

# **Summary of Regulatory Submittals**

**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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## **Introduction**

A project team led by Pei Cobb Freed & Partners, Architects, LLP and including Airtek Environmental Corporation, Tishman Construction Company and RSD Engineering, PE, (the Project Team) was retained by the Dormitory Authority of the State of New York (DASNY) and The City University of New York (CUNY) to work in cooperation with the DASNY/CUNY Contractor, PAL Environmental Safety Corp. (the Contractor or PAL) to prepare detailed project documents in support of the remediation and deconstruction of the Fiterman Hall building (also, the “Building”) located at 30 West Broadway in lower Manhattan. This synopsis of the project documents was prepared to provide an overview of information contained within both the informational documents provided to the regulatory community and the regulatory submittal documents. The full regulatory submittal package will be available for review at [http://lowermanhattan.info/construction/project\\_updates/fiterman.hall](http://lowermanhattan.info/construction/project_updates/fiterman.hall).

Fiterman Hall 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 the 7 World Trade Center building, and impacted by the well-documented environmental effects of the World Trade Center (WTC) collapse of September 11, 2001.

### **1.0 Informational Documents**

#### **1.1 Preliminary Environmental Characterization Report**

Based upon the extent of the façade damage, its location on the south side of the Building facing the WTC site, and the documented incursion of WTC dust and debris, DASNY/CUNY and the Regulatory community have jointly concluded that to ensure that the remediation and deconstruction is conducted in a manner that maximizes the protection of human health and the environment, project planning is to be based on the conservative assumption that the entire structure is contaminated.

The investigation focused on environmental conditions within Fiterman Hall as they relate to the planning and scoping of the environmental remediation work and subsequent deconstruction of the structure (the Project). It included review of data and observations recorded by previous environmental investigations conducted both prior and subsequent to the WTC collapse, as well as focused site environmental investigations and testing.

The decision to approach the project on the assumption that the entire Building is contaminated obviated the need to expend time and resources delineating contaminated versus uncontaminated materials and spaces. The investigation therefore focused on the nature of the Building materials, other materials and objects that remain within the Building and the structure and lay-out of the Building as it relates to the remediation and deconstruction process. The investigation concluded that an environmental remediation involving the removal of all non-structural components remaining within the building, followed by a thorough cleaning and encapsulation of all remaining structural components is the safest and most efficient means to prepare the building for deconstruction.

In brief, other conclusions of note include the following:

**Asbestos Monitoring:** Testing conducted as required by the New York State Department of Labor (NYS DOL) under Industrial Code Rule 56 (56-17), indicates that the installation and operation of the site access facility at the northwest corner of the building has not resulted in the release of asbestos to the outside of the building. All sample results are within acceptable limits.

**Personal Exposure Testing:** The results of personal exposure sampling conducted to date indicate that the personal protective equipment (PPE) specified for site workers in the original site Health & Safety Plan is sufficient personal protection for the contaminants tested for during the characterization activities conducted to date.

**Exterior Façade:** Cleaning of the exterior façade of the Building conducted by the New York City Department of Environmental Protection (NYC DEP) as a part of its WTC response was effective, and re-cleaning of the majority of the façade is not necessary. Cleaning of the lower two floors where urban background road dust has accumulated will be conducted, and focused cleaning of limited façade components that exhibit residual debris will be conducted as a part of the remediation/deconstruction Project. The inspection was, by necessity, conducted from the interior of the building, except where roof setbacks could be accessed. Consequently, 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. A more detailed discussion of façade conditions and their impact on the Project can be found in a companion document, *Preliminary Façade Characterization Report, December 23, 2005*.

**Asbestos-Containing Building Materials:** While extensive abatement of asbestos-containing building materials (ACMs) was conducted as a part of the prior renovations to the facility, some ACMs, remain that will be abated during the environmental Remediation Phase of the project. Specifically there is non-friable ACM spandrel flashing and associated paper flashing within the façade throughout the building and ACM roofing material at the 14<sup>th</sup> floor roof that will be abated during the Deconstruction Phase of the Project.

**Lead-Based Paint:** A survey for lead-based paint (LBP) conducted throughout the facility has determined that the Building is essentially free of LBP.

**Contaminants of Potential Concern:** Visual inspection and limited testing for the residual impact of WTC Contaminants of Potential Concern (CoPCs) was conducted within the Building. As stated above, the Building is assumed to be contaminated based on the nature of the WTC impact and the results of prior investigations.

**Waste Characterization:** Preliminary testing of WTC dust within the building was conducted to identify areas of the building where concentrations of Resource Conservation and Recovery Act (RCRA) – regulated contaminants within WTC dust may exist. All test results indicate that the dust that impacted the Building is not regulated under RCRA. By extension, building materials that would not normally be considered to be regulated waste (*i.e.*, conventional building materials) are not considered suspect RCRA waste due to their assumed contact with the WTC dust. Further testing of

conventional building materials will not be conducted. PPE and other categories of waste that have not been categorized to date will be tested. The preliminary results will be used to guide decisions on testing and management of building contents and components impacted by the dust. Waste characterization for purposes of informing decisions on waste handling, packaging, transport and disposal is to be addressed in a companion document, *Regulatory Submittal Part IV - Waste Sampling and Management Plan* (WSMP), to be submitted with the regulatory submittals for the project. Waste characterization is an aspect of the project that will be very closely monitored by the regulatory community, and is work that will be subject to a Quality Assurance Project Plan (QAPP).

**Microbiological Contamination:** Visual inspections for mold impact were conducted, and are ongoing as conditions change within the building over time. In general, mold impact is limited to the upper floors, and is most prevalent on the south side of the building where the façade was destroyed. While limited visible mold does exist, it will have little or no impact on the planning and execution of the environmental remediation and deconstruction of the building.

## 1.2 Preliminary Façade Characterization Report

### Purpose and Objectives of the Façade Characterization Study

DASNY/CUNY require implementation of appropriate environmental safeguards at Fiterman Hall to protect workers and the public both during the planning stages of the project and during the remediation and deconstruction phases. In support of this effort, it is necessary to closely examine the structure and building components of the Building as well as the residual impact of the dust disseminated by the collapse of the World Trade Center (WTC).

The primary focus of the recent investigation and report was the suitability of the building façade as a component of a containment system that would 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; and
- The physical and environmental state of the "Gash Area," where the building was physically damaged by the collapse of WTC 7.

The study findings helped determine what measures and protocols may be required to support the Fiterman Building cleaning and deconstruction plan and to provide reference information to assist the Project Team to make informed decisions 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, the Project Team, and PAL can develop and implement appropriate deconstruction protocols and safety precautions for the cleaning and deconstruction process.

## **Project-related Conclusions**

### **WTC Dust Impact - Exterior Cleaning Requirements**

The entire first and second floors and the Gash Area will be subject to HEPA-vacuuming 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), Airtek Environmental Corp. This work would be conducted by PAL as a part of the Scaffold Erection Operation (SEO) during the Remediation Phase of the project.

### **Façade Integrity**

With the exception of the Gash Area, the façade is intact. Along the entire south side of the building, the Gash Area extends from the top to the bottom of the building, and it extends to a portion of the south end of the west side of the building. The façade system was designed and built to be an impermeable barrier, and it has retained these qualities outside of the Gash Area. The window systems are in excellent condition and are a serviceable barrier for use during the abatement. However, the Gash Area has 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 other required barriers (e.g., plastic sheeting), for the remediation phase.

### **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 EC. 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 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*; additional air monitoring to be conducted to confirm the effectiveness of these procedures is addressed in *Regulatory Submittal Part II – ECAMP*.

### **Asbestos-Containing Building Materials**

ACMs exist on and within the façade, but none of these ACMs impacts 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, as well as 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.

### **Lead-Based Paint Components**

Façade components are not coated with lead-based paint.

## **1.3 Emergency Action/Community Notification Plan**

An Emergency Action and Community Notification Plan has been prepared as part of this project.. Its purpose is to provide an overview of the procedures to be followed and the parties to be involved in responding to emergencies in the unlikely event that they should occur during the remediation and deconstruction of Fiterman Hall. Mechanisms for notifying the community of emergency events, as well as non-emergency events and general project updates, are also discussed. Detailed procedures to be followed in the event of certain types of emergencies are provided in the *Regulatory Submittal Part II–Environmental Community Air Monitoring Program* and the *Regulatory Submittal Part III–Health & Safety Plan*. The Emergency Action and Community Notification Plan references those documents where appropriate for detailed emergency action procedures, and may require modification upon finalization of the regulatory submittals. The plan is currently under review by the New York City Office of Emergency Management (OEM).

## **2.0 Scaffold Erection Operation Regulatory Submittal Documents**

On October 5, 2006, a scaffold-specific regulatory submittal was made to WTC Regulators. This submittal is intended to allow for the review and approval of the initial building preparation activities (scaffold, etc.) so that activity may begin at the site while the full plan for the remediation and deconstruction project is under review. The scaffold-specific submittal included the following documents.

### **2.1 Response to Regulator Comments Document (Scaffold)**

On April 7, 2006, the Regulators provided comments on the Draft Submittal of the Fiterman Hall Work Plan that was submitted by the Fiterman Hall Project Team on January 10, 2006. Responses to the regulator comments that had relevance to the proposed scaffold work were provided in a formal response document.

## **2.2 Regulatory Submittal Part I(S) – Scaffold Work Plan**

The Scaffold Work Plan includes a detailed description of the activities that comprise the Scaffold Erection Operation (SEO). The SEO includes:

- The establishment of the Environmental Community Air Monitoring Program (ECAMP);
- The establishment of decontamination units for workers and waste;
- The installation of a sidewalk shed around the perimeter of the site;
- A pilot program and associated testing for brick removal and scaffold attachment;
- The removal of the existing contaminated netting on the south and southwest sections of the façade;
- The installation of the scaffolding and new netting for the entire building; and
- The cleaning of specified sections of the exterior façade.

The SEO does not include any work on the interior of the building, and does not include removals of any material from within the building. The scaffold work plan includes attachment with the following information:

- Attachment I: New York State DOL Regulatory Notification
- Attachment II: New York State DOL Variance Petition
- Attachment III: United States EPA Regulatory Notification
- Attachment IV: Logistics Plan
- Attachment V: Scaffolding Tie-In Diagram
- Attachment VI: Asbestos Waste Hauler Permits & Asbestos Landfill Permit

## **2.3 Regulatory Submittal Part II – Environmental Community Air Monitoring Program**

Prior to the initiation of any work at the site, the Environmental Community Air Monitoring Program (ECAMP) will be fully operational, following a requisite two-week background (baseline) sampling period. As detailed in *Regulatory Submittal Part II – Environmental Community Air Monitoring Program*, the air sampling program will consist of a number of monitoring functions intended to verify the effectiveness of the established engineering controls, and to alert the project team to any deficiency in the engineering controls and work practices of the project. This document is not scaffold-specific and is intended to be applicable to the entire project through to the completion of the deconstruction phase.

### **2.3.1 Operations to Be Monitored**

The project schedule includes two primary phases of work. The Remediation Phase comprises the scaffold erection operation and approximately six months of abatement and removal of asbestos and contaminants of potential concern (CoPC) (under a variance from the NYS DOL). The Deconstruction Phase comprises approximately six months of conventional deconstruction and site work. The EC's Site Hygienist (SH) will monitor all

work for visible emissions. The Remediation Phase, regulated under NYS DOL, will be monitored under both a Community Air Monitoring Program, and a Work Area Monitoring Program for asbestos. The Deconstruction Phase will be monitored under the ECAMP. The EC's New York State DOL certified air sample technicians, under the supervision of the EC's SH and Certified Industrial Hygienist (CIH) will conduct all air monitoring under this plan.

### **2.3.2 Project Monitoring**

Monitoring of this project will include all standard monitoring functions for environmental remediation projects including observations for visible emissions, air sampling and analyses, inspection and monitoring of the contractor's work practices, and reporting to the Owner and the Regulators. These general monitoring functions will be applied to both the Remediation Phase and Deconstruction Phase of this project.

### **2.3.3 Environmental Sampling and Analytical Methodologies**

Sampling and analytical methodologies utilized for this Project will comply with published protocols from the United States Environmental Agency (US EPA) and/or National Institute of Occupational Safety and Health (NIOSH). Generally, sampling will be conducted once every 24-hour work period, except asbestos (TEM/PCMe analyses), which will be taken for the duration of every work shift and once a day during non-work days during the Remediation phase. Real-time particulate monitoring will be on a continuous basis. Instantaneous mercury readings will be obtained to evaluate the air quality around the work site at multiple locations each work day.

## **2.4 Regulatory Submittal Part III(S) – Scaffold Health and Safety Plan**

PAL has developed a scaffold-specific Health and Safety Plan (the Scaffold HASP) for the scaffold erection operation. The Scaffold HASP will be utilized and modified as necessary in order to minimize and prevent exposures to hazardous substances and conditions related to the Scaffolding Erection Operations (SEO). The Scaffold HASP is only applicable to the SEO. Separate HASPs will be issued for the balance of the Remediation Phase and Deconstruction Phase.

All personnel assigned to the project will be required to review thoroughly the contents of the HASP prior to commencing SEO activities and to adhere strictly to its specified policies and procedures. The HASP meets all applicable OSHA requirements. Visitors will be required to review the health and safety plan and read and sign a visitor information sheet.

The document includes the following information:

- Contact and Emergency Phones Numbers
- Safety Management Requirements
- Site Personnel Responsibilities
- Accident and Incident Reporting Requirements

- Training and Orientation Requirements
- Communications
- Personnel Exposure and Air Quality Monitoring
- Engineering and Administrative Controls
- Personal Protective Equipment
- Contamination Reduction Procedures
- General Work Precautions
- Fall Prevention
- Sanitary Facilities
- Fire Control Equipment
- Hazard Communication
- Electrical Lockout/Tagout
- Emergency Response
- Medical Emergencies Procedures
- Documentation

## **2.5 Regulatory Submittal Part IV(S) – Scaffold Waste Plan**

The objective of the Scaffolding Waste Plan (SWP) is to characterize, manage, containerize, and legally transport and dispose of waste that will be generated as part of the Fiterman Hall scaffolding erection that is to be conducted as the first operation of the remediation and deconstruction project's Remediation Phase.

The SWP provides a detailed set of procedures addressing the following topics:

- Primary Waste Material Categories
- Waste Sampling Frequencies
- Analytical Methodologies
- Waste Packaging & Storage
- Transportation Requirements
- Travel Routes
- Disposal Facilities
- Documentation

Attachments to the SWP include detailed information including:

- Attachment A: Waste Routes
- Attachment B: Waste Storage Areas
- Attachment C: Quality Assurance Project Plan
- Attachment D: Previous Waste Characterization Results

## **3.0 Remediation Phase Regulatory Submittal Documents**

Regulatory submittal documents for the full remediation and deconstruction of the building are currently

being developed and will include the following documents:

### **3.1 Response to Regulator Comments Document (Remediation)**

On April 7, 2006, the Regulators provided comments on the Draft Submittal of the Fiterman Hall Work Plan that was submitted by the Project Team on January 10, 2006. Responses to the regulator comments that have relevance to the proposed remediation phase work will be provided in a formal response document.

### **3.2 Regulatory Submittal Part I(R) – Remediation Phase Work Plan**

This plan will detail the sequence of work and the work practices to be employed to execute a complete gut-strip of all non-structural components. The work to remediate the structure and prepare it for deconstruction will be conducted within containment under negative pressure. As previously stated, it is the intent of the project to conduct the remediation and environmental clearance of the entire structure prior to beginning deconstruction activities. As noted above for the scaffold work plan, this document will contain all regulatory notifications and variances required by the WTC Regulators.

#### **3.2.1 General:**

The purpose of Regulatory Submittal Part I(R) – Remediation Work Plan, is to provide an overview of the procedures to be followed for:

- Establishment of interior clean zone for project command center, staging and storage
- Removal of all furniture and construction materials located inside of the Building
- Dismantling and removal of all interior Building components
- Cleaning of residual dust accumulated on interior surfaces
- Abatement of all asbestos containing materials from the interior and exterior of the Building

The information contained in this Work Plan relates to all procedures required to complete the environmental remediation and to prepare the structure for deconstruction.

Please note that the remediation is mostly interior work. This Work Plan has been designed with particular attention to personal protection and engineering measures to be implemented to prevent contaminants from migrating into the surrounding environment during remediation activities.

#### **3.2.2 Environmental Regulatory Notifications**

In addition to the review of the project documents by the WTC Regulators, specific environmental regulatory notifications required by law will be made as follows:

### **NYS DOL Notification**

NYS DOL is the primary jurisdiction for the remediation of asbestos at Fiterman Hall. Regulatory Submittal Part I shall comply with Industrial Code Rule 56 (ICR56) as amended on January 11, 2006. Procedures requiring variance are outlined in Attachment II – NYS DOL Remediation Variance Petition. The remediation work constitutes a ‘Large Project’ according to the criteria outlined in ICR56, therefore written notification of the entire project will be made to the NYS DOL prior to the commencement of any remediation activities. Sample notification will be included as Attachment I of the final version of this plan.

### **NYS DOL Variance Applications**

The Remediation Phase at the Site requires that a site specific variance be granted by NYS DOL. Copies of the variance application and petition letter will be included as Attachment II to the final version of this Work Plan.

### **NYC DEP Notification**

Although a copy of the Regulatory Submittal package will be provided to NYC DEP, ACP7 notification will not be made to the NYC DEP for the Remediation Phase. Jurisdiction for work practices and variances is under NYS DOL guidelines.

### **US EPA Notification**

The remediation work constitutes a ‘Large Project’ according to the criteria outlined in US EPA NESHAP, written notification of the entire project will be made to the US EPA prior to the commencement of any remediation activities. Sample notification is included as Attachment III of this Work Plan.

## **3.2.3 Utilities - General:**

### **Electric**

Electrical power will be supplied by the existing Con Edison transformer located on the south side of the Building (Barclay Street). Power will be fed into a Basement level electrical closet. The power will be run up floor by floor through the central electrical closet to supply 200 Amps of power to each level. GFCI equipped electric panels will be installed on each floor and attached directly to the electrical closet on that level.

### **Plumbing**

Water for the remediation procedure will be obtained from a standpipe that has been

installed in the A-Stairwell. This standpipe runs from the ground level through the 15<sup>th</sup> Floor of the Building. Decontamination facilities installed for use during remediation activities will be operated off of water fed from an existing hydrant on Greenwich Street. PAL currently holds valid permits from NYC DEP to utilize and operate the hydrant (Permit Nos. 420640 & 420643). Permitting for hydrant usage will be kept current for the duration of the remediation activities.

### **HVAC**

The HVAC system will not be operated at any time during the remediation procedures.

### **Fire Protection**

Prior to the commencement of remediation activities on the Site, the existing fire standpipe will be filled, pressure tested, and repaired (if necessary) to make it ready for use by the FDNY in the event of a fire emergency. The standpipe will be operated as a dry system with hose racks. In the event of an emergency, the FDNY would use a pumper truck connected to a street hydrant to deliver water through the standpipe.

### **Elevator Service**

It will be necessary to utilize the existing Building elevators for work access to all floor levels and for the removal of waste from all floors. The elevators were newly installed before the Building sustained damage on 9/11 and remain in good operating condition. Prior to commencing remediation activities, power will be restored to the existing passenger and freight elevator cars. Elevator banks have been assigned names in order to clearly identify each one. The elevator banks for the remediation are as follows:

Bank A: North Passenger Lobby  
Bank B: South Passenger Lobby  
Bank C: Central Freight Car  
Bank D: Basement Freight Car

It will be necessary for all elevators to run through containment areas during remediation. Engineering controls will be implemented in order to prevent the migration of contaminants into clean areas via the elevator shafts.

### **3.2.4 Remediation Operations**

All personnel entering the Building during Remediation Operations are required to utilize the proper personal protective equipment at all times. No personnel will be allowed to enter the Building without proper PPE. The minimum PPE required for Remediation Operations is as

follows:

- Two (2) layers of disposable coveralls with hoods
- Half-face air purifying respirators (APR) fitted with P100 filter cartridges
- Nitrile gloves
- Safety goggles
- Work boots
- Rubber boot covers
- Hard hats
- Hearing Protection (only if noise will exceed OSHA decibel limits)

### **Establishment of Clean Zone**

A Clean Zone will be established on the 1<sup>st</sup> Floor of the Building in order to provide interior areas for staging, waste and material storage and project administration. Additionally, the Clean Zone will extend up one stairwell to provide clean access to all floors. The Clean Zone will comprise all areas with the exception of the Building Core (including Elevator Banks A, B, C) and the East Side Lobby. Remediation of the Core will not take place at this time because it will be necessary to utilize the elevators during remediation operation on the upper floors. Instead, the Core will be incorporated into the modified full containment of all interior floors. Modified full containment refers to a containment consisting of negative pressure ventilation equipment and critical barriers installed on windows and openings or penetrations leading to the outdoor environment. Plastic will not be installed on interior surfaces and other building components that have been deemed contaminated and that will either be decontaminated or disposed of as ACM at a minimum. All remediation activities related to the establishment of the Clean Zone will be performed by NYS DOL licensed asbestos handlers.

The Clean Zone shall include:

- Loading Dock
- Entrance Area at the corner of Greenwich Street and Park Place
- The northeast corner
- The West Broadway Lobby Area
- The southeast corner
- C Stairwell (Floors: 1 through 15)

The remediation on the 1<sup>st</sup> Floor and C Stairwell will be performed by NYS DOL licensed asbestos handlers. The established personal decontamination unit at the northwest entrance to the Building will remain in place and will serve as the personal decontamination unit for the remediation of the Clean Zone. A waste

decontamination facility will be constructed outside the building at the Loading Dock on the western sidewalk (Greenwich Street).

PAL asbestos handlers will install a modified full containment enclosing the 1<sup>st</sup> Floor areas listed above. All windows, openings and building penetrations will be sealed with two (2) layers of 6 mil poly. In order to allow for their cleaning and decontamination, floor, wall and ceiling surfaces will not be plasticized. Hardwall barriers will be constructed on the west side of the elevator lobbies on the 1<sup>st</sup> Floor in order to seal them off during the remediation work. Structural walls will form the remainder of the boundaries of the 1<sup>st</sup> Floor Clean Zone work area. The electrical closet adjacent to Stairwell C will be sealed off with a hardwall barrier. Airlocks will be installed at the entrances to all stairwells with the exception of Stairwell C, which will be decontaminated in conjunction with the 1<sup>st</sup> Floor Clean Zone in order to provide clean access to the upper floors. Stairwells A and B will be incorporated into the modified full containment of the upper floors. The Shredder Zone will be established on the north side of the 1<sup>st</sup> Floor (Park Place). The purpose of cleaning the Shredder Zone is to allow for the installation of an industrial shredding machine.

The north side of the 1<sup>st</sup> Floor is open to the mezzanine tiers of the 2 floors above (2<sup>nd</sup> & 3<sup>rd</sup> Floors). These openings will be sealed off prior to the commencement of remediation activities on the 1<sup>st</sup> Floor. The shredder area will be cleaned to its full height. Workers will utilize baker scaffolding to perform the remediation in this area. Negative pressure ventilation equipment will be installed to establish negative pressure of .02 inch water column within the 1<sup>st</sup> Floor work area and the C Stairwell.

Once cleaned, the northeast corner (Park Place and West Broadway) of the 1<sup>st</sup> Floor will be used as the Project Command Center. All documents, permitting and project records will be stored in this area. Administrative and communications equipment will be located in the Command Center. This area will serve as a security checkpoint. All personnel entering the Building must first check in at the Command Center and present valid identification and licensing (if necessary) before being granted access. The southeast corner (West Broadway and Barclay Street) will serve as a staging area. The north side of the 1<sup>st</sup> Floor will become the Shredder Zone.

### **Upper Level Access**

The East Side Lobby and Elevator Banks A, B and C will not be decontaminated as part of the establishment of the 1<sup>st</sup> Floor Clean Zone so that access to the upper floors will remain available via the elevators. This area will be separated from the Clean Zone by structural walls and the hardwall barriers installed to establish the modified full containment of the Clean Zone work area. All openings between the Clean Zone work area and the East Side Lobby/Elevator Banks will be sealed air tight. A personal waste decontamination unit will be constructed under the overhang at the south entrance to the East Side Lobby on West Broadway. A waste decontamination unit will be constructed at the northern entrance to the East Side

Lobby. The upper level access area will be established simultaneously with the commencement of remediation operations on the 1<sup>st</sup> Floor Clean Zone.

### **Shredder Installation**

To facilitate the remediation operation, a 100 horse power, 35,000 lb. industrial grade shredder will be installed on the North Side of the Building. The installation will begin only after final clearance of the 1<sup>st</sup> Floor Clean Zone has been achieved. To support the weight of the shredder it will first be necessary to shore the floor underneath the 1<sup>st</sup> Floor Shredder Zone. Lolly columns and steel beams will be installed on the Basement Level to shore the floor. Once the floor is shored, a segment of the north side curtain wall will be removed. The shredder will be moved into the building by trailer. Once in place, the shredder will be extended to its maximum height of 12 feet 6 inches. After the containment is in place on all floors, shreddable materials will be loaded into the top of the shredder from the 2<sup>nd</sup> Floor. The shredder will be equipped with a water misting system to control dust while materials are processed through the hopper. Shredded materials will be loaded into Gaylord boxes. Boxes will be encapsulated, labeled, decontaminated and moved to a waste storage area on the west side of the 1<sup>st</sup> Floor adjacent to the loading dock.

Materials that will be shredded during the remediation include:

- Sheetrock
- Duct Work
- Ceiling Tile
- Wood

The above list of items will be referred to collectively as Shreddable Material in this Work Plan. Once the shredder is in place the area will be designated as the 1<sup>st</sup> Floor Shredder Zone. It will be incorporated into the containment of all floors and will remain under negative pressure for the duration of its usage in the remediation operations. Only NYS DOL asbestos handlers will have access to the Shredder Zone. Individuals operating the shredder will be properly trained in its usage. OSHA air sampling will be performed as required. Please note that ACM will not be shredded at any time. Only non-ACM will be placed into the shredder. Additionally, please note that all waste generated by shredding operations will be disposed of as ACM at a minimum.

### **Establishment of Secondary Loading Dock**

In order to implement the most efficient waste removal procedure it is necessary to establish a secondary loading dock. The secondary loading dock will be created in the existing lounge area just north of the existing loading dock on the Greenwich Street side of the Building. After the Clean Zone is established, PAL will remove part of the curtain wall to open the lounge area to the street. The lounge area was

formerly a loading dock and will require only the removal of the curtain wall to convert it back to that use. Both the existing loading dock and the secondary loading dock will be located inside the Clean Zone. The existing loading dock will be used as the location for 100 yard asbestos waste trailers that will be brought to the Site for the disposal of waste as ACM during the remediation and abatement of the upper floors (2 through 15). The secondary loading dock will be used as a docking bay for compactor trucks that will be live-loaded with conventional waste during the remediation of the upper floors (2 through 15).

### **Establishment of Interior Containment (2<sup>nd</sup> Floor through 15<sup>th</sup> Floor)**

The containment of the upper floors will take place simultaneously with the establishment of the Clean Zone. All interior areas on the upper floors will be incorporated into one “modified full containment.” Modified full containment refers to a containment consisting of negative pressure ventilation equipment and critical barriers installed on windows and openings or penetrations leading to the outdoor environment. Plastic will not be installed on interior surfaces and other building components that have been deemed contaminated and that will either be decontaminated or disposed of as ACM at a minimum.

The barrier walls erected on the west side of the elevator lobbies during the establishment of the 1<sup>st</sup> Floor Clean Zone containment will remain in place and function to isolate the East Side Lobby which shall serve as the means of access to the upper floors. The personal waste decontamination facility installed at the south entrance to the East Side lobby will be used during the upper floors containment installation until the 1<sup>st</sup> Floor Clean Zone and Shredder Zone have been established. The waste decontamination unit installed at the north entrance to the East Side lobby will be utilized during the upper floors containment installation until the 1<sup>st</sup> Floor Clean Zone and Shredder Zone have been established.

The modified containment of the upper floors shall be established as follows:

- All elevator shafts will be inside of the containment.
- Windows, openings and penetrations will be plasticized with 2 layers of 6 mil poly.
- Wall, ceiling and floor surfaces will not be plasticized as these surfaces will need to be cleaned, decontaminated and removed.
- Negative pressure of 0.02 inch water column will be established.

Once all openings and penetrations are sealed, the hardwall barrier isolating the 2<sup>nd</sup> Floor Shredder Processing Area will be removed to open it to the 1<sup>st</sup> Floor Shredder Zone below. The 1<sup>st</sup> Floor Shredder Zone will no longer be considered a clean area and will remain separated from the 1<sup>st</sup> Floor Clean Zone by airlocks. All access to the Shredder Zone will be from inside of the containment.

### **Simultaneous Work Procedures**

If the Clean Zone has not been cleared at the time the upper floors have been placed under containment, PAL will proceed with the removal of non-fixed items utilizing the East Side lobby decontamination units. Work on the upper floors will be performed simultaneously with work in the Clean Zone work area if necessary.

The sequence of procedures will not occur simultaneously on any individual floor. However, the sequence may overlap in different areas within the containment. For instance, after all non-fixed items have been removed from floors 15, 14 and 13 the removal of exposed Building Components will begin on those floors while the removal of non-fixed items will begin on the next three floor work zone (which in this example will be 12, 11 and 10). These two different procedures could occur simultaneously, but not within the same three floor work zone. More details on the procedures for the decontamination and abatement of the upper floors are outlined below.

### **Removal of Non-Fixed Items**

Non-fixed item removal operations will begin on the 15<sup>th</sup> Floor and proceed downward, floor by floor. PAL asbestos handlers will work on 3 floors at a time on the upper floors. On each floor the first procedure will be the removal of all non-fixed items including furniture and construction materials. All personnel performing the cleaning and removal of non-fixed items and building components will have valid NYS DOL asbestos handling licenses and will be required to present their license prior to being granted access to the work area.

### **Exposed Building Components (Floors 2 through 15)**

After all non-fixed items have been removed any exposed building components (duct work, electrical conduit, doors, light fixtures) will be manually or mechanically dismantled and detached. Once detached, shreddable building components will be transported to the Shredder Area for shredding, boxing, decontamination and disposal as ACM. Non-shreddable building components will be transported to the wash room of the waste decontamination unit where they will be cleaned and decontaminated by a combination of steam cleaners and power washers. Once clean of all residual dust and debris, these components will be transported out of the waste decontamination unit and loaded into compactor trucks docked at the Secondary Loading Dock for disposal as conventional waste. All exposed building components will be removed in accordance with this procedure, leaving interior walls and ceiling systems remaining on the upper floors.

### **Interior Walls and Ceiling Systems (Floors 2 through 15)**

At this point cardboard Gaylord boxes will be brought to the Upper Floor work areas. The interior walls on the upper floors are composed of sheet rock and have painted finished surfaces. The ceiling systems comprise tiles made from composite material and suspended from metal grid systems that are attached to the structural concrete decking. The sheetrock and ceiling tiles are considered porous materials. The surface of interior walls and ceilings will be HEPA vacuumed and wet wiped to remove all residual dust and debris. Water will be used to control dust during the removal of interior sheet rock walls and ceiling systems. Sheet rock and ceiling tile debris will be loaded into plasticized Gaylord boxes. Full boxes will be properly labeled, processed through the waste decontamination unit and disposed of as asbestos waste. In a second method, sheet rock and ceiling tile debris will be loaded into carts and transported to the Shredder Processing Area. The debris will be shredded and loaded into plasticized Gaylord boxes. Full boxes will be properly labeled, processed through the waste decontamination unit and disposed of as ACM waste. Metal studs and ceiling grid will be separated from the sheetrock and ceiling tile debris. Studs and grid will be transported to the waste decontamination wash room where they will be cleaned by a combination of steam cleaners and power washers. Once clean of all residual dust and debris, studs and ceiling grid will be transported out of the waste decontamination unit and loaded into compactor trucks docked at the Secondary Loading Dock for disposal as conventional waste.

Any Building components existing behind interior walls or within ceiling systems will be dismantled and detached. Detached components will be transported to the waste decontamination wash room where they will be cleaned of residual dust and debris by a combination of steam cleaning and power washing. Once cleaned these remaining components will be transported out of the decontamination unit and loaded into compactor trucks for disposal as conventional waste.

### **Asbestos Abatement**

There is vinyl asbestos floor tile (VAT), caulking and pipe insulation present throughout the upper levels of the Building. Once all non-fixed items and building components have been removed, abatement of the asbestos containing materials will take place. The upper floor work areas will be pre-cleaned by HEPA vacuuming and wet wiping to remove any residual dust and debris that may be present. PAL asbestos handlers will thoroughly wet down ACM at each location where it exists with amended water using airless sprayers. Removal of the asbestos tile, mastic, ACM pipe insulation and caulking will be performed by manual methods utilizing hand held scraping tools. Removed ACM will be placed into plasticized Gaylord boxes upon detachment from the substrate. Once full, each box will be sealed by placing a fitted lid onto it and securing the lid with duct tape. Sealed boxes will be clearly labeled, processed through the waste decontamination unit and disposed of as ACM waste in a 100 yard asbestos trailer docked in the existing loading dock. All surfaces of abated areas, including hardwall barriers, will be HEPA vacuumed, and

wet wiped. Additional hardwall barriers will be installed over the doors to all elevator shafts on each floor once cleaning is complete. At this time access to the cleaned and abated floors will only be available via the cleaned C Stairwell. One 4 hour settling period will then be observed. At the end of this settling period, the Owner's EC will perform final clearance testing on each floor. Although the interior of the Building will be one large containment, PAL will clear floors one by one. It is our belief that this measure of clearance is more stringent than clearing the entire containment at once. Upon clearance of each floor, remaining surfaces on that floor will be encapsulated.

### **Gash Area Abatement Procedures**

The survey conducted by the Owner's Environmental Consultant has indicated that there is VAT present in the south side Gash Area outside of the existing hardwall containment barriers on Floors: 11, 12 and 14. During the installation of the modified full containment on these floors, PAL asbestos handlers will install additional hardwall containment barriers on the Gash Area façade in order to enclose this VAT within the interior of the Building. The additional hardwall barriers will be installed from the exterior scaffolding platforms on the affected floors. The barriers will be sealed air tight with expanding foam so that there is no air transfer between the interior of the Building and the outside environment. Once the additional barriers on 11, 12 and 14 are in place, PAL asbestos handlers working on the installation of the modified containment will remove the existing hardwall containment barriers on these floors. Once the existing barriers are down, the Gash Area on 11, 12 and 14 will be placed under modified full containment. The abatement of VAT in the Gash Area on Floors 11, 12, and 14 will be performed by the same procedure as the rest of the ACM tile within the Building.

### **Remediation of Roof Levels**

The Building Roof Levels consist of the following:

- Cooling Tower Roof
- Main Roof
- 14<sup>th</sup> Floor Set Back
- 6<sup>th</sup> Floor Set Back

Access to all roof levels will be provided to the Office of the Chief Medical Examiner (OCME) should they so require prior to the commencement of remediation activities on these areas. Remediation on the Roof Levels will be performed after the interior remediation and abatement is complete allowing for a 5 month period for the OCME to perform inspections at the Site. PAL will maintain open communication with the OCME so that any necessary inspections can be performed within the 5 month interior remediation procedure. Remediation

operations on the Roof levels shall be performed from the uppermost roof down to the lowest level roof.

### **3.3 Regulatory Submittal Part III(R) – Remediation Health and Safety Plan**

Because health and safety considerations vary for the different phases of work, a remediation-specific HASP is under development for this phase of the project. This HASP will contain all of the information categories noted above for the Scaffold HASP.

### **3.4 Regulatory Submittal Part IV – Waste Sampling & Management Plan**

The Waste Sampling and Management Plan (WSMP) is not a remediation-specific document. It is intended to be applied to both the Remediation Phase and the Deconstruction Phase of the project. The Waste Sampling and Management Plan provides detailed information on the topics listed above in Section 2.5 (Scaffold Waste Plan), but will be expanded to address the additional waste categories that are expected to be encountered during the gut-strip of the entire building and the eventual dismantling of the structure.

## **4.0 Deconstruction Regulatory Submittal Documents**

### **4.1 Response to Regulator Comments Document (Deconstruction)**

As noted in Section 3.1 above, the Regulators provided comments on the Draft Submittal of the Fiterman Hall Work Plan that was submitted by the Fiterman Hall Project Team on January 10, 2006.

Responses to the regulator comments that have relevance to the proposed deconstruction phase work will be provided in a formal response document.

### **4.2 Regulatory Submittal Part I(D) – Deconstruction Work Plan**

This plan will detail the sequence of work and the work practices to be employed to execute the dismantling, packaging, loading and transport of the structural components of the building that remain on completion of the Remediation Phase. As previously stated, it is the intent of the project to conduct the remediation and environmental clearance of the entire structure prior to beginning deconstruction activities. As noted above for the Remediation Work Plan, this document will contain all regulatory notifications required by the WTC Regulators.

### **4.3 Regulatory Submittal Part III(D) – Deconstruction HASP**

Because health and safety considerations vary for the different phases of work, a deconstruction-specific HASP is under development for the Deconstruction Phase of the project. This HASP will contain all of the information categories noted above for the Remediation and Scaffold HASPs.