (CDPHE Regulation #8 and NESHAPS allow non friable asbestos containing material to remain in place during demolition if it remains non friable during demolition)
- Sinks with Asbestos Coating (CDPHE Regulation #8 and NESHAPS allow non friable asbestos containing material to remain in place during demolition if it remains non friable during demolition)
- Smoke or Smoke / CO Detectors (CDPHE - Hazardous Materials and Waste Management Division Household Hazardous Waste Disposal Options)

Reference Attachment #3 for Photographs