

Preliminary
Façade Characterization Report

Remediation and Deconstruction of
Fiterman Hall, 30 West Broadway,
New York, New York

Prepared for:

Dormitory Authority of the State of New York
&
The City University of New York

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1.0 INTRODUCTION

Airtek Environmental Corporation (Airtek) has been retained by Pei Cobb Freed & Partners, Architects, LLP (PCFP) on behalf of the Dormitory Authority of the State of New York (DASNY) and The City University of New York (CUNY) to conduct an environmental characterization study of the Fiterman Hall Building located at 30 West Broadway, New York, NY (Fiterman Hall, the Building, or 30 West Broadway). The Building is a 15-story, 370,000 (SF) classroom building owned by CUNY and operated prior to 9/11 by CUNY/Borough of Manhattan Community College. For purposes of the environmental decontamination and deconstruction of Fiterman Hall, DASNY is acting as and for the Building owner. The building was physically damaged by the collapse of 7 World Trade Center, and impacted by the environmental effects of the entire World Trade Center Collapse.

This report is focused on the façade of the Building. A characterization report detailing conditions interior to the Building has been prepared under separate cover.

1.1 Purpose and Objectives of the Façade Characterization Study

DASNY/CUNY insists that appropriate environmental safeguards are put in place at 30 West Broadway to protect workers and the public both during the planning stages of the project, and during the abatement and demolition phases. In support of this effort, it is necessary to closely examine both the structure and building components of the Fiterman Hall Building, and the residual impact of the dust disseminated by the collapse of the World Trade Center (WTC).

The primary focus of the instant investigation and report is the suitability of the building façade as a component of the containment system that will allow the safe and controlled abatement and removal of both building components that pre-dated 9/11, and the dust and dust-impacted building components that remain.

Considerations investigated included the following:

- Integrity and construction of the façade as it relates to the façade's use as a barrier during abatement

- Confirmation of the efficacy of the NYC DEP cleaning of the exterior façade of the building post-9/11
- Asbestos-containing building materials potentially existing on and within the façade
- Lead-containing or lead-painted components on and within the façade
- The potential for WTC Contaminants of Potential Concern (CoPCs) both on and within the façade construction
- The physical and environmental state of the “Gash Area,” where the building was physically damaged by the collapse of WTC 7

The study findings will assist in determining what measures and protocols may be required in support of the Fiterman Building cleaning and deconstruction plan. In particular, the results of the Study are intended to provide reference information allowing for informed decisions to be made by the project team regarding appropriate cleaning and deconstruction methods. These decisions include the development and implementation of engineering controls to contain the work zone (i.e., to ensure no exposure to the surrounding community during the cleaning and deconstruction) and appropriate methods for the disposal or recycling of materials generated by the cleaning and deconstruction activities. Using the available characterization results, DASNY/CUNY its consultants, and the selected deconstruction contractor can develop and implement appropriate deconstruction protocols and safety precautions for the cleaning and deconstruction process to ensure the health and safety of workers and the residents of the surrounding community.

1.2 Background

Fiterman Hall is a 1950’s-era steel and concrete structure that was used as an office building until the early 1990’s when the building was converted to use as a classroom building by the Borough of Manhattan Community College (BMCC). A number of

renovation and upgrade projects were executed at Fiterman Hall. In the 1990's the ribbon window system was completely replaced with a new, modern window system. In 2000 and 2001 the building underwent a complete interior gut rehabilitation that included extensive asbestos abatement. On September 11, 2001, this renovation was nearly complete, and the building was 50% occupied by BMCC.

The collapse of WTC 7 tore open the façade of Fiterman Hall from the roof down to the basement, filled the southeast corner of the building with debris, and allowed the incursion of WTC dust. The NYC Department of Design and Construction conducted an emergency response clean-out of the building debris that had rained down from WTC 7 into the building, and DASNY conducted a building stabilization project that included shoring of the gash area, the installation of temporary barriers where the façade had been breached, and the netting of the damaged façade.

In 2005, DASNY/CUNY retained a project team headed by Pei Cobb Freed and Partners Architects, LLP to conduct an investigation of the existing building in support of the planning and execution of an abatement and demolition project intended to prepare the 30 West Broadway site for the construction of a brand new educational facility. On July 1 2005, Airtek was granted Variance File No. 05-0919 by the NYS Department of Labor on behalf of DASNY/CUNY for a variance to allow the investigative team access to conduct the required investigation. All site work undertaken in support of this investigation was conducted in strict accordance with terms and conditions of the NYS DOL Variance for the work, and with the site Health & Safety Plan (HASP).

1.3 Information Sources

Information sources drawn upon to support the investigation included the following:

Existing documentation related to the original 30 West Broadway structure, documentation of the renovation activities conducted by DASNY/CUNY/BMCC, and documentation of the activities undertaken in response to the events of 9/11;

Interviews with personnel familiar with building operations, renovation project details, and post 9/11 response activities;

Close visual inspection and testing of specific materials and components of the façade systems.

2.0 CHARACTERIZATION COMPONENTS

2.1 Documentation Review

Where previously existing documentation of building structure and condition was available, these documents were reviewed for information pertinent to the subject investigation. Documentation reviewed by the investigation team included the following:

- Limited original as-built drawings
- 2000/2001 renovation specs and drawings
- Pre-9/11 ACBM Survey Reports – DASNY Consultants
- Pre-9/11 LBP Survey Reports – DASNY Consultants
- WTC Characterization Report – Cambridge Horizon Consultants

2.2 Interviews – Historical Research

Specific personnel with direct knowledge of building operations, building history, pre 9/11 construction/renovation activities, and post- 9/11 site activity were made available to the investigation team. Personnel made available included:

- BMCC Building Operations Personnel
- DASNY/CUNY Pre-9/11 Construction Management Personnel
- DASNY/CUNY Post 9/11 Response Management Personnel

2.3 Façade Visual Inspection

A floor-by-floor, façade-by-façade inspection was conducted by the investigation team. Airtek's investigation team included USEPA-certified Lead Inspectors,

NYC-certified Asbestos Investigators, and NYS-certified Asbestos Inspectors experienced in pre-demolition building inspection in general, and in WTC response inspection in particular. All site work conducted as a part of this inspection was conducted in strict accordance with the terms and conditions of both the NYS DOL Variance for this work, and the site HASP.

2.4 Asbestos-Containing Building Material Inspection and Testing

An Asbestos Inspection and Material Survey is required to facilitate the proposed deconstruction of the Building and to comply with: (1) the New York City Department of Buildings permitting requirements, and (2) the pre-demolition requirements promulgated by the New York City Department of Environmental Protection (NYCDEP), Section I-53; the New York State Department of Labor (NYSDOL) Industrial Code, Rule 56: Asbestos Regulation, Title 15, Sections 56-1.4 and 56-1.9(e); and the U.S. EPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) for asbestos-containing building materials (ACBM). The requirement for an asbestos building survey includes the requirement that the building façade be investigated for ACBMs. The façade ACBM survey was conducted by NYS DOL Certified Asbestos Inspectors.

2.5 Lead-Based Paint Survey

Although recently renovated, Fiterman Hall was built in the 1950's. USEPA Certified Lead Inspectors conducted testing of building components throughout the structure. Testing of building components included the testing of façade components. This effort provided data in support of decisions related to building materials handling, waste characterization and waste management.

2.6 WTC COPC Impact Investigation

Contaminants of Potential Concern:

Following the WTC Event, the U.S. EPA established a committee to evaluate Contaminants of Potential Concern (CoPCs) found in WTC dust. The CoPC

Committee of the World Trade Center Indoor Air Task Force Working Group prepared the *World Trade Center Indoor Environment Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks* (May 2003), which identified the compounds of concern for Lower Manhattan cleanup efforts. The WTC Dust Characterization for CoPCs, as defined by the U.S. EPA's COPC Committee, is asbestos, MMVF (man-made vitreous fibers), silica, dioxin, PAH (polycyclic aromatic hydrocarbons), and lead. Airtek has also considered the potential for the presence of polychlorinated biphenyls (PCBs), heavy metals (barium, beryllium, cadmium, chromium, copper, manganese, nickel, and zinc), and mercury.

Surface Impact:

Airtek conducted a thorough visual inspection of the building façade, and conducted interviews with NYC DEP personnel with knowledge of the previous exterior cleaning that was conducted under the NYC DEP exterior cleaning program. As confirmation of the findings of that investigation, Airtek collected samples to determine the CoPC surface concentration at various exterior façade locations.

Interstitial Impact:

A component of the review of existing documentation included a review of drawings for potential communicating openings and interstices that could have been impacted by WTC CoPCs. In addition to the documentation review, confirmatory destructive investigations of the façade, its structure and its components were conducted.

2.7 Gash Area Impact Inspection:

Due to the potential for contamination of the façade in the gash area on the south and southwest façade that was created by the collapse of WTC-7, an inspection

was conducted for potential gaps and interstices that have the potential to contain residual WTC dust.

2.8 Roof and Setback Roof Waste Characterization Testing

Waste characterization testing, including TCLP, RCRA and PCB analyses, was conducted on the roof ballast fines to provide an indication of the waste category to be expected for the fines and cleaning materials to be disposed as a result of the roof ballast cleaning program that is planned. Further waste characterization testing of the cleaning process consumables and cleaning liquids will be tested as described in Regulatory Submittal Part IV(R) Waste Sampling and Management Plan and its associated Quality Assurance Project Plan.

3.0 CHARACTERIZATION FINDINGS

3.1 Documentation Review

Reviews of existing documentation and drawings indicate that the building façade is composed of an exterior brick and masonry fascia that is backed by structural steel and block. The interstitial space between the brick fascia and the steel and block structural backing was filled with sluiced mortar during construction. This detail was found to be inconsistent during the gash area façade inspection as is discussed in section 3.6 and 3.7 below.

Communicating openings are limited to entry doors and the loading dock of the ground floor, operable windows on all floors, doors to setback roofs, and mechanical system louvers and vents. Pipe Chases do exist in the façade, but these chases are accessible for cleaning from the interior of the building.

3.2 Interviews – Historical Research

Interviews with facility operations and management personnel familiar with the history of the Building indicate that the entire ribbon window system that rings every floor of the Building was replaced in its entirety in the mid 1990s. Close visual inspection of the condition of the window system supports this assertion. Both masonry opening caulk (rubberized) and glazing material (rubberized) are intact. Interviews with NYC DEP personnel familiar with the NYC DEP Façade Cleaning Program reveal that the Fiterman Hall façade, with the exception of the gash area, was cleaned by a NYS DOL certified asbestos contractor. As noted below, close visual inspection and laboratory testing confirms this assertion. Bulk debris from the collapsed WTC 7 was removed from the gash area of the Building by the NYC DDC during the WTC response of 2001-2002.

3.3 Façade Visual Inspection

A close visual inspection was conducted floor-by-floor by Airtek inspectors. The inspection focused on determining if WTC debris remained on the façade after the building had been cleaned by the NYC DEP, and on the structural integrity of the façade and window system as a potential component of the barrier system to be used to contain contaminants during the abatement of asbestos and CoPCs from the building.

Debris:

The visual inspection revealed no remaining debris on the façade of the upper floors of the building, and very little debris on the façade of the lower floors. None of the debris noted could be identified as WTC dust. The inspection was necessarily conducted from the interior of the building, except where roof setbacks could be accessed. As such, it is the intent of the Owner to have the façade re-inspected by the Environmental Consultant as the project scaffolding is erected to ensure the accuracy of the preliminary conclusions, and/or to identify any additional areas requiring focused cleaning. Areas identified for focused

cleaning either due to the build-up of road dust or observation of remaining debris include the gash area and the entire first and second floors of the building.

Physical Condition of Façade:

With the exception of the Gash Area, the Building façade is in excellent condition. The brick fascia is intact, the newly installed window systems are in excellent condition, and their rubberized caulking and sealing components are intact.

3.4 Asbestos-Containing Building Material Inspection and Testing

Testing confirms that the brick, mortar, sluiced mortar, block and window sealant materials (caulk & glazing) are non-asbestos materials with the exception of bulkhead window caulk, 1st floor window caulk – SE corner of building, and new elevator room window caulk (confirmed ACM). All other window components are glass and aluminum, and are non-suspect. Asbestos-containing materials include the exterior lintel/spandrel flashing and mastic (Please see Figure F-1 on sheet ASB-21 within report attachment E), mastic & cloth on loading dock beam, 14th floor roof membrane, tar and roof paper, the roof shingles and tar on the chiller roof, and the interior tar vapor barrier and associated felt, paper and fiberglass insulating layers. ACBM testing data is included as Attachment B.

3.5 Lead-Based Paint Survey

Testing of façade components indicated that façade materials are not coated with lead-based paint. Testing was conducted by X-Ray Fluorescence (XRF). Destructive testing was conducted to allow access to all façade components. Results of the lead testing conducted are included as Attachment C.

3.6 WTC COPC Impact Inspection

Surface Impact:

As noted above in Section 3.3, close visual inspection of the brick fascia and window systems indicate that with the exception of the gash area, WTC debris does not exist on the façade. Wipe testing confirms that levels of CoPCs detected on the fascia are consistent with, or below levels that would be expected on a 60 year-old urban structure. As an example, the highest level of lead dust detected by *lead-wipe sample analysis protocols* (according to NIOSH 9100 and analyzed by Flame AA as per HUD guidelines) above the ground floor was 8.18 ug/ft². By law, at 39 ug/ft² a school classroom floor may be occupied by kindergartners.

Additional lead analyses conducted as a part of the *metals wipe sampling* (according to NIOSH 9100 and analyzed by ICP/MS, *not* per HUD guidelines) detected slightly higher levels of lead in some areas, but the highest level detected (136 ug/ft² - 14th floor) was well below the legal limit for lead dust on a kindergarten window sill (250 ug/ft²). Similar results were exhibited in sampling for other CoPCs. Metals wipe testing data is included in Attachment A.

Interstitial Impact:

Limited interstices exist within the façade system. There is a small (1/2") gap between the brick fascia and the structural block below the windows that expands to approximately 3" at the spandrel beam web. Except in the gash area, this interstitial gap appears to be sealed by the vertical structural members and would not have been impacted by WTC dust, except for dust that could have migrated in from the gash area to the first vertical façade column. The extent of migration possible at the east edge of the gash area is the southeast corner of the structure. At the southeast corner, the gap is sealed. The extent of migration possible at the west edge of the gash area appears to be to the first undisturbed vertical structural member on the west façade (see drawings attached as Attachment E. The majority of the west façade, the entire north façade, and the entire east façade are

considered to be sealed and uncontaminated. As a precaution, however, all facades of the structure will be subject to the specific inspections and testing of the proposed Pilot Program for scaffold attachment and fascia brick removal. The Pilot Program is discussed later in this document, and is detailed in the related documents *Regulatory Submittal Part I(S) – Scaffold Work Plan* and *Regulatory Submittal Part II – Environmental Community Air Monitoring Program (ECAMP)*.

3.7 Gash Area Special Conditions

The gap behind the fascia brick within the gash area noted on the drawings in Attachment E was exposed to the environment by the collapse. No residual dust was noted during the inspections of this area, but prudence dictates that these interstices be assumed to have been impacted by the fallout of the WTC collapse until the focused inspections and testing of the Pilot Program provide further information.

3.8 Roof and Setback Roof Waste Characterization Testing

No exceedances of any TCLP, RCRA or PCB contaminants were detected through waste characterization testing of the roof ballast fines on the main roof, 5th floor setback, 14th floor setback, elevator machine room or fan room roofs. One section of the roof has been confirmed ACM; the rest is scheduled for a second round of cleaning (All roof ballast and surface membranes were cleaned during NYCDEP cleaning program and existing ballast is assumed to be contaminated). All roofs are intact, with ballasts, membrane and insulation in place with the exception of the roof and setback edges for the 5th floor setback, 14th floor setback and main roof at the gash area. In these areas, all roof materials will be removed down to concrete substrate back to 10' from the slab edge and disposed as asbestos waste as described in *Regulatory Submittal Part I (R) – Remediation Phase Work Plan*. All roofing layers are listed in the asbestos report that was included as an appendix to the *Environmental Characterization*

Report, Appendix IV. All layers are negative for ACM with the exception of 14th floor setback roof membrane in the north section. Waste characterization analysis results for roof ballast fines are included as Attachment D.

4.0 PROJECT-RELATED CONCLUSIONS

4.1 WTC Dust Impact - Exterior Cleaning Requirements

The entire first and second floors, and the gash area will be subject to HEPA-vacuuuming and wet wiping. A visual inspection will be conducted by the site hygienist as the scaffold is erected. If additional areas of the façade above the second floor and outside the gash area are observed to merit cleaning, further cleaning in those specific areas will be directed by the Owner's Environmental Consultant (EC). This will be conducted by the Contractor as a part of the Scaffold Erection Operation (SEO) during the Remediation Phase of the project.

4.2 Façade Integrity

With the exception of the gash area, the façade is intact. The gash area extends from the top to the bottom of the building, along the entire south side of the building and extends to a portion of the south end of the west side of the building. The gash area is illustrated in the drawings included in Attachment E. The façade system was designed and built to be an impermeable barrier, and it has retained these qualities. The window systems are in excellent condition and are a serviceable barrier for use during the abatement. The installation of plywood/plastic critical barriers over the windows is not necessary to carry out the remediation of the Building. However, the gash area had several windows that were breached but have been covered by plywood barriers. This plywood is sealed with caulking and expandable foam at the edges and on the inside of the broken window. Airtek will ensure that any and all openings or breaches are properly sealed prior to the commencement of interior abatement work. The

operating awning-window panels will be cleaned, and sealed with caulk and critical barriers for the remediation phase.

4.3 WTC Dust Impact – Façade Components

The exterior of the façade was effectively cleaned by the NYCDEP WTC Dust/Residue Roof and Façade Cleaning Procedures. Focused cleaning will be conducted of the façade of the ground floor and second floor, and any other areas identified by the Owner’s Environmental Consultant. The slabs in the gash area are accessible and can be used as a platform from which to work to do the cleaning of all gash area components. The interior of the façade will be cleaned during the Remediation Phase of the project.

The operable window component surfaces are assumed to be contaminated. Detailed procedures to address this contamination will be included in *Regulatory Submittal Part I – Work Plan*.

As noted in Section 3.6 above, façade interstices in the Gash Area must be assumed to have been impacted by WTC dust. Project procedures intended to control this assumed contamination are discussed in *Regulatory Submittal Part I(S) – Scaffold Work Plan*, and additional air monitoring to be conducted to confirm the effectiveness of those procedures is addressed in *Regulatory Submittal Part II – ECAMP*.

4.4 Asbestos-Containing Building Materials

Asbestos-containing materials exist on and within the façade, but neither of these ACMs impact the façade’s integrity as a contaminant barrier during the Remediation Phase of the project. The window caulk on the roof bulkhead and mechanical room windows and the southeast corner of the first floor will be abated during the scaffold erection operation. The interior vapor barrier and associated felt paper will be abated during the Remediation Phase of the project,

and the non-friable spandrel mastic and associated paper flashing will be abated during the Deconstruction Phase of the project.

4.5 Lead-Based Paint Components

Façade components are not coated with lead-based paint.

4.6 Scaffold Attachment/Fascia Brick Pilot Program

It is recommended that a fascia brick removal pilot program be conducted to ascertain the impact to airborne contaminant levels of the removal of fascia brick and ACM mastic on the spandrel beam. The proposed Pilot Program should include both testing and focused visual inspections, and should be designed to demonstrate the impact of the following three operations to be conducted on the façade of the building:

- 1) The removal of brick in the gash area in support of scaffolding attachment to the spandrel beams
- 2) The removal of the ACM mastic in support of scaffolding attachment to the spandrel beams
- 3) The removal of larger quantities of fascia brick to demonstrate the impact of the full removal of fascia brick

Details on the proposed Pilot Program are included in *Regulatory Submittal Part I(S) – Scaffold Work Plan* and *Regulatory Submittal Part II – ECAMP*.

5.0 STANDARDS OF CARE

Airtek's work was performed in a professional manner. Our objective was to perform our work with care, exercising the customary skills and competence of consulting professionals. Conclusions presented in this report are professional opinions based upon visual observations of

the site and laboratory results provided for review. These conclusions reflect only the results obtained and analyzed from specific sample locations. The opinions and recommendations presented herein apply to site conditions existing at the time of our observations. Airtek cannot act as insurers, and no expressed or implied representation or warrant is included or intended in our report except that our work was performed within the limits prescribed by our clients, and with the customary thoroughness and competence of our profession at the time and place the services were rendered.

ATTACHMENT A

CoPC Data Comparison and Wipe Sample Results

ATTACHMENT B

Data Summary - ACBM Sample Results

ATTACHMENT C

Data Summary - LBP Sample Results

ATTACHMENT D

Data Summary – Waste Characterization Results

ATTACHMENT E

ACM Locations/Façade Gash Drawings