

Executive Summary

At the request of Mr. Michael Fucci as agent for **CUSHMAN & WAKEFIELD, INC., Consulting & Testing Services, Inc. (CTSI)** performed environmental testing at 88 Pine Street facility. The purpose of the sampling was to evaluate the building's air quality and dust composition subsequent to the World Trade Center tragedy.

Testing was performed from September 13th, 2001 through September 21st, 2001.

- **Air samples** were collected as part of building air quality/dust control evaluation and during clean up processes from the following floors: Concourse, Lobby, Basement, 2nd, 3rd, 5th, 6th, 7th, 9th, 10th, 11th, 12th, 15th, 19th, 20th, 21st, 23rd, 24th, 26th, 27th, 28th, 32nd and 33rd. All samples collected were transported to an independent certified laboratory, **EMSL Analytical**, for analysis. Samples were analyzed utilizing Phase Contrast Microscopy (PCM) Methodology (Fiber Analysis of Air Samples via NIOSH 7400, Revision 3, Issue 2, 8/15/94).

Based on the attached certificate of analysis, the final air quality samples collected on September 18th and 19th, indicate fiber counts are within the **Occupational Safety & Health Administration (OSHA)** Permissible Exposure Limit (PEL) of 0.1 f/cc (fibers per cubic centimeter). Total of five (5) air quality samples were collected.

Air samples collected during clean up phases were within New York State and City clearance criteria of <0.01 f/cc. Total of one hundred-sixteen (116) samples were collected during clean up phases.

- **Dust / Wipe Samples** were collected from the following areas: Roof, outside building-north side, 11th fl., 32nd fl., 33rd fl., ground floor and basement. Samples were collected from debris on the roof and dust/debris from the other locations. A total of fifteen (15) dust samples were collected.

All samples collected were transported to an independent certified laboratory, **EMSL Analytical**, for analysis. Samples were analyzed utilizing Polarized Light Microscopy (PLM) Methodology qualitative and NY State ELAP 198.1 methods. In addition, dust samples collected on September 16th were analyzed utilizing Transmission Electron Microscopy (TEM) ASTM Method D5755.95.

Samples collected on September 16th from outside the building on the north side indicated presence of asbestos. Other samples collected from the 11th floor north A/C unit inside and outside, 11th fl. MER and Ground floor northeast A/C unit outside tested positive for the presence of asbestos.



All surfaces such as but not limited to the air-handling units, passenger and freight elevator lobbies, loading dock, main lobby, concourse level, roof top and cooling tower were wet wiped and HEPA vacuumed by a licensed asbestos contractor. All air filters within the said fan units were removed and disposed of as asbestos waste.

Please refer to the laboratory certificate of analysis for all samples collected.

In addition to the above, **CTSI** performed **Indoor Air Quality** testing from various areas of the building. The testing was performed for Particulate, Carbon Monoxide & Dioxide, Temperature & Relative Humidity. Temperature & Carbon Dioxide (CO₂) levels were slightly elevated due to building shut down. Relative Humidity, Carbon Monoxide and Dust Particulate levels are within the OSHA standards.

CO₂ is a colorless, odorless, tasteless gas that results from a combustion or metabolic process. Low CO₂ concentration levels (which come from people) are always present in buildings. At concentrations above 5,000 PPM in air, a loss of mental acuity will occur. CO₂ levels greater than 1,000 PPM indicate the lack of fresh air and poor ventilation or over occupation. Highly susceptible populations (i.e., elderly, asthmatic, immunodeficient) will experience some discomfort at levels of 800 PPM and greater. Typical office levels for CO₂ are listed between 300 and 800 PPM. All levels collected on September 25th ranged from 422 PPM to 706 PPM. Please refer to section VII.

The licensed asbestos contractor utilized for the project was **Degmor, Inc.** They have sent their documentation directly to your office.

Due to the outside air conditions with elevated dust levels and fumes from the clean up process, **CTSI** recommends that the outside fresh air louvers be kept closed and only opened when outside air has been checked by building engineering staff. Lack of fresh outside air will result in elevated Carbon Dioxide levels during building full occupancy after 10:00 AM. Tenants may report an increase in symptoms such as but not limited to headaches, mild dizziness and fatigue.

CTSI also, recommend the air filters on all fan units be inspected on a daily basis and if necessary, replaced during the outside clean up process. The cleaning contractor should only utilize HEPA filtered vacuums for building cleaning.

Furthermore, **CTSI** recommend periodic air quality monitoring during the outside clean up process.

Thank you for giving **CTSI** the opportunity to assist you on this project.



BULK SAMPLE ANALYSIS

Client: Cushman/Wakefield **CTSI Project #:** NY-391-01 **Location:** 88 Pine Street

PLM

SAMPLE ID#	LOCATION	SAMPLE TYPE	PLM ANALYZED
September 13, 2001			
01	Roof	Debris	<1% Chrysotile <1% Amosite
02	Roof	Debris	<1% Chrysotile
03	Roof	Debris	N/D
September 16, 2001			
01	Outside Bldg.-North Side	Dust	1.60% Chrysotile
02	Outside Bldg. North Side	Dust	1.40% Chrysotile
03	Outside Bldg. North Side	Wipe	Chrysotile
04	Outside Bldg. North Side	Wipe	Chrysotile

N/D =None detected PLM = Polarized Light Microscopy
TEM = Transmission Electron Microscopy

TEM

SAMPLE ID#	LOCATION	SAMPLE TYPE	NOB-TEM ANALYZED
September 16, 2001			
01	11 Fl. South A/C unit inside	Air Quality	ND
02	11 Fl. South A/C unit outside	Air Quality	ND
03	11 Fl. North A/C unit inside	Air Quality	Chrysotile
04	11 Fl. North A/C unit outside	Air Quality	Chrysotile
05	11 Fl. Mechanical Rm.	Air Quality	Chrysotile
06	32 Fl. North A/C unit inside	Air Quality	ND
07	33 Fl. South A/C unit inside	Air Quality	ND
08	32 Fl. Stairwell	Air Quality	ND
09	Gr. Fl. NE A/C unit outside	Air Quality	Chrysotile
10	Gr. Fl. SE A/C unit outside	Air Quality	ND
11	Basement NE A/C unit inside	Air Quality	ND
12	Basement SE A/C unit inside	Air Quality	ND

N/D =None detected PLM = Polarized Light Microscopy
TEM = Transmission Electron Microscopy NOB= Non Organically Bound

