

The State of Connecticut
Department of Housing (DOH)
Community Development Block Grant Disaster Recovery Program
(CDBG-DR)

Owner Occupied Rehabilitation and Rebuilding Program (OORR)

BID PACKAGE

For

Rehabilitation/Reconstruction work to:

Brackeem Residence
153 Twin Brook Road
Hamden, CT 06514

Diversified Technology Consultants, Inc.

2321 Whitney Avenue, Suite 301

Hamden, CT 06518

203.239.4200

June 23, 2014

Rev. 7/1/2014

Rev.8/29/2014

Project #: 2072



Table of Contents

Section 1:

Advertisement for Bids	3
Bid Submission Checklist	4
Information to Bidders	5
Bid Form	8
Form of Non-Collusive Affidavit.....	11
Bidders Certification of Eligibility.....	12
Certification of General Bidders on CDBG-DR Construction Projects	13
Certification of Sub Bidders on CDBG-DR Construction Projects.....	14
Performance and Payment Bonds.....	15
Subcontractor Identification	16
Certification of Bidder Regarding Equal Employment Opportunity	17
Green Building Standards Checklist	18

Section 2:

General Conditions.....	22
-------------------------	----

Section 3:

Scope of Work and Specifications,	28
Index of Specifications	
List of Drawings and Figures	
List of Attachments	

Section 1

ADVERTISEMENT FOR BIDS

Project # 2072

The State of Connecticut Department of Housing (DOH) is seeking proposals through a Request for Proposal (RFP) process for the rehabilitation, reconstruction and/or mitigation of residential structures damaged by Superstorm Sandy in compliance with all applicable local, federal, and state statutory requirements with special attention paid to requirements for Community Development Block Grants under the United States Department of Housing and Urban Development (“HUD”) Disaster Recovery grant program.

Separated sealed bids for Rehabilitation / Reconstruction work for Brackeem Residence, 153 Twin Brook Road, Hamden, CT 06514 will be received by Diversified Technology Consultants until **4:00** o'clock PM on **Tuesday, September 16, 2014**.

The Information to Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Form of Bid Bond, Performance and Payment Bond or Security, and other contract documents may be examined on the Department of Housing Hurricane Sandy Recover website at www.ct.gov/doh/ and click on the “Hurricane Sandy” link.

Copies of plans may be downloaded directly from the Department of Housing website under bid notices or obtained at the office of Diversified Technology Consultants located at 2321 Whitney Avenue, Suite 301, Hamden, CT upon payment of \$ 30.00 for each set.

DOH reserves the right to waive any informalities or to reject any or all bids.

Attention to bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wages rates to be paid under the contract (if applicable), Section 3, Segregated Facilities, Section 109 and E. O. 11246.

No bidder may withdraw his bid within 30 calendar days after the actual date of the bid opening thereof.

BID SUBMISSION CHECKLIST

Project # _____

- | | |
|---|-----|
| BID FORM COMPLETE | () |
| ACKNOWLEDGEMENT of BIDDER COMPLETE | () |
| BID SECURITY | |
| N/A | () |
| Credit Letter | () |
| Bid Bond | () |
| AFFIDAVIT of NON-COLLUSION | () |
| BIDDER'S ELIGIBILITY | () |
| GENERAL BIDDER CERTIFICATION | () |
| SUBCONTRACT BIDDER CERTIFICATION | () |
| SUBCONTRACTOR IDENTITY | () |
| CONTRACT SCHEDULE | () |
| SPECIFICATION REQUIRED BID SUBMISSIONS | |
| N/A | () |
| ABATEMENT WORK PLANS | () |
| OTHER | () |

Bidder's Name:

Authorized Officer:

(Signature)

(Date)

(Print Name)

(Title/Position)

INFORMATION FOR BIDDERS

Receipt and Opening of Bids:

The State of Connecticut Department of Housing (herein called the "DOH"), invites bids on the form attached. Bids will be received by DOH at the office of Diversified Technology Consultants until **4:00 o'clock PM on Tuesday, September 16, 2014.**

The envelopes containing the bids must be sealed, addressed to **OORR BID: #2072 at Diversified Technology Consultants, 2321 Whitney Avenue, Suite 301, Hamden, CT** and designated as bid for Rehabilitation/Reconstruction work to **Brackeem Residence, 153 Twin Brook Road, Hamden, CT 06514, Project #2072.**

DOH may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement there considered. NO bidder may withdraw a bid within 30 days after the actual date of the opening thereof.

Mandatory Walk Through: All bidders must attend a mandatory walk through of the property designated above. The date and time of the walk through is set for 9:00 o'clock AM on Tuesday, September 9, 2014.

Preparation of Bids:

Each bid must be submitted on the prescribed form and accompanied by Certification by Bidder Regarding Equal Employment Opportunity, Form HUD-950.1, and Certification of Bidder Regarding Section 3 and Segregated Facilities. All blank spaces for bid process must be filled in, in ink or typewritten, in both words and figures, and the foregoing Certifications must be fully completed and executed when submitted.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his/her address, and the name of the project for which the bid is submitted. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form.

Subcontracts: The bidder is specifically advised that any person, for, or other party to whom it is proposed to award a subcontract under this contract:

1. Must be acceptable to the DOH after verification by the State of the current eligibility status; and,
2. Must submit Form HUD-950.2, Certification by Proposed Subcontractor Regarding Equal Employment Opportunity and Certification of Proposed Subcontractor Regarding Section 3 and Segregated Facilities. Approval of the proposed subcontractor award cannot be given by the DOH unless and until the proposed subcontractor has submitted the Certifications and/or other evidence showing that it has fully complied with any reporting requirements to which it is or was subject. Although the bidder is not required to attach such Certifications by proposed subcontractors to his/her bid, the bidder is here advised of this requirement so that appropriate action can be taken to prevent subsequent delay in subcontract awards.

Method of Bidding: DOH invites the following bid(s):

Qualifications of Bidder: The DOH may make such investigations as he/she deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the DOH all such information and date for

this purpose as the DOH may request. The DOH reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the DOH that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted. The State's set Contractor Prequalifications are available at the Department of Housing's Hurricane Sandy Recovers website www.ct.gov/doh/ and click on the "Hurricane Sandy" link.

Conditions of Work: Each bidder must inform him/herself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provision of his/her contract. Insofar as possible the contractor, in carrying out the work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

Addenda and Interpretations: No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally.

Every request for such interpretation should be in writing addressed to: **Michael P. Casey** at Diversified Technology Consultants; via e-mail michael.casey@teamdtc.com and, to be given consideration, must be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instruction will be in the form of written addenda to the specifications which, if issued, will be forwarded by electronic mail and posted on DOH's Hurricane Sandy website to all prospective bidders (at the respective email addresses furnished for such purposes), not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the contract documents.

Performance and Payment Bonds: A performance and payment bond will be required of the successful bidder (contractor) for 100 percent of the contract price on contracts over \$100,000.

Notice of Special Conditions: Attention is particularly called to those parts of the contract documents and specifications which deal with the following:

1. Inspection and testing of materials
2. Insurance requirements
3. Wage rates (if applicable)
4. State allowances

Laws and Regulations: The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

Method of Award-Lowest Qualified Bidder: If at the time this contract is to be awarded, the lowest base bid submitted by a responsible bidder does not exceed the amount of funds then estimated by the DOH as available to finance the contract; the contract will be awarded on the base bid only. If such bid exceeds such amount, the DOH may reject all bids or may award the contract on the base bid combined with such deductible alternatives applied in

numerical order in which they are listed in the Form of Bids, as produces a net amount which is within the available funds.

If the homeowner wishes to select a prequalified bidding contractor other than the lowest and most responsible bidder, said owner is responsible for paying the difference between the lowest bidder and their chosen bidder from their own financing.

Obligation of Bidder: At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

Safety Standards and Accident Prevention: With respect to all work performed under this contract, the contractor shall:

1. Comply with the safety standards provision of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the "Federal Register," Volume 36, No 75, Saturday, April 17, 1971.
2. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) who may be injured on the job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

Contract Progress Schedule: Each bid shall be accompanied by a Contract Progress Schedule. Such Schedule shall list the bidder's timetable for completion of the contract.

BID FORM

The undersigned, being familiarized with the local conditions affecting the cost of the work and with the Drawings, Specifications, Invitation to Bidders, Instructions to Bidders, General Conditions, Bid Form, Form of Contract and Form of Bonds for Project No. #2072 and Addenda No. and thereto, as prepared by Diversified Technology Consultants, Engineers, Hamden Connecticut, and on file in the office of DOH, hereby proposes to furnish all permits, labor, materials, tools, equipment and related items required for the rehabilitation and reconstruction including general construction, site improvements, plumbing, heating, electrical and finish items for said Project No. #2072 located at Brackeem Residence, 153 Twin Brook Road in Hamden, State of Connecticut, all in accordance with the Drawings and Specifications, for the sum of :

_____ Dollars (\$ _____).

Words

Section #	Scope of Work	Subcontractor	Labor Cost	Material	Total
<u>011000</u>	<u>General Construction</u>				
<u>021000</u>	<u>Asbestos Abatement</u>				
<u>024119</u>	<u>Selective Demolition & Removal of Equipment, Cabinetry & Misc. Items</u>				
<u>062000</u>	<u>Carpentry</u>				
<u>072119</u>	<u>Foamed-In-Place Insulation</u>				
<u>079200</u>	<u>Joint Sealants</u>				
<u>092900</u>	<u>Gypsum Wallboard</u>				
<u>096516</u>	<u>Resilient Sheet Flooring</u>				
<u>099123</u>	<u>Interior Painting</u>				
<u>260000</u>	<u>Electrical</u>				
TOTAL COST					

ALTERNATE PROPOSALS

The undersigned bidder further proposes and agrees that should any or all of the following Alternates be accepted and included in the Contract, the amount of the Base Bid, as heretofore stated, shall be adjusted by the amount stated for each Alternate. All materials and workmanship shall be in strict accordance with the Drawings and Specifications and shall be in-place prices.

Alternates

No. <u>1</u> REPLACE FRONT DOOR	_____	\$
No. <u>2</u> REPLACE REAR DOOR	_____	\$
No. <u>3</u> REPLACE ELECTRICAL RECEPTACLE (EA)	_____	\$
No. <u>4</u> REPLACE ELEC. LIGHTING CIRCUIT (EA)	_____	\$

The undersigned agrees to commence the work on a date to be specified in the contract and to complete such work within 45 consecutive calendar days.

The undersigned agrees that if within the period of thirty (30) days after the opening of bids, or when extended to the next work day immediately following said period, notice of the acceptance of this bid shall be mailed, or delivered to him/her at the business address given below, or at any time thereafter before this bid is withdrawn, will within fifteen (15) days thereafter deliver to the DOH, where directed, a contract properly executed in such number of counterparts as may be required by said DOH, on the forms annexed, with such changes therein as shall have been made by DOH, prior to the time named for delivery of this proposal, and a letter indicating those Small/Minority Business Enterprises that will perform work and/or provide materials, equipment or services as part of the contract.

In submitting this bid, it is understood that the right is reserved by the abovementioned DOH to reject any and all bids; and it is agreed that this bid may not be withdrawn for a period of thirty (30) days from the date of bid opening or until the next work day immediately following said period if such period ends on a weekend or a State holiday.

Attached hereto is an affidavit, in proof that the undersigned has not entered into any collusion with any person in respect to this proposal, or any other proposal, or the submitting of proposals for the above Project. Also attached is a statement of contractor's qualifications, Certification of Bidder Regarding Equal Employment Opportunity, and Segregated Facilities.

Acknowledgement of Bidder

I, THE UNDERSIGNED AS AN AUTHORIZED OFFICER OF:

(Company Name)

(Date)

(Address)

(Telephone)

(City/State/Zip)

(Fax No.)

(FEIN)

I HEREBY SUBMIT THE FOLLOWING PRICES FOR THE PROJECT IDENTIFIED ABOVE: (Indicate in words and numerals)

BASE BID PRICE: Cost (\$) _____

AMOUNT IN WORDS: _____

(Signature)

(Date)

(Printed Name)

(Title/Position)

(Email address) _____

FORM OF NON-COLLUSIVE AFFIDAVIT

AFFIDAVIT

State of _____)

County of _____)

_____, being first duly sworn, deposes and says:

That he/she is, _____ the party making the foregoing proposal for bid, that such proposal or bid is genuine and not collusive or sham; that said bidder has not colluded, conspired, connived or agreed, directly or indirectly, with any bidder or person, to put in a sham bid or to refrain from bidding, and has not, in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference, with any person, to fix the bid price of affiant or of any other bidder, or to fix any overhead, profit or cost element of said bid price, or of that of any other bidder, or to secure any advantage against DOH or any person interested in the proposed contract, and that all statements in said proposal for bid are true.

Project No. _____

Location _____

Signature

Name and Title

Date

(Signature should be notarized.)

BIDDER'S CERTIFICATION OF ELIGIBILITY

By the submission of this bid, the bidder certifies that to the best of its knowledge and belief, neither it, nor any person or firm which has an interest in the bidder's firm, nor any of the bidder's subcontractors, is ineligible to:

- (1) Be awarded contracts by any agency of the United States Government or HUD; or,
- (2) Participate in HUD programs pursuant to 24 CFR part 24.

(Name of Bidder)

(Address)

BY: _____

Title: _____

NOTE: This certification is a material representation of fact upon which reliance is placed when making award. If it is later determined that the bidder knowingly rendered an erroneous certification, the contract may be terminated for default, and the bidder may be debarred or suspended from participation in HUD programs and other Federal programs.

CERTIFICATION OF GENERAL BIDDERS ON CDBG-DR CONSTRUCTION PROJECTS

I. CERTIFICATION REGARDING HEALTH AND SAFETY

The undersigned hereby certifies that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee

II. CERTIFICATION REGARDING NON-COLLUSION AND DEBARMENT

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies that neither he/she nor any firm, corporation, partnership or association in which he/she has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6 (b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5), or pursuant to Section 3 (a) of the Davis-Bacon Act, as amended (40 USC 276a). The undersigned further certifies that said undersigned is not presently debarred from doing public construction work in the State of Connecticut.

Date: _____

Name of General Bidder

By _____

Signature

Print name and title

Business Address

Street Address City and State

OSHA-10 OSHA-10

CERTIFICATION OF SUB- BIDDERS (IF ANY) ON CDBG-DR CONSTRUCTION PROJECTS

I. CERTIFICATION REGARDING HEALTH AND SAFETY

The undersigned hereby certifies that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee

II. CERTIFICATION REGARDING NON-COLLUSION AND DEBARMENT

The undersigned further certifies under penalties of perjury that this subbid is in all responses bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the “person” shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies that neither he/she nor any firm, corporation, partnership or association in which he/she has a substantial interest is designated as an ineligible contractor by the Comptroller General of the United States pursuant to Section 5.6 (b) of the Regulations of the Secretary of Labor, Part 5 (29 CFR, Part 5), or pursuant to Section 3 (a) of the Davis-Bacon Act, as amended (40 USC 276a). The undersigned further certifies that said undersigned is not presently debarred from doing public construction work in the State of Connecticut.

Date _____

Name of Sub-bidder

By _____

Signature

Print Name and Title

Business Name

Street Address, City and State

SUBCONTRACTOR IDENTIFICATION

(Provide additional forms for more subcontractors, as needed prior to contract execution.)

This form is a part of your bid package and must be submitted along with the itemized and formal bid forms at the time of the bid opening. Failure to submit a completed document could result in the disqualification of your bid.

Name of Subcontractor: _____

Address: _____

Trade: _____

Hourly Wage: \$_____ Full Contract Price: \$_____

Federal Tax# or SSN #: _____

Male Owned Business _____ Female Owned Business _____

Is he/she of Hispanic or Latino ethnicity? Yes _____ No _____

Race: (Please check one)

- White American Indian/Alaskan Native
 Black/African American Hasidic Jew
 Asian/Pacific American

Name of Subcontractor: _____

Address: _____

Trade: _____

Hourly Wage: \$_____ Full Contract Price: \$_____

Federal Tax# or SSN #: _____

Male Owned Business _____ Female Owned Business _____

Is he/she of Hispanic or Latino ethnicity? Yes _____ No _____

Race: (Please check one)

- White American Indian/Alaskan Native
 Black/African American Hasidic Jew
 Asian/Pacific American

Name of Subcontractor: _____

Address: _____

Trade: _____

Hourly Wage: \$_____ Full Contract Price: \$_____

Federal Tax# or SSN #: _____

Male Owned Business _____ Female Owned Business _____

Is he/she of Hispanic or Latino ethnicity? Yes _____ No _____

Race: (Please check one)

- White American Indian/Alaskan Native
 Black/African American Hasidic Jew
 Asian/Pacific American

Contractor's Signature

Date

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F R 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

CERTIFICATION OF BIDDER

Name and address of Bidder (include zip code)

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause.
 YES NO
2. Compliance reports were required to be filed in connection with such contract or subcontract.
 YES NO
3. Bidder has filed all compliance reports due under applicable instructions, including SF.100.
 YES NO NOT REQUIRED
4. Have you ever seen or are you being considered for sanction due to violation of Executive Order 11246, as amended?
 YES NO
5. No segregated facilities will be maintained.

NAME AND TITLE OF SIGNER (Please type.)

SIGNATURE

DATE

Green Building Standards Checklist

HUD CPD Green Building Retrofit Checklist

The CPD Green Retrofit Checklist promotes energy efficiency and green building practices for residential retrofit projects. Grantees must follow the checklist in its entirety and apply all measures within the Checklist to the extent applicable to the particular building type being retrofitted. The phrase “when replacing” in the Checklist refers to the mandatory replacement with specified green improvements, products, and fixtures only when replacing those systems during the normal course of the retrofit.

WATER AND ENERGY CONSERVATION MEASURES

N/A

Water-Conserving Fixtures

Install or retrofit water conserving fixtures in any unit and common facility, use the following specifications: Toilets-- 1.28 gpf; Urinals-- 0.5 gpf; Showerheads-- 2.0 gpm; Kitchen faucets-- 2.0 gpm; and Bathroom faucets-- 1.5gpm. [gpf = gallons per flush; gpm = gallons per minute]

N/A

ENERGY STAR Appliances

Install ENERGY STAR-labeled clothes washers, dishwashers, and refrigerators, if these appliance categories are provided in units or common areas.

X

Air Sealing: Building Envelope

Seal all accessible gaps and penetrations in the building envelope. If applicable, use low VOC caulk or foam.

X

Insulation: Attic (if applicable to building type)

For attics with closed floor cavities directly above the conditioned space, blow in insulation per manufacturer's specifications to a minimum density of 3.5 Lbs. per cubic foot (CF). For attics with open floor cavities directly above the conditioned space, install insulation to meet or exceed IECC levels.

N/A

Insulation: Flooring (if applicable to building type)

Install \geq R-19 insulation in contact with the subfloor in buildings with floor systems over vented crawl spaces. Install a 6-mil vapor barrier in contact with 100% of the floor of the crawl space (the ground), overlapping seams and piers at least 6 inches.

N/A

Duct Sealing (if applicable to building type)

In buildings with ducted forced-air heating and cooling systems, seal all penetrations of the air distribution system to reduce leakage in order to meet or exceed ENERGY STAR for Homes' duct leakage standard.

N/A

Air Barrier System

Ensure continuous unbroken air barrier surrounding all conditioned space and dwelling units. Align insulation completely and continuously with the air barrier.

N/A

Radiant Barriers: Roofing

When replacing or making a substantial repair to the roof, use radiant barrier sheathing or other radiant barrier material; if economically feasible, also use cool roofing materials.

- N/A** **Windows**
When replacing windows, install geographically appropriate ENERGY STAR rated windows.
- N/A** **Sizing of Heating and Cooling Equipment**
When replacing, size heating and cooling equipment in accordance with the Air Conditioning Contractors of America (ACCA) Manuals, Parts J and S, or 2012 ASHRAE Handbook--HVAC Systems and Equipment or most recent edition.
- N/A** **Domestic Hot Water Systems**
When replacing domestic water heating system(s), ensure the system(s) meet or exceed the efficiency requirements of ENERGY STAR for Homes' Reference Design. Insulate pipes by at least R-4.
- X** **Efficient Lighting: Interior Units**
Follow the guidance appropriate for the project type: install the ENERGY STAR Advanced Lighting Package (ALP); **OR** follow the ENERGY STAR MFHR program guidelines, which require that 80% of installed lighting fixtures within units must be ENERGY STAR-qualified or have ENERGY STAR-qualified lamps installed; **OR** when replacing, new fixtures and ceiling fans must meet or exceed ENERGY STAR efficiency levels.
- N/A** **Efficient Lighting: Common Areas and Emergency Lighting** (if applicable to building type)
Follow the guidance appropriate for the project type: use ENERGY STAR-labeled fixtures or any equivalent high-performance lighting fixtures and bulbs in all common areas; **OR** when replacing, new common space and emergency lighting fixtures must meet or exceed ENERGY STAR efficiency levels. For emergency lighting, if installing new or replacing, all exist signs shall meet or exceed LED efficiency levels and conform to local building codes.
- N/A** **Efficient Lighting: Exterior**
Follow the guidance appropriate for the project type: install ENERGY STAR-qualified fixtures or LEDs with a minimum efficacy of 45 lumens/watt; **OR** follow the ENERGY STAR MFHR program guidelines, which require that 80% of outdoor lighting fixtures must be ENERGY STAR-qualified or have ENERGY STAR-qualified lamps installed; **OR** when replacing, install ENERGY STAR compact fluorescents or LEDs with a minimum efficacy of 45 lumens/watt.

INDOOR AIR QUALITY

- N/A** **Air Ventilation: Single Family and Multifamily** (three stories or fewer)
Install an in-unit ventilation system capable of providing adequate fresh air per ASHRAE 62.2 requirements.
- N/A** **Air Ventilation: Multifamily** (four stories or more)
Install apartment ventilation systems that satisfy ASHRAE 62.2 for all dwelling units and common area ventilation systems that satisfy ASHRAE 62.1 requirements. If economically feasible, consider heat/energy recovery for 100% of corridor air supply.
- N/A** **Composite Wood Products that Emit Low/No Formaldehyde**

Composite wood products must be certified compliant with California 93120. If using a composite wood product that does not comply with California 93120, all exposed edges and sides must be sealed with low-VOC sealants.

- | | |
|-----|---|
| X | Environmentally Preferable Flooring
When replacing flooring, use environmentally preferable flooring, including the FloorScore certification. Any carpet products used must meet the Carpet and Rug Institute's Green Label or Green Label Plus certification for carpet, pad, and carpet adhesives. |
| X | Low/No VOC Paints and Primers
All interior paints and primers must be less than or equal to the following VOC levels: Flats--50 g/L; Non-flats--50 g/L; Floor--100 g/L. [g/L = grams per liter; levels are based on a combination of the Master Painters Institute (MPI) and GreenSeal standards.] |
| X | Low/No VOC Adhesives and Sealants
All adhesives must comply with Rule 1168 of the South Coast Air Quality Management District. All caulks and sealants must comply with regulation 8, rule 51, of the Bay Area Air Quality Management District. |
| N/A | Clothes Dryer Exhaust
Vent clothes dryers directly to the outdoors using rigid-type duct work. |
| X | Mold Inspection and Remediation
Inspect the interior and exterior of the building for evidence of moisture problems. Document the extent and location of the problems, and implement the proposed repairs according to the Moisture section of the EPA Healthy Indoor Environment Protocols for Home Energy Upgrades. |
| X | Combustion Equipment
When installing new space and water-heating equipment, specify power-vented or direct vent combustion equipment. |
| N/A | Mold Prevention: Water Heaters
Provide adequate drainage for water heaters that includes drains or catch pans with drains piped to the exterior of the dwelling. |
| X | Mold Prevention: Surfaces
When replacing or repairing bathrooms, kitchens, and laundry rooms, use materials that have durable, cleanable surfaces. |
| N/A | Mold Prevention: Tub and Shower Enclosures
When replacing or repairing tub and/or shower enclosures, use non-paper-faced backing materials such as cement board, fiber cement board, or equivalent in bathrooms. |
| X | Integrated Pest Management
Seal all wall, floor, and joint penetrations with low-VOC caulking or other appropriate sealing methods to prevent pest entry. [If applicable, provide training to multifamily buildings staff.] |
| X | Lead-Safe Work Practices |

For properties built before 1978, if the project will involve disturbing painted surfaces or cleaning up lead contaminated dust or soil, use certified renovation or lead abatement contractors and workers using lead-safe work practices and clearance examinations consistent with the more stringent of EPA's Renovation, Repair, and Painting Rule and HUD's Lead Safe Housing Rule.

X

Radon Testing and Mitigation (if applicable based on building location)

For buildings in EPA Radon Zone 1 or 2, test for radon using the current edition of American Association of Radon Scientists and Technologists (AARST)'s Protocols for Radon Measurement in Homes Standard for Single-Family Housing or Duplexes, or AARST's Protocol for Conducting Radon and Radon Decay Product Measurements in Multifamily Buildings. To install radon mitigation systems in buildings with radon level of 4 pCi/L or more, use ASTM E 2121 for single-family housing or duplexes, or AARST's Radon Mitigation Standards for Multifamily Buildings. For new construction, use AARST's Reducing Radon in New Construction of 1 & 2 Family Dwellings and Townhouses, or ASTM E 1465.

Section 2

General Conditions

1. The purpose of this HUD and DOH sponsored 0% interest loan Owner Occupied Rehabilitation and Rebuilding program is to make good faith efforts to assist qualified property owners in making repairs to their property damaged by Superstorm Sandy. Eligible repairs include code, health and safety compliance modifications, including but not limited to building envelope and energy efficiency upgrades (See Green Building Standards).
2. In the event that the homeowner is dissatisfied with the work performed although the work has been completed to industry standards, approved by the local municipality's code enforcement officials and approved by the DOH or its agent, the homeowner's approval will be overridden, full payment will be issued to the contractor and the project will be officially closed.
3. The owner is responsible for removal or relocation from the respective work areas the following, including but not necessarily limited to: personal belongings, window treatments, small furniture, fixtures, area carpets, interior and exterior plants. The contractor will be responsible for covering and protecting large furniture unable to be removed from the respective work areas.
4. The Contractor, unless otherwise specified, shall provide all labor, materials, tools, equipment, and related items required for the erection and completion of all work indicated in this project manual and as may be inferred, implied or otherwise necessary for the proper execution of the work.
5. The Contractor shall pay all necessary taxes, fees, and permits necessary to complete all of his work as detailed on the attached scope of work.
6. The premises herein shall be occupied during the course of the construction work.
7. All rehabilitation, alterations, repairs, or extensions shall be in compliance with all applicable codes of the Municipality, HUD requirements or compliance with the latest edition of the International Building Code, which ever applies and is the more strict. All electrical, heating, and plumbing work shall comply with the rules and regulations of the National, State and Local Codes. Before commencing work, contractors and/or subcontractors shall obtain all necessary permits.
8. The Contractor certifies that he has familiarized himself with the requirements of the specifications and plans and understands the extent and character of the work to be done, and inspected the premises and given his full attention to any and all areas with which he might become specifically involved. He must familiarize himself with all conditions relating to and affecting his work and bid.
9. The selected Contractor must, prior to contract signing, supply the DOH and the Owner with the original certificates of insurance in accordance with the following insurance requirements:
 - A. Contractor shall procure and maintain for the duration of the Agreement the following types of insurance, in amounts no less than the stated limits, against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder:
 - 1) Workers' Compensation Insurance: The Contractor shall maintain full and complete Workers' Compensation Insurance for all of its employees and those of its subcontractors engaged in work on the premises, in accordance with the local and state laws governing the same, in the minimum amounts of \$100,000 each accident, \$500,000 disease – Policy limit, \$100,000 disease – each employee.
 - 2) General Liability Insurance: The Contractor shall furnish evidence of a comprehensive general liability insurance coverage with a combined single limit for bodily injury, death, and property damage in the amount of \$1,000,000 per occurrence, naming the Owner and the State as additional insured. This shall cover the use of all equipment, hoists and vehicles on the Premises not covered by any automobile liability policy. If the Contractor has a "claims-made" policy, then the following additional requirements apply: (a) the policy must provide a retroactive date which must be on or before the execution date of this Agreement and (b) the extended reporting period may not be less than five (5) years following the Construction Completion Date.
 - 3) Automobile Liability: The Contractor shall furnish evidence of Automobile Liability insurance with minimum limits of \$1,000,000 per occurrence, combined single limit for bodily injury and property damage liability. This shall include owned vehicles, non-owned vehicles and employee non-ownership.
 - 4) Cargo Insurance: The Contractor shall furnish evidence of all-risk cargo insurance, with a minimum limit of \$250,000 per occurrence when the project involves raising a structure above the Base Flood Elevation.
 - 5) Builders Risk: The Contractor shall maintain Builder's Risk (fire and extended coverage) insurance providing coverage for the entire work at the project site, including all work in place, all materials stored at the building site, foundations and building equipment. Coverage shall be on a completed value form basis in an amount equal to the projected value of the project. The Contractor agrees to endorse the State of Connecticut and the Owner as Loss Payees.

B. Additional Insurance Provisions

- 1) Each of the Owner and the State of Connecticut Department of Housing, and their successors and assigns, as their interests may appear, shall be named as an Additional Insured on the Commercial General Liability policy.
 - 2) Described insurance shall be primary coverage and Applicant and Applicant's insurer shall have no right of subrogation recovery or subrogation against the State of Connecticut.
 - 3) Applicant shall assume any and all deductibles in the described insurance policies.
 - 4) Without limiting Applicant's obligation to procure and maintain insurance for the duration identified in (A) above, each insurance policy shall not be suspended, voided, cancelled or reduced except after thirty (30) days prior written notice by certified mail has been given to the State of Connecticut, with the exception that a ten (10) day prior written notice by certified mail for non-payment of premium is acceptable.
 - 5) Each policy shall be issued by an Insurance Company licensed to do business by Connecticut Department of Insurance and having a minimum Best Rating of A- or equivalent or as otherwise approved by the State.
10. DOH and its agents must be notified prior to start of work of any subcontractor to be paid for work on the job who is different from the subcontractor identified in original bid proposal.
 11. Working times for the project shall be Monday through Friday 8 am to 5 pm (EST). Contractors must request permission from owner and be in compliance with local municipal ordinances prior to working longer hours or weekends.
 12. All materials shall be new and of acceptable quality. The Contractor shall submit proof of purchase of warrantee items at closeout. The property Owner shall select all colors, models, etc. as per scope of work. All materials and work must be applied in accordance with the applicable manufacturer's latest instructions and specifications, and in accordance with Federal prohibitions against the use of lead paint.
 13. All manufacturers' warranties are to be extended to the property Owner free and clear of all liens. Unless otherwise specified, all labor, material, and workmanship provided by the Contractor shall be guaranteed by the Contractor, including that of subcontractors, for a one (1) year period from the date of the Final Payment. This guarantee shall be in addition to and not in limitation of, in lieu of, or modify and other guarantee that is due the property Owner from any manufacturer.
 14. The Contractor shall repair or replace all work, materials and equipment which are found to be defective during construction and the guarantee period. Repair shall include all damage to surrounding work caused by the failure and/or necessary for the repair or replacement of the defect. All repairs and replacements shall be performed at no additional expense to the Owner and shall be completed promptly after the Contractor receives notice of the defect.
 15. The Contractor shall take all necessary measures and precautions to protect the surroundings from damage occurring due to performance of the work. All areas and surfaces of the existing building which are affected by the execution of the new work (removals, demolition, repairs etc.) shall be patched and restored to either match the existing adjacent conditions or to match the new work, whichever is applicable. If such damage occurs it will be repaired by the Contractor at no cost to the Owner. Contractor shall provide all temporary shoring, bracing and other construction (interior and exterior) required to perform the work of this contract.
 16. The Contractor shall dispose of all debris and remove all material resulting from his work in accordance with local and State law. The Contractor shall police and maintain a clean and safe job site daily. He shall reinstall accessories taken down and clean up all scrap around the project and remove fingerprints. All on-site maintenance relating to the performance of the work shall be the responsibility of the Contractor until the Certificate of Completion is issued. The project shall be maintained in a habitable and safe condition daily if the project is to remain occupied.
 17. Materials and products not otherwise specified in these documents shall be to match building standards and existing conditions, provided such items are in compliance with all applicable codes. Such codes set the minimum standards to be achieved.
 18. All work shall be neat and accurate and done in a manner in accordance with customary trade practices, **The Contractor, at a minimum, shall leave the premises broom clean and orderly after each working day and shall keep the premises free from accumulation of materials and rubbish by disposing of such debris in an onsite disposal container (provided by the contractor) or removed by vehicle in accordance with all applicable state and local regulations.** At the completion of the project the Contractor shall remove all excess materials from the site. Any surplus material agreed to be left for the owner shall be stored neatly by the contractor in a location directed by the owner free from weather, spoilage or pilferage.
 19. The Contractor shall coordinate any work which interfaces with other Contractors or with the operations of the Owner. The Contractor shall take all necessary precautions to prevent fire, bodily injury, damage to property and any other calamities that may arise which pose a threat to life, limb property.
 20. The Contractor shall not make any changes to the scope of work unless a change order is processed and fully executed by the DOH.

21. The Owner may cancel this contract within three days of signing and not be liable to the Contractor or DOH. Should the Owner opt to cancel they must sign and send a Notice of Cancellation to DOH, otherwise DOH shall issue a Notice to Proceed authorizing the contractor to commence with the proposed improvements.
22. The Contractor shall commence work under this contract within 15 work days of the date of the notice to proceed and complete work within **60** calendar days of the notice to proceed.
23. If the Contractor is delayed at any time in the progress of the work by any act or neglect of the Owner or by any employee of the Owner, or by any separate Contractor employed by the Owner, or by changes ordered in the work or by labor disputes, fire, unusual delay in delivery of materials, transportation, adverse weather conditions not reasonably anticipatable, unavoidable casualties, or any cause beyond the Contractor's control, or by delay authorized by the Owner pending arbitration, or by any other cause which justifies the delay, the contract time may be extended by Change Order for such reasonable time as may be agreed upon by all parties. It shall be the responsibility of the Contractor to request and document in writing such extensions within three (3) work days.
24. In the event that the Contractor does not commence or pursue the work as hereinafter stated, then DOH shall have the right to terminate this agreement and to hire a successor Contractor to perform the work. Any such termination shall be by certified mail to the address noted in this agreement, and shall be effective as of the date of mailing. Payments by the DOH/Owner in the event of termination shall be as follows:
25. The successor Contractor shall first be paid and then the terminated Contractor. Payments to the terminated Contractor shall be limited both as to those funds remaining after payment to the successor Contractor but shall not exceed the value of the work actually performed by the terminated Contractor. Further, should the total cost for work performed under this contract exceed the amount stated in this agreement due to the Contractor's termination, then the Owner shall have a cause of action against the terminated Contractor for any such additional cost.
26. If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner his obligations under this Contract, or if the Contractor shall violate any of the covenants, agreements, or stipulations of this Contract, DOH shall, thereupon, have the right to terminate this Contract by giving written notice to the Contractor of such termination and specifying the effective date of such termination. In such event, all unfinished work required by the Contractor under this Contract shall, at the option of the DOH, be completed or not.
27. Payments
 - 1) DOH/Homeowner shall pay the Contractor the price as provided in this contract.
 - 2) DOH shall make progress payments approximately every 30 days as the work proceeds, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer. DOH may, subject to written determination and approval of the Contracting Officer, make more frequent payments to contractors which are qualified small businesses.
 - 3) Before the first progress payment under this contract, the Contractor shall furnish, in such detail as requested by the Contracting Officer, a breakdown of the total contract price showing the amount included therein for each principal category of the work, which shall substantiate the payment amount requested in order to provide a basis for determining progress payments. The breakdown shall be approved by the Contracting Officer and must be acceptable to DOH. The values and quantities employed in making up this breakdown are for determining the amount of progress payments and shall not be construed as a basis for additions to or deductions from the contract price. The Contractor shall prorate its overhead and profit over the construction period of the contract.
 - 4) The Contractor shall submit, on AIA forms provided by DOH, periodic estimates showing the value of the work performed during each period based upon the approved breakdown of the contract price. Such estimates shall be submitted not later than 14 days in advance of the date set for payment and are subject to correction and revision as required. The estimates must be approved by the Contracting Officer with the concurrence of the Architect prior to payment. If the contract covers more than one project, the Contractor shall furnish a separate progress payment estimate for each.
 - 5) Along with each request for progress payments and the required estimates, the Contractor shall furnish lien waivers and labor releases as good and sufficient evidence that the premises are free from all liens, damages, and anything chargeable to said contractor.
 - 6) Except as otherwise provided in State law, DOH shall retain five (5) percent of the amount of progress payments until completion and acceptance of all work under the contract; except, that if upon completion of 50 percent of the work, the Contracting Officer, after consulting with the Architect, determines that the Contractor's performance and progress are satisfactory, DOH may make the remaining payments in full for the work subsequently completed. If the Contracting Officer subsequently determines that the Contractor's performance and progress are unsatisfactory, DOH shall reinstate the five (5) percent retainage until such time as the Contracting Officer determines that performance and progress are satisfactory. Retainage will be released 90 days after project completion.
 - 7) The Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration when computing progress payments. Material delivered to the Contractor at locations other than the site may also be taken into consideration if the Contractor furnishes satisfactory evidence that (1) it has acquired title to such material; (2) the material is properly stored in a bonded warehouse, storage yard, or similar suitable place as may be approved by the Contracting Officer; (3) the material is insured to cover its full value; and (4) the material will be used to perform this contract. Before any progress payment which includes delivered material is made, the Contractor shall furnish such documentation as the Contracting Officer may require to assure the protection of DOH's/Homeowner's interest in such materials. The Contractor shall remain responsible for such stored material notwithstanding the transfer of title to the Homeowner.
 - 8) All material and work covered by progress payments made shall, at the time of payment become the sole property of the Homeowner, but this shall not be construed as (1) relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or, (2) waiving the right of DOH/Homeowner to require the fulfillment of all of the terms of the contract. In the event the work of the Contractor has been damaged by other contractors or persons other than employees of DOH in the course of their employment, the Contractor shall

restore such damaged work without cost to DOH/Homeowner and to seek redress for its damage only from those who directly caused it.

- 9) DOH shall make the final payment due the Contractor under this contract after (1) completion and final acceptance of all work; and (2) presentation of release of all claims against DOH/Homeowner arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. Each such exception shall embrace no more than one claim, the basis and scope of which shall be clearly defined. The amounts for such excepted claims shall not be included in the request for final payment. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned.
- 10) Prior to making any payment, the Contracting Officer may require the Contractor to furnish receipts or other evidence of payment from all persons performing work and supplying material to the Contractor, if the Contracting Officer determines such evidence is necessary to substantiate claimed costs.
- 11) DOH shall not; (1) determine or adjust any claims for payment or disputes arising there under between the Contractor and its subcontractors or material suppliers; or, (2) withhold any moneys for the protection of the subcontractors or material suppliers. The failure or refusal of DOH to withhold moneys from the Contractor shall in nowise impair the obligations of any surety or sureties under any bonds furnished under this contract.

28. Disputes

- 1) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the contract, unlike a claim relating to the contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.
 - 2) Except for disputes arising under the clauses entitled Labor Standards - Davis Bacon and Related Acts, herein, all disputes arising under or relating to this contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this clause.
 - 3) All claims by the Contractor shall be made in writing and submitted to the Contracting Officer for a written decision.
 - 4) A claim by the Homeowner against the Contractor shall be subject to a written decision by the Contracting Officer.
 - 5) The Contracting Officer shall, within calendar 60 (unless otherwise indicated) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.
 - 6) The Contracting Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in DOH in accordance with DOH's policy and procedures, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within (30 unless otherwise indicated) calendar days after receipt of the Contracting Officer's decision.
 - 7) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the contract, and comply with any decision of the Contracting Officer.
29. The Contractor will not discriminate against any employee or applicant for employment because of race, color, creed, religion, sex, sexual preference, national origin, or mental or physical disability during the performance of this agreement. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, in all employment practices such as the following: employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship, without regard to their race, color, creed, religion, sex, sexual preference, national origin or mental or physical disability. This provision will be inserted in all subcontracts, if any, for work covered by this agreement.

30. Equal Employment Opportunity (EEO) Clause

During the performance of this contract, the Contractor agrees as follows:

- 1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and the employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
- 2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- 3) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- 4) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor.
- 5) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.
- 6) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of

September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by the rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

- 7) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided, however, that in the event a Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.
31. In the event of the Contractor's noncompliance with this equal opportunity clause or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further contracts in accordance with procedures authorized in Presidential Executive Order 11246, or by rule, regulations, or order of the Secretary of Labor or as provided by law.
32. The following applies to all contracts of \$10,000,000.00 or more: SECTION 402 VETERANS OF THE VIETNAM ERA. AFFIRMATIVE ACTION FOR DISABLED VETERANS AND VETERANS OF THE VEITNAM ERA. The Contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran of the Vietnam era in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veteran status in all employment practices such as the following: employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.
33. No officer, employee or member of the Governing Body of the Municipality shall have any financial interest, direct or indirect, in this contract or the proceeds of this loan.
34. DOH retains the right to reject any or all bids or any part of any bid in part or in whole if deemed to be in the best interest of the project.
35. Substitutions of materials from that specified are only allowed on an approved/equal basis. The Contractor must submit written documentation of the substitute item or material for approval by the Owner and Program prior to making such substitution. Any items or material substituted by the Contractor without prior written approval of the Owner and Program will at the Contractor's expense be replaced if it is determined not to be equal to the item or material specified. Any surrounding, adjoining, or dependent items affected by replacement of the unequal substituted material shall also be replaced, reworked, and reinstalled at no cost to the Owner.
36. Bids shall contain prices for general categories of work and/or items as specified on the provided bid sheets. In the case of a mathematical error by the Contractor, the correct sum of the individual line items in the cost summary shall be the Contractor's bid.
37. All bids shall remain in effect for thirty (30) calendar days.
38. The Owner will supply all necessary power required by the Contractor at no additional cost to complete his work. Power shall be limited to the use of existing outlets and shall not exceed the existing capacity of the system. Power required over the capacity of the existing electrical system shall be the responsibility of the Contractor. Heating during construction shall be supplied by the Owner.
39. If any unseen or unknown asbestos related conditions arise during the work the Contractor shall stop all work immediately and notify the DOH of such.
40. OTHER PROVISIONS – LEAD BASED PAINT

For properties built before 1978, if the project will involve disturbing painted surfaces or cleaning up lead contaminated dust or soil, use certified renovation or lead abatement contractors and workers using lead-safe work practices and clearance examinations consistent with the more stringent of EPA's Renovation, Repair, and Painting Rule and HUD's Lead Safe Housing Rule. The Contractor shall comply with the requirements concerning lead-based paint contained in the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821-4846) as implemented by 24 CFR Part 35 and EPA's Repair Renovation, and Painting Rule at 40 CFR.80 Subpart E.

Any and all rehabilitation work under this Agreement will comply with the requirements of the Federal Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4831) which prohibits the use of lead-based paint in residential structures constructed or rehabilitated with Federal Assistance in any form.

The construction or rehabilitation of residential structures with assistance provided under this contract is subject to the final regulations "Requirements for Notification, Evaluation and Reduction of Lead-Based Paint Hazards in Federally owned Residential Property and Housing Receiving Federal Assistance." The regulation is at 24 CFR part 35. It implements sections 1012 and 1013 of the Residential Lead-Based Paint Hazard Reduction Act of 1992, Title X, of the Housing and Community Development Act of 1992. Sections 1012 and 1013 amend the Lead-Based Paint Poisoning Prevention Act of 1971.

Beginning April 22, 2010, the Contractor is required to have a certificate from a 6 hour EPA/HUD RRP lead remediation course.

41. The Contractor shall comply with the provisions of the immigration Reform and Control Act of 1986 effective and enforceable as of June 6, 1987 which Act makes unlawful the hiring for employment or subcontracting individuals failing to provide documentation of legal eligibility to work in the United States. The Contractor shall hold DOH, its agents and the Homeowner harmless for the failure to comply with the provisions of said Act.

Section 3:

Scope of Work and Specifications

Index of Specifications

011000	Summary
012100	Allowances
012300	Alternates
015000	Temporary Facilities & Controls
017300	Execution
020800	Asbestos Abatement
024119	Selective Demolition and Removal of Equipment, Cabinetry and Misc. Items
062000	Carpentry
072119	Foamed-In-Place Insulation
079200	Joint Sealants
081000	Doors and Hardware
092900	Gypsum Board
096516	Resilient Sheet Flooring
099123	Interior Painting
026000	Electrical

List of Drawings and Figures

D-1 Demolition Plan
A-1 Work Plan
A-2 Ceiling/Wall Sections
A-3 Photo Mark-Up 1
A-4 Photo Mark-Up 2
A-5 Photo Mark-Up 3
E-1 Electrical Work Plan

Attachments

Lead Report
Asbestos Report

SECTION 011000 – SUMMARY

SCOPE OF WORK

REFERENCES

THIS SECTION COVERS THE REQUIREMENTS FOR THE WORK AND ALL WORK REQUIRED TO PROVIDE A COMPLETE AND FINISHED DWELLING. EXAMINE ALL CONTRACT DRAWINGS AND ALL OTHER SECTIONS OF THE SPECIFICATIONS INCLUDING ATTACHEMENTS AND REPORTS WHICH COMPRISE THE SCOPE OF WORK.

DEFINITIONS

'NOTED' - AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

"PROVIDE" AND "INSTALL" MEAN PROVIDE MATERIAL, LABOR, EQUIPMENT, AND APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION OF THE ITEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, IN PLACE FULLY OPERATIONAL OR FUNCTIONAL AS INTENDED FOR ITS USE BY THE OWNER.

NOTICE OF HAZARDOUS MATERIALS ON SITE

NOTICE IS HEREBY GIVEN TO THE EXISTENCE OF ASBESTOS CONTAINING MATERIAL DISCOVERED ON SITE. REFERENCE IS MADE TO ATTACHED ASBESTOS AND LEAD REPORTS PROVIDED FOR YOUR USE.

REFERENCE IS ALSO MADE TO THE ATTACHED LEAD REPORT PREPARED BY CHEMSCOPE RELATED TO THIS WORK.

PERMITS, FEES AND INSPECTIONS

THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, PAY FOR ALL GOVERNMENT, STATE SALES TAXES AND APPLICABLE FEES. THE CONTRACTOR SHALL FILE ALL DRAWINGS, COMPLETE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS FROM THE PROPER AUTHORITY OR AGENCY HAVING JURISDICTION. OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION COVERING WORK. THE CONTRACTOR SHALL SEE THAT ALL REQUIRED INSPECTIONS AND TESTS ARE MADE AND SHALL COOPERATE TO MAKE THESE TESTS AS THOROUGH AND AS READILY MADE AS POSSIBLE.

SCOPE

THIS WORK SHALL CONSIST OF THE FURNISHINGS OF ALL LABOR, MATERIALS AND SERVICES REQUIRED COMPLETE, READY FOR CORRECT OPERATION AND LIKE NEW MOVE-IN CONDITION FOR ALL ELEMENTS OF THE WORK AS CALLED FOR BY THE ACCOMPANYING DRAWINGS AND SPECIFICATIONS. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT CODE AND AUTHORITY HAVING JURISDICTION OF THE WORK. CONTRACTOR SHALL REMOVE ALL CONSTRUCTION WASTE FROM THE SITE AND DISPOSE OF IN ACCORDANCE TO LAW.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSESS THE FIELD CONDITIONS AND DETERMINE THE EFFORT AND ALL WORK REQUIRED TO PERFORM COMPLETION OF THE CONTRACT IN ACCORDANCE WITH THE PLAN OF WORK INCLUSIVE OF DRAWINGS, SPECIFICATIONS, RELATED REPORTS AND REFERENCES.

ALL PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

THE SCOPE OF WORK INCLUDES THE FOLLOWING AS FURTHER DETAILED ON THE ACCOMPANYING SCOPE OF WORK DOCUMENTS:

KITCHEN

SECURE & PROTECT HOME FROM DUST.
REMOVE CABINETS & COUNTERTOP, DISHWASHER & SINK, REFRIGERATOR, OVEN & HOOD. STORE AND SAFELY SECURE FOR REINSTALLATION.
PERFORM ASBESTOS ABATEMENT ACTIVITIES – CONTAINMENTS, MONITORING, REMOVAL, CLEARANCE TESTING. REMOVING ALL FLOORING AND WALLBOARD COMPOUND AS ASBESTOS CONTAINING MATERIAL. (SEE ASBESTOS REPORT)
PERFORM CLEARANCE TESTING
DEMOLISH WALLS BEHIND CABINETS, CEILING, FLOORING, BASE AND UNDERLAYMENT
DEMOLISH CEILING INSULATION AND WALL INSULATION.
DEMOLISH ELECTRICAL RECEPTACLES, CEILING LIGHT, & CEILING FAN/LIGHT.
INSTALL NEW ELECTRICAL CIRCUITS AT (2) WATER DAMAGED RECEPTACLES & CEILING LIGHT AND FAN/LIGHT.
INSTALL ELECTRICAL ITEMS FOR CODE COMPLIANT KITCHEN.
INSTALL NEW SPRAY FOAM INSULATION IN EXTERIOR WALLS AND IN CEILINGS
INSTALL NEW MR GYPSUM WALLBOARD IN WALLS AND CEILING
PAINT WALLS AND CEILING.
INSTALL NEW KITCHEN FLOOR UNDERLAYMENT & PREPARE FOR FLOORING PER MANUFACTURER'S REQUIREMENTS.
INSTALL NEW VINYL KITCHEN FLOOR & BASE AT WALL PERIMETER AND BASE CABINETS.
REPAIR DELAMINATION OF COUNTERTOP & REINSTALL.
REINSTALL COUNTERTOPS, CABINETS, SINK & DISHWASHER, OVEN & HOOD, REFRIGERATOR.
INSTALL FINISH ELECTRICAL GFCI DEVICES AND NEW LIGHT & FAN LIGHT FIXTURE.
RETURN FURNITURE & RE-INSTALL EQUIPMENT IN KITCHEN.

LIVING ROOM

ABATE ASBESTOS CONTAINING MATERIALS (SEE ASBESTOS REPORT). REMOVE ALL WALLBOARD COMPOUND AS ASBESTOS CONTAINING MATERIAL.
PERFORM ASBESTOS CLEARANCE TESTING, PROVIDE WASTE MANIFESTS AND TEST RESULTS.
SECURE & PROTECT HOME FROM DUST.
REMOVE WALL & CEILING DRYWALL TO STUDS, TRIM, & BASE, CHAIR RAILS & MISC. WALL MOUNTED DEVICES.
REMOVE AND REPLACE WATER DAMAGED INSULATION, RECEPTACLE & CIRCUIT.
INSTALL NEW DRYWALL WALL
INSTALL NEW TRIM; DOOR CASEMENTS, WINDOW CASEMENTS, PASSTHROUGH OPENING CASEMENTS, CHAIR RAIL, BASE MOULDING.
INSTALL NEW SPRAY FOAM INSULATION IN EXTERIOR WALLS AND IN CEILINGS
FINISH INSTALLED PRODUCTS REQUIRING FINISH: PAINT WALL, CEILING, AND TRIM.

OTHER:

PROVIDE SMOKE DETECTORS, CARBON MONOXIDE DETECTORS THROUGHOUT HOUSE IN COMPLIANCE WITH CODE.

DUSTPROOFING: CONTRACTOR SHALL INSTALL POLYETHYLENE DUST BARRIERS TO PROTECT THE AREAS OTHER THAN THE KITCHEN AND LIVING ROOM FROM DUST GENERATED DURING DEMOLITION AND NEW CONSTRUCTION WORK.

SECTION 012100 – ALLOWANCES

1. DOME LIGHT FIXTURE – MATERIAL; AN ALLOWANCE OF \$ 100.00 SHALL BE INCLUDED IN THE BID FOR THE PURCHASE OF KITCHEN DOME LIGHT FIXTURE TO BE SELECTED BY THE OWNER. BASE BID SHALL INCLUDE ALL LABOR FOR INSTALLATION AND COORDINATION FOR SELECTION OF THE FIXTURE.
2. DECORATIVE FAN LIGHT FIXTURE - MATERIAL; AN ALLOWANCE OF \$ 300.00 FOR ONE FIXTURE SHALL BE INCLUDED IN THE BID FOR THE PURCHASE OF A DOME LIGHT FIXTURE TO BE SELECTED BY THE OWNER. BASE BID SHALL INCLUDE ALL LABOR FOR INSTALLATION AND COORDINATION FOR SELECTION OF THE FIXTURE.
3. VINYL FLOORING - MATERIAL; AN ALLOWANCE OF \$ 20.00 PER SQUARE YARD FOR SHALL BE INCLUDED IN THE BID FOR THE PURCHASE OF VINYL FLOORING TO BE SELECTED BY THE OWNER. BASE BID SHALL INCLUDE ALL LABOR FOR INSTALLATION AND COORDINATION FOR SELECTION OF THE FLOORING.

SECTION 012300 – ALTERNATES

THE FOLLOWING ADDED WORK ALTERNATES SHALL BE BID AND OFFERED FOR ACCEPTANCE BY THE OWNER.

ADD ALTERNATE NO. 1 REPLACE FRONT DOOR – PRICE SHALL INCLUDE \$ 600.00 MATERIAL ALLOWANCE FOR SELECTION OF DOOR BY OWNER, ALL LABOR AND MATERIALS REQUIRED FOR THE REMOVAL AND DISPOSAL OF EXISTING FRONT DOOR AND INSTALLATION OF NEW INSULATED METAL DOOR, COMPLETE WITH DOOR HARDWARE AND DEAD-BOLT LOCK. DOOR SHALL BE PAINTED FINISH UNLESS PRE-FINISHED DOOR IS SELECTED.

ADD ALTERNATE NO. 2 REPLACE REAR DOOR - PRICE SHALL INCLUDE \$ 500.00 MATERIAL ALLOWANCE FOR SELECTION OF DOOR BY OWNER, ALL LABOR AND MATERIALS REQUIRED FOR THE REMOVAL AND DISPOSAL OF EXISTING FRONT DOOR AND INSTALLATION OF NEW INSULATED METAL DOOR, COMPLETE WITH DOOR HARDWARE AND DEAD-BOLT LOCK. DOOR SHALL BE PAINTED FINISH UNLESS PRE-FINISHED DOOR IS SELECTED.

ADD ALTERNATE NO. 3 REPLACE ELECTRICAL RECEPTACLE (EA) - UNIT PRICE BID ALTERNATE FOR REPLACEMENT OF DUPLEX RECEPTACLES IN THE KITCHEN AND LIVING ROOM NOT BEING REPLACED IN THE WORK OF THE BASE BID. PRICE SHALL BE FOR FINISHED WORK COMPLETE IN PLACE AND INCLUDE GFCI RECEPTACLE OR GROUNDED CIRCUIT AS MAY BE APPLICABLE AND WALL PLATE.

ADD ALTERNATE NO. 4 REPLACE ELEC. LIGHTING CIRCUIT(EA) - UNIT PRICE BID ALTERNATE FOR REPLACEMENT OF LIGHTING CIRCUIT SWITCHES IN THE KITCHEN AND LIVING ROOM NOT BEING REPLACED IN THE WORK OF THE BASE BID. PRICE SHALL INCLUDE NEW LIGHTING CIRCUIT, BOXES, SWITCHES AND SWITCH PLATES.

SECTION 015000– TEMPORARY FACILITIES AND CONTROLS

CONTRACTOR SHALL PROVIDE STORAGE CONTAINER FOR OWNER ITEMS TO BE SECURELY STORED DURING RENOVATION AND ABATEMENT ACTIVITIES.

DUSTPROOFING: CONTRACTOR SHALL INSTALL POLYETHYLENE DUST BARRIERS TO PROTECT THE AREAS OTHER THAN THE KITCHEN AND LIVING ROOM FROM DUST GENERATED DURING DEMOLITION AND NEW CONSTRUCTION WORK.

PROTECTION OF FLOORING TO REMAIN: PROTECT EXISTING HARDWOOD FLOORING DURING CONSTRUCTION AND RENOVATION OPERATIONS. REPAIR ANY DAMAGE TO HARDWOOD FLOORING OCCURRING AS A RESULT OF CONSTRUCTION ACTIVITY.

CONTRACTOR SHALL PROVIDE PORTABLE TOILET FOR USE OF CONSTRUCTION PERSONEL DURING THE CONSTRUCTION ACTIVITIES.

SECTION 017300 – EXECUTION

STRUCTURAL ELEMENTS: CONTRACTOR SHALL NOT CUT ANY STRUCTURAL ELEMENTS IN THE PERFORMANCE OF THE WORK.

CUTTING AND PATCHING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CUT AND PATCH AND PERFORM THE CONSTRUCTION IN A MANNER TO RESULT IN A FINISHED PRODUCT. WHERE NEW MATERIALS MATCH EXISTING MATERIALS, CONTRACTOR SHALL PROTECT EXISTING MATERIALS FROM DAMAGE. WHERE DAMAGE OCCURS THE DAMAGED ELEMENT SHALL BE REPAIRED TO LIKE NEW CONSTRUCTION.

REMOVE HARDWARE, COVERS, PLATES, AND SIMILAR ITEMS ALREADY IN PLACE THAT ARE REMOVABLE AND ARE NOT TO BE DEMOLISHED PRIOR TO DEMOLITION AND ABATEMENT ACTIVITIES..

IT IS THE CONTRACTORS RESPONSIBILITY TO EXAMINE AND ACCEPT THE CONDITION OF THE WORK PRIOR TO INSTALLATION OF THE NEXT PHASE OF WORK TO ENSURE ALL TOLERANCES AND OTHER CONDITIONS EFFECTING PERFORMANCE OR FINISHED PRODUCT QUALITY HAVE BEEN ACHIEVED. REWORK IS THE RESPONSIBILITY OF THE CONTRACTOR.

1. EXAMINE ROUGHING-IN FOR MECHANICAL AND ELECTRICAL SYSTEMS TO VERIFY ACTUAL LOCATIONS OF CONNECTIONS BEFORE EQUIPMENT AND FIXTURE INSTALLATION.
2. EXAMINE WALLS, FLOORS, AND ROOFS FOR SUITABLE CONDITIONS WHERE PRODUCTS AND SYSTEMS ARE TO BE INSTALLED.
3. VERIFY COMPATIBILITY WITH AND SUITABILITY OF SUBSTRATES, INCLUDING COMPATIBILITY WITH EXISTING FINISHES OR PRIMER
4. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. PROCEEDING WITH THE WORK INDICATES ACCEPTANCE OF SURFACES AND CONDITIONS.

TABLE OF CONTENTS

TABLE OF CONTENTS

PART	PAGE #	DESCRIPTION
PART 1	2	BACKGROUND INFORMATION
PART 2	3-5	SCOPE OF WORK
PART 3	6-8	SCOPE OF WORK ADDITIONAL DETAILS
PART 4	9-26	DIVISION 1: ASBESTOS ABATEMENT
PART 5	27-30	DEFINITIONS
PART 5	31	LIST OF DRAWINGS
ATTACHED	32	APPENDIX A ASBESTOS PRE-RENOVATION INSPECTIONS (13 PAGES)

PART 1 - BACKGROUND INFORMATION

1.1 REASON FOR THE WORK:

- A. The asbestos abatement at this facility is being done to accommodate the planned renovation to repair storm damage. The scope of the renovations involves:
 - 1. Based on the storm damage the following items are scheduled for removal and replacement: kitchen floor, kitchen ceiling, kitchen walls, living room ceiling and living room Wall A (North Wall). Additionally smoke and carbon monoxide detectors are to be installed in the following sheetrock ceilings: all three bedrooms, first floor hallway, basement stairs and basement Family Room.

1.2 BUILDING DESCRIPTION:

- A. The subject building is a single-family, one-story, ranch-style house totaling approximately 1000 sq ft, which was built in 1951 of wood-frame construction. Heat is supplied from a furnace in the basement, through forced air ducts. At the time of our screening, there were no children under the age of six residing at this subject house and the house was not being used as a daycare facility.

PART 2 - ASBESTOS SCOPE OF WORK

2.1 BASIC SERVICES:

- A. Asbestos work areas are listed in Schedule A.
- B. Examine all conditions, as they exist at the work site prior to submitting a bid for the work of this Section. Where amounts or quantities are given these amounts or quantities have been estimated. Contractor shall have no claim as to added work as the result of accepting said estimates. Contractor is required to verify quantities on site and report any discrepancies no later than seven (7) calendar days before the bid due date or to accept the amounts or quantities to be correct as herein stated.
- C. Furnish all labor, materials, and services for the removal and disposal of all specified asbestos-containing material (ACM) located at 153 Twin Brook Road, Hamden, CT. The asbestos abatement to be performed will be as needed to support the renovation activities. All work shall be coordinated by the Contractor. If the drawings or specifications should provide a contradiction, the most stringent information or requirement shall apply, as determined by the Engineer. All ACM detected in the path of the renovation must be removed prior to the renovation of the subject building. Except where noted, perform incidental demolition to access materials to be removed where removal is indicated.
- D. Contractor shall retain a State of Connecticut licensed Asbestos Abatement Contractor (AAC) to perform the asbestos abatement work of this Section.
- E. Engineer shall retain an Industrial Hygiene firm, with a State of Connecticut Licensed Project Monitor (PM) that shall be designated as the authorized representative of the Owner for purposes of monitoring the asbestos abatement work. The level of monitoring shall be at the discretion of the Engineer. The Contractor will regard the PM's direction as authoritative and binding as provided herein, in matters particularly but not limited to approval of work areas, pre-abatement inspections and final completion of the abatement. Final visual inspection will be conducted by a CT DPH Licensed Project Monitor for all abatement work completed. Where needed, air clearance testing and monitoring shall be performed by a CT DPH Licensed Project Monitor. Cooperate with the client and testing laboratory in scheduling and obtaining samples.
- F. Any deviation from these specifications requires the written approval and authorization from the Owner.
- G. Contractor is responsible for proper disposal of all ACM wastes.
- H. Quantities given either in this specification are estimated; The Asbestos Abatement Contractor is responsible for accepting the quantities or measuring them to his satisfaction. The Asbestos Abatement Contractor shall have no claim as to added work as the result of accepting said measurements or other stated conditions. The Asbestos Abatement Contractor shall report any discrepancies to the Owner and to the Engineer or accept the amounts or quantities to be correct as herein stated.

- I. All replacement materials will be put in by others. Only non-asbestos replacement materials can be used.
- J. Refer to drawings appended where work locations are shown schematically.
- K. In the event of disagreement between drawings and the specification, the specification shall take precedence.
- L. The Work of this Project Design is to be done in accordance with applicable regulations and these specifications. Where this design and regulations disagree, the strictest requirements shall be observed.

2.2 DETAILED SCOPE OF WORK:

- A. The AAC shall refer to the Asbestos Pre-Renovation Inspection Report in the Appendix A of these Specifications and the instructions to follow.
- B. This Section specifies the requirements for the removal of ACM at the Work Site. The Work includes, but may not be limited to, removal and disposal of the following ACM from 153 Twin Brook Road (Hamden, CT) including all selective demolition and dismantling needed to perform the work, as delineated in Schedule A. The quantities of ACM in Schedule A are approximate.
- C. Remove Asbestos Containing Materials (ACM) as delineated in Schedule A. The quantities (if given) of ACM in Schedule A are approximate. In all cases before abatement, review the General Contractor's latest plans before doing any demolition to insure that materials to remain are not demolished.
- D. If the ACM flooring is to remain under the cabinets the flooring under the cabinets will be cut (as clean as possible) to the base of the cabinet and any remaining flooring under the cabinets will be sealed with a caulk at the conclusion of the cleaning.
 - 1. Interior:
 - a. Remove all (approximately 150 square feet) ACM linoleum flooring with gray fibrous backing and adhesive down to bare wood floor or wood sub-floor (must pass CT DPH "no visible residue" criteria), from the Kitchen. The Work is shown in Schedule A. The area is shown schematically in the attached drawings.
 - b. Remove all (approximately 275 sq ft) of sheetrock ceiling from the Living Room. The sheetrock has ACM taping compound and is regulated by OSHA, CT-DPH and EPA.
 - c. Remove all (approximately 175 sq ft) of sheetrock Wall A (street side, North Wall) from the Living Room. The sheetrock has ACM taping compound and is regulated by OSHA, CT-DPH and EPA.
 - d. Perform glovebag removals of <1 sq ft of sheetrock ceiling in each of the following areas: Hallway, Bedroom 1, Bedroom 2, Bedroom 2, Bedroom 3 and Basement Stairs, as described in 3.2.

2.3 SCHEDULE A:

MATERIAL

LOCATION

~FOOTAGE

INTERIOR:

Marble-style pliable linoleum* with white backing and sticky adhesive* on **Gold/White pliable ACM linoleum with gray fibrous backing and adhesive** (on yellow pliable linoleum* with black fibrous paper backing and brown adhesive on wood floor)

Kitchen

150 sq ft

Beige ACM taping compound on sheetrock**

Living Room Ceiling
 Living Room Wall A
 Bedroom 1
 Bedroom 2
 Bedroom 3
 Hallway
 Bathroom
 Basement Stairs
Total

275 sq ft
 175 sq ft
 95 sq ft***
 105 sq ft***
 150 sq ft***
 40 sq ft***
 40 sq ft***
 40 sq ft***
920 sq ft

*Because these materials are adhered to an ACM material these material will also need to be treated as an asbestos containing material.

**>1% Asbestos was found in the combined results of the beige taping compound and the sheetrock layer; Consequently, the sheetrock and compound is OSHA and EPA-DPH regulated. With additional extensive sampling it may be possible to establish areas of non-asbestos taping compound, but additional sampling may also lead to more inconsistencies. See attached ACM location drawings for exact locations.

***The amount to be disturbed by the work in these rooms is < 1 sq ft per room.

END 2.3 SCHEDULE A

PART 3 - ADDITIONAL DETAILS OF EXECUTION OF WORK

3.1 GENERAL INSTRUCTIONS:

Work will be executed according to the preceding instructions in the general section of this Specification except as modified by instructions under this section as follows:

- A. Pre-existing damage to any equipment, fixture or surface in the area must be documented with narrative and photographs before the work by the Asbestos Abatement Contractor and verified by the owner before project start.
- B. The use of combustion engine driven equipment inside the building is prohibited, unless used with additional engineering controls such as a catalytic converter and carbon monoxide monitoring. Any needed carbon monoxide monitoring shall be provided by the Asbestos Abatement Contractor.
- C. The subject house's supply water at taps may be turned off prior to the work, if so the General Contractor will provide an adequate water supply for the work.
- D. The General Contractor will be responsible for providing temporary power as needed at reasonable locations.
- E. Any temporary lighting will be supplied by the Asbestos Abatement Contractor. Fixtures should be floor-mounted or otherwise strategically located so that they are out of the way of the work and provide adequate lighting in accordance with OSHA requirements.
- F. Protect all surfaces and equipment against damage. The Asbestos Abatement Contractor shall be responsible for repairing any damage or marring caused to surfaces or equipment except surfaces to be abated. Clean all marks from surfaces left by glue, duct tape or otherwise restore and refinish, if necessary to restore surfaces.
- G. Movable objects including furniture (tables, chairs, oven and refrigerator) and stored material will be removed from the work areas by others before the work and returned by the others after the work.
- H. See schematic drawings appended. In the event of disagreement between drawings and the specification, the specification shall take precedence.
- I. Exhaust all negative air units to the outside via the windows or doors. Install all negative air inlets at the furthest points from the doorway in the work area to provide maximum cross airflow. Details will be coordinated with the PM on site.
- J. Perform related work to access the asbestos materials to be removed including any necessary demolition.
- K. Asbestos Abatement Contractor is responsible for proper disposal of all wastes.
- L. The replacement flooring will be done by others. **Use only Asbestos-free replacement materials.**

3.2 REMOVAL USING NEGATIVE PRESSURE ENCLOSURE GLOVEBAG PROCEDURES

- A. This method pertains to the removal of < 3 sq ft of sheetrock ceiling using the ventilated glove bag technique. Areas for cuts will be marked by the Engineer prior to the work. We understand each room will have less than one square foot of sheetrock removed.
- B. Removal Procedure:
1. Prepare the Work Area as an OSHA regulated area, excluding unauthorized personnel from the immediate area, closing doors, and installing warning signs.
 2. Asbestos laborers involved in the negative pressure enclosure procedure shall wear two disposable suits, including gloves, hood and footwear, and respiratory protection in accordance with regulatory guidance. All street clothes shall be removed and stored in a Clean Room within the work site. The double layer disposable suit shall be worn during the installation of the negative pressure enclosure and throughout the procedure if a decontamination unit with a shower is not contiguous to the Work Area. If a decontamination unit (with Shower and Clean Room) is contiguous to the Work Area, only one layer of disposable personal protective equipment shall be required.
 3. No disturbance of ACM shall occur during installation of the glovebag. This is a single use device that shall not be reused once dismantled or collapsed. The negative pressure enclosure shall be constructed of 6-mil plastic sheeting supported as necessary or secured to existing finishes, with seams double-folded, stapled and taped airtight and then taped flush with the adjacent negative pressure enclosure wall.
 4. A centrally located remote Decontamination Facility shall be installed.
 5. Demonstrate the tightness of the glove bag to the ceiling surface.
 6. During removal, periodically wet the inside surfaces of bag and any waste for better visibility and fiber control. Use cold water to prevent fogging.
 7. During removal, periodically use HEPA-vacuum to compensate for any leaks and to reduce airborne fiber levels.
 8. Cut the ceiling sharply for neat sealing of exposed insulation. Seal cut edges with non-asbestos sheetrock taping compound or similar material.
 9. After removal of all asbestos, wash down all surfaces to below the levels where the bag will be sealed, and saturate the waste. Ensure the absence of residue.
 10. Glove bags shall be used for only one operation and then be disposed of. Glove bag shall not be reused.

- C. Post Removal Procedures:
1. The stripped surface shall be encapsulated with an approved encapsulant.
 2. Upon completion of abatement, and prior to dismantling the negative pressure enclosure, the enclosed surfaces shall:
 - a. be wet cleaned using rags, mops or sponges;
 - b. be permitted sufficient time to dry, followed by HEPA vacuuming of all surfaces;
 - c. be lightly encapsulated to lockdown residual asbestos.
 3. The bagged waste shall be wet cleaned and/or HEPA vacuumed and then transferred outside the negative pressure enclosure, double bagged in the Shower Room, and appropriately handled prior to disposal.
- D. Following work site cleanup, workers shall then proceed directly to the Decontamination Facility (contiguous or remote) and proceed with required decontamination procedures.

PART 4- DIVISION 1 – ASBESTOS ABATEMENT

4.1 REGULATIONS:

- A. The Asbestos Abatement Contractor will conform to all applicable Federal State and Local Regulations, including, but not limited to the following principal regulations:
1. OSHA 29 CFR 1926.1101 (Asbestos);
 2. NESHAP (National Emissions Standards for Hazardous Air Pollutants) 40 CFR 61 Subpart M. (40 CFR 61.145 and 61.150)
 3. Regulation of Connecticut State of Agencies Sections 19a-332-1 through 19a-332-16 inclusive. (Standards for Asbestos Abatement)
 4. Regulation of Connecticut State of Agencies Sections 20-440-1 through 20-440-9 inclusive. (Licensure and Training Requirements for Asbestos Abatement).
 5. Connecticut DEP Regulations (Section 22a-208(x) and Section 22a-252 of the Connecticut General Statutes). (DEP Applies to Waste Disposal in CT)
 6. Principal related OSHA regulations in 29 CFR:
 - a. 1910.134 (Respirators)
 - b. 1910.38, 1926.24 and 1926.150-155 (Fire safety and emergency response)
 - c. 1926.450 et seq (Ladder and Scaffold safety)
 - d. 1926.500 (Fall Protection)
 - d. 1926.402 and .416-.417 (Electrical safety)
 - e. Additional Regulations re: Protective Clothing and Equipment:
 - 1910.132-3 Protective Clothing
 - 1910.136 Foot protection
 - 1910.137 Electrical protective devices
 - 1910.94 ventilation
 - 1910.119 process safety
 - 1910.134 respirators
 - 1910.preface 179.220-227 PPE program
 - 1910.146 permit required spaces
 - 1910.156 fire brigades
 - 1910.160 fire extinguishers
 - 1910.335 energized plugs and receptacles
 - 1910.1000 air contaminants
 - 1926.28 PPE
 - f. 1926.22 (Recording and Reporting of Injuries)
 - g. 1926.23 (First Aid and Medical Attention)
 - h. 1910.141 (Shower and Sanitation requirements)
 - i. 1926.59 (Hazard Communication)
 7. CFR 49 parts 171-173 US Dept of Transportation.
 8. U.S. Department of Transportation, Title 49, Parts 172 and 173.
 9. All State, County, Department, Municipal codes and ordinances as applicable.

Note: Where applicable State, Federal and Local Regulations differ, the more stringent regulation applies. In the event of disagreement between these specifications and the regulations, the stricter provision shall apply.

4.2 AIR MONITORING

A. General

1. The Engineer will provide a DPH Licensed Project Monitor, (PM) to carry out the Industrial Hygiene and Air Monitoring services, which will include the required post abatement visual inspection and final clearance testing, and may include pre-abatement inspections and during work monitoring.
2. Coordination between the Asbestos Abatement Contractor and PM.
 - a. The Asbestos Abatement Contractor will provide the Engineer and the PM with a schedule of work indicating the planned dates and hours of the Asbestos Abatement Contractor's work at the site.
 - b. The PM must have Reasonable Notice of any changes in this schedule.
 - c. In no case may the Asbestos Abatement Contractor be working at the site at times unknown to the PM.
 - d. Reasonable Notice shall be given by the Asbestos Abatement Contractor to the PM indicating when a work area will be ready for final air clearance testing.

B. Post Abatement Testing:

1. After completion of Removal in a Work Area, the Asbestos Abatement Contractor will make the first visual inspection. Following satisfactory completion of the Asbestos Abatement Contractor's visual inspection, the PM will perform a visual inspection to ensure that no visible residue remains.
2. The final air samples will be collected aggressively and analysis conducted by PCM as specified in the regulations.

C. Lab Qualifications:

1. Analysis of the air samples by NIOSH 7400 will be made by a AIHA- Laboratory Accreditation Program, LLC, Accredited and a board certified analyst in the AIHA Registry Programs, LLC. The Laboratory must be a State Approved Environmental Laboratory (approved by Connecticut Department of Public Health Laboratory Division) for Asbestos analysis in air and must participate in and be proficient in the NIOSH PAT Program for Asbestos.
2. Air sample analysis by PCM (NIOSH 7400) must be conducted by individuals trained in the National Institute for Occupational Health (NIOSH) course # 582, Sampling and Analysis of Airborne Asbestos Fibers and/or equivalent course.

- D. Asbestos Abatement Contractor's Personal Air Samples: Personal air sampling shall be conducted by the Asbestos Abatement Contractor according to 1926.1101. Provide a State of Connecticut DPH (Department of Public Health) licensed Project Monitor for this purpose. Samples will include daily 30-minute excursion limit samples and 8 hour time-weighted average concentration samples. Personal air sampling results must be recorded at the work site within 24 hours and be available for review until the job is complete. Air Monitoring must be supervised by a Licensed Project Monitor.

4.3 NOTIFICATIONS

- A. Connecticut DPH: Contractor will prepare and submit 10-day notification forms required by the State of Connecticut Department of Public Health. Notification 10 calendar days before the project will be sent to:
- Connecticut Dept of Public Health (DPH)
410 Capitol Ave - MS # 51AIR,
P.O. Box 340308
Hartford, CT 06134
(860) 509-7367

4.4 ASBESTOS ABATEMENT CONTRACTOR QUALIFICATIONS AND TECHNICAL SUBMITTALS, PRE-ABATEMENT MEETING

- A. The Asbestos Abatement Contractor Shall Submit to the Engineer before Work begins:
1. Copy of Asbestos Abatement license.
 2. Copies of supervisor and worker certificates for each employee, to be used for the project including DPH certifications and required training in a State of Connecticut Approved training center: 5 days for supervisors and 4 days for workers. This documentation shall include copies of initial and refresher training to date. For each worker proof of up to date fit testing and medical surveillance required by CFR 29 1926.1101 and 1910.134.
 3. Documentation, when rental equipment is to be used, that the owner of the equipment is aware of the intended use of the rented equipment for Asbestos Work.
 4. Copies of DPH Notifications including any revised notifications.
 5. Copies of any alternate work practice (AWP) requests and DPH replies.
 6. Certification that HEPA vacuums, and Negative Air units conform to ANSI Z9.2-1979 and that they are in reliable working order.
 7. Certification that Fire safety requirements have been or will be met.
 8. MSDS's: Required OSHA Hazard Communication information and training for any hazardous chemicals at this site according to CFR 29.1926.59. Include a list of all the hazardous chemicals to be brought to the site including amounts to be brought in, the intended use, and Material Safety Data Sheets (MSDS's) for each chemical. This includes all replacement materials to be used which must be certified asbestos- free.

- C. The Asbestos Abatement Contractor Shall Submit at the conclusion of the job:
1. Daily Employee sign in lists which must have printed and signed names.
 2. Log of access to the work area (dive sheets)
 3. Daily narrative of the job
 4. Personal air sampling records for this job.
 5. Submit within at least 30 days of the waste being received at the disposal facility and within at least 40 days of the waste being accepted by the transporter: Waste manifests, original to the Owner and a copy to the Project Monitor. The Waste Shipment Record shall specify the designated number of bags or cubic yards of asbestos waste.

4.5 SITE CONDITION

- A. Prior to the Work, contractor shall visit the site and be fully acquainted with present and expected conditions affecting the Work, including but not limited to:
1. Physical condition of the site.
 2. Handling and storage of tools, equipment and materials.
 3. Access to water, electric power, and other variables.
 4. The character and quantity of all surface and subsurface obstacles to be encountered.
- B. Any existing damage: The Asbestos Abatement Contractor shall submit to Owner in writing a list of any pre-existing damaged items on building and fixture condition prior to commencement of Work. The submittal shall include a photographic record of prior damage and/or deficiencies.

4.6 SAFETY AND SECURITY

- A. Asbestos Abatement Contractor has responsibility to establish and maintain workplace safety and security in the areas of His Work. The work areas will be locked, on off-hours, when work is not being done.
- B. Asbestos Abatement Contractor will maintain at the work site daily logs of activities and the names of all persons entering the site and include with required submittals at the end of the project. The Asbestos Abatement Contractor will allow only authorized personnel into the work area.

4.7 WORKER PROTECTION TO BE PROVIDED

- A. Asbestos Abatement Contractor's workers shall be instructed on fire, electrical, and other hazards specific to this job site. Instructions will include spill response, power failure and emergency evacuation procedures. The workers will receive the required OSHA Hazard Communication information and training for any hazardous chemicals brought to this site.
- B. All persons entering the Work Area shall wear prescribed protective clothing and respirators until the Final Clearance Tests are successfully completed for the Work Area. Respiratory protection shall meet the requirements of OSHA as described in 29CFR 1910.134 and 1926.1101 for Asbestos.
- C. The Asbestos Abatement Contractor will provide appropriate respirators, disposable suits, and other safety equipment at no cost to his employees, for Asbestos and as needed for other physical and health hazards at the work site.
- D. Any feasible combination of engineering controls, work practices, and personal protective equipment may be used to reduce personnel exposure to Asbestos and other hazards.
- E. The Asbestos Abatement Contractor has responsibility to maintain His Supervisor on site at all times. Duties of the Supervisor shall include:
 - 1. Assessments required by OSHA 1926.1101.
 - 2. Maintaining copies of Regulations including 1926.1101 and 40CFR 61 Subpart M, all records specified in the regulations and a copy of these Specifications on site.
 - 3. Posting signs and guarding the Work Area against unauthorized intrusion and ensuring all persons entering the Work Area are properly certified, trained, and equipped and that each entry is recorded in the site log.
 - 4. Providing workers with safety equipment, except any person will have his own personal, fitted respirator.
 - 5. Ensuring proper decontamination procedures such as proper use of suits and shower are followed without exception and that the shower and other safety equipment are properly functioning.
 - 6. Performing the required Exposure Assessment as delineated herein.
- F. Before leaving the Work Area each person shall: vacuum gross contamination from protective clothing, proceed to the Equipment Room and remove all clothing except respirator, and still wearing the respirator proceed naked to the shower and clean the respirator and self using soap and water and rinse self in the shower. Dispose of the wet respirator cartridges in a receptacle for Asbestos waste.

4.7 WORKER PROTECTION TO BE PROVIDED(CONT)

- G. Following showering and drying off, each person shall proceed directly to the Clean (change) Room and dress in street clothes at the end of each day's work or before eating or taking a break. Otherwise one may don disposable clothing of a different color or otherwise distinctively different, for use outside the Work Area, than suits used inside the Work Area.
- H. Require that workers NOT eat, drink, smoke, chew gum or tobacco or use toilet facilities (either existing or temporary) in the Work Area.
- I. The prescribed protective clothing, respirator use and decontamination measures in the Work Area, including all those described in this Specification and prescribed in the Regulations will remain in effect from the moment Asbestos disturbance begins until Final Clearance of the Area.
- J. Employers shall make available to employees information on programs to aid workers in cessation of smoking.
- K. Employees working in contiguous areas to the Work Area must understand warning signs. Bilingual signs, pictographs or graphics may be required.

4.8 WORK SCHEDULING, SEQUENCE AND AREA RESTORATION

- A. The following sequence shall be observed for each work area:
 - 1. Establish the Decon.
 - 2. Establish Critical Barriers and Negative Airflow at the earliest possible time to protect against fiber release during setup.
 - 3. Perform pre-cleaning and containment construction.
 - 4. Perform removal and cleanup.
 - 5. Perform initial clearance Inspection and notify the PM.
 - 6. Final inspection and clearance testing will then be done by the PM.
 - 7. Only after satisfactory final test results from the PM: Shut down Negative Air Units, remove Critical Barriers and Negative Air Units and restore the area to a satisfactory condition.

4.8 WORK SCHEDULING, SEQUENCE AND AREA RESTORATION(CONT)

- B. Restoring the work areas
 - 1. Immediately following successful final clearance in each area, the Asbestos Abatement Contractor shall remove his equipment and materials from the completed section.
 - 2. Restore the areas to a clean and orderly condition and where applicable, re-install displaced equipment.
 - 3. Leave the surfaces clean and not damaged by tape or other means.
 - 4. Clean duct tape and adhesive from surfaces where used to construct containment.
 - 5. A post abatement walkthrough will be conducted by the PM and the Asbestos Abatement Contractor after the above steps to make sure that the area is clean and in good condition.

4.9 FIRE PROTECTION AND FIRE PREVENTION

- A. Notify the local Fire Department in advance of any work performed. Notifications shall be prior to storage or installation of the Asbestos Abatement Contractor's materials on the Owner's property.
- B. Fire Protection:
 - 1. Adequate temporary fire protection shall be provided. Fire fighting equipment shall be conspicuously located and readily accessible at all times, and be maintained in operating condition.
 - 2. Smoking
 - a. Smoking shall be prohibited in work areas and in the vicinity of hazardous operations or materials.
 - b. Where smoking is allowed, it shall be so noted, and safe receptacles shall be provided for smoking materials.

4.10 NEIGHBORHOOD CONSIDERATIONS

- A. Work will be conducted so as to avoid disturbing the neighborhood. Asbestos Abatement Contractor will coordinate with the PM suitable locations for Negative Air and Decons, egresses, and waste storage facilities.
- B. After the Asbestos waste container is deployed, it will remain locked unless in immediate use. The Supervisor will maintain control of the key.
- C. Littering of the area is prohibited. Asbestos Abatement Contractor will provide suitable receptacles for beverage and food containers and all other such litter and ensure that no litter is generated on the premises.

4.11 MATERIALS

- A. Deliver all materials in the original container, packages with original manufacturers labels.
- B. Damaged or deteriorated materials shall not be used and shall be removed from the premises. Material that becomes contaminated with Asbestos shall be decontaminated or disposed of as Asbestos waste.
- C. Use plastic sheet of 6-mil thickness for walls and for floors. Use sizes to minimize the number of seams.
- D. Polyethylene bags shall be 6-mil and of sufficient size for the application.
- E. When tie wraps of plastic are used to secure waste bags, they must be at least five inches long, pointed, and looped.
- F. Tape will be used that is capable of sealing joints in adjacent plastic sheets and for attachment of plastic sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under the anticipated load and amended water usage.
- G. Surfactant (wetting agent) shall consist of 50% polyoxethylene ether and 50% polyoxyethylene ester at a concentration of one ounce to 5 gal of water or as directed by manufacturer.
- H. Use only Asbestos-free replacement materials and according to applicable fire or building codes. Replacement materials must provide equivalent or better performance than the original Asbestos materials.
- I. Signs to be posted at the Work Area shall be in sufficient quantity to post at all entries to Work Areas. Signs will comply with OSHA 1926.1101.

4.12 TOOLS AND EQUIPMENT

- A. The Asbestos Abatement Contractor will have available spray equipment capable of mixing wetting agent with water and generating sufficient pressure and volume and having sufficient hose length to reach all areas with Asbestos.
- B. Impermeable containers are to be used to receive and retain any Asbestos-containing or contaminated materials until disposal at an acceptable disposal site. Containers shall be labeled in accordance with OSHA 1926.1101 and shall be both water and airtight.
- C. The Asbestos Abatement Contractor shall have sufficient personal Air Monitoring equipment to monitor each type of activity in each Work Area.
- D. The Asbestos Abatement Contractor shall provide suitable tools for Asbestos Removal.
- E. Asbestos Abatement Contractor shall have sufficient quantity of equipment and materials necessary for the job including protective clothing, filter cartridges, spare fitted masks for each worker, plastic sheeting, duct tape, air filters, air sample cassettes, signs, grounded power cables, GFCI units, HEPA vacuums, Negative Air Units and spare filters, ladders, sufficient Negative Air Exhaust duct to discharge filtered air outside, shower units, Decontamination Enclosures, water filtration units and all other equipment required by Regulations and by this Specification.
- F. Negative Air Units shall be provided by the Asbestos Abatement Contractor to meet HEPA requirement and be of sufficient capacity to maintain a Negative Air pressure of at least 0.02 inches of water in the Enclosure. Airflow shall be sufficient through the Decon areas so any fibers are not able to escape outside the containment. Unit intakes shall be located to draw contaminated air away from the breathing zone of employees in the regulated area and through the HEPA filter. Units shall be equipped with warning lights, alarms, or other devices to sense pressure drop variation to prevent operation when filters are overloaded or ruptured.

4.13 PREPARATION OF THE WORK AREAS

- A. Where necessary, shut down the electric power including equipment, receptacles and lighting fixtures. Coordinate any special safety requirements with the Owner, PM and GC, including lock-out/tag-out and isolation of electrical equipment.
- B. Provide temporary power, circuits and lighting and ensure safe installation of temporary power sources and equipment per applicable code requirements, regulations and as specified in Section 01500. Provide safety lighting and ground fault interrupter circuits (GFCI) for all power cords and electrical equipment. Only 3 prong grounded cords will be permitted.
- C. Asbestos Abatement Contractor will coordinate locations of Decons and Negative Air Unit locations with the PM.
- D. **Shut down and isolate any heating, cooling and ventilating air systems to prevent contamination and fiber dispersal to other areas of the house.** Seal any vents within the Work Area. Isolation will be accomplished by sealing airtight using plastic, tape and other means.

4.13 PREPARATION OF THE WORK AREAS (CONT)

- E. Except as per a DPH approved alternate work practice (AWP): Establish Critical Barriers: Seal off all openings and any penetrations into the Work Area with plastic sheeting at least 6-mil thick. Do not seal off sprinkler heads, smoke/heat detectors or other such safety equipment. Consult the Owner for advice or instructions on such items. Doorways and corridors, which will not be used for passage during the Work, must be sealed with barriers. Barriers will be constructed with floor and wall plastic overlapping so that no water will escape from the Work Area to the contiguous area.
- F. Establish Negative Air HEPA filtered air flow at the first opportunity to produce a minimum of 0.02 inches of water negative pressure in the work area relative to the non-work area and at least 4 air changes/hour unless more stringent requirements are specified in the scope of work. These values must be verified initially and daily and recorded by the Asbestos Abatement Contractor. Use additional air flow where specified herein.
- G. Pre-clean movable objects within the proposed Work Area using HEPA vacuums and/or wet cleaning methods as appropriate and remove such objects from Work Areas to a temporary location.
- H. Pre-clean fixed objects within the Work Areas using HEPA vacuums and/or Wet Cleaning methods as appropriate and enclose with a minimum of 4-mil plastic sheeting and tape.
- I. Clean the Work Area surfaces using HEPA vacuums and/or Wet Cleaning methods.
- J. Containment construction- Except as per a DPH approved alternate work practice (AWP): Cover all floors surfaces not included in the asbestos abatement work with two layers of 6-mil fire retardant polyethylene sheeting. Cover all walls and other fixed items not included in the asbestos-abatement work with two layers of 4-mil fire retardant polyethylene sheeting. Poly sheeting must conform to the requirements of the National Fire Protection Association Standard 701. Cover floors first so that polyethylene extends at least twelve inches up on walls, then cover walls with polyethylene sheeting to the floor thus overlapping the first layer by at least 12 inches. Stagger seams of the polyethylene. The containment must be air and watertight. Provide Airlocks at entrances to and exits from the Work Areas.
- K. Maintain emergency exits including fire exits satisfactory to fire officials.
- L. Any ceiling protrusions, ceiling panels, porous surfaces, or irregularities which may become contaminated, interfere with the Work or permit contamination beyond the confines of the Work Area must be managed to prevent contamination or release of fibers.
- M. Any barriers constructed and structural members of Decon units using framing must conform to applicable building codes. This construction must be sufficiently sturdy to resist breaching or collapsing under active work conditions. Portable or prefabricated structures with comparable strength and effectiveness may be used.
- N. In all cases, access between contaminated and uncontaminated areas must be through an Airlock. In all cases, access between any 2 rooms within the Enclosure System shall be through a Curtained Doorway.

4.14 PREPARATION OF THE DECONTAMINATION ENCLOSURE SYSTEM (DECON)

- A. In general, the Decon unit will conform to drawings appended, and consist of 3 totally enclosed chambers contiguous to the Work Area plus a provision for managing dirty equipment as delineated below and in Section 19a-332a-6:
1. An Equipment Room with two (2) curtained doorways; one to the Work Area and one to the Airlock.
 2. A Shower Room with two curtained doorways; one to each Airlock. Plastic on Shower Room and adjoining Equipment and Clean Rooms shall be non-transparent. Showers with hot and cold water shall be provided and used at all Asbestos Removal operations. Careful attention shall be paid to the shower construction to prevent leakage of any kind. The shower will be supplied with soap, water and towels at all times. Wastes from the shower shall be filtered using best available technology prior to disposal in the drain.
 3. A Clean Room with one Curtained Doorway into the Airlock and one entrance or exit to non-contaminated areas of the building. The Clean Room shall have sufficient lockers for storage of the workers street clothes, towels and other non-contaminated items. Joint use of this space for other functions such as offices, extraneous equipment, materials or tools shall be prohibited.
 4. Equipment Decontamination Enclosure: Provide or construct an Equipment Decontamination enclosure consisting of two (2) totally enclosed chambers including: a) a Washroom consisting of an Airlock with a Curtained Doorway to a designated staging area of the Work Area and a Curtained Doorway to the Holding Area. b) A Holding Area constituting an Airlock with a Curtained Doorway to the Washroom and a Curtained Doorway to a designated uncontaminated area.

4.15 SEPARATION OF WORK AREAS FROM OCCUPIED AREAS

- A. Work areas shall be separated by means of airtight barriers.
 - 1. Where doors are at the boundary, cover both sides of the door with a double layer of plastic sheet with joints staggered and sealed with tape.
 - 2. Where corridors or other open spaces are to be the boundary, build suitable building code conforming framing and apply 3/8-inch minimum thickness sheathing on work side only unless noted otherwise. Cover both sides of partition with double layer of plastic sheet with joints staggered and sealed with tape. Edges of partition at floor, walls and ceiling shall be caulked airtight.

4.16 MAINTENANCE OF ENCLOSURE SYSTEMS

- A. The Asbestos Abatement Contractor is responsible for maintaining the Enclosure in proper condition to serve the intended purpose and meeting the requirements of the Regulations and these Specifications. The Competent Person will inspect the Enclosure initially and daily:
 - 1. Visual inspection for conformity.
 - 2. Chemical smoke tests and air pressure/ flow measurements. Must have manometric readings of negative pressure of 0.02 inches of water or greater.

4.17 FINAL CHECK LIST BEFORE COMMENCEMENT OF ASBESTOS REMOVAL WORK

- A. Arrangements made for disposal of waste at an EPA approved landfill.
- B. Work areas and Decon units conform to requirements specified above.
- C. Materials, tools and equipment specified including waste receptors are on hand.
- D. All worker training has been completed.
- E. All submittals have been received and are in proper order.

4.18 ASBESTOS REMOVAL AND CLEANUP

- A. Spray Asbestos materials with Amended Water using the airless sprayer to produce a fine spray. Wet Asbestos material freshly before Removal Work in manageably sized sections. Do not let Asbestos materials dry out once disturbed during the Work.
- B. Bag the wet Asbestos waste immediately to prevent drying and to prevent possible tracking of Asbestos wastes.
- C. Seal filled containers with the wet Asbestos waste in the Work Area. Wet clean the outside of the sealed bag and move to the Holding Area (bagout) for double bagging by workers who have entered from uncontaminated areas dressed in clean disposable suits. Only the double sealed bags and other cleaned materials will exit via the bagout. Persons will leave only via the Decon-shower route.
- D. The Asbestos materials must be packaged in impermeable dust tight containers (i.e., heavy-duty six-mil plastic bags or sealed fiber pack drums).
- E. All containers must be labeled in large legible letter:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

- F. Waste shall be tagged or labeled clearly with the name of the generator i.e. the Asbestos Abatement Contractor and the name of the work site in accordance with NESHAP (40 CFR Part 61).
- G. After completion of Stripping Work, all surfaces from which Asbestos has been removed shall be wet brushed using a nylon brush, wet wiped and sponged or cleaned by an equivalent method to remove all visible material. During this Work the surfaces shall be kept wet. Wire brushes are not permitted.
- H. Remove visible accumulations of Asbestos material and debris. Wet clean all surfaces within the Work Area.
- I. Subsequent to the completion of all Asbestos Removal Work, clean all dried surfaces with a HEPA filtered vacuum.
- J. Apply a thin coat of Encapsulant to plastic barriers after cleaning.
- K. At appropriate times in the cleaning sequence, remove the first layer of plastic facing the Work Area, walls first and then floors. Clean and remove sealed containers and equipment; Change HEPA filters.

4.19 EQUIPMENT REMOVAL PROCEDURES

- A. Clean surfaces of contaminated containers and equipment by HEPA vacuuming and wet sponging or wiping before moving them into the Decon for final cleaning.
- B. Seal all HEPA vacuums and negative air units with poly and duct tape.

4.20 DISPOSAL

- A. The Asbestos Abatement Contractor will dispose of Asbestos wastes according to Applicable Regulations.
- B. The Asbestos Abatement Contractor will forward Asbestos Disposal Documentation: the original to the Owner.
- C. Impermeable double containers are to be used to receive and retain any Asbestos-containing or contaminated materials until disposal at an acceptable disposal site. Materials shall be adequately wet. Containers shall be labeled in accordance with OSHA 1926.1101 and shall be both water and airtight. All containers must be labeled in large legible letters:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

- D. After the Asbestos waste container is deployed, it will remain locked unless in immediate use. The job Foreman or designated person will maintain control of the key.
- E. All vehicles transporting ACM waste shall be labeled during loading and unloading of the waste as per NESHAP regulations 40 CFR 61.25.
- F. All waste will be properly transported off-site at the end of each workday, for the duration of the abatement.
- F. Each waste container shall be tagged or labeled clearly with the name of the generator i.e. the Asbestos Abatement Contractor and the name of the work site in accordance with the NESHAP regulations (40 CFR Part 61, subpart M).
- G. Each Asbestos waste pickup will be signed for using chain of custody forms provided in the EPA regulations CFR 40 Part 61.

4.21 INITIAL CLEARANCE INSPECTION

- A. After cleaning the Work Area, the Asbestos Abatement Contractor will make an initial visual inspection and issue notice to the PM that Work is complete. An inspection by the PM shall then be conducted. If this Inspection finds that the Work is incomplete or that there are visible accumulations of residue, the Asbestos Abatement Contractor shall repeat the cleaning at His expense until the Work Area is in compliance.
- B. After successful completion of the above visual inspection, the Asbestos Abatement Contractor shall apply Encapsulant (lockdown) i.e., apply a thin coat of Encapsulant to shall be applied to all surfaces that have been stripped of ACM and to polyethylene barriers.
- C. Allow the Work Area to dry at least overnight.

4.22 FINAL CLEARANCE TESTING

- A. After surfaces have dried, a final visual inspection by the PM is performed. If this inspection reveals no visible residue, Final Air Sampling shall be carried out.
- B. Aggressive air sampling and analysis shall be undertaken by the PM who will select locations of the samples in the Work Area. At least 5 samples shall be taken in each Work Area. Sampling and analysis shall be carried out according to 40 CFR Part 763.
 1. For PCM, NIOSH Method 7400, Air Monitoring volumes shall be sufficient to provide a detection limit of 0.010 fibers/cc. (and preferably 1200 liters). Each of 5 aggressive air samples in the Work Area must have a concentration of 0.010 fibers/cc or less.
- C. Work Areas, which fail the visual inspection or Final Air Clearance concentrations specified, shall continue to be cleaned at the Asbestos Abatement Contractor's expense until the specified criteria are achieved. The Asbestos Abatement Contractor will be responsible for the cost of re-testing failed areas and for delays to the project resulting from failure to comply with the Final Air Clearance and inspection criteria.
- D. Upon successful Final Air Clearance, mandatory respiratory protection in the Work Area may be waived, the Critical Barriers removed, and the Negative Air and Decontamination Units shut down and removed.

4.23 MULTI-EMPLOYER WORKSITES

- A. All employers working on the site must receive the information delineated below. To a large extent, this is accomplished by giving each employer a copy of this specification.
- B. Each employer at the site is responsible for ensuring that his employees on site receives this information and makes provisions to protect his employees from asbestos exposure.
- C. In addition, following are specific OSHA requirements for certain parties:
 1. General Contractor: Responsible for overall supervision. All parties must comply with the supervision of the general contractor on the site. The general contractor must make determinations of whether the Asbestos Abatement Contractor is in compliance with the OSHA asbestos standard cited herein.
 2. Asbestos Abatement Contractor:
 - a. Must inform other employers at the site of the nature of the work with asbestos, the existence of and the requirements of regulated areas, the measures to be taken to protect employees of the other employers from exposure, any breaches in the containment or enclosure, that these employers must ascertain on a daily basis that the containment or enclosure is secure.
 - b. Must inform all the other employers on the site of the location and quantity of ACM and the measures to be taken to protect them from exposure.
 - c. Within 10 days of completion of asbestos removal work, the Asbestos Abatement Contractor shall inform the owner and employers who will be working in the area of the quantity and PACM or ACM remaining in the former regulated area and the final monitoring results.
 3. All employers at the site:
 - a. Move their employees away from the regulated area until any breaches are corrected or
 - b. Provide the same protective equipment as specified herein for the Asbestos Abatement Contractor.
 - c. Regardless of who creates any asbestos hazard, the employer of exposed employees is required to comply with applicable protective provisions of 1926.1101 to protect his employees.

4.23 MULTI-EMPLOYER WORKSITES (CONT)

- d. Employers who discover the presence of ACM or suspected ACM on the worksite must notify the project or building owner and the other employers.
 - e. For inadvertently discovered ACM or PACM there is a 24-hour notification requirement to the owner and all employers at the site.
4. Building and or project owners:
- a. Before asbestos removal or repair work (class I, II or III work) is initiated, must notify their own employees and employers who are bidding on such work, of the quantity and location of ACM or PACM (presumed asbestos containing material) present in such areas.
 - b. Owners must also notify their own employees who work in or adjacent to such jobs.
 - c. The building owner must keep records of all information received which relates to the presence, location and quantity of ACM and PACM in the owner's building, project or vessel and transfer all such information to successive owners.

(Note: OSHA has defined 'building owner' to include those lessees who control the management and record keeping functions of a building/facility.)

4.24 EXPOSURE ASSESSMENT

- A Each employer, who has a workplace where asbestos abatement is conducted, must ensure that a competent person conducts an exposure assessment in accordance with 1926.1101 immediately before or at the initiation of the abatement to ascertain expected exposures.
- B. Each Initial Exposure assessment by the Competent Person shall include:
1. Air monitoring historical data
 2. Degree and quality of supervision
 3. Employee training and experience
 4. Techniques used for wetting the ACM or PACM in the various circumstances encountered
 5. Placing and repositioning the ventilation equipment, and
 6. Impacts due to weather conditions

4.25 PROHIBITIONS

- A. High-speed abrasive disc saws to cut ACM or PACM shall not be used unless inside the containment with HEPA filtered negative exhausts as herein specified or unless equipped with local HEPA filtered ventilation to collect contamination from cutting.
- B. Compressed air use for cleaning ACM or PACM contaminated surfaces is prohibited unless conducted inside the containment with HEPA filtered negative exhausts as herein specified.
- C. Dry shoveling or sweeping or other dry clean-up of dust and debris containing ACM or PACM is prohibited.
- D. Employee rotation as a means of reducing employee exposure is prohibited.
- E. Sanding ACM or PACM flooring, backing or mastic is prohibited.

4.26 REINSTALLATION OF DISPLACED EQUIPMENT

- A. Relocate objects moved to temporary locations in the course of the Work to their proper positions.
- B. Re-secure mounted objects removed in the course of the Work in their former positions.
- C. Re-establish HVAC, mechanical and electrical systems in proper working order and in conformance with all applicable building, mechanical and electrical codes.

PART 5 DEFINITIONS:

- A. *Abatement*: Procedures to control fiber release from Asbestos-containing materials; includes Removal, Encapsulation, and Enclosure.
- B. *Airlock*: A system for permitting ingress and egress while assuring air movement to a contaminated area from an uncontaminated area.
- C. *Air Monitoring*: The process of measuring the fiber content of a specific volume of air in a stated period of time.
- D. *Licensed Project Monitor (PM)*: A DPH Licensed professional capable of conducting air monitoring and analysis schemes. This individual is responsible for recognition of technical deficiencies in worker protection equipment and procedures during both planning and on-site phases of an Abatement project. Monitoring and worker protection. Air sampling shall be in accordance with NIOSH Method 7400 and as described in OSHA standards 29 CFR 1926.1101, or (as applicable for TEM) according to 40 CFR Part 763 Subpart E.
- E. *Amended Water*: Water to which a surfactant has been added.
- F. *Asbestos*: Asbestos is a name given to a number of naturally occurring fibrous silicates. There are two varieties of Asbestos; the serpentine form (Chrysotile) characterized by long, soft, flexible, and wavy fibers, and the amphiboles which occur as straight, needle-like fibers, and consist of crocidolite, amosite, anthophyllite, tremolite and actinolite.
- G. *ACM / Asbestos Containing Material*: A material which contains more than 1% Asbestos per EPA test Method 600/R-93/116.
- H. *Category 1 and 2 Asbestos materials*: Non-friable materials as defined in the amended NESHAP regulation 40 CFR 61, 11/20/90.
- I. *Class I Asbestos Abatement Work*: Removal of Thermal System Insulation and surfacing removal of ACM or PACM (TSI and Surfacing have the same meaning as in EPA AHERA except drywall is not classed as surfacing but plaster is.
- J. *Class II Asbestos Abatement Work*: Removal of ACM or PACM other than TSI and surfacing.
- K. *Class III work*: Repair involving disturbance of ACM or PACM.
- L. *Class IV work*: Maintenance and custodial work in areas with ACM or PACM such as dusting surfaces, vacuuming carpets, sweeping or mopping asbestos containing floors or floors in areas where ACM or PACM is present; cleaning up ACM or PACM, changing a light bulb or battery in a smoke detector on a surfaced ceiling, polishing floor tile.
- M. *Clean Change Area*: An area equipped as specified herein so that workers can decontaminate their suits and change into street clothes without passing back through the regulated area.
- N. *Clean Room*: An uncontaminated area or room, which is a part of the Worker Decontamination Enclosure with provisions for storage of worker's street clothes and protective equipment.

- O. *Competent Person*: A person experienced in Asbestos Abatement with a current Asbestos Abatement Supervisor's Certificate from an EPA Approved Training Center. In addition, a person meeting the following requirements in 1926.32: "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them."
- P. *Critical Barrier*: The last layer of plastic sheeting separating Work Areas from non-Work Areas
- Q. *Curtained Doorway*: A device to allow passage from one room to another while permitting minimal air movement between the rooms, typically constructed by placing two overlapping sheets of plastic over an existing or temporarily framed doorway, securing each along the top of the doorway, securing the vertical edge of one sheet along one vertical side of the doorway, and securing the vertical edge of the other sheet along the opposite vertical side of the doorway. Two curtained doorways spaced a minimum of six feet apart from an Airlock.
- R. *Decontamination Enclosure System (Decon.)*: A series of connected rooms, with Curtained Doorways between any two (2) adjacent rooms, for the decontamination of workers and of materials and equipment which is connected to and adjacent to the regulated area. A Decontamination Enclosure System always contains at least one (1) Airlock.
- S. *DPH*: Connecticut Department of Public Health
- T. *Encapsulant (sealant)*: a liquid material which can be applied to Asbestos-Containing Material and which controls the possible release of Asbestos fibers from the material either by creating a membrane over the surface (bridging Encapsulant) or by penetrating into the material and binding its components together (penetrating Encapsulant). Any such Encapsulants shall be in conformance with Building and/or Fire Safety Code requirements.
- U. *Encapsulation*: All herein specified procedures necessary to apply an encapsulant to Asbestos-containing building materials to control the possible release of Asbestos fibers into the ambient air. The practice of spraying water damaged, loose, or hanging Asbestos material is not considered a satisfactory control method and is not considered Encapsulation for the purposes of this Specification. Encapsulation requires the same work area prep as removal and includes all the steps specified as follows: a. Remove damaged, loose, or hanging areas of existing Asbestos material and place in sealable plastic bags for transport. b. Repair damaged and missing areas to obtain a suitable base for sealing using Asbestos free replacement material in accordance with manufacturer's instructions. c. Apply a final spray with Encapsulant.
- V. *Engineer*: Diversified Technology Consultants (DTC)
- W. *Equipment Decontamination Enclosure*: That portion of a Decontamination Enclosure System (Decon) designed for controlled transfer of materials and equipment, typically consisting of a Washroom and a Holding area.
- X. *Encase*: To directly cover pipe insulation with an airtight impermeable cover such as re-moistenable cloth or conduit.

- Y. *Equipment Room*: A contaminated area or room, which is part of the Worker Decontamination Enclosure with provisions for storage of contaminated clothing and equipment.
- Z. *Fixed Object*: A unit of equipment or furniture in the Work Areas, which cannot be removed from the Work Area.
- AA. *Friable Asbestos Material*: An Asbestos material that can be crumbled, pulverized or reduced to powder when dry by hand pressure and which releases Asbestos fibers into the environment.
- BB. *HEPA Filter*: A high efficiency particulate air (HEPA) filter in compliance with ANSI Z9.2-1979.
- CC. *HEPA Vacuum Equipment*: Vacuum equipment with a HEPA filter system for filtering the air effluent from the unit.
- DD. *Holding Area*: A chamber in the Equipment Decontamination Enclosure located between the Washroom and an uncontaminated area. The Holding area comprises an Airlock.
- EE. *Mini-Containment*: A fully contained small work area with decontamination unit, negative air that differs only in size from the containments herein specified.
- FF. *Movable Object*: A unit of equipment or furniture in the Work Area, which can be removed from the Work Area.
- GG. *Negative Air Units or Negative Air Pressure Equipment*: A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a contaminated area (negative with respect to adjacent uncontaminated areas) and capable of maintaining a constant discharge of filtered air outside and creating suction so that air flow direction moves from uncontaminated areas into the Work Areas.
- HH. *NESHAP*: National Emission Standards for Hazardous Air Pollutants, including Asbestos, administered by the EPA.
- II. *NIOSH*: National Institute for Occupational Safety and Health.
- JJ. *Owner*: Brakeem
- KK. *PACM: Presumed Asbestos Containing Material. OSHA definition*: TSI or Surfacing. Note: OSHA also assumes roofing and resilient flooring to contain asbestos but the work practices differ. EPA assumed ACM covers a much broader range of building materials.
- LL. *Permissible Exposure Limit (PEL)*: OSHA Standard. Eight (8) hour time weighted average (TWA) of 0.1 fibers per cubic centimeter of airborne Asbestos, tremolite, anthophyllite, actinolite, or a combination of these materials as determined by the method prescribed in appendix A to OSHA Regulations 29 CFR 1926.1101, or by an equivalent method.
- MM. *Plasticize*: To cover floors and walls with plastic sheeting as herein specified.
- NN. *Removal*: All herein specified procedures necessary to remove Asbestos Containing Materials from the designated areas and to transport and dispose of these materials at an acceptable site.

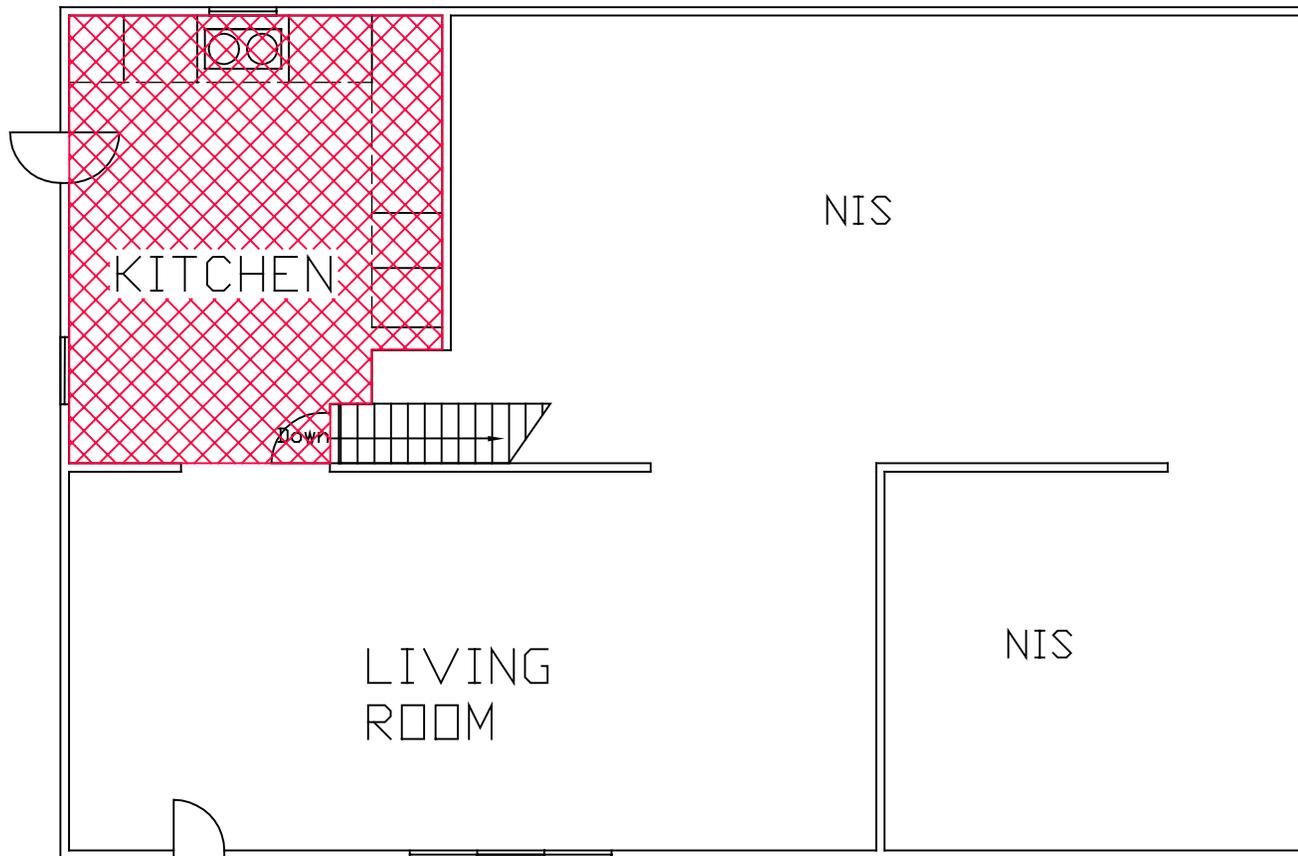
- OO. *Shower Room*: A room between the Clean Room and the Equipment Room in the Worker Decontamination Enclosure with hot and cold or warm running water and suitably arranged for complete showering during decontamination. The Shower Room comprises an Airlock between contaminated and clean areas.
- PP. *Stripping*: Taking of Asbestos materials from any surface.
- QQ. *Surfactant*: A chemical wetting agent added to water to improve penetration.
- RR. *Surfacing Material*: Material that is spray applied or troweled on or otherwise applied to surfaces.
- SS. *Thermal System Insulation (TSI)*: Material applied to pipes, fittings, boilers, breeching, tanks, ducts or other components to prevent heat loss or gain.
- TT. *Washroom*: A room between the Work Area and the Holding Area in the Equipment Decontamination Enclosure with provisions for storage of contaminated clothing and equipment.
- UU. *Wet Cleaning*: The process of eliminating Asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water, and by afterwards disposing of these cleaning items as Asbestos contaminated waste.
- VV. *Work Area*: An area where Asbestos Abatement operations are performed, which is isolated by physical boundaries to prevent the spread of Asbestos dust, fibers, or debris; Designated rooms, spaces or areas of the project in which Asbestos Abatement actions are to be undertaken or which may become contaminated as a result of such Abatement actions. A contained Work Area is an area, which has been sealed, plasticized and equipped with a Decontamination Enclosure System.
- WW. *Worker Decontamination Enclosure System*: That portion of a Decontamination Enclosure System designated for controlled passage workers and other personnel and authorized persons typically consisting of a Clean Room, a Shower Room and an Equipment Room.

PART 6 - LIST OF DRAWINGS

6.1	DRAWING NUMBER	DESCRIPTION
A.	1A1	LOCATION OF ACM KITCHEN FLOORING
	1AR	LOCATION OF CEILINGS WITH DPH, EPA AND OSHA REGULATED SHEETROCK ACM TAPING COMPOUND
	2AR	LOCATION OF WALL WITH DPH, EPA AND OSHA REGULATED SHEETROCK ACM TAPING COMPOUND
B.	FOUR (4) DECONTAMINATION SYSTEM CONSTRUCTION.	

ChemScope Inc.
 Site 003
 153 Twin Brook Road, Hamden, CT
 Main Floor
 CS# 183-76, 4-25-14

ACM LOCATION DRAWING



← TWIN BROOK RD →



LEGEND OF SYMBOLS

 Location of ACM Linoleum
 In Scope of Inspection
 See Report for details

NIS Not In Scope
 of Inspection

NOTATIONS

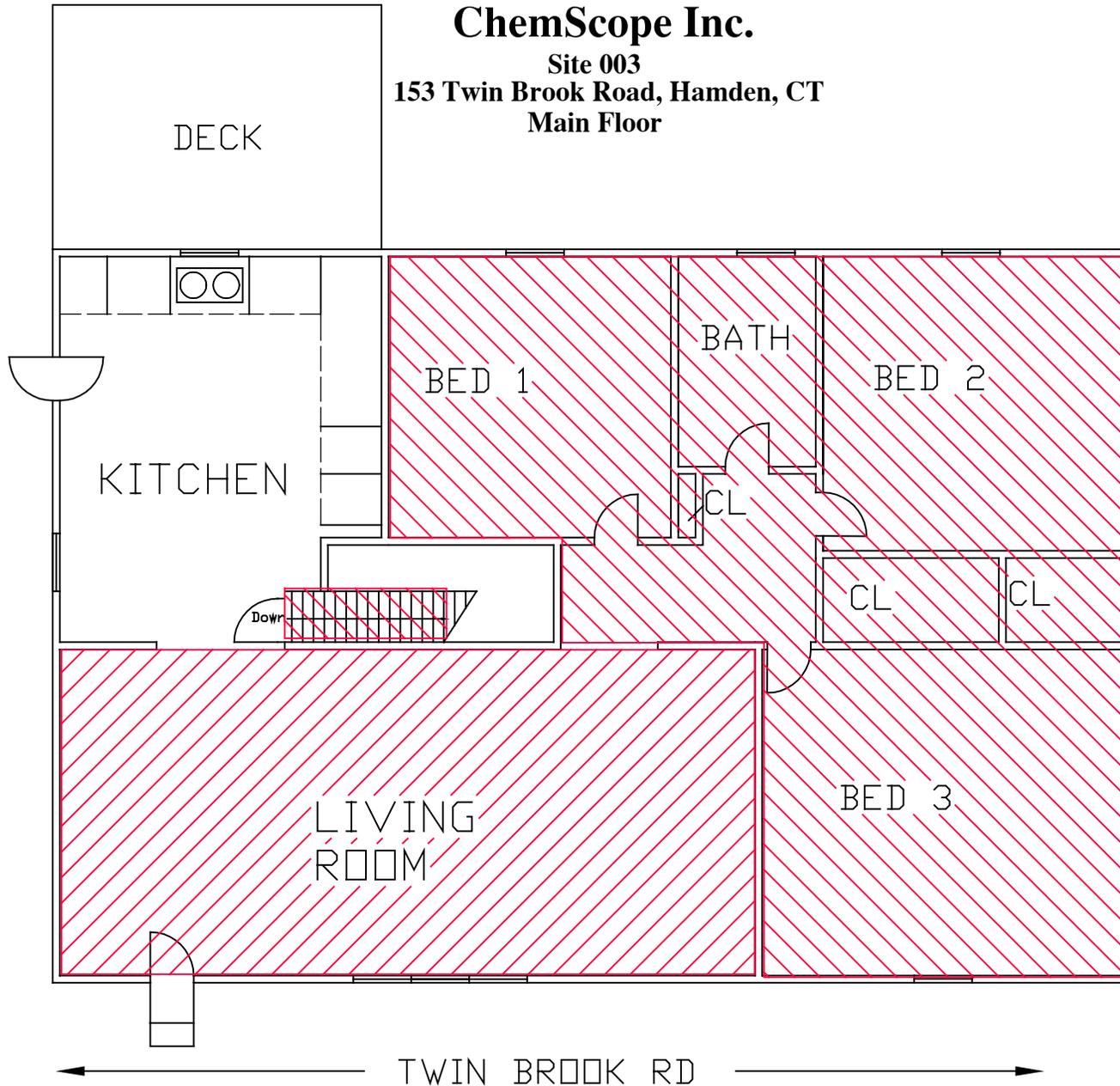
DRAWN BY:
 LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
 ASBESTOS, LEAD &
 MOLD INSPECTION
 153 TWIN BROOK RD
 HAMDEN, CT
 MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	1 A1
DATE 4/25/14	

ChemScope Inc.
 Site 003
 153 Twin Brook Road, Hamden, CT
 Main Floor



LEGEND OF SYMBOLS

- Location of ACM Sheetrock ceiling removal in scope
- Location of ACM Sheetrock ceiling glovebags in scope

NOTATIONS

See Asbestos Specifications Section 020800 for details

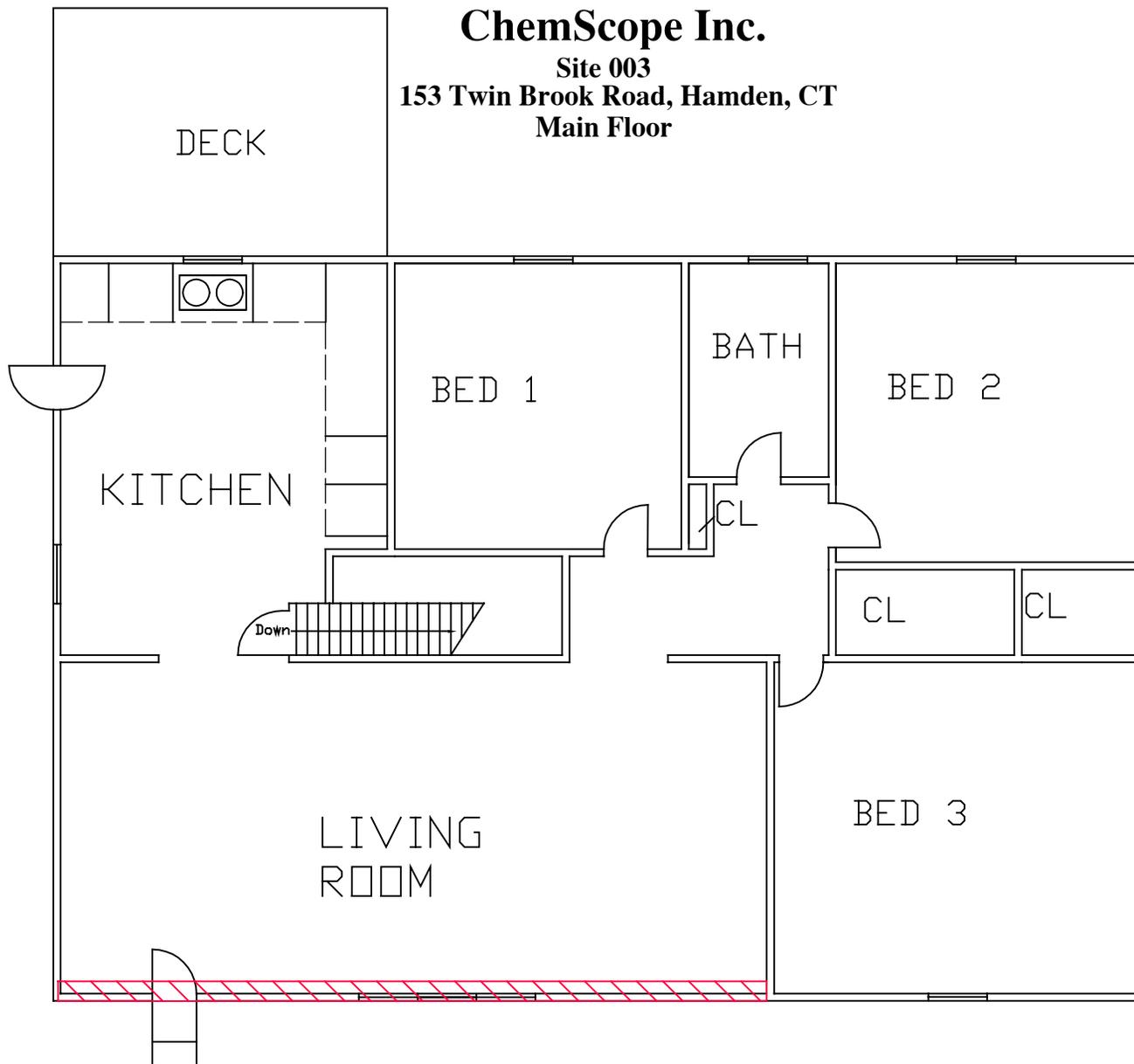
DRAWN BY:
LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
Asbestos & Lead Inspection
 153 TWIN BROOK RD
 HAMDEN, CT
 MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	1 AR
DATE 5-29-14	

ChemScope Inc.
 Site 003
 153 Twin Brook Road, Hamden, CT
 Main Floor



← TWIN BROOK RD →



LEGEND OF SYMBOLS

	Location of ACM Sheetrock Wall In Scope of Work

NOTATIONS

DRAWN BY:
LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
Asbestos & Lead Inspection
 153 TWIN BROOK RD
 HAMDEN, CT
 MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	2AR
DATE 5-29-14	

APPLICANT NO. 2072
OORR PROGRAM
CDBG-DR STORM SANDY

BRAKEEM RESIDENCE
153 TWIN BROOK ROAD
HAMDEN, CT

APPENDIX A

Scott Feulner
Diversified Technology Consultants (DTC)
2321 Whitney Avenue, Suite 301
Hamden, CT 06518

Revised 6/3/2014
5/6/2014

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 1 OF 5**

TABLE OF CONTENTS

Contents	Page(s)
Table of Contents	1
Introduction	2
Inspection Report Synopsis	3-4
Limitations of the Inspection	4
Recommendations	5

Attachments:

- Scope of Inspection Drawing(s) – 1 page(s)
- ACM location drawing(s) - 2 page(s)
- PLM Certificate of Analysis report with chain of custody - 6 page(s)
- Sample location drawing(s) - 1 page(s)

Report Distribution:

Scott Feulner, DTC Scott.Feulner@teamdtc.com
Curtis Graham, DTC graham.curtis@teamdtc.com
Michael Casey, DTC michael.casey@teamdtc.com

File Location:

NAS AAUM-Reports\AsbInsp\DS-Prereno_March2014.doc

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 2 OF 5**

INTRODUCTION

EXECUTIVE SUMMARY: Asbestos containing materials (ACM) were detected within the scope of this inspection and will need to be properly removed and disposed of prior to renovation that would disturb these materials. Abatement work must be done by a licensed asbestos abatement contractor using proper procedures and practices with licensed and trained individuals.

BUILDING DESCRIPTION: The subject building is a single-family, one-story, ranch-style house totaling approximately 1000 sq ft, which was built in 1951 of wood-frame construction. Heat is supplied from a furnace in the basement, through forced air ducts. At the time of our screening, there were no children under the age of six residing at this subject house and the house was not being used as a daycare facility.

BACKGROUND: We understand the subject house suffered damage as a result of hurricane Sandy on October 29-30, 2012. The house is scheduled to be renovated. We understand the storm caused roof damage which lead to moisture damage in the Kitchen and Living Room. Based on this damage the following items are scheduled for removal and replacement: kitchen floor, kitchen ceiling, kitchen walls, living room ceiling and living room wall A. *Additionally smoke and carbon monoxide detectors are to be installed in the following sheetrock ceilings: all three bedrooms, first floor hallway, basement stairs and basement Family Room.*

SCOPE OF INSPECTION: Asbestos Pre-Renovation Inspection of the kitchen and living room only at the subject house, as directed by our client.

Our work included the following:

- Collection and analysis of building materials within the scope of renovation for asbestos, as required by the regulations.
- *The additional areas of sheetrock ceilings are going to be assumed to have the same ACM taping compound as was found in the living room ceiling, since the sampling damage would be greater than the small holes needed to install the detectors. These sheetrock ceilings will be regulated by OSHA and CT-DPH/EPA.*
- A list with quantity, type and location of asbestos containing materials (ACM) in the scope.
- Report of the findings including ACM location drawings.

This investigation and information provided in this report depends partly on background information provided by the client. This report is intended for the use of the client. The scope of services performed may not be appropriate for other users and any use of this report by third parties is at their sole risk. This report is intended to be used in its entirety. No excerpts may be taken to be representative of this report.

TEST PARAMETERS: This is an Asbestos Pre-Renovation Inspection intended to identify the presence, location, and quantity of any asbestos containing building materials which are part of the Renovation for compliance with OSHA 1926.1101 (k)(2)(i) and CT DPH 19a-332a-1 through 16.

For sampling, EPA Wet Methods are used to prevent fiber release. Building materials sampled are analyzed at our laboratory by EPA method 600/R-93/116. This is currently the approved EPA Test method, which uses Polarized Light Microscopy with Dispersion Staining. The laboratory is accredited by NIST/NVLAP and AIHA, and is a Connecticut Approved Environmental Laboratory for Asbestos Analysis.

**ASBESTOS PRE-RENOVATION INSPECTION
 SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
 APPLICATION #2072
 CS#183-76, 4/25/2014, PAGE 3 OF 5**

INSPECTION REPORT SYNOPSIS

LOCATION NAME AND ADDRESS: Site 003 - 153 Twin Brook Road, Hamden, CT
 Application #2072

INSPECTION DATE(S): 4/25/2014

QUALIFICATIONS: The Inspection was conducted by Daniel P. Sullivan:

- EPA & State of Connecticut Accredited Asbestos Inspector, Project Monitor & Project Designer
- State of Connecticut Licensed Asbestos Inspector/Management Planner (#000019)
- State of Connecticut Licensed Asbestos Project Monitor (#000036)
- State of Connecticut Licensed Asbestos Project Designer (#000096)

Dan was assisted by Ziyang Wang. For information about Chem Scope, Inc., log onto <http://www.chem-scope.com>.

FINDINGS: The following asbestos containing materials (ACM) were detected in the Scope of the Inspection:

<u>MATERIAL</u>	<u>LOCATION</u>	<u>~FOOTAGE</u>
<u>INTERIOR:</u>		
Marble-style pliable linoleum* with white backing and sticky adhesive* on Gold/White pliable ACM linoleum with gray fibrous backing and adhesive (on yellow pliable linoleum* with black fibrous paper backing and brown adhesive on wood floor)	Kitchen	150 sq ft
Beige ACM taping compound on sheetrock**	Living Room Ceiling	275 sq ft
	Living Room Wall A	175 sq ft
	Bedroom 1	95 sq ft***
	Bedroom 2	105 sq ft***
	Bedroom 3	150 sq ft***
	Hallway	40 sq ft***
	Bathroom	40 sq ft***
	Basement Stairs	40 sq ft***
	Total	920 sq ft

*Because these materials are adhered to an ACM material these material will also need to be treated as an asbestos containing material.

**>1% Asbestos was found in the combined results of the beige taping compound and the sheetrock layer; Consequently, the sheetrock and compound is OSHA and EPA-DPH regulated. With additional extensive sampling it may be possible to establish areas of non-asbestos taping compound, but additional sampling may also lead to more inconsistencies. See attached ACM location drawings for exact locations.

***The amount to be disturbed by the work in these rooms is < 1 sq ft per room.

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 4 OF 5**

INSPECTION REPORT SYNOPSIS (cont)

FINDINGS (CONT):

The following is a summary table of the materials that tested as non-Asbestos Containing Material (ACM) (<1%) within the Scope of Work (not already summarized previously):

Material	Location	Sample #'s	Findings
Light gray crumbly sheetrock with brown paper backing and white face coat and white crumbly sheetrock taping compound (walls and ceiling)	Kitchen	183-76-7,9,10, 12	No Asbestos Detected
Black fibrous paper and adhesive (on yellow fiberglass batt insulation, above sheetrock ceiling)	Kitchen and Living Room	183-76-15,16	No Asbestos Detected
Brown fibrous paper with foil backing (behind sheetrock wall A)	Living Room Wall A	183-76-17,18	No Asbestos Detected

LIMITATIONS OF INSPECTION

It is important to note that every effort is made to detect asbestos (ACM) in the path of the renovation by our inspectors. It is not practical or prudent to demolish the entire wall and ceiling system during an inspection. The owner should be aware of this in case suspect materials or concealed suspect materials are uncovered during the actual renovation.

If suspect materials that were previously not accessible or not sampled during this inspection are discovered during the renovation, or if the scope of the renovation changes to include disturbance of new materials not inspected, then renovation must stop and the materials must be sampled by a CT DPH licensed asbestos inspector prior to disturbance of these materials.

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 5 OF 5**

RECOMMENDATIONS

All Asbestos Containing Materials (ACM) detected in the path of the inspection must be removed prior to the disturbance of these materials.

Asbestos removal is regulated by federal and state agencies. Abatement work must be done by a licensed asbestos abatement contractor using proper procedures and practices, including containment, decontamination facilities, negative air units and trained and CT DPH licensed workers. Final re-occupancy testing is also required, if the building is going to be reoccupied after the asbestos removal and strongly recommended even if the building is not going to be re-occupied such as in the case of building demolition, for removal of greater than three (3) sq. ft or linear ft of ACM. A CT DPH Licensed Project Monitor is always required for final visual inspections after asbestos removal.

Please also keep in mind that notification to the DPH is required for asbestos abatement involving greater than 10 linear feet or 25 square feet of or for any demolition. Disposal of all ACM is regulated by EPA and the Connecticut DEEP; an EPA approved landfill must be used.

For the interior drilling of holes for smoke and CO detectors (< 1 sq ft per room): The work may be done as outlined in CT DPH regulations 19a-332a-10 for spot repairs by persons with a minimum of OSHA Class III training. CT DPH defines a spot repair as any asbestos abatement performed within a facility involving not more than three (3) linear feet or three (3) square feet of asbestos containing material. A CT DPH-licensed asbestos contractor would be the best choice for drilling the holes, since other contractors with the proper training and equipment would be difficult to find. Final re-occupancy testing and notification to the CT DPH are not required, as the amount of asbestos being removed is less than 3 square feet. A CT DPH Licensed Project Monitor is always required for final visual inspections after asbestos removal.

OSHA regulations 1926.1101 requires that before asbestos removal or repair work (class I, II or III work) is initiated, building owners/facility owners must notify their own employees and employers who are bidding on such work, of the quantity and location of ACM or PACM (presumed asbestos containing material) present in such areas. Also for inadvertently discovered ACM or PACM there is a 24-hour notification requirement to the owner and all employers at the site.

If you have any questions or need more information please call me. Thank you for calling on us.

Sincerely,



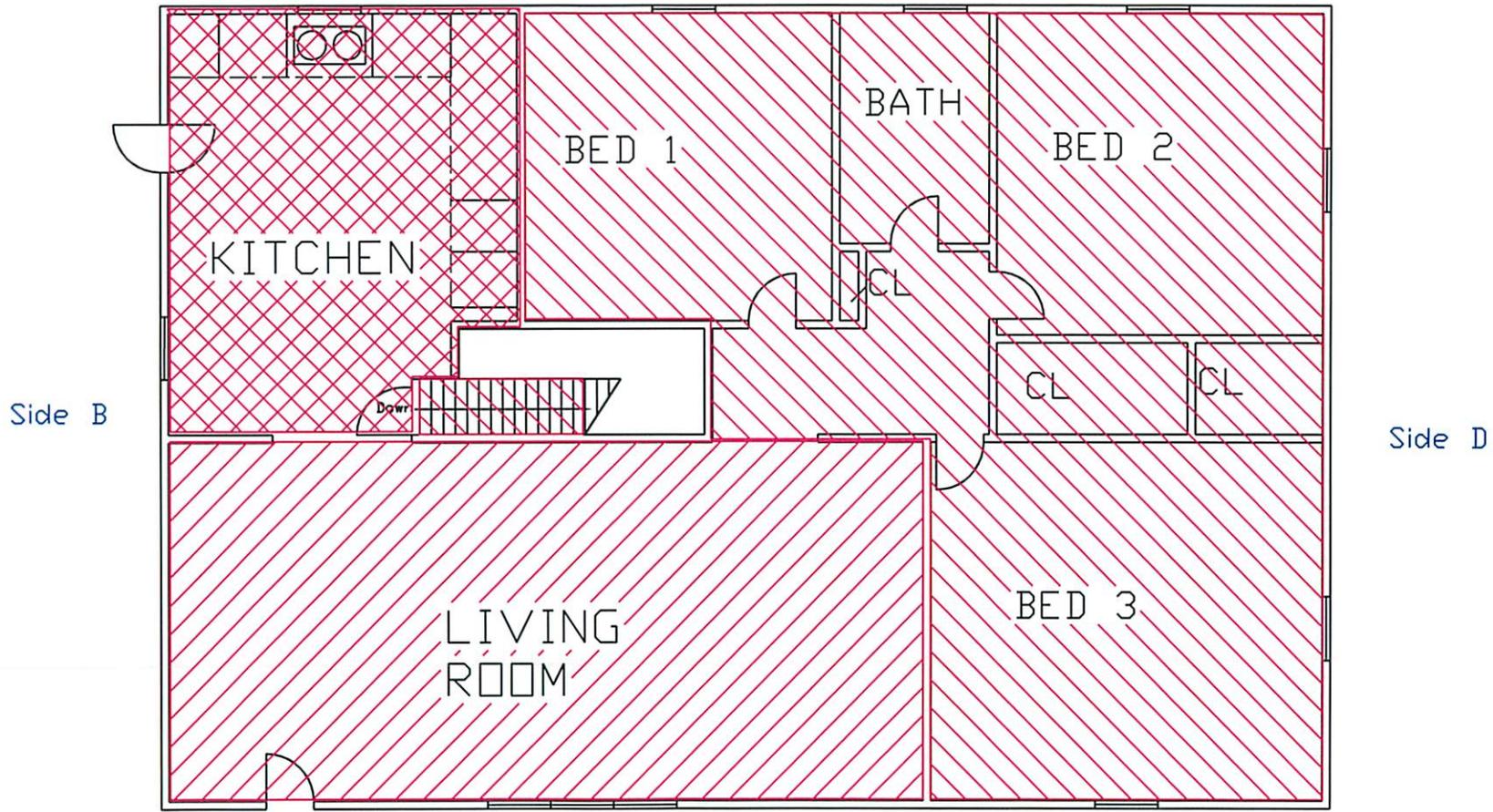
Dan Sullivan
Vice President, Operations

ChemScope Inc.

Site 003
153 Twin Brook Road, Hamden, CT
Main Floor

SCOPE OF INSPECTION DRAWING

Side C



LEGEND OF SYMBOLS

	Floors, walls and ceilings in Scope of Inspection
	Walls and Ceilings in Scope of Inspection
	Sheetrock Ceilings only in Scope of Inspection

NOTATIONS

DRAWN BY:
LEIGH HONOROF

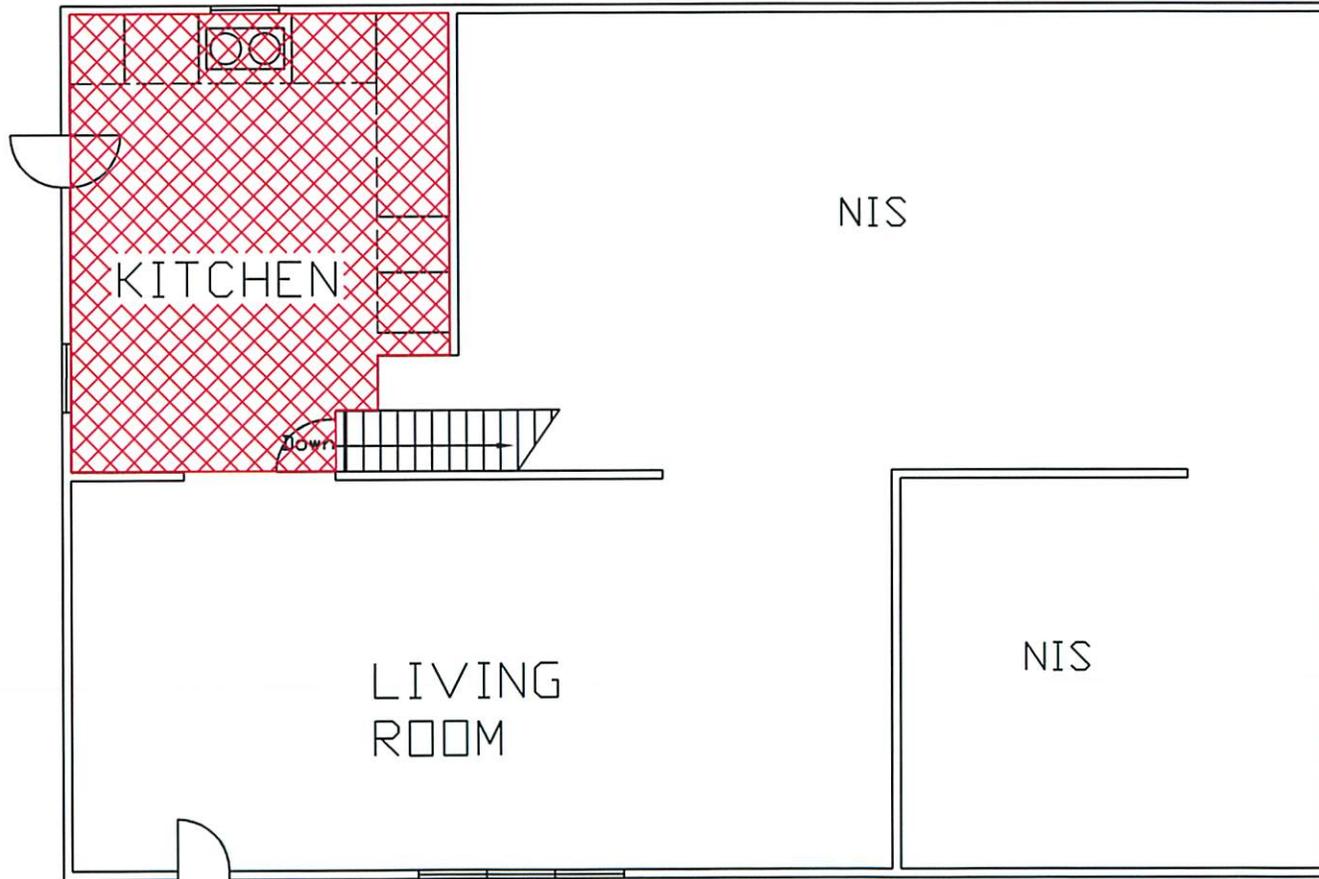
ChemScope Inc.

SHEET TITLE:
**Asbestos & Lead
Inspection**
153 TWIN BROOK RD
HAMDEN, CT
MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE: NOT TO SCALE	1SR
DATE: 5-29-14	

ChemScope Inc.
 Site 003
 153 Twin Brook Road, Hamden, CT
 Main Floor
 CS# 183-76, 4-25-14

ACM LOCATION DRAWING



← TWIN BROOK RD →



LEGEND OF SYMBOLS

	Location of ACM Linoleum In Scope of Inspection See Report for details
NIS	Not in Scope of Inspection

NOTATIONS

DRAWN BY:
LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
 ASBESTOS, LEAD &
 MOLD INSPECTION
 153 TWIN BROOK RD
 HAMDEN, CT
 MAIN FLOOR

CHEMSCOPE NUMBER:
CS# 183-76
 SCALE:
NOT TO SCALE
 DATE:
4/25/14

DRAWING NUMBER
1 A1

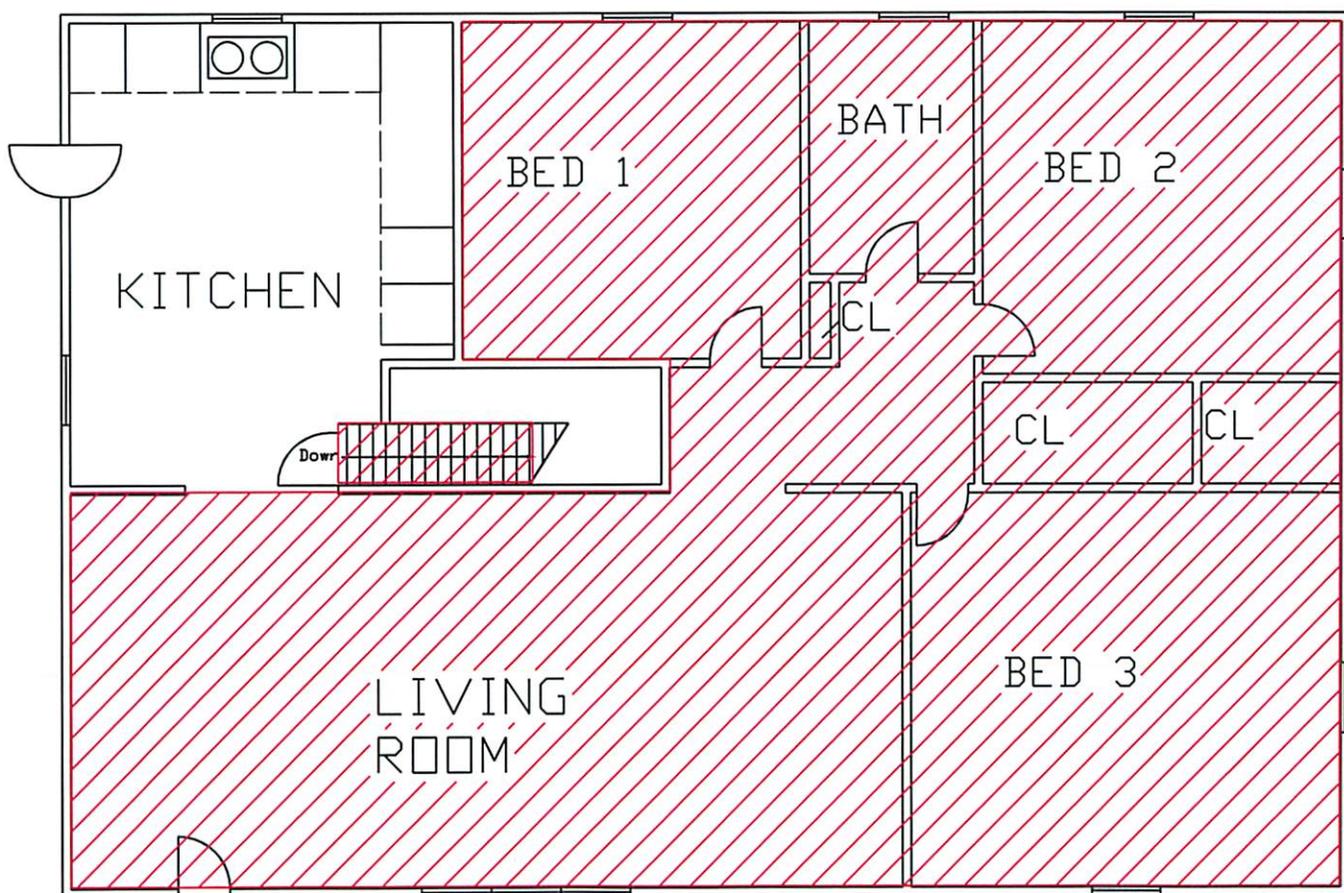
ChemScope Inc.
 Site 003
 153 Twin Brook Road, Hamden, CT
 Main Floor



LEGEND OF SYMBOLS

 Location of ACM
 Sheetrock walls &
 ceilings in scope

NOTATIONS



DRAWN BY:
 LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
Asbestos Inspection
 153 TWIN BROOK RD
 HAMDEN, CT
 MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	1AR
DATE 5-29-14	

Certificate Of Analysis

Diversified Technology Consultants (DTC) - Scott Feulner
2321 Whitney Avenue
Suite 301
Hamden CT 06518

5/2/2014
CS# 183-76
Page 1 of 4

Bulk sample(s) from Site 003, 153 Twin Brook Road, Hamden, CT collected by Dan Sullivan (assisted by Ziyang Wang) on 4/25/2014

Asbestos Identification in the samples. Examination made by Polarized Light Microscopy (PLM) per EPA Test Method 600/R-93/116

Sample Identification

Findings (Analyzed 5/2/14)

183-76-1 Marble-style pliable linoleum with white backing and sticky adhesive (on gold/white pliable linoleum with gray fibrous backing and adhesive on yellow pliable linoleum with black fibrous paper backing and brown adhesive on wood floor) / 1st Floor, Kitchen

Not Analyzed

183-76-2 Marble-style pliable linoleum with white backing and sticky adhesive (on gold/white pliable linoleum with gray fibrous backing and adhesive on yellow pliable linoleum with black fibrous paper backing and brown adhesive on wood floor) / 1st Floor, Kitchen

Not Analyzed

183-76-3 Gold/white pliable linoleum with gray fibrous backing and adhesive (from sample #1) / 1st Floor, Kitchen

*22% Chrysotile Asbestos
14% Non- Fibrous Particles
64% Volatile on Ignition*

183-76-4 Gold/white pliable linoleum with gray fibrous backing and adhesive (from sample #2) / 1st Floor, Kitchen

Not Analyzed

183-76-5 Yellow pliable linoleum with black fibrous backing and brown adhesive (from sample #1, on wood) / 1st Floor, Kitchen

*No Asbestos Detected
32% Non- Fibrous Particles
68% Volatile on Ignition*

Bulk sample(s) from Site 003, 153 Twin Brook Road, Hamden, CT collected by Dan Sullivan (assisted by Ziyang Wang) on 4/25/2014

Asbestos Identification in the samples. Examination made by Polarized Light Microscopy (PLM) per EPA Test Method 600/R-93/116

Sample Identification

Findings (Analyzed 5/2/14)

183-76-6 Yellow pliable linoleum with black fibrous backing and brown adhesive (from sample #2, on wood) / 1st Floor, Kitchen

No Asbestos Detected
38% Non- Fibrous Particles
62% Volatile on Ignition

183-76-7 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat (wall) / 1st Floor, Kitchen

No Asbestos Detected
75% Non- Fibrous Particles
25% Volatile on Ignition

183-76-8 Light gray crumbly sheetrock with brown fibrous paper backing and light beige face coat (wall) / 1st Floor, Living Room

No Asbestos Detected
78% Non- Fibrous Particles
22% Volatile on Ignition

183-76-9 White crumbly sheetrock taping compound (wall) / 1st Floor, Kitchen

No Asbestos Detected
87% Non- Fibrous Particles
13% Volatile on Ignition

183-76-10 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat (ceiling) / 1st Floor, Kitchen

No Asbestos Detected
76% Non- Fibrous Particles
24% Volatile on Ignition

183-76-11 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat (ceiling) / 1st Floor, Living Room

No Asbestos Detected
79% Non- Fibrous Particles
21% Volatile on Ignition

183-76-12 White crumbly sheetrock taping compound (ceiling) / 1st Floor, Kitchen

No Asbestos Detected
88% Non- Fibrous Particles
12% Volatile on Ignition

Bulk sample(s) from Site 003, 153 Twin Brook Road, Hamden, CT collected by Dan Sullivan (assisted by Ziyang Wang) on 4/25/2014

Asbestos Identification in the samples. Examination made by Polarized Light Microscopy (PLM) per EPA Test Method 600/R-93/116

Sample Identification

Findings (Analyzed 5/2/14)

183-76-13 Beige crumbly sheetrock taping compound (ceiling) / 1st Floor, Living Room

*4% Chrysotile Asbestos (point counted)
80% Non- Fibrous Particles
17% Volatile on Ignition*

183-76-14 Black fibrous paper and adhesive (on yellow fiberglass batt insulation, above sheetrock ceiling) / 1st Floor, Kitchen

*No Asbestos Detected
<1% Non- Fibrous Particles
60% Volatile on Ignition
40% Fiberglass*

183-76-15 Black fibrous paper and adhesive (on yellow fiberglass batt insulation, above sheetrock ceiling) / 1st Floor, Living Room

*No Asbestos Detected
<1% Non- Fibrous Particles
70% Volatile on Ignition
30% Fiberglass*

183-76-16 Brown fibrous paper with foil backing (behind sheetrock wall) / 1st Floor, Living Room

*No Asbestos Detected
17% Non- Fibrous Particles
83% Volatile on Ignition
<1% Mineral Wool*

183-76-17 Brown fibrous paper with foil backing (behind sheetrock wall) / 1st Floor, Living Room

*No Asbestos Detected
16% Non- Fibrous Particles
84% Volatile on Ignition
<1% Mineral Wool*

183-76-18 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat and beige crumbly sheetrock taping compound (ceiling) / 1st Floor, Living Room

*1-2% Chrysotile Asbestos (point counted)
76% Non- Fibrous Particles
22% Volatile on Ignition*

PARAMETERS ASBESTOS PLM ANALYSIS

(Revised 3/22/13)

1. *Materials which contain >1% asbestos (greater than 1%) by PLM (polarizing light microscopy) analysis are considered to be asbestos containing materials under EPA and the State of Connecticut Regulations. OSHA still regulates material with <1%. (Contact laboratory for information.) {Note: A more sensitive method is available called TEM (transmission electron microscopy). TEM may detect asbestos fibers that PLM cannot see, but the above agencies' enforcement is based on PLM analysis. Rules may differ for states other than Connecticut. It is best to check with the individual state. For example, New York State requires TEM confirmation of negative PLM results on floor tile}.*
2. *If no asbestos is detected in a sample, or if the asbestos content is less than 1% by PLM, additional samples of the same material should be submitted for confirmation. Please check with the laboratory for guidance on the number of samples needed. Sample collection in Connecticut must be by a DPH Licensed Asbestos Inspector. Many other states also require licensing.*
3. *Floor Tile Mastic: Mastic under floor tile should be separately sampled by scraping some of the mastic from the floor to avoid contamination from the floor tile.*
4. *Although Chem Scope, Inc. takes great effort to insure accuracy in the estimation of asbestos in the materials analyzed, no quantitation method is without some uncertainty. Based on independent calibration studies and comparison of Chem Scope's quantitative results with NVLAP and AIHA round robin programs we estimate our uncertainty in quantitation to be relatively small. The average relative uncertainty of the estimate is calculated to be 35% for samples that contain less than 10% asbestos. This means a estimate of 10% asbestos in a sample has a probable range of 6.5% to 13.5% while an estimate of 1% has a range of 0.65% to 1.35%.*
5. *The presence of non-asbestos components, which are recognized by the PLM analyst, is reported with the estimated amounts. This is not an exhaustive analysis for the non-asbestos materials since the primary purpose is to determine if asbestos is present and, if so, how much is present of each type of asbestos.*
6. *Results reported apply only to the sample(s) analyzed.*
7. *Special treatment of samples: Chem Scope, Inc. routinely uses gravimetric sample reduction techniques such as low temperature ashing or acid dissolution on samples like floor tile, roofing materials, glue dots, or high cellulose content samples prior to PLM analysis. These methods are used to aid in the PLM analysis and to provide better quantitative data. Layered samples, if possible, are analyzed separately as individual layers. However, in accordance with the method, if any layer contains >1% asbestos (greater than 1%) it is to be considered an asbestos containing material. All results are reported to the original sample basis.*
8. *Sample results are not corrected for blanks. Analytical blanks are run daily and if contamination is suspected the samples are rerun.*
9. *Chem Scope, Inc. performs "400 point" point counting when the asbestos content is visually estimated to be less than 10%. There is no additional charge for this analysis.*

The Scope of Accreditation referenced in this report applies to bulk asbestos fiber analysis by PLM (Polarized Light Microscopy).

Accreditation does not imply endorsement by NVLAP, NIST or any Federal or State Agency.

This report pertains only to the samples tested and may not be reproduced in part.

Condition of the samples at the time of receipt was acceptable unless otherwise noted on the Certificate of Analysis.

See test parameters above and attached chain of custody form.

We would love to hear from you. Comments? Questions? Please call or email us at chem.scope@snet.net.

ChemScope, Inc. is accredited by AIHA LAP, LLC LAB #100134

NVLAP Lab Code 101061-0.

Connecticut Department of Public Health (DPH) Approved Environmental Lab PH 0581

[Signature]
Signature
Analyst

[Signature]
Signature
(if applicable)
Inspector

Authorized Signature or
Suzanne Cristante
Laboratory Director

Authorized Signature or
Izabela Kremens
Quality Manager

[Signature]
Authorized Signature
Ronald Arena
President

Dear Laboratory Customer or Potential Customer,

New laboratory accreditation standards require us to provide our clients information about our services to make sure that your requirements for testing are adequately defined, documented and understood. The following is for your information. Please call us if you have any questions or comments.

Type of Samples:

- / / PCM cassettes are routinely run by NIOSH Method 7400.
- / / Bulk materials are run by EPA Method: #600/R-93/116.

Air Samples: NIOSH 7400 Method counts all fibers. This method may be used for personal air samples and for finals. Two field blanks must be submitted for each set of samples. In the unlikely event that there is to be any deviation from the standard test, you will be consulted by phone before the work begins. Those clients who have not had NIOSH 582 or AHERA asbestos training courses (either supervisor or project monitor) should consult with the lab director for more information. The test parameters are further explained in the analytical report.

Bulk materials: sampled are analyzed by the latest EPA Method: (#600/R-93/116) which uses polarized light microscopy (PLM). When asbestos is detected and the amount is estimated to be <10%, we automatically point count the samples. When there are interfering substances present, we may use ashing, acid washing or other procedures described in the method to handle the interference. Those clients who have not had AHERA asbestos training courses (either inspector, supervisor or project designer) should consult with the lab director for more information. The test parameters are further explained in the analytical report.

All Samples must be clearly labeled with source name and identification number or sufficient information from the client to make this sample uniquely identified. (We will then add our notebook #, page # (batch) and unique number within the batch.) Samples must be in a clean, air tight package such as a zip loc bag. Appropriate completed paperwork must accompany the sample. Bulk and air samples may not be submitted in the same package.

As soon as available bench top results will be faxed to you and reports will then be mailed. We will retain air samples for at least three months and bulk samples for 6 months unless you advise us otherwise.

You are welcome to visit the laboratory at any time to discuss the work, monitor the work or verify our testing services. We appreciate your business and encourage any feedback regarding improving our services or our quality system. Please take a minute to complete the following survey and mail/fax it to ChemScope, Inc.

Customer Service Survey

To help us improve our services give your opinions to the following:

- 1- The printed laboratory report was complete and easy to understand. YES NO
If no, please explain _____.
- 2- The turn around time for results met your expectations/needs. YES NO
If no, please explain _____.
- 3- How likely are you to recommend ChemScope Inc. to someone?
 Excellent Very Good Good Fair Poor
- 4- How likely are you to return to ChemScope in the future if the need arises?
 Excellent Very Good Good Fair Poor
5. On a scale of 1 to 5 where 1 represents "Satisfied" and 5 represents "Dissatisfied", how would you rate your level of overall satisfaction.
 1 2 3 4 5
- 6- Please add any additional comments or suggestions that would be helpful when you use our services:

Name _____ Company _____
Address _____ Telephone/e-mail _____

Can we contact you regarding this survey? YES NO

ChemScope Inc.

Site 003
 153 Twin Brook Road, Hamden, CT
 Main Floor
 CS# 183-76, 4-25-14
 BULK SAMPLE LOCATION DRAWING



LEGEND OF SYMBOLS

1	Bulk Sample No.
NIS	Not in Scope of Inspection

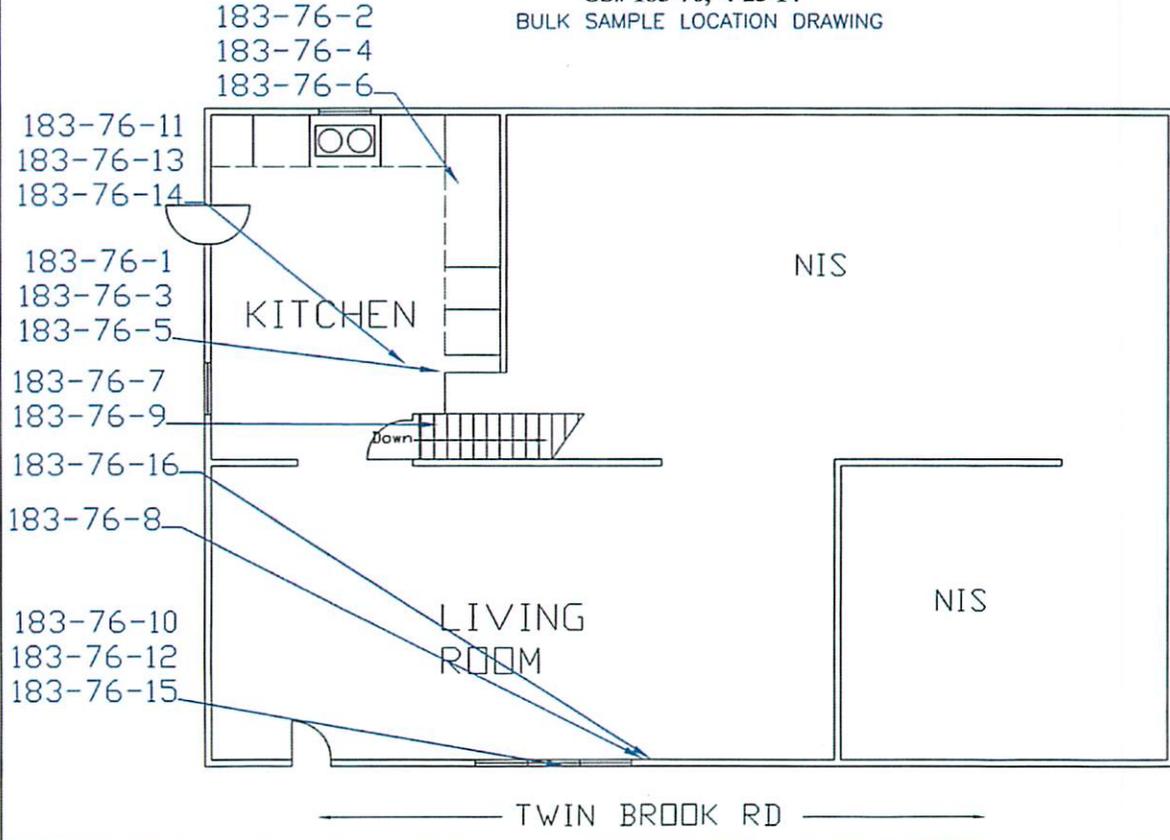
NOTATIONS

DRAWN BY:
 LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
 ASBESTOS, LEAD &
 MOLD INSPECTION
 153 TWIN BROOK RD
 HAMDEN, CT
 MAIN FLOOR

PROJECT NAME CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	1 B
DATE 4/25/14	



SECTION 024119 – SELECTIVE DEMOLITION & REMOVAL OF EQUIPMENT, CABINETS, & MISCELLANEOUS ITEMS.

PART 1 - GENERAL PROVISIONS FOR SELECTIVE DEMOLITION WORK

THE CONTRACTOR SHALL DEMOLISH AND REMOVE MATERIAL CALLED FOR TO BE REMOVED ON THE PLANS, IN THESE SPECIFICATIONS AND AS NECESSARY TO COMPLETE THE WORK. ALL DEMOLISHED MATERIALS SHALL BE REMOVED FROM THE CONSTRUCTION AREA ON A DAILY BASIS.

THE HOUSE SHALL BE MAINTAINED BROOM CLEANED AT THE END OF EACH DAY

REMOVAL AND STORAGE OF EQUIPMENT, CABINETS & MISCELLANEOUS ITEMS:

CONTRACTOR SHALL PROVIDE A STORAGE CONTAINER TO BE MAINTAINED ON SITE TO PROVIDE SECURE LOCKABLE, WEATHERTIGHT STORAGE OF MATERIALS TO BE REINSTALLED INCLUDING THE CABINETS, COUNTERTOPS, SINK, REFRIGERATOR, OVEN, HOOD, DISHWASHER, ETC.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT THE OWNERS EQUIPMENT FROM DAMAGE. IN THE EVENT OF DAMAGE, CONTRACTOR SHALL PROVIDE REPLACEMENT OF LIKE KIND NEW PRODUCT FOR THE HOMEOWNER.

SECTION 062000 – CARPENTRY

SCOPE

PROVIDE BLOCKING OF WALLS TO RECEIVE CABINETS
PROVIDE NAILERS REQUIRED FOR GYPSUM BOARD INSULATION
REPAIR SUBFLOORING IN PREPARATION FOR NEW FLOORING.
PROVIDE CASEMENTS AT DOORS, WINDOWS, AND PASSTHROUGH
PROVIDE WOOD BASE & SHOE
PROVIDE NEW CHAIR RAIL IN LIVING ROOM IN TABLE AREA.
PROVIDE CABINETS STORED FOR REINSTALLATION.
REPAIR DELAMINATION OF COUNTERTOP BACKSPLASH.
RE-INSTALL COUNTERTOP

PRODUCTS

CASEMENTS, TRIM, AND MOLDINGS: PROVIDE SOFTWOOD LUMBER FOR STAIN OR CLEAR FINISH # 1 PINE WITH NO FINGER JOINTING. CASEMENTS, TRIM, AND MOLDINGS SHALL BE ALL OF ONE STYLE; COLONIAL OR CLAM, AS SELECTED BY THE OWNER.

PROVIDE FASTENERS SUITABLE FOR THE INSTALLATION FOR A WORKMANLIKE INSTALLATION INCLUDING NAILS, SCREWS, BRADS.

EXECUTION

FINISHED CARPENTRY SHALL BE INSTALLED WITHOUT BLEMISHES FROM NAILING MIS-STRIKES (MOONS, HALFMOONS).
FILL HOLES, GAPS AND/OR SAND IN PREPARATION FOR PAINTING. NAILS SHALL BE SET 1/16". NAILS SHALL NOT BE OVERDRIVEN THROUGH THE TRIM.

- A. SUBFLOORING: REMOVE AND INSTALL NEW SUBFLOORING WHERE EXISTING SUBFLOORING IS DAMAGED. PROVIDE SUBFLOOR SUITABLE FOR INSTALLATION OF FINISHED FLOOR.
- B. INSTALL INTERIOR FINISH CARPENTRY LEVEL, PLUMB, TRUE, AND ALIGNED WITH ADJACENT MATERIALS. USE CONCEALED SHIMS WHERE NECESSARY FOR ALIGNMENT.
 - 1. SCRIBE AND CUT INTERIOR FINISH CARPENTRY TO FIT ADJOINING WORK. REFINISH AND SEAL CUTS AS RECOMMENDED BY MANUFACTURER.
 - 2. WHERE FACE FASTENING IS UNAVOIDABLE, COUNTERSINK FASTENERS, FILL SURFACE FLUSH, AND SAND UNLESS OTHERWISE INDICATED.
 - 3. INSTALL TO TOLERANCE OF **1/8 INCH IN 96 INCHES (3 MM IN 2438 MM)** FOR LEVEL AND PLUMB. INSTALL ADJOINING INTERIOR FINISH CARPENTRY WITH **1/32-INCH (0.8-MM)** MAXIMUM OFFSET FOR FLUSH INSTALLATION AND **1/16-INCH (1.5-MM)** MAXIMUM OFFSET FOR REVEAL INSTALLATION.
 - 4. COORDINATE INTERIOR FINISH CARPENTRY WITH MATERIALS AND SYSTEMS IN OR ADJACENT TO IT. PROVIDE CUTOUTS FOR MECHANICAL AND ELECTRICAL ITEMS THAT PENETRATE INTERIOR FINISH CARPENTRY.
- C. STANDING AND RUNNING TRIM INSTALLATION
 - 1. INSTALL WITH MINIMUM NUMBER OF JOINTS PRACTICAL, USING FULL-LENGTH PIECES FROM MAXIMUM LENGTHS OF LUMBER AVAILABLE. DO NOT USE PIECES LESS THAN **24 INCHES (610 MM)** LONG, EXCEPT WHERE NECESSARY. STAGGER JOINTS IN ADJACENT AND RELATED STANDING AND RUNNING TRIM. MITER AT RETURNS, MITER AT OUTSIDE CORNERS, AND COPE AT INSIDE CORNERS TO PRODUCE TIGHT-FITTING JOINTS WITH FULL-SURFACE CONTACT THROUGHOUT LENGTH OF JOINT. USE SCARF JOINTS FOR END-TO-END JOINTS. PLANE BACKS OF CASINGS TO PROVIDE UNIFORM THICKNESS ACROSS JOINTS WHERE NECESSARY FOR ALIGNMENT.
- D. CABINETS & COUNTERTOPS
 - 1. INSTALL CABINETS IN THE ORIENTATION AND ELEVATIONS OF THE ORIGINAL INSTALLATION. INSTALL LEVEL, SHIM AND ADJUST WHERE NEEDED. ADJUST DOORS FOR PROPER ALIGNMENT AND OPERATION.

SECTION 072119 – FOAMED-IN-PLACE INSULATION

SCOPE

SPRAY POLYURETHANE FOAM INSULATION: INSTALL SPRAY POLYURETHANE FOAM INSULATION ON EXTERIOR WALLS.

PRODUCTS

CLOSED-CELL SPRAY POLYURETHANE FOAM:

SELECT FROM THE FOLLOWING MANUFACTURER'S

BASF
CERTAINTEED CORPORATION
DOW CHEMICAL COMPANY
GACO WESTERN LLC
HENRY COMPANY
ICYNENE INC.
JOHNS MANVILLE
NCFI
SWD URETHANE COMPANY
VOLATILE FREE, INC.

PRODUCT CHARACTERISTICS

ASTM C 1029, TYPE II
DENSITY = 1.5 LB/CF MIN.
R-VALUE AT 1' = 6.2 MIN. DEG. F X H X SQ. FT./Btu AT 75 DEG. F.
SURFACE BURNING COMPLY WITH ASTM E 84
FLAME-SPREAD INDEX 75 OR LESS
SMOKE-DEVELOPED INDEX 450 OR LESS
FIRE PROPAGATION CHARACTERISTICS: PASSES NFPA 285 TESTING AS PART OF
APPROVED ASSEMBLY.

EXECUTION

COMPLY WITH MANUFACTURERS WRITTEN INSTALLATION INSTRUCTIONS APPLICABLE TO PRODUCT AND APPLICATION.

SPRAY INSULATION TO ENVELOP ENTIRE AREA TO BE INSULATED AND FILL VOIDS.

APPLY IN MULTIPLE PASSES NOT TO EXCEED MAXIMUM THICKNESSES RECOMMENDED BY MANUFACTURER. DO NOT SPRAY INTO RISING FOAM.

INSTALL INTO CAVITIES FORMED BY FRAMING MEMBERS TO FULLY FILL VOID OF WALL CAVITY.

PROVIDE MIN. R-38 INSULATION AT OPEN JOISTS IN ATTIC SPACE. COVER CEILING JOISTS IN ATTIC WITH MIN 1" OF FOAM INSULATION. COMPLETELY FILL VOID AT COVERED WALKWAY.

INSTALL THERMAL INSULATION PLAN SHOWING LOCATIONS OF INSULATION, TYPE OF INSULATION INSTALLED, AND R VALUES AS REQUIRED BY CODE

END OF SECTION

SECTION 079200 – JOINT SEALANTS

SCOPE

PROVIDE JOINT SEALANT FOR THE EXECUTION AND COMPLETION OF THE WORK AS REQUIRED BY INSTALLATION INSTRUCTIONS, CODE, OR OTHER SECTIONS OF THE SPECIFICATIONS AND CONTRACT DOCUMENTS. INSTALL JOINT SEALANTS AT BASE OF ALL WALLBOARD PRIOR TO INSTALLATION OF BASE MOULDING.

PRODUCTS

LOW VOC/NO VOC: SEALANTS USED ON THIS PROJECT SHALL BE LOW VOC/NO VOC SEALANTS CONTAINING A MINIMUM OF VOLATILE ORGANIC COMPOUNDS.

SEALANTS SHALL COMPLY WITH **REGULATION 8, RULE 51 OF THE BAY AREA QUALITY MANAGEMENT DISTRICT.**

SEALANTS SHALL BE SELECTED SUITABLE FOR THEIR APPLICATION. USE MOLD RESISTANT SEALANTS IN KITCHEN APPLICATIONS. SEALANTS INSTALLED RELATED TO FINISHED APPLICATIONS TO RECEIVE PAINT SHALL BE PAINTABLE SEALANT.

EXECUTION

INSTALL SEALANTS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. AREA TO RECEIVE SEALANTS SHALL BE CLEANED AND FREE OF LOOSE DUST OR DEBRIS THAT MAY COMPROMISE THE PURPOSE OF THE SEALANT OR PROVIDE AN INADEQUATE FINISH.

END OF SECTION

SECTION 081000 – DOORS AND HARDWARE

GENERAL

FRONT AND REAR DOOR SHALL BE BID AS ALTERNATES TO THE BID. THE WORK INCLUDES THE REMOVAL AND REPLACEMENT OF THE FRONT AND KITCHEN EXTERIOR DOORS. WORK SHALL INCLUDE ALL WORK FOR REMOVING THE DOORS, PREPARING THE ROUGH OPENING FOR THE NEW DOORS AND INSTALLATION OF THE NEW DOOR FOR A FUNCTIONAL WEATHERPROOF ENTRY DOOR.

PRODUCTS

EXTERIOR ENTRY DOORS: PROVIDE PRE-HUNG EXTERIOR INSULATED STEEL DOOR AS SELECTED BY OWNER

HARDWARE: FRONT DOOR- SIMILAR TO SHLAGE ADDISON SINGLE CYLINDER SATIN NICKLE HANDSET WITH ACCENT INTERIOR LEVER AND DEADBOLT LOCK ACCESSORY. MODEL # F60 V ADD 619 ACC.. INCLUDE MATCHING DOOR BUMPER HARDWARE.

REAR DOOR- SIMILAR TO SHLAGE ACCENT SATIN NICKEL LEVER WITH DEADBOLT ACCESSORY MODEL # FB50N V ACC 619. INCLUDE MATCHING DOOR BUMPER HARDWARE.

SELECT HINGES TO MATCH HARDWARE SET.

FINAL SELECTIONS TO BE COORDINATED WITH OWNER.

EXECUTION:

DOORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS. PROVIDE ALL SEALANTS, FLASHINGS, AIR AND WATER BARRIER PRODUCTS AND WEATHERSTRIPPING FOR A COMPLETE INSTALLATION. INSTALL WATER BARRIER AROUND PERIMETER OF ROUGH OPENING AND WRAP ROUGH OPENING. INSTALL BARRIER AT SILL FIRST AND LAP MATERIAL SO THAT WATER WILL DRAIN AWAY.

FINISH AS REQUIRED BY MANUFACTURER. COORDINATE WITH OWNER FOR COLOR SELECTIONS.

SECTION 092900 – GYPSUM BOARD

GENERAL

GYPSUM WALLBOARD WORK SHALL BE IN ACCORDANCE WITH ALL CODES.

COMPLY WITH ASTM C 840 REQUIREMENTS OF GYPSUM BOARD MANUFACTURER'S WRITTEN INSTRUCTIONS WHICHEVER ARE MORE STRINGENT.

PRODUCTS

SIZE: PROVIDE MAXIMUM LENGTHS AND WIDTHS AVAILABLE THAT WILL MINIMIZE JOINTS IN EACH AREA.

A. MANUFACTURERS

- a. AMERICAN GYPSUM.
- b. CERTAINTEED CORPORATION.
- c. CONTINENTAL BUILDING PRODUCTS, LLC.
- d. GEORGIA-PACIFIC BUILDING PRODUCTS.
- e. PABCO GYPSUM.
- f. TEMPLE-INLAND BUILDING PRODUCTS BY GEORGIA-PACIFIC.
- g. USG CORPORATION

B. LIVING ROOM INSTALLATION: GYPSUM WALLBOARD: ASTM C 1396/C 1396M.

1. THICKNESS: 1/2 INCH (12.7 MM). MIN.
2. LONG EDGES: TAPERED.

C. KITCHEN INSTALLATION: MOLD-RESISTANT GYPSUM BOARD: ASTM C 1396/C 1396M. WITH MOISTURE- AND MOLD-RESISTANT CORE AND PAPER SURFACES.

1. CORE: 1/2 INCH REGULAR TYPE.(MIN.)
2. LONG EDGES: TAPERED.
3. MOLD RESISTANCE: ASTM D 3273, SCORE OF 10 AS RATED ACCORDING TO ASTM D 3274.

D. INTERIOR TRIM: ASTM C 1047.

1. MATERIAL: GALVANIZED OR ALUMINUM-COATED STEEL SHEET, ROLLED ZINC, PLASTIC.

- a. CORNERBEAD.
- b. BULLNOSE BEAD.
- c. LC-BEAD: J-SHAPED; EXPOSED LONG FLANGE RECEIVES JOINT COMPOUND.
- d. L-BEAD: L-SHAPED; EXPOSED LONG FLANGE RECEIVES JOINT COMPOUND.
- e. U-BEAD: J-SHAPED; EXPOSED SHORT FLANGE DOES NOT RECEIVE JOINT COMPOUND.
- f. EXPANSION (CONTROL) JOINT.
- g. CURVED-EDGE CORNERBEAD: WITH NOTCHED OR FLEXIBLE FLANGES.

E. JOINT TAPE AND COMPOUNT: COMPLY WITH ASTM C 475/C 475M.

1. JOINT TAPE:
 - a. INTERIOR GYPSUM BOARD: PAPER.
2. JOINT COMPOUND FOR INTERIOR GYPSUM BOARD: DRYING-TYPE ALL PURPOSE COMPOUND. USE WITH MOLD-RESISTANT GYPSUM BOARD PRODUCTS SUCH AS "PROFORM XP" BY NATIONAL GYPSUM COMPANY FOR KITCHEN JOINT COMPOUND.

EXECUTION

EXAMINE SUBSTRATES FOR SUITABILITY FOR INSTALLATION OF GYPSUM DRYWALLS. MAKE CORRECTIONS NECESSARY INCLUDING ADDING NAILERS OR STRAIGHTENING FRAMING THAT MAY CAUSE UNACCEPTABLE CONDITION.

PROVIDE FASTENERS AND TRIM IN ACCORDANCE WITH ASTM C 840 INSTALLED TO MEET REQUIREMENTS OF THE WORK INCLUDING FASTENER LENGTH AND HEAD SIZE, CORNER BEAD AND END TRIM.

FINISH: PROVIDE LEVEL 4 FINISH FOR ALL DRYWALL APPLICATIONS.

PROTECT EXISTING ELEMENTS AND INSTALLED FINISHED ITEMS FROM DAMAGE DUE TO DRYWALL INSTALLATION. PROTECT FINISHED FLOORS FROM COMPOUND OR WATER SPRAY. REFINISH ANY DAMAGED SURFACES CAUSED BY DRYWALL INSTALLATION.

END OF SECTION

SECTION 096516 – RESILIENT SHEET FLOORING

GENERAL

PROVIDE VINYL SHEET FLOORING, RUBBER BASE, AND ACCESSORIES

ALL PRODUCT SHALL MEET HUD GREEN BUILDING CRITERIA.

SUBMITTALS:

PRODUCT DATA: PROVIDE PRODUCT DATA SHOWING COMPLIANCE WITH SPECIFICATIONS.

CLEARLY IDENTIFY COMPLIANCE CRITERIA ON SUBMITTAL BY MARKING EACH CRITERIA ITEM.

SAMPLES: PROVIDE THREE(3) SAMPLES A MINIMUM OF 6"X9" MIN. FOR VERIFICATION OF PRODUCT.

WARRANTY: SUBMIT MANUFACTURERS PRODUCT WARRANTEE FOR APPROVAL OF PRODUCT.

PRODUCTS:

VINYL SHEET FLOORING

PROVIDE ENVIRONMENTALLY PREFERRABLE FLOORING THAT IS "FLOORSCORE" CERTIFIED.

THICKNESS: .080 INCH MIN.

WEARING SURFACE: EMBOSSSED

SHEET WIDTH: MAXIMUM SHEET WIDTH PROVIDED BY MANUFACTURER. -6' MIN.

SEAMLESS INSTALLATION METHOD: HEAT WELDED OR CHEMICALLY BONDED AS

RECOMMENDED BY MANUFACTURER.

COLORS AND PATTERNS: SHALL BE AS SELECTED BY OWNER FROM MANUFACTURER'S STANDARD SELECTION.

ACCESSORIES

FLASH-PATCH MATERIAL: PROVIDE PATCHING MATERIAL FOR UNDERLAYMENT/SUBFLOOR AT EDGES OF SHEETS, FASTENERS, AND OTHER LOCATIONS AS MAY BE NEEDED TO PROVIDE AN UNDERLAYMENT FREE OF DEFECTS THAT WILL TELESCOPE THROUGH THE FLOORING MATERIAL.

ADHESIVES:

OORR PROGRAM
Brackeem
153 Twin Brook Road
Hamden, CT
Project #: 2072

PROVIDE LOW-VOC/NO-VOC ADHESIVES TO INSTALL THE FLOORING IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS. VOC CONTENT SHALL BE 50 G/L OR LESS. ADHESIVES MUST COMPLY WITH RULE 1168 OF THE SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT.

BASE:

STRAIGHT LENGTHS: PROVIDE 4" RUBBER BASE, 1/8" MATERIAL, WITH 1" COVE MOULDED INTO PRODUCT.

CORNERS: PROVIDE MATCHING PRE-MOULDED CORNERS AT EXTERIOR CORNERS. COLOR AS SELECTED BY OWNER. PROVIDE COLOR SAMPLES FOR SELECTION.

TRIM: PROVIDE 2" MIN. WIDE DECORATIVE ALUMINUM THRESHOLD EDGING AT DOOR TO LIVING ROOM. COLOR SHALL BE AS SELECTED BY THE OWNER – SILVER OR GOLD.

MANUFACTURERS

SELECT PRODUCTS THAT MEET THESE SPECIFICATIONS FROM THE FOLLOWING MANUFACTURER'S

ARMSTRONG WORLD INDUSTRIES
FORBO INDUSTRIES, INC.
GERFLOR
JOHNSONITE
MANNINGTON MILLS, INC.
POLYFLOR, LTD.

EXECUTION

INSTALL THE FLOORING MATERIALS IN STRICT COMPLIANCE WITH MANUFACTURER'S REQUIREMENTS.

INSPECT THE UNDERLAYMENT CONDITION FOR SUITABILITY TO ENABLE A QUALITY FINISHED VINYL FLOOR WITH NO TELESCOPING OF UNDERLAYMENT FAULTS.

FLASH-PATCH AS NEEDED ALL SUBSTRATE BOARD EDGES AND FASTENERS.

FLOORING SHALL BE INSTALLED IN ONE SHEET. FLOORING SHALL COVER THE ENTIRE FINISHED FLOOR INCLUDING UNDER-COUNTER SPACES WHERE THERE ARE NO BASE CABINETS AND UNDER APPLIANCES.

BASE: INSTALL RUBBER BASE AT THE PERIMETER OF THE ROOM WHERE THERE IS NO BASE CABINETRY. INSTALL RUBBER BASE AT AND AROUND BASE CABINETS. USE PRE-MOULDED CORNERS AT EXTERIOR CORNERS AT WALLS AND BASE CABINETS.

ONCE INSTALLED, PROVIDE PROTECTION OF FLOORING FROM FOOT TRAFFIC UNTIL CONSTRUCTION WORK IS COMPLETE AND READY FOR ACCEPTANCE BY THE OWNER. ADEQUATE PROTECTION WOULD INCLUDE HARDBOARD PROTECTION AT A MINIMUM.

WARRANTEE: PROVIDE 15 YEAR MINIMUM WARRANTEE.

SECTION 099123 – INTERIOR PAINTING

GENERAL

PROVIDE FINISH CONDITION FOR ALL PRODUCTS INSTALLED REQUIRING PAINTED FINISH. FINISH ALL WOOD TRIM INSTALLED WITH PAINT OR POLYURETHANE FINISH PER THESE SPECIFICATIONS.

ROOMS WILL BE PAINTED IN THEIR ENTIRETY INCLUDING WALLS CEILINGS AND TRIM. DO NOT PAINT PRODUCTS HAVING MANUFACTURED FINISH.

SUBMITTALS

SUBMIT COLOR CHARTS FOR OWNER SELECTION OF PAINT COLORS

FIELD CONDITIONS

DO NOT APPLY PAINT WHEN RELATIVE HUMIDITY EXCEEDS 85%, AT TEMPERATURES LESS THAN 5 DEG. F ABOVE THE DEW POINT, OR TO DAMP OR WET SURFACES.

PRODUCTS

MANUFACTURER'S

SELECT ALL PAINT PRODUCTS FROM ONE MANUFACTURER MEETING THE REQUIREMENTS OF THE SPECIFICATIONS. SELECT FROM ONE OF THE FOLLOWING MANUFACTURER'S:

BENJAMIN MOORE & CO.
BEHR
CALIFORNIA PAINTS
GLIDDEN PROFESSIONAL
KELLY-MOORE PAINT COMPANY
M.A.B. PAINTS
PPG ARCHITECTURAL FINISHES
SHERWIN-WILLIAMS COMPANY
VALSPAR
ZINSSER

MATERIAL COMPATIBILITY

1. MATERIALS FOR USE WITHIN EACH PAINT SYSTEM SHALL BE COMPATIBLE WITH ONE ANOTHER AND SUBSTRATES INDICATED, UNDER CONDITIONS OF SERVICE AND APPLICATION AS DEMONSTRATED BY MANUFACTURER, BASED ON TESTING AND FIELD EXPERIENCE.
2. FOR EACH COAT IN A PAINT SYSTEM, PRODUCTS SHALL BE RECOMMENDED IN WRITING BY TOPCOAT MANUFACTURERS FOR USE IN PAINT SYSTEM AND ON SUBSTRATE INDICATED.

VOC CONTENT

1. FLAT PAINTS AND COATINGS: 50 G/L.
2. NONFLAT PAINTS AND COATINGS: 50 G/L.
3. PRIMERS, SEALERS, AND UNDERCOATERS: 50 G/L.
4. FLOOR COATINGS: 100 G/L.

EXECUTION

EXAMINATION

EXAMINE SUBSTRATES AND CONDITIONS, WITH APPLICATOR PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR MAXIMUM MOISTURE CONTENT AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.

MAXIMUM MOISTURE CONTENT OF SUBSTRATES: WHEN MEASURED WITH AN ELECTRONIC MOISTURE METER AS FOLLOWS:

CONCRETE: 12 PERCENT.
FIBER-CEMENT BOARD: 12 PERCENT.
MASONRY (CLAY AND CMUS): 12 PERCENT.
WOOD: 15 PERCENT.
GYPSUM BOARD: 12 PERCENT.
PLASTER: 12 PERCENT.

GYPSUM BOARD SUBSTRATES: VERIFY THAT FINISHING COMPOUND IS SANDED SMOOTH.

VERIFY SUITABILITY OF SUBSTRATES, INCLUDING SURFACE CONDITIONS AND COMPATIBILITY, WITH EXISTING FINISHES AND PRIMERS.

PROCEED WITH COATING APPLICATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

APPLICATION OF COATING INDICATES ACCEPTANCE OF SURFACES AND CONDITIONS.

PREPARATION

COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS IN "MPI ARCHITECTURAL PAINTING SPECIFICATION MANUAL" APPLICABLE TO SUBSTRATES AND PAINT SYSTEMS INDICATED.

REMOVE HARDWARE, COVERS, PLATES, AND SIMILAR ITEMS ALREADY IN PLACE THAT ARE REMOVABLE AND ARE NOT TO BE PAINTED. IF REMOVAL IS IMPRACTICAL OR IMPOSSIBLE BECAUSE OF SIZE OR WEIGHT OF ITEM, PROVIDE SURFACE-APPLIED PROTECTION BEFORE SURFACE PREPARATION AND PAINTING.

AFTER COMPLETING PAINTING OPERATIONS, USE WORKERS SKILLED IN THE TRADES INVOLVED TO REINSTALL ITEMS THAT WERE REMOVED. REMOVE SURFACE-APPLIED PROTECTION IF ANY.

CLEAN SUBSTRATES OF SUBSTANCES THAT COULD IMPAIR BOND OF PAINTS, INCLUDING DUST, DIRT, OIL, GREASE, AND INCOMPATIBLE PAINTS AND ENCAPSULANTS.

REMOVE INCOMPATIBLE PRIMERS AND REPRIME SUBSTRATE WITH COMPATIBLE PRIMERS OR APPLY TIE COAT AS REQUIRED TO PRODUCE PAINT SYSTEMS INDICATED.

STEEL SUBSTRATES: REMOVE RUST, LOOSE MILL SCALE, AND SHOP PRIMER, IF ANY. CLEAN USING METHODS RECOMMENDED IN WRITING BY PAINT MANUFACTURER.

SHOP-PRIMED STEEL SUBSTRATES: CLEAN FIELD WELDS, BOLTED CONNECTIONS, AND AREAS WHERE SHOP PAINT IS ABRADED. PAINT EXPOSED AREAS WITH THE SAME MATERIAL AS USED FOR SHOP PRIMING TO COMPLY WITH SSPC-PA 1 FOR TOUCHING UP SHOP-PRIMED SURFACES.

GALVANIZED-METAL SUBSTRATES: REMOVE GREASE AND OIL RESIDUE FROM GALVANIZED SHEET METAL BY MECHANICAL METHODS TO PRODUCE CLEAN, LIGHTLY ETCHED SURFACES THAT PROMOTE ADHESION OF SUBSEQUENTLY APPLIED PAINTS.

ALUMINUM SUBSTRATES: REMOVE LOOSE SURFACE OXIDATION.

WOOD SUBSTRATES:

SCRAPE AND CLEAN KNOTS, AND APPLY COAT OF KNOT SEALER BEFORE APPLYING PRIMER. SAND SURFACES THAT WILL BE EXPOSED TO VIEW, AND DUST OFF. PRIME EDGES, ENDS, FACES, UNDERSIDES, AND BACKSIDES OF WOOD. AFTER PRIMING, FILL HOLES AND IMPERFECTIONS IN THE FINISH SURFACES WITH PUTTY OR PLASTIC WOOD FILLER. SAND SMOOTH WHEN DRIED.

APPLICATION

APPLY PAINTS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND TO RECOMMENDATIONS IN "MPI MANUAL."

USE APPLICATORS AND TECHNIQUES SUITED FOR PAINT AND SUBSTRATE INDICATED. PAINT SURFACES BEHIND MOVABLE EQUIPMENT AND FURNITURE SAME AS SIMILAR EXPOSED SURFACES. BEFORE FINAL INSTALLATION, PAINT SURFACES BEHIND PERMANENTLY FIXED EQUIPMENT OR FURNITURE WITH PRIME COAT ONLY. PAINT FRONT AND BACKSIDES OF ACCESS PANELS, REMOVABLE OR HINGED COVERS, AND SIMILAR HINGED ITEMS TO MATCH EXPOSED SURFACES. DO NOT PAINT OVER LABELS OF INDEPENDENT TESTING AGENCIES OR EQUIPMENT NAME, IDENTIFICATION, PERFORMANCE RATING, OR NOMENCLATURE PLATES. PRIMERS SPECIFIED IN PAINTING SCHEDULES MAY BE OMITTED ON ITEMS THAT ARE FACTORY PRIMED OR FACTORY FINISHED IF ACCEPTABLE TO TOPCOAT MANUFACTURERS.

IF UNDERCOATS OR OTHER CONDITIONS SHOW THROUGH TOPCOAT, APPLY ADDITIONAL COATS UNTIL CURED FILM HAS A UNIFORM PAINT FINISH, COLOR, AND APPEARANCE.

APPLY PAINTS TO PRODUCE SURFACE FILMS WITHOUT CLOUDINESS, SPOTTING, HOLIDAYS, LAPS, BRUSH MARKS, ROLLER TRACKING, RUNS, SAGS, ROPINESS, OR OTHER SURFACE IMPERFECTIONS. CUT IN SHARP LINES AND COLOR BREAKS.

CLEANING AND PROTECTION

AT END OF EACH WORKDAY, REMOVE RUBBISH, EMPTY CANS, RAGS, AND OTHER DISCARDED MATERIALS FROM PROJECT SITE.

AFTER COMPLETING PAINT APPLICATION, CLEAN SPATTERED SURFACES. REMOVE SPATTERED PAINTS BY WASHING, SCRAPING, OR OTHER METHODS. DO NOT SCRATCH OR DAMAGE ADJACENT FINISHED SURFACES.

OORR PROGRAM
Brackeem
153 Twin Brook Road
Hamden, CT
Project #: 2072

PROTECT WORK OF OTHER TRADES AGAINST DAMAGE FROM PAINT APPLICATION. CORRECT DAMAGE TO WORK OF OTHER TRADES BY CLEANING, REPAIRING, REPLACING, AND REFINISHING, AS APPROVED BY ARCHITECT, AND LEAVE IN AN UNDAMAGED CONDITION.

AT COMPLETION OF CONSTRUCTION ACTIVITIES OF OTHER TRADES, TOUCH UP AND RESTORE DAMAGED OR DEFACED PAINTED SURFACES.

INTERIOR PAINTING SCHEDULE

PT-1 KITCHEN WALL: LATEX EGGSHELL(G3) 1 COAT PRIMER, 1 COAT INTERMEDIATE, 1 COAT TOPCOAT

PT-2 LIVING ROOM WALL: LATEX EGGSHELL(G3) 1 COAT PRIMER, 1 COAT INTERMEDIATE, 1 COAT TOPCOAT

PT-3 KITCHEN CEILING: LATEX EGGSHELL(G3) 1 COAT PRIMER, 1 COAT INTERMEDIATE, 1 COAT TOPCOAT

PT-4 LIVING ROOM CEILING: LATEX EGGSHELL(G3) 1 COAT PRIMER, 1 COAT INTERMEDIATE, 1 COAT TOPCOAT

PT-5 TRIM: ALKYD SEMI-GLOSS - 1 COAT PRIMER, 1 COAT INTERMEDIATE, 1 COAT TOPCOAT

PT-6 WOOD DOORS: ALKYD SEMI-GLOSS - 1 COAT PRIMER, 1 COAT INTERMEDIATE, 1 COAT TOPCOAT

COLORS: COLORS SHALL BE AS SELECTED BY THE OWNER.

END OF SECTION 099123

SECTION 260000 - ELECTRICAL

PART 1 - GENERAL PROVISIONS FOR ELECTRICAL WORK

REFERENCES

THIS SECTION COVERS THE GENERAL REQUIREMENTS FOR ELECTRICAL WORK; EXAMINE ALL CONTRACT DRAWINGS AND ALL OTHER SECTIONS OF THE SPECIFICATIONS FOR ADDITIONAL WORK RELATED TO THE WORK OF THIS DIVISION.

DEFINITIONS

'PROVIDE' - TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION OF PARTICULAR WORK REFERRED TO UNLESS, SPECIFICALLY OTHERWISE NOTED.

'INSTALL' - TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

'WORK' - LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

'WIRING' - RACEWAY, FITTINGS, WIRE, BOXES, MOUNTING HARDWARE AND RELATED ITEMS.

'CONCEALED' - EMBEDDED IN MASONRY OR OTHER CONSTRUCTION CAVITY, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS.

'SIMILAR' OR 'EQUAL' - EQUAL MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

'CONTRACTOR' - THE ELECTRICAL CONTRACTOR.

'NOTED' - AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

SCOPE

THIS WORK SHALL CONSIST OF THE FURNISHINGS OF ALL LABOR, MATERIALS AND SERVICES REQUIRED COMPLETE, READY FOR CORRECT OPERATION FOR ALL ELECTRICAL WORK CALL FOR BY THE ACCOMPANYING DRAWINGS AND SPECIFICATIONS. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, STATE AND LOCAL CODES.

THE DATA INDICATED IN THESE DRAWINGS AND SPECIFICATIONS ARE AS EXACT AS COULD BE SECURED. BUT THEIR ABSOLUTE ACCURACY IS NOT GUARANTEED. DO NOT SCALE DRAWINGS. EXACT LOCATIONS, DISTANCES, LEVELS AND OTHER CONDITIONS WILL BE GOVERNED BY THE BUILDING. USE THE DRAWINGS AND SPECIFICATIONS FOR GUIDANCE AND SECURE THE ENGINEER'S APPROVAL OF CHANGES IN LOCATIONS. CIRCUITS, WHERE SHOWN ON AN ELECTRICAL DRAWINGS, ARE SO INDICATED PRIMARILY FOR THE PURPOSE OF INDICATING THE GENERAL CIRCUIT PLAN AND DO NOT NECESSARILY INDICATE THE EXACT LOCATION OF ROUTING OF THE RACEWAYS UNLESS SPECIFICALLY INDICATED. CIRCUITS SHALL BE RUN IN SUIT CONDITIONS CONSIDERING STRUCTURAL FEATURES, OTHER TRADES, CONSTRUCTION METHODS AND GOOD INSTALLATION PRACTICE.

BEFORE SUBMITTING A BID, THE CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS UNDER WHICH THE WORK AND WORK OF OTHER TRADES WILL BE INSTALLED. THIS CONTRACT INCLUDES ALL NECESSARY OFFSETS, TRANSITIONS, MODIFICATIONS AND RELOCATION REQUIRED TO INSTALL ALL NEW EQUIPMENT IN NEW OR EXISTING SPACES. CONTRACTOR SHALL INCLUDE ANY MODIFICATIONS REQUIRED IN EXISTING ELECTRICAL EQUIPMENT FOR INSTALLATION OF NEW ELECTRICAL EQUIPMENT AND NEW EQUIPMENT OF OTHER TRADES. (LIGHTING FIXTURES, DEVICES, CONDUIT WIRING, ETC.) ALL NEW AND EXISTING EQUIPMENT AND SYSTEMS SHALL BE FULLY OPERATIONAL UNDER THIS CONTRACT BEFORE THE PROJECT IS CONSIDERED COMPLETE. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS

THAT ARE MADE, ANY OMISSIONS OR ERRORS MADE AS A RESULT OF FAILURE TO VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS OF ALL TRADES.

CODES, REGULATIONS AND STANDARDS

ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING APPROVED CODES:

STATE DEMOLITION CODE
STATE BUILDING CODE
STATE FIRE SAFETY CODE
LOCAL BUILDING CODE
IBC - INTERNATIONAL BUILDING CODE
NFPA - NATIONAL FIRE PROTECTION CODE
ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
OSHA - OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
U.L. - UNDERWRITERS LABORATORIES
NFPA 101 - LIFE SAFETY CODE
NFPA 99 - HEALTH FACILITIES CODE
NFPA 70 - NATIONAL ELECTRICAL CODE
NFPA 72 - NATIONAL FIRE ALARM CODE
EPA - ENVIRONMENTAL PROTECTION AGENCY
IEEE - INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
NEMA - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
IECC - INTERNATIONAL ENERGY CONSERVATION CODE
ICC/ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

PERMITS, FEES AND INSPECTIONS

THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, PAY FOR ALL GOVERNMENT, STATE SALES TAXES AND APPLICABLE FEES. THE CONTRACTOR SHALL FILE ALL DRAWINGS, COMPLETE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS FROM THE PROPER AUTHORITY OR AGENCY HAVING JURISDICTION. OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION COVERING WORK. THE CONTRACTOR SHALL SEE THAT ALL REQUIRED INSPECTIONS AND TESTS ARE MADE AND SHALL COOPERATE TO MAKE THESE TESTS AS THOROUGH AND AS READILY MADE AS POSSIBLE.

MATERIALS AND WORKMANSHIP

ALL MATERIALS AND APPARATUS REQUIRED FOR THE WORK, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE NEW AND OF FIRST-CLASS QUALITY. IT SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED, FINISHED IN EVERY DETAIL AND SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO THE BUILDING SPACES. WHERE NO SPECIFIC KIND OR QUALITY MATERIAL IS GIVEN, A FIRST-CLASS STANDARD ARTICLE AS ACCEPTED BY THE ENGINEER SHALL BE FURNISHED.

ALL EQUIPMENT AND MATERIALS SHALL BE SPECIFICATION GRADE AND BEAR THE UNDERWRITER'S LABEL. NO SUBSTITUTE OR ALTERNATE EQUIPMENT, MATERIAL, ETC. WILL BE CONSIDERED FOR THIS PROJECT.

ALL WORK SHALL BE OF A QUALITY CONSISTENT WITH GOOD TRADE PRACTICE AND SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER. THE ENGINEER/OWNER RESERVES THE RIGHT TO REJECT ANY WORK WHICH, IN HIS OPINION, HAS BEEN INSTALLED IN A SUBSTANDARD, DANGEROUS OR IN A UNSERVICEABLE MANNER. THE CONTRACTOR SHALL REPLACE REJECTED WORK IN A SATISFACTORY MANNER AT NO EXTRA COST TO THE OWNER.

GUARANTEES

ALL WORKMANSHIP AND MATERIALS SHALL BE FULLY GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE OF THE ENTIRE INSTALLATION COVERED BY THIS CONTRACT. SHOULD ANY DEFECTS OCCUR DURING THE GUARANTEED PERIOD, THE CONTRACTOR SHALL REPAIR AND/OR REPLACE ALL DEFECTIVE EQUIPMENT, MATERIAL AND/OR WORK AT NO EXTRA CHARGE TO THE OWNER.

COORDINATION

ALL WORK SHALL BE CARRIED OUT IN CONJUNCTION WITH OTHER TRADES AND FULL COOPERATION SHALL BE GIVEN IN ORDER THAT ALL WORK MAY PROCEED WITH A MINIMUM OF DELAY AND INTERFERENCE.

SHOP DRAWINGS

SUBMIT ONE DIGITAL COPY FOR REVIEW, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT AND MATERIAL SPECIFIED. THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMISSION TO THE ENGINEER FOR REVIEW. NO MATERIAL OR EQUIPMENT MAY BE DELIVERED TO THE JOB SITE OR INSTALLED UNTIL CONTRACTOR HAS IN THEIR POSSESSION, APPROVED SHOP DRAWINGS FOR THE PARTICULAR MATERIAL OR EQUIPMENT. SHOP DRAWINGS SHALL BE SPECIFIC WITH ITEMS SUBMITTED FOR APPROVAL CLEARLY IDENTIFIED.

THE FOLLOWING IS A LIST OF ELECTRICAL ITEMS THAT MUST BE SUBMITTED FOR REVIEW:

- a. LIGHTING

EQUIPMENT PROTECTION

PROPERLY AND COMPLETELY PROTECT AGAINST ALL DAMAGE, ALL APPARATUS, EQUIPMENT, ETC., INCLUDED IN THIS CONTRACT. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO FURNISHED APPARATUS, EQUIPMENT, ETC., UNTIL FINAL ACCEPTANCE.

PROPERTY PROTECTION

THE CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY AND/OR REQUIRED TO PROTECT OWNER'S PROPERTY WITHIN THE WORKING AREAS FROM DUST, DEBRIS AND OTHER MATTER GENERATED BY THE WORK. NO WORK SHALL COMMENCE IN AREAS WHERE PROTECTION IS REQUIRED UNTIL APPROVAL HAS BEEN GIVEN TO THE CONTRACTOR BY THE OWNER.

MANUFACTURER'S INSTRUCTION

INSTALL ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS OR REQUIREMENTS FOR PROPER OPERATION AND MAINTENANCE.

EQUIPMENT PAINTING AND CLEANING

THOROUGHLY CLEAN ALL ELECTRICAL EQUIPMENT DEVICES AND ENCLOSURES UPON COMPLETION OF ALL WORK. REPAINT ANY EQUIPMENT WHOSE FINISH IS DAMAGED OR RUSTED. MATCH MANUFACTURER'S ORIGINAL FINISH.

PENETRATION SEALANT

ALL PENETRATIONS SHALL BE SEALED WITH 3M INTUMESCENT FIRE BARRIER PENETRATION SEALANT, APPLIED PER MANUFACTURER'S AND U.L. GUIDELINES. SEALANTS MUST BE LOW VOC/NO VOC AND MUST COMPLY WITH REGULATION 8, RULE 51 OF THE BAY AREA QUALITY MANAGEMENT DISTRICT.

CUTTING, PATCHING, REPAIRING AND PAINTING

THE GENERAL CONTRACTOR SHALL PERFORM ALL CUTTING, PATCHING, REPAIRING AND PAINTING FOR ALL ELECTRICAL ITEMS AND EQUIPMENT CALLED FOR UNDER THIS CONTRACT.

FIRE STOPS AND SEALS

PENETRATIONS THROUGH FIRE-RATED WALLS, CEILING OR FLOORS IN WHICH CABLES OR CONDUITS PASS SHALL BE FILLED SOLIDLY BY U.L. APPROVED FIRE-STOP MATERIALS, CLASSIFIED FOR AN HOUR RATING EQUAL TO THE FIRE RATING OF THE WALL, CEILING OR FLOOR. PROVIDE TO 3M BRAND FIRE BARRIER CP25WB CAULK OR APPROVED EQUIVALENT.

SEALING BUSHINGS SHALL BE USED ON CONDUIT AND CABLE ENDS TO EFFECTIVELY PREVENT THE INTRUSION OF WATER, A DAMP OR CORROSIVE ATMOSPHERE, DRAFT OR DUST.

ACCESS PANELS

THE CONTRACTOR SHALL FURNISH AND INSTALL ACCESS PANELS AND DOORS AS REQUIRED FOR ACCESS TO INACCESSIBLE PULLBOXES, JUNCTION BOXES AND OTHER SPECIALTIES.

THE CONTRACTOR SHALL COORDINATE THE LOCATIONS OF ACCESS PANELS AND DOORS WITH THE GENERAL CONTRACTOR AND OTHER TRADES. FINAL LOCATIONS SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT.

PART 2 - PRODUCTS

DESCRIPTION

ALL MATERIALS AND EQUIPMENT PROVIDED UNDER THIS SECTION SHALL BE NEW, FIRST GRADE, BEST OF THEIR RESPECTIVE KINDS AND IN NO WAY SHALL THEY BE LESS THAN THE QUALITY AND INTENT SET FORTH UNDER THIS SECTION. THEY SHALL MEET THE REQUIREMENTS OF ALL STANDARDS SET UP TO GOVERN THE MANUFACTURER OF ELECTRICAL MATERIALS AND COMPLY WITH ALL APPLICABLE CODES AND STANDARDS.

WIRE

CONDUCTORS SHALL BE U.L. LISTED, 600 VOLTS, 90 DEG. C., SINGLE CONDUCTOR TYPE THWN/THHN. 98% CONDUCTIVITY, ANNEALED UNCOATED COPPER WITH PVC INSULATION COVERED WITH NYLON SHEATH JACKET. TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF UNDERWRITERS LABORATORIES STANDARD 83. WIRE SHALL BE IDENTIFIED BY SURFACE MARKING INDICATING MANUFACTURER'S IDENTIFICATION CONDUCTOR SIZE AND METAL, VOLTAGE RATING, U.L. SYMBOL AND TYPE DESIGNATION. CONDUCTORS SHALL BE STRANDED. MINIMUM SIZE SHALL BE #12 AWG UNLESS OTHERWISE INDICATED. MANUFACTURED BY ROME CABLE, TRIANGLE WIRE & CABLE, GENERAL CABLE OR ESSEX WIRE & CABLE. NONMETALLIC SHEATHED CABLE (ROMEX) MAY BE UTILIZED WHERE PERMITTED BY THE NATIONAL ELECTRICAL CODE.

METAL CLAD CABLE (MC)

METAL CLAD CABLE SHALL BE INTERLOCKING GALVANIZED STEEL ARMOR CONSTRUCTION. COLOR CODED THERMOPLASTIC/NYLON INSULATION THHN, 90 DEGREE C., 600 VOLTS, COPPER CONDUCTORS AND INTERNAL INSULATED EQUIPMENT COPPER GROUND CONDUCTOR. MARKER TAPE AND CABLE TAPE OVER MINIMUM SIZE #12 AWG UNLESS OTHERWISE INDICATED. MANUFACTURED BY AMERICAN FLEXIBLE CONDUIT, TRIANGLE WIRE AND CABLE, GENERAL CABLE OR STANDARD CABLE.

FITTINGS

METAL CLAD CABLE CONNECTORS SHALL BE MALLEABLE IRON-ZINC PLATED, MALE HUB THREADS WITH LOCKNUT.

CONDUIT FITTINGS SHALL BE MANUFACTURED BY O/Z GEDNEY, CROUSE-HINDS OR APPLETON.

OUTLET BOXES

OUTLET BOXES SHALL BE GALVANIZED STEEL, FLUSH OR SURFACE MOUNTED AND OF PROPER TYPE AND SIZE AS REQUIRED FOR THE PARTICULAR APPLICATION. SIZE AND TYPE DICTATED BY THE NUMBER OF DEVICES (2 GANG MINIMUM WITH SINGLE GANG PLASTER RING FOR SINGLE DEVICE LOCATIONS), NUMBER OF CONDUCTORS AND WIRING METHOD UTILIZED. BOXES SHALL BE ADEQUATE SIZE FOR THE INSTALLATION OF CONDUCTORS WITHOUT EXCESSIVE BENDING OR CRIMPING OF THE CONDUCTORS AND DAMAGING OF CONDUCTOR INSULATION. MANUFACTURED BY STEEL CITY OR RACO.

OUTLET BOXES SHALL BE SECURED FIRMLY IN PLACE TO THE BUILDING STRUCTURE AND SET TRUE AND SQUARE. PROVIDE SUITABLE MEANS TO SUPPORT OUTLET BOX TO TAKE THE WEIGHT OF THE LIGHTING FIXTURE OR DEVICE. OUTLET BOXED OR BOX EXTENSION RINGS SHALL BE SET FLUSH TO THE FINISHED WALL OR CEILING. BOXES MUST BE ATTACHED THAT THEY WILL NOT 'ROCK', 'SHIFT' OR 'MOVE IN AND OUT' WHEN DEVICES ARE USED. IN NO CASE SHALL BOXES BE INSTALLED BACK-TO-BACK IN A COMMON WALL DIVIDING TWO SPACES.

WHERE MORE THAN ONE OUTLET IS SHOWN OR SPECIFIED TO BE THE SAME ELEVATION OR ONE ABOVE THE OTHER, ALIGN THEM EXACTLY ON CENTER LINES HORIZONTALLY OR VERTICALLY.

MULTIPLE SWITCHES SHOWN AT ONE LOCATION SHALL BE INSTALLED GANGED TOGETHER UNDER ONE WALL PLATE. SWITCHES SHALL BE ARRANGED IN AN ORDER APPROPRIATE TO THE LOCATIONS OF LIGHTING FIXTURE BEING CONTROLLED.

CIRCUIT BREAKERS

BRANCH CIRCUIT BREAKERS SHALL BE COMPATIBLE WITH PANEL INSTALLED WITHIN HOME.

TANDEM MINI-BREAKERS MAY BE UTILIZED WHERE ALLOWED BY PANEL MANUFACTURER IF ADEQUATE SPACE FOR NORMAL BREAKERS IS NOT PRESENT WITHIN PANEL.

WIRING DEVICES

ALL DEVICES SHALL BE RESIDENTIAL GRADE, U.L. LISTED, SELF-GROUNDING, GROUND LUG, SIDE/BACK WIRED. COLOR SHALL BE SELECTED BY OWNER UNLESS OTHERWISE INDICATED. MANUFACTURED BY HUBBELL, LEVITON, OR PASS & SEYMOUR.

RECEPTACLES THAT HAVE A POWER FEED THRU (FEED IN - FEED OUT) ARRANGEMENT SHALL BE PIGTAILED. FEED THRU FEATURE ON DUPLEX RECEPTACLES USE IS NOT ACCEPTABLE.

WALL PLATES FOR SWITCHES AND RECEPTACLES SHALL BE SMOOTH THERMOPLASTIC OR NYLON IN FINISHED AREAS. COLOR TO MATCH DEVICES. MANUFACTURED BY LEVITON OR MULEBERRY.

LIGHTING FIXTURES

FURNISH LIGHTING FIXTURE PRODUCT DATA FOR ENERGY STAR LIGHTING FIXTURES FOR SELECTION OF FIXTURES BY OWNER. PROVIDE A WIDE SELECTION THAT WILL BE ARCHITECTURALLY SUITABLE FOR THE INTENDED USE.

FURNISH AND INSTALL NEW LAMPS DURING THE COURSE OF CONSTRUCTION UP TO AND INCLUDING THE DATE OF FINAL COMPLETION OF THE PROJECT.

CLEAN AND REMOVE ALL PAINT, STICKERS, DIRT, SMUDGES AND FINGERPRINTS FROM LIGHTING FIXTURES AFTER FINAL BUILDING CLEAN-UP.

PART 3 - EXECUTION

INSTALLATION

ALL WORK, MATERIALS AND MANNER OF INSTALLING SAME SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.

ALL CONDUIT AND WIRING SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.

RACEWAYS

RACEWAYS, ENCLOSURES AND BOXES SHALL BE MECHANICALLY JOINED TO FORM A CONTINUOUS ELECTRICAL PATH.

FURNISH LOCKNUTS AND BUSHINGS FOR ALL CONDUIT TERMINATIONS IN ALL OUTLET BOXES, PANELS, PULL BOXES, CONDUIT STUBS, ETC.

WIRING

PROVIDE WIRING TO ALL OUTLETS, EQUIPMENT, APPARATUS AND OTHER SPECIALTIES UNDER THIS DIVISION THAT WHICH FURNISHED OR PROVIDED UNDER OTHER DIVISIONS.

THE TERM 'WIRING' SHALL BE CONSIDERED TO BE COMPRISED OF THE CONDUIT, CONDUCTORS, CONNECTIONS, ETC.

ALL WIRING ON DRAWINGS IS SIZED FOR TYPE THWN/THHN COPPER CONDUCTORS.

MINIMUM SIZE WIRE SHALL BE #12 UNLESS OTHERWISE INDICATED. ALL WIRING SHALL BE COLOR CODED.

EXERCISE CAUTION IN PULLING CONDUCTORS INTO RACEWAYS SO AS NOT TO DAMAGE THE INSULATION. CABLE PULLING LUBRICANT SHALL BE USED TO ASSIST IN PULLING.

CIRCUITS SHALL BE SO CONNECTED TO THE PANELBOARDS THAT THE TOTAL LOAD IS DISTRIBUTED AS NEATLY AS POSSIBLE, EQUALLY BETWEEN EACH LINE AND NEUTRAL. 10% WILL BE CONSIDERED A REASONABLE AND ALLOWABLE UNBALANCE.

BRANCH CIRCUIT WIRING FOR SWITCHES, RECEPTACLES, DEVICES AND LIGHTING IN DRYWALL CONSTRUCTION AND ACCESSIBLE HUNG CEILING SPACE, MAY BE INSTALLED IN A METAL SHEATHED TYPE CABLE OR NONMETALLIC SHEATHED CABLE WHERE APPROVED BY THE NEC AND THE AUTHORITY HAVING JURISDICTION.

COMMON NEUTRAL FOR MULTIPLE BRANCH CIRCUITS IS NOT ACCEPTABLE. PROVIDE SEPARATE NEUTRAL FOR EACH BRANCH CIRCUIT.

WIRING IN OUTLET BOXES, JUNCTION BOXES, CABINET PANELBOARDS OR EQUIPMENT SHALL HAVE A MINIMUM OF EIGHT (8") INCHES LENGTH LEADS FOR CONNECTING WIRING DEVICES TO MAKE UP CIRCUIT SPLICES.

INSTALL COPPER GREEN INSULATED GROUNDING CONDUCTOR IN ALL CONDUITS AND RACEWAYS.

SPLICING

SPLICING SHALL BE DONE WITH INSULATED OR NON-INSULATED CONNECTORS OF APPROPRIATE TYPES AND CURRENT-CARRYING CAPACITY. NON-INSUALTED CONNECTORS SHALL BE WRAPPED WITH INSULATING TAPE TO THE THICKNESS OF THE INSULATION OF THE CONDUCTORS BEING SPLICED. ELECTRICAL TAPE SHALL BE 3M OR SUPER 88 SCOTCH VINYL FLAME-RETARDANT , COLD AND WEATHER RESISTANT.

SPLICES FOR CONDUCTORS, SIZES #10 AWG OR SMALLER SHALL BE MADE WITH U.L. LISTED SPRING-TYPE CONNECTORS OR APPROPRIATE CURRENT CARRYING CAPACITY.

SPLICES, TAPS AND TERMINALS FOR CONDUCTORS #8 AWG OR LARGER SHALL BE MADE WITH U.L. LISTED BOLTED PRESSURE CONNECTORS OF BRONZE OR COPPER CONSTRUCTION, OF APPROPRIATE CURRENT CARRYING CAPACITY. EQUAL TO O/Z GEDENY, BURNDY OR BLACKBURN.

IDENTIFICATION

UPDATE PANEL SCHEDULES WITH WORK PERFORMED UNDER THIS CONTRACT.

GROUNDING

ALL ELECTRICAL WORK SHALL BE GROUNDED AND BONDED IN FULL CONFORMANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE AND LOCAL REQUIREMENTS.

ALL ELECTRICAL EQUIPMENT SHALL BE MADE TO FORM A CONTINUOUS CONDUCTING, GROUND PATH OF LOW IMPEDANCE FOR GROUND FAULT CIRCUITS AND OPERATION OF THE CIRCUIT PROTECTIVE DEVICES WITHIN EACH CIRCUIT.

PROVIDE GROUNDING CONDUCTOR IN ALL RACEWAYS.

GROUND CONNECTIONS WITH THE GROUNDING CONDUCTORS SHALL BE MADE AT EACH OUTLET BOX, LIGHTING FIXTURE COMPONENTS BY MEANS OF A POSITIVELY SECURED GROUNDING CLAMP, SCREW OR CLIP.

BONDING SHALL BE PROVIDED TO ASSURE ELECTRICAL CONTINUITY AND THE CAPACITY TO SAFELY CONDUCT ANY FAULT CURRENT LIKELY TO BE IMPOSED.

ALL DEVICES (SWITCHES, RECEPTACLES, ETC.), SHALL BE GROUNDED TO CONDUIT SYSTEM WITH SIX (6") INCH SOLID COPPER #12 AWG INSULATED WIRE (GREEN) CONNECTED TO GROUND SCREW IN DEVICE AND FASTENED TO BACKBOX WITH 10-32x3/8" SLOTTED HEXAGON HEAD WASHER FACE GROUND WITH GREEN DYE FINISH.

END OF ELECTRICAL SPECIFICATIONS

Scott Feulner
Diversified Technology Consultants (DTC)
2321 Whitney Avenue, Suite 301
Hamden, CT 06518

8/11/2014

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 1 of 10**

TABLE OF CONTENTS

Contents	Page(s)
Table of Contents	1
Introduction	2-5
Inspection Report Synopsis	6-10
Recommendations	10

Attachments:

Appendix A: XRF Lead-Based Paint Testing Results with quality evaluation sheets, 12 pages
Appendix B: Dust Wipe and Soil Sample Analytical Data and Chain of Custody Document, 7 pages
Appendix C: Sample Location Drawings, 2 pages
Appendix D: Site Drawings, 2 page(s)
Appendix E: Copy of Risk Assessor's License/Certification, 2 pages
Appendix F: Copy of Firm's Lead Activity License/Certification, 3 pages
Appendix G: Copy of XRF Training Certificate and LPA-1 Performance Characteristics Sheet, 5 pages
Appendix H: "LEAD SPEAK" – A Brief Glossary, 2 pages
Appendix I: Additional Lead and Lead Safety Resource Data, 1 page

Report Distribution:

Scott Feulner, DTC Scott.Feulner@teamdtc.com
Curtis Graham, DTC graham.curtis@teamdtc.com
Michael Casey, DTC michael.casey@teamdtc.com

File Location:

NAS AAUM-Reports\LeadInsp\DS-RiskAssess_June2014.doc

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 2 of 10**

INTRODUCTION

EXECUTIVE SUMMARY: As a result of the Lead Hazard Risk Assessment and the limited Lead-Based Paint Testing (Assessment) conducted on 4/25/2014 and 8/6/2014, it was found that lead-based surface coatings (paint) and lead hazards were not present on the subject property as of the date of the Assessment. Lead (as defined by OSHA regulations 29 CFR 1926.62) and Lead Based Paint (as defined by USC Title 15 – Chapter 53- Toxic Substance Control) **was NOT detected** on surfaces and/or components within the scope of the inspection, the subject renovation project is not subject to hazardous waste evaluation requirements.

BUILDING DESCRIPTION: The subject building is a single-family, one-story, ranch-style house totaling approximately 1000 sq ft, which was built in 1951 of wood-frame construction. Heat is supplied from a furnace in the basement, through forced air ducts. At the time of our screening, there were no children under the age of six residing at this subject house and the house was not being used as a daycare facility.

BACKGROUND: We understand the subject house suffered damage as a result of hurricane Sandy on October 29-30, 2012. The house is scheduled to be renovated. We understand the storm caused roof damage which lead to moisture damage in the Kitchen and Living Room. Based on this damage the following items are scheduled for removal and replacement: kitchen floor, kitchen ceiling, kitchen walls, living room ceiling and living room wall A. Additionally smoke and carbon monoxide detectors are to be installed in the following sheetrock ceilings: all three bedrooms, first floor hallway, basement stairs and basementFamily Room. The addition of the smoke detectors was the reason for the second site visit on 5/16/2014. The Lead Risk Assessment was done on 8/6/2014 to comply with HUD requirements for the project.

SCOPE OF OUR WORK: Our work would include the following:

- A Lead Hazard Risk Assessment
- XRF Screening of Lead Based Paint of representative painted surfaces from the interior of the Kitchen and Living Room only.
- Additionally XRF screening of ceiling surfaces in all three bedrooms, first floor hallway, basement stairs and basementFamily Room was done on 5/16/2014.
- Site reference drawing.
- A hazardous waste evaluation.
- A report of the findings.

Lead paint chip and TCLP sampling are not in our scope of work.

This investigation and information provided in this report depends partly on background information provided by the client. This report is intended for the use of the client. The scope of services performed may not be appropriate for other users and any use of this report by third parties is at their sole risk. This report is intended to be used in its entirety. No excerpts may be taken to be representative of this report.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 3 of 10**

INTRODUCTION (cont)

QUALIFICATIONS: The Inspection was conducted by Daniel P. Sullivan, CT DPH Certified DPH Lead Inspector/Risk Assessor #002131, Radiation Safety Training, RMD 12/2/94. Dan was assisted by Ziyang Wang. Chem Scope's DPH lead license # is CC000164.

METHOD OF TESTING: Spectrum Analyzer XRF (x-ray fluorescence). Instrument used: RMD LPA-1, Serial # 1647 in Quick Mode. The unit source (Cobalt 57) for unit 1647 was replaced November 2nd, 2012. The XRF detects paint in all layers down to the painted substrate. In other words if lead paint is painted over with new paint, the lead paint is still detected by this procedure. When paint is covered with metal or plastic trim such as siding or by carpet, the lead paint is usually not detectable. This instrument is registered with the State of Connecticut Dept of Energy and Environmental Protection and is Generally Licensed under the NRC. This is one of the two methods, which are approved under the CT Dept of Public Health (DPH) regulations. This is a non-destructive test.

The dust and soil samples were sent for analysis to Eastern Analytical Services (EAS), an AIHA accredited Laboratory and a CT DPH approved Environmental Laboratory in regards to this test, using Atomic Absorption analysis.

TEST PARAMETERS FOR XRF TESTING USING THIS INSTRUMENT: OSHA 1926.62
Definition: Lead means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds. XRF readings of 1.0 mg/cm² or higher are lead based paint as defined by USC Title 15 – Chapter 53- Toxic Substance Control and XRF reading with any detectable amount of lead detected are defined as Lead by OSHA standard 1926.62.

XRF CALIBRATION CHECK: Standard Reference Material (SRM) paint film nearest to 1.0 mg/cm² within the National Institute of Standards and Technology (NIST) SRM is used to Calibrate the XRF. Calibration Readings are taken at the beginning and end of a job and every four (4) hours during the job with three (3) readings per set. The expiration date of the standard used is 7/1/20.

QUALITY CONTROL PROCEDURES: The XRF is used in accordance with Manufacturer's Performance Characteristics Sheet and instructions. See test data attached for details. Ten (or if <10, then the total number of tests conducted) testing combinations for re-testing from each unit are selected and checked in either 15 second or 60 second readings.

STATEMENT ON ACCURACY: The XRF Calibration checks were acceptable with each of the three (3) readings before, during (if applicable) and after the testing between 0.7 mg/cm² and 1.3 mg/cm². See attached XRF data sheets for documentation of proper calibration check sequence.

REPORT CONVENTIONS: Rooms are sometimes given arbitrary numbers to avoid ambiguity. Please refer to the enclosed schematic drawings of the site. Samples are referenced by the side of the building they are facing, as indicated on the drawings. Side A is the street side (front), Side B is the left side, Side C is the rear and Side D is the right side.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 4 of 10**

INTRODUCTION (cont)

ONGOING MONITORING: Ongoing monitoring is necessary in all dwellings in which LBP is known or presumed to be present. At these dwellings, the very real potential exists for LBP hazards to develop. Hazards can develop by means such as, but not limited to: the failure of lead hazard control measures; previously intact LBP becoming deteriorated; dangerous levels of lead-in-dust (dust lead) re-accumulating through friction, impact, and deterioration of paint; or, through the introduction of contaminated exterior dust and soil into the interior of the structure. Ongoing monitoring typically includes two different activities: re-evaluation and annual visual assessments. A re-evaluation is a risk assessment that includes limited soil and dust sampling and a visual evaluation of paint films and any existing lead hazard controls. Re-evaluations are supplemented with visual assessments by the Client, which should be conducted at least once a year, when the Client or its management agent (if the housing is rented in the future) receives complaints from residents about deteriorated paint or other potential lead hazards, when the residence (or if, in the future, the house will have more than one dwelling unit, any unit that turns over or becomes vacant), or when significant damage occurs that could affect the integrity of hazard control treatments (e.g., flooding, vandalism, fire). The visual assessment should cover the dwelling unit (if, in the future, the housing will have more than one dwelling unit, each unit and each common area used by residents), exterior painted surfaces, and ground cover (if control of soil-lead hazards is required or recommended). Visual assessments should confirm that all Paint with known or suspected LBP is not deteriorating, that lead hazard control methods have not failed, and that structural problems do not threaten the integrity of any remaining known, presumed or suspected LBP.

The visual assessments do not replace the need for professional re-evaluations by a certified risk assessor. The re-evaluation should include:

1. A review of prior reports to determine where lead-based paint and lead-based paint hazards have been found, what controls were done, and when these findings and controls happened;
2. A visual assessment to identify deteriorated paint, failures of previous hazard controls, visible dust and debris, and bare soil;
3. Environmental testing for lead in dust, newly deteriorated paint, and newly bare soil; and
4. A report describing the findings of the reevaluation, including the location of any lead-based paint hazards, the location of any failures of previous hazard controls, and, as needed, acceptable options for the control of hazards, the repair of previous controls, and modification of monitoring and maintenance practices.

The first reevaluation should be conducted no later than two years after completion of hazard controls, or, if specific controls or treatments are not conducted, two years from the beginning of ongoing lead-based paint monitoring and maintenance activities. Subsequent reevaluations should be conducted at intervals of two years, plus or minus 60 days. If two consecutive reevaluations are conducted two years apart without finding a lead-based paint hazard, reevaluation may be discontinued.

Please refer to your community development agency, housing authority, or other applicable agency for additional local/regional regulations and guidelines governing re-evaluation activities.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 5 of 10**

INTRODUCTION (cont)

DISCLOSURE REGULATIONS: A copy of this complete report must be made available to new lessees (tenants) and/or must be provided to purchasers of this property under Federal law before they become obligated under any future lease or sales contract transactions (Section 1018 of Title X – found in 24 CFR Part 35 and 40 CFR Part 745), until the demolition of this property. Landlords (Lessors) and/or sellers are also required to distribute an educational pamphlet developed by the EPA entitled “*Protect Your Family From Lead in Your Home*” and include standard warning language in their leases or sales contracts to ensure that parents have the information they need to protect their children from LBP hazards.

FUTURE REMODELING PRECAUTIONS: It should be noted that during this Assessment, a limited number of areas were tested for the presence of LBP. All LBP, dust, and soil hazards that were identified are addressed in this report. However, LBP, dust lead hazards, and/ or soil lead hazards may be present at other locations of the property. Additional paint testing should precede any future remodeling activities that occur at any untested areas. Additional dust and/or soil sample collection and analysis should follow any hazard control activity, repair, remodeling, or renovation effort, and any other work efforts that may in any way disturb LBP and/or any lead containing materials. These Assessment activities will help the Client and owner to ensure the health and safety of the occupants and the neighborhood. Details concerning lead-safe work techniques and approved hazard control methods can be found in the HUD publication entitled: “*Guidelines for the Evaluation and Control of LBP Hazards in Housing*” (www.hud.gov/offices/lead). Remodeling, repair, renovation and painting at the residence beyond the scale of minor repair and maintenance activities must be conducted in accordance with the EPA’s Lead Repair, Renovation, and Painting Rule (within 40 CFR part 745); see the EPA’s website on the RRP Rule at <http://www.epa.gov/lead/pubs/renovation.htm> for the scope and requirements of that Rule. Lead-based paint abatement or lead-based paint hazard abatement at the residence must be conducted in accordance with the EPA’s Lead Abatement Rule (also within 40 CFR 745); see the EPA’s website for Lead Abatement Professionals at <http://www.epa.gov/lead/pubs/traincert.htm>.

CONDITIONS & LIMITATIONS: Staff of ChemScope Inc. has performed the tasks listed above requested by the our client in a thorough and professional manner consistent with commonly accepted standard industry practices, using state of the art practices and best available known technology, as of the date of the assessment. ChemScope cannot guarantee and does not warrant that this Assessment/Limited LBP Testing has identified all adverse environmental factors and/or conditions affecting the subject property on the date of the Assessment. ChemScope cannot and will not warrant that the Assessment/Limited Testing that was requested by the client will satisfy the dictates of, or provide a legal defense in connection with, any environmental laws or regulations. It is the responsibility of the client to know and abide by all applicable laws, regulations, and standards, including EPA’s Renovation, Repair and Painting regulation.

The results reported and conclusions reached by ChemScope are solely for the benefit of the client. The results and opinions in this report, based solely upon the conditions found on the property as of the date of the Assessment, will be valid only as of the date of the Assessment. ChemScope assumes no obligation to advise the client of any changes in any real or potential lead hazards at this residence that may or may not be later brought to our attention. Further conditions and limitations to this contracted report are included in the general terms and conditions supplied to the client with the contract for services.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 6 of 10**

INSPECTION REPORT SYNOPSIS

LOCATION NAME AND ADDRESS: Site 003 (Brakeem), Application #2072
153 Twin Brook Road, Hamden, CT

INSPECTION DATE(S): 4/25/2014, 5/16/2014 and 8/6/2014.

XRF Testing Results:

Limited LBP Testing, conforming with HUD regulation 24 CFR 35.930(c), (d) was accomplished at this residence on surfaces found to have deteriorated paint and/or where it was indicated to the Assessor that planned renovation would occur. No paint chip samples were taken. On 4/25/2014, 5/16/2014 and 8/6/2014 a total of 108 tests (assays) were taken at a limited number of specified surfaces on the inside and outside of the residence using a x-ray fluorescence analyzer. Deteriorated paint and areas that were specified to be disturbed during the planned renovation project were tested.

Lead concentrations that meet or exceed the HUD published levels identified as being potentially dangerous [$> 1.0 \text{ mg/cm}^2$] were not encountered. Lead as defined by OSHA, DPH and EPA was not detected within scope of inspection.

OSHA 1926.62 Definition: Lead means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

XRF readings of 1.0 mg/cm^2 or higher are lead based paint as defined by USC Title 15 – Chapter 53- Toxic Substance Control and XRF reading with any detectable amount of lead detected are defined as Lead by OSHA standard 1926.62.

LIMITATIONS OF SCREENING: Not all painted surfaces were tested. Consequently, if a surface was not tested assume it contains Lead until proven otherwise. See attached data sheets for a list of surfaces tested.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 7 of 10**

INSPECTION REPORT SYNOPSIS (cont)

RESIDENT QUESTIONNAIRE: A resident questionnaire was completed as part of the Assessment, to help identify particular use patterns, which may be associated with potential LBP hazards, such as opening and closing windows painted with LBP. The answers to the questionnaire were obtained during a phone interview with the owner/occupant, Ms. Brakeem on 8/6/2014. Following is a summary of the information obtained during the interview:

Children in the Household:	None, and none visit regularly
Children's bedroom locations:	N/A
Children's eating locations:	N/A
Primary interior play area(s):	N/A
Primary exterior play area(s):	N/A
Toy Storage:	N/A
Pets:	2 Dogs
Children's blood lead testing history:	Unknown
Observed chewed surfaces:	None
Women of child bearing age:	No
Previous lead testing:	None
Most frequently used entrances:	Side A Front Door, Side B Kitchen door used 2 nd most frequently
Most frequently opened windows:	All of them seasonally
Structure cooling method:	Window air conditioning units in Living Room and 3 Bedrooms
Gardening – type and location(s):	N/A
Plans for landscaping:	None
Cleaning regiment:	Daily Living Room and Kitchen, Weekly Bedrooms
Cleaning methods:	Mopping, sweeping, dusting, vacuuming
Recently completed renovations:	New Roof last year, New Siding and windows last month
Demolition debris on site:	Dumpster for was located in driveway
Resident(s) with work lead exposure:	None
Planned renovations:	The scope of the renovation involves removal and replacement: kitchen floor, kitchen ceiling, kitchen walls, living room ceiling and living room wall A. Additionally smoke and carbon monoxide detectors are to be installed in the following sheetrock ceilings: all three bedrooms, first floor hallway, basement stairs and basement Family Room.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 8 of 10**

INSPECTION REPORT SYNOPSIS (cont)

Building Conditions Survey

Date of Construction:	1951
Apparent Building Use:	Residential
Setting:	Residential
Front Entry Faces:	Side A, Faces North
Design:	1-Story, Ranch-Style
Construction Type:	Wood framed
Lot Type:	Flat
Roof:	New Roof Last Year
Foundation:	Concrete/Cinderblock
Front Lawn Condition:	Approx. < 10% bare soil
Back Lawn Condition:	Approx. < 10% bare soil
Drip Line Condition:	Good – no paint chips seen
Site Evaluation:	Very Good
Exterior Structural Condition:	Very Good
Interior Structural Condition:	Very Good
Overall Building/Site Condition:	Very Good

PAINT CONDITION SURVEY

Please Note: EPA and HUD have provided a specific definition for the term “deteriorated paint.” Deteriorated paint is defined as “any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate.” This definition is most typically associated with surface conditions only. Usage of this term in describing conditions other than those associated with surface coatings are not known to be defined by EPA or HUD.

Continued

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 9 of 10**

INSPECTION REPORT SYNOPSIS (cont)

Identified Deteriorated Paint, Paint Conditions, Lead Content, & Most Apparent Cause of Deterioration:

- None Detected

The remaining paint exhibited no apparent signs of deterioration, as of the date of the Assessment.

INTERIOR DUST SAMPLING:

A total of 10 single surface dust wipe samples were collected (and two blanks) in an effort to help to determine the levels of lead-containing dust on the interior window sills and floors. These samples were collected from areas most likely to be lead-contaminated if lead-in-dust is present. These samples were collected in accordance with the requirements of ASTM Standard E-1728, Standard Practice for Field Collection of Settled Dust Samples Using Wipe Sampling Methods for Lead Determination by Atomic Spectrometry Techniques. EPA, HUD and State of Connecticut regulations define the following as hazardous levels for lead dust in residences: floors – ≥ 40 mg/ft² (micrograms per square foot); interior window sills – ≥ 250 mg/ft². There is no EPA dust-lead hazard standard for window troughs. Please refer to *Appendix B – Dust Wipe Analytical Results* for the laboratory reports and to *Appendix I – Lead and Lead Safety Information and Resources* for a list of publications and resources addressing lead hazards and their health effects; both are located at the end of this report.

All of the ten dust samples collected were within acceptable levels. A summary list is given below, see attached analysis reports and drawings for details.

Sample #	Date	Location	Surface	Dust Wipe Result (ug/sq ft)	CT-DPH Standard (ug/sq ft)
183-76-1D	8/6/2014	Kitchen, by Back Door	Floor	BDL <12.2	40
183-76-2D	8/6/2014	Living Rm, by Front Door	Floor	BDL <12.2	40
183-76-3D	8/6/2014	Bedroom 3	Floor	BDL <12.2	40
183-76-4D	8/6/2014	Bedroom 2	Floor	BDL <12.2	40
183-76-5D	8/6/2014	Bedroom 1	Floor	26.7	40
183-76-6D	8/6/2014	Kitchen, Side B	Window Sill	189.7	250
183-76-7D	8/6/2014	Living Rm, Side A	Window Sill	67.9	250
183-76-8D	8/6/2014	Bedroom 3, Side D	Window Sill	BDL <30.3	250
183-76-9D	8/6/2014	Bedroom 2, Side C	Window Sill	BDL <26.4	250
183-76-10D	8/6/2014	Bedroom 1, Side C	Window Sill	BDL <30.3	250
183-76-11D	8/6/2014	-	Blank	BDL <12.2	-
183-76-12D	8/6/2014	-	Blank	BDL <12.2	-

SOIL SAMPLING AND LABORATORY INFORMATION: Three (3) soil samples were collected at this residence in accordance with the requirements of ASTM Standard E-1727, Standard Practice for Field Collection of Soil Samples for Lead Determination by Atomic Spectrometry Techniques. None of the samples identified lead concentrations above the levels that EPA, HUD or CT-DPH identifies as hazardous. See the following table for a summary of the soil sampling results. Please refer to *Appendix C – Soil Sample Analytical Data* for the detailed analytical reports.

**PRE-REHABILITATION LEAD HAZARD RISK ASSESSMENT &
LEAD BASED PAINT PRE-RENOVATION XRF SCREENING
SITE 003 (BRAKEEM) – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072, CS#183-76, 4/25/2014, 5/16/2014 AND 8/6/2014, Page 10 of 10**

INSPECTION REPORT SYNOPSIS (cont)

SOIL SAMPLING AND LABORATORY INFORMATION (cont):

Sample #	Date	Location	Surface	Soil Concentration (mg/kg)	CT-DPH Standard (mg/kg)
183-76-1S	8/6/2014	Side A, 2' from house, 6" from front porch	Soil 2" deep	25.2	400
183-76-2S	8/6/2014	Side C, 15' from house, 2' from deck	Soil 2" deep	35.3	400
183-76-3S	8/6/2014	Side D, 2' from house, 6' from side A	Soil 2" deep	63.1	400

HAZARDOUS WASTE EVALUATION

Lead (as defined by OSHA regulations 29 CFR 1926.62) and Lead Based Paint (as defined by USC Title 15 – Chapter 53- Toxic Substance Control) **was NOT detected** on surfaces and/or components within the scope of the inspection, the subject renovation project is not subject to hazardous waste evaluation requirements.

RECOMMENDATIONS

No further action is required at this time as Lead Based Paint was not detected within the scope of the inspection, no Lead Based Paint Hazards were identified and you are exempt from evaluating the construction waste as hazardous waste. However, please keep in mind, lead related work must be done according to applicable regulations (OSHA 1926.62 and USC Title 15 – Chapter 53- Toxic Substance Control) with properly trained personnel using proper work practices and procedures including proper disposal of hazardous lead waste (CT DEEP) and proper precautions to avoid contaminating the building and exposing those present to lead dust or fumes. Before cutting or welding and preparation work, any lead-based paint identified above should be handled with proper precautions to avoid contaminating adjacent areas and exposing those present to lead dust or fumes.

Please note that OSHA 29 CFR 1926.62 requires contractors working at the site must be notified of the location of the lead even if it is not to be disturbed so they make safely work around it.

See separate Asbestos Pre-renovation Inspection report and Mold Assessment report for additional details.

If you have any questions or need more information please call me. Thank you for calling on us.

Sincerely,



Dan Sullivan
Vice President, Operations

Appendix A XRF Lead-Based Paint Testing Results

ChemScope, Inc.

LEAD INSPECTION DATA FORM FOR XRF – COVER PAGE

XRF Data Form LI-1 (8/11)

Site Name: Site 003

Date of Inspection: 4/25/2014

Site Address: 153 Twin Brook Road, Hamden, CT

CS# 183-76

Customer Name: Diversified Technology Consultants (DTC)

Customer Address: 2321 Whitney Avenue, Suite 301 / Hamden, CT 06518

Work Area: Interior - 1st Floor Kitchen & Living Room

Page 1 of 3

Site Description: Single-Family Residential

Year of Construction: 1951

Name of Individual Doing Testing: Dan Sullivan

CT DPH Lic# 2131

CO-57 Date Source Installed: 11/2/2012

Software version # N/A

Serial # 1647

Test #	Clock Time	NIST Calibration Standard	Results QM (mg/CM2)
1	8 ²⁸ _{am}	NIST SRM 2573 Red	1.0
2	8 ²⁹ _{am}	NIST SRM 2573 Red	1.0
3	8 ³⁰ _{am}	NIST SRM 2573 Red	1.0
39	9 ³⁶ _{am}	NIST SRM 2573 Red	1.0
40	9 ³⁷ _{am}	NIST SRM 2573 Red	1.0
41	9 ³⁸ _{am}	NIST SRM 2573 Red	1.0
		NIST SRM 2573 Red	
		NIST SRM 2573 Red	
4	8 ³¹	NIST SRM 2570 White (Blank)	-0.2
42	9 ³⁹ _{am}	NIST SRM 2570 White (Blank)	-0.2

Note: each entry represents a single test on the surface indicated.

- Acceptance limits for calibration are 0.7-1.3.
- 1.0 mg/cm² or higher = lead based paint (LBP)
- All values run under Quick Mode (QM), unless noted otherwise under comments above.
- Calibration std SRM 2573 has 1.0 mg/cm² of lead, expiration of std is 7/1/20.
- DEF under comments means the surface has defective lead based paint

INSPECTOR SIGNATURE/Date/REVIEWED BY/Date:

Dan Sullivan

4/29/14

PC 5/12/14

Site Name: Site 003

Date of Inspection: 4/25/2014

Site Address: 153 Twin Brook Road, Hamden, CT

CS# 183-76

Work Area: Interior - 1st Floor Kitchen

Page 2 of 2

835
8th

Test # / Side	Int/Ext	Room #	Component	Defective (Y/N)	Color	Substrate	Results QM (mg/CM2)	LPB (Y/N)	
5	DI	INT	Kitchen	wall	Y	beige	Sheetrock	-0.2	N
6	"	"	"	"	"	"	"	-0.2	N
7	C	"	"	"	Y	"	"	-0.2	N
8	"	"	"	"	"	"	"	-0.2	N
9	"	"	"	ceiling	Y	"	"	-0.3	N
10	"	"	"	"	"	"	"	-0.3	N
11	"	"	"	window sill	Y	white	wood	-0.1	N
12	"	"	"	"	"	"	"	-0.2	N
13	"	"	"	window casing	"	"	"	-0.2	N
14	"	"	"	"	"	"	"	-0.2	N
15	"	"	"	window apron	"	"	"	-0.4	N
16	"	"	"	"	"	"	"	-0.1	N
17	"	"	"	Window Sash	Y	"	"	-0.2	N
18	"	"	"	"	"	"	"	-0.1	N
19	"	"	"	Window well	Y	"	"	-0.1	N
20	"	"	"	"	"	"	"	-0.0	N
21	"	"	"	Window frame	Y	"	"	-0.2	N
22	"	"	"	"	"	"	"	-0.3	N
23	"	"	"	countertop	N	unpainted beige	wood laminate	-0.2	N
24	"	"	"	"	"	"	"	-0.4	N
25	"	"	"	Floor	N	marbled	Laminate	0.1	N
26	"	"	"	"	"	"	"	-0.1	N
27	"	"	"	Cabinet door/3	N	wood stain	wood	-0.4	N
28	"	"	"	Cabinet frame	"	"	"	-0.4	N
29	A	"	"	baseboard	Y	white	wood	-0.1	N
30	DB	"	"	door	Y	"	"	-0.1	N
31	"	"	"	door casing	Y	"	"	-0.2	N

03
a

Signature: Don Sullivan

Date: 4/25/14

EVALUATING THE QUALITY OF XRF:

Site Name: Site 003
 Site Address: 153 Twin Brook Road, Hamden, CT

CS# 183-76
 Date: 4/25/2014

Location	Original Reading	Retest Reading	Square of Original Reading	Square of Retest Reading
1. Interior - Kitchen - Wall - Side D1	-0.2	-0.2	0.04	0.04
2. Interior - Kitchen - Wall - Side C	-0.2	-0.2	0.04	0.04
3. Interior - Kitchen - Ceiling - Side C	-0.3	-0.3	0.09	0.09
4. Interior - Kitchen - Window Sill - Side C	-0.1	-0.2	0.01	0.04
5. Interior - Kitchen - Window Casing - Side C	-0.2	-0.2	0.04	0.04
6. Interior - Kitchen - Window Apron - Side C	-0.4	-0.1	0.16	0.01
7. Interior - Kitchen - Window Sash - Side C	-0.2	-0.1	0.04	0.01
8. Interior - Kitchen - Window Well - Side C	-0.1	0	0.01	0.00
9. Interior - Kitchen - Window Frame - Side C	-0.2	-0.3	0.04	0.09
10. Interior - Kitchen - Countertop - C	-0.2	-0.4	0.04	0.16
10. Interior - Kitchen - Floor - C	0.1	-0.1	0.01	0.01
Sum of ten squared averages ("C"):			0.52	0.53
		"C" times 0.0072 ("D"):	0.003744	0.00382
		"D" plus 0.032 ("E"):	0.035744	0.035816
		Square root of "E" ("F"):	0.18906	0.189251156
		"F" times 1.645 (Retest Tolerance Limit):	0.3110	0.3113
Average of the ten XRF Readings:			-0.18	-0.19
		Absolute difference of the two averages:	0.0091	

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest.

Site Name: Site 003Date of Inspection: 5/16/2014Site Address: 153 Twin Brook Road, Hamden, CTCS# 183-76Customer Name: Diversified Technology Consultants (DTC)Customer Address: 2321 Whitney Avenue, Suite 301 / Hamden, CT 06518Work Area: InteriorPage 1 of 2Site Description: Single-Family ResidentialYear of Construction: 1951Name of Individual Doing Testing: Dan SullivanCT DPH Lic# 2131CO-57 Date Source Installed: 11/2/2012Software version # N/ASerial # 1647

Test #	Clock Time	NIST Calibration Standard	Results QM (mg/CM2)
1	8:33 am	NIST SRM 2573 Red	1.0
2	8:34 am	NIST SRM 2573 Red	1.0
3	8:35 am	NIST SRM 2573 Red	1.0
17	9:07 am	NIST SRM 2573 Red	1.0
18	9:08 am	NIST SRM 2573 Red	1.0
19	9:09 am	NIST SRM 2573 Red	1.0
		NIST SRM 2573 Red	
		NIST SRM 2573 Red	
4	8:36 am	NIST SRM 2570 White (Blank)	-0.1
20	9:10 am	NIST SRM 2570 White (Blank)	-0.3

Note: each entry represents a single test on the surface indicated.

- Acceptance limits for calibration are 0.7-1.3.
- 1.0 mg/cm² or higher = lead based paint (LBP)
- All values run under Quick Mode (QM), unless noted otherwise under comments above.
- Calibration std SRM 2573 has 1.0 mg/cm² of lead, expiration of std is 7/1/20.
- DEF under comments means the surface has defective lead based paint

INSPECTOR SIGNATURE/Date/REVIEWED BY/Date: Dan Sullivan, 5/16/14

Revision
 Pa 8/12/14

EVALUATING THE QUALITY OF XRF:

Site Name: Site 003
 Site Address: 153 Twin Brook Road, Hamden, CT

CS# 183-76
 Date: 5/16/2014

Location	Original Reading	Retest Reading	Square of Original Reading	Square of Retest Reading
1. Interior - Hallway - Ceiling - Side A	-0.2	-0.2	0.04	0.04
2. Interior - Bedroom 1 - Ceiling - Side A	-0.2	-0.3	0.04	0.09
3. Interior - Bedroom 2 - Ceiling - Side C	-0.3	-0.2	0.09	0.04
4. Interior - Bedroom 3 - Ceiling - Side C	-0.2	-0.3	0.04	0.09
5. Interior - Basement Stairs - Ceiling - Side B	-0.3	-0.2	0.09	0.04
6. Interior - Basement Family Room - Ceiling - Side C	-0.2	-0.1	0.04	0.01
7.				
8.				
9.				
10.				
10.				
Sum of six squared averages ("C"):			0.34	0.31
		"C" times 0.0072 ("D"):	0.002448	0.00223
		"D" plus 0.032 ("E"):	0.034448	0.034232
		Square root of "E" ("F"):	0.18560	0.185018918
		"F" times 1.645 (Retest Tolerance Limit):	0.3053	0.3044
Average of the six XRF Readings:			-0.23	-0.22
		Absolute difference of the two averages:	0.0167	

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest.

Site Name: Site 003

Date of Inspection: 8/6/2014

Site Address: 153 Twin Brook Road, Hamden, CT

CS# 183-76

Customer Name: Diversified Technology Consultants (DTC)

Customer Address: 2321 Whitney Avenue, Suite 301 / Hamden, CT 06518

Work Area: Throughout Page 1 of 4

Site Description: Single-Family Residential Year of Construction: 1951

Name of Individual Doing Testing: Dan Sullivan CT DPH Lic# 002131

CO-57 Date Source Installed: 11/2/2012 Software version # N/A Serial # 1647

Test #	Clock Time	NIST Calibration Standard	Results QM (mg/CM2)
1	9 ⁰⁸ am	NIST SRM 2573 Red	1.0
2	9 ⁰⁹ am	NIST SRM 2573 Red	1.0
3	9 ¹⁰ am	NIST SRM 2573 Red	1.0
67	10 ⁰¹ am	NIST SRM 2573 Red	1.0
68	10 ⁰² am	NIST SRM 2573 Red	1.0
69	10 ⁰² am	NIST SRM 2573 Red	1.0
		NIST SRM 2573 Red	
		NIST SRM 2573 Red	
4	9 ¹¹ am	NIST SRM 2570 White (Blank)	-0.1
70	10 ⁰² am	NIST SRM 2570 White (Blank)	-0.3

Note: each entry represents a single test on the surface indicated.

- Acceptance limits for calibration are 0.7-1.3.
- 1.0 mg/cm² or higher = lead based paint (LBP)
- All values run under Quick Mode (QM), unless noted otherwise under comments above.
- Calibration std SRM 2573 has 1.0 mg/cm² of lead, expiration of std is 7/1/20.
- DEF under comments means the surface has defective lead based paint

INSPECTOR SIGNATURE/Date/REVIEWED BY/Date: Dan Sullivan, 8/6/14, Pa, 8-12-14

Site Name: Site 003

Date of Inspection: 8/6/2014

Site Address: 153 Twin Brook Road, Hamden, CT

CS#183-76

Work Area: Interior - 1st Floor

Page 2 of 4

Test #/ Side	Int/Ext	Room #	Component	Defective (Y/N)	Color	Substrate	Results QM (mg/CM2)	LPB (Y/N)
5 B ₁	Int	living room	wall	Y	beige	SR	-0.2	N
6 "	"	"	"	"	"	"	-0.4	N
7 C	"	"	"	"	"	"	-0.2	N
8 "	"	"	"	"	"	"	-0.3	N
9 "	"	"	1 door frame	"	white	wood	-0.4	N
10 "	"	"	"	"	"	"	-0.4	N
11 C	"	"	baseboard	"	"	"	-0.1	N
12 "	"	"	"	"	"	"	-0.2	N
13 B ₂	"	"	windowsill	"	"	"	-0.0	N
14 "	"	"	"	"	"	"	-0.2	N
15 C	"	"	2 door frame	"	"	metal	-0.2	N
16 "	"	"	"	"	"	"	-0.3	N
17 A	"	"	door	"	"	wood	-0.2	N
18 "	"	"	"	"	"	"	-0.2	N
19 "	"	"	door casing	"	"	"	-0.0	N
20 "	"	"	"	"	"	"	-0.2	N
21 "	"	"	door frame	"	"	"	0.2	N
22 "	"	"	"	"	"	"	0.2	N
23 B ₁	"	"	door	"	"	"	-0.2	N
24 "	"	"	"	"	"	"	-0.2	N
25 "	"	"	door frame	"	"	metal	-0.2	N
26 B ₁	"	hall way	^{rm. 816/14} hall way door	Y	"	wood	-0.4	N
27 C ₁	"	"	door	"	"	"	-0.5	N
28 C ₂	"	"	"	"	beige	"	-0.4	N
29 D	"	"	"	"	white	"	-0.4	N
30 A	"	"	door 1	"	"	"	0.0	N
31 "	"	"	door 1 frame	"	"	metal	-0.2	N

Signature: _____

[Handwritten Signature]

Date: _____

8/6/14

Site Name: Site 003

Date of Inspection: 8/6/2014

Site Address: 153 Twin Brook Road, Hamden, CT

CS#183-76

Work Area: Interview 1st floor / Basement

Page 3 of 4

Test # / Side	Int/Ext	Room #	Component	Defective (Y/N)	Color	Substrate	Results QM (mg/CM2)	LPB (Y/N)
32	C	Int	bathroom upper wall	Y	Lt brown	SR	-0.2	N
33	D	"	"	"	"	"	-0.0	N
34	"	"	ceiling	"	white	"	-0.3	N
35	A	"	door	"	wood stain	wood	-0.3	N
36	D	bedroom 3	window sill	"	white	wood	-0.4	N
37	"	"	" casing	"	"	"	-0.2	N
38	C	"	door 2	"	"	"	-0.3	N
39	"	"	door 2 frame	"	"	metal	-0.2	N
40	C	bedroom 2	window sill	"	"	wood	0.1	N
41	A	"	"	"	"	"	-0.2	N
42	D	"	"	"	"	"	-0.1	N
43	A	"	door	"	"	"	-0.1	N
44	"	"	door frame	"	"	metal	-0.2	N
45	C	bedroom 1	window sill	"	"	wood	-0.1	N
46	"	"	window casing	"	"	"	-0.3	N
47	B	"	wall	"	tan	SR	-0.4	N
48	D	"	"	"	"	"	-0.4	N
49	"	"	door	"	"	wood	0.0	N
50	B	basement	stair tread	"	off white	"	-0.2	N
51	"	"	stair raiser	"	"	"	-0.4	N
52	"	"	hand rail	"	red	"	-0.1	N
53	B	" TV room	floor	"	grey	conc	-0.4	N
54	A	"	wall	"	white	wood	-0.2	N
55	C	laundry room	wall	"	green	conc	-0.0	N
56	D	"	"	"	"	"	0.0	N
57	C	"	door	"	white	wood	-0.0	N
58	"	"	door frame	"	green	"	-0.0	N

box

off white 2/8/14
off white

Signature: Wan Jull

Date: 8/6/14

EVALUATING THE QUALITY OF XRF:

Site Name: Site 003
 Site Address: 153 Twin Brook Road, Hamden, CT

CS# 183-76
 Date: 8/6/2014

Location	Original Reading	Retest Reading	Square of	
			Original Reading	Square of Retest Reading
1. Interior - Living Room - Wall - Side B	-0.2	-0.4	0.04	0.16
2. Interior - Living Room - Wall - Side C	-0.2	-0.3	0.04	0.09
3. Interior - Living Room - 1 Door Frame - Side C	-0.4	-0.4	0.16	0.16
4. Interior - Living Room - Baseboard - Side C	-0.1	-0.2	0.01	0.04
5. Interior - Living Room - Window Sill - Side B2	0.0	-0.2	0.00	0.04
6. Interior - Living Room - 2 Door Frame - Side C	-0.2	-0.3	0.04	0.09
7. Interior - Living Room - Door - Side A	-0.2	-0.2	0.04	0.04
8. Interior - Living Room - Door Casing - Side A	0	-0.2	0.00	0.04
9. Interior - Living Room - Door Frame - Side A	0.2	0.2	0.04	0.04
10. Interior - Living Room - Door - Side B1	-0.2	-0.2	0.04	0.04
Sum of ten squared averages ("C"):			0.41	0.74
	"C" times 0.0072 ("D"):		0.002952	0.00533
	"D" plus 0.032 ("E"):		0.034952	0.037328
	Square root of "E" ("F"):		0.18695	0.193204555
	"F" times 1.645 (Retest Tolerance Limit):		0.3075	0.3178
Average of the ten XRF Readings:			-0.13	-0.22
	Absolute difference of the two averages:		0.0900	

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest.

Appendix B Lead in Dust and Soil Sample Analysis Reports

ChemScope INDUSTRIAL HYGIENE • ENVIRONMENTAL CHEMISTRY

15 Moulthrop Street, North Haven, CT 06473-3686 • Phone (203) 865-5605 • Fax (203) 498-1610

Diversified Technology Consultants
2321 Whitney Avenue, Suite 301
Hamden CT 06518

Application #2072
8/11/2014
CS# 183-76

LEAD ANALYSIS BY ATOMIC ABSORPTION

Lead dust wipe and soil samples from Site 003, 153 Twin Brook Road, Hamden CT, collected by ChemScope, Inc., on 8/6/2014:

See attached chain of custody and EAS Analytical Services, Inc., reports for sample descriptions and analytical data; and applicable standards on reverse side of this page.

*NOTE: The EAS Analytical Services, Inc. report provides the lead soil concentration in mg/kg which is equivalent to ppm (parts per million).

Suzanne Cristante or
Laboratory Director
SC

Izabela Kremens or
Quality Manager
IK



Ronald D. Arena
President
RDA

LEAD STANDARDS AND GUIDELINES

(Revised 4/2013)

The following are some existing known standards and guidelines as they relate to lab analysis for lead by AAS. ChemScope assumes no liability for the use of these data. All values are expressed as pure lead, Pb.

1. Lead in Dust Standards: Connecticut DPH, EPA & HUD:

Dust-Wipe Re-Occupancy Testing:

Floors: 40 micrograms/sq ft

Sills: 250 micrograms/sq ft

Window Wells: 400 micrograms/sq ft

Toxic Level of lead in dry paint: 0.5%

*NOTE: City of Stamford has a stricter standard of .06%

2. For Air Samples: OSHA PEL (Permissible Exposure Limit) is 50 micrograms/cubic meter and the AL (Action Level) is 30 micrograms/cubic meter.

3. For Soil: 400 PPM is considered contaminated.

State regulations (CT DEEP RCSA 22a-133K) require lead-contaminated soil to be cleaned up to a concentration of 500 ppm in residential areas and 1,000 ppm in industrial and commercial areas. But in practice the Department of [Energy and] Environmental Protection (DEEP) and state and local health departments apply a 400 ppm standard in residential areas. DEEP has begun the process of adopting the 400 ppm standard in regulation.

OLR Research Report, October 11, 2006, 2006-R-0596

4. For any material to be disposed of: the DEP and EPA Standard for TCLP lead is 5 milligrams/liter. In addition, other substances besides lead may need to be tested which are not in the scope of this test report.

5. Consumer Product Safety Commission: Lead in paint for sale 0.06%.

6. For Drinking Water Samples (First Draw and Fully Flushed samples):

State of Connecticut Action Level: 0.015 mg/l

EPA Action Level: 15 ppb

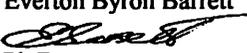
NOTE: .015 mg/l = 15 ppb



Eastern Analytical Services, Inc.

Wipe Sample Report

RE: CPN 183-76 - Diversified Technology Consultants (DTC) - Site 003 - 153 Twin Brook Road - Hamden, CT

Date Collected: 08/06/2014
 Collected By: Dan Sullivan
 Date Received: 08/07/2014
 Date Analyzed: 08/07/2014
 Analyzed By: Everton Byron Barrett
 Signature: 
 Analyte: Pb Dust
 Analytical Method: EPA 3050B/7000B
 NYS Lab Number: 10851

Client: Chem Scope, Inc.
 15 Moulthrop Street
 North Haven, CT 06473

Sample ID# / Lab ID#	Sample Location	Sample Notes	Concentration
183-76-1D 2305013	Kitchen - Floor	Dust Wipe - 12" x 12" Area	BDL < 12.2 µg/ft ²
183-76-2D 2305014	Living Room - Floor	Dust Wipe - 12" x 12" Area	BDL < 12.2 µg/ft ²
183-76-3D 2305015	Bedroom 3 - Floor	Dust Wipe - 12" x 12" Area	BDL < 12.2 µg/ft ²
183-76-4D 2305016	Bedroom 2 - Floor	Dust Wipe - 12" x 12" Area	BDL < 12.2 µg/ft ²
183-76-5D 2305017	Bedroom 1 - Floor	Dust Wipe - 12" x 12" Area	26.7 µg/ft ²
183-76-6D 2305018	kitchen - Window Sill	Dust Wipe - 2.15" x 31" Area	189.7 µg/ft ²
183-76-7D 2305019	Living Room - Window Sill	Dust Wipe - 2.15" x 35" Area	67.9 µg/ft ²
183-76-8D 2305020	Bedroom 3 - Window Sill	Dust Wipe - 2.15" x 27" Area	BDL < 30.3 µg/ft ²
183-76-9D 2305021	Bedroom 2 - Window Sill	Dust Wipe - 2.15" x 31" Area	BDL < 26.4 µg/ft ²

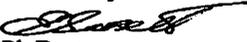
BDL = Below Detectable Limits Reporting Limit = 0.3 ppm
 Liability Limited to Cost of Analysis
 Results Applicable to Those Items Tested Results are Not Blank Corrected All QC within Control Limits Unless Otherwise Indicated
 AIHA Accreditation No. 100263 Rhode Island DOH No. AAL-072T3 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AAS-2095



Eastern Analytical Services, Inc.

Wipe Sample Report

RE: CPN 183-76 - Diversified Technology Consultants (DTC) - Site 003 - 153 Twin Brook Road - Hamden, CT

Date Collected: 08/06/2014
Collected By: Dan Sullivan
Date Received: 08/07/2014
Date Analyzed: 08/07/2014
Analyzed By: Everton Byron Barrett
Signature: 
Analyte: Pb Dust
Analytical Method: EPA 3050B/7000B
NYS Lab Number: 10851

Client: Chem Scope, Inc.
15 Moulthrop Street
North Haven, CT 06473

Sample ID# / Lab ID#	Sample Location	Sample Notes	Concentration
183-76-10D 2305022	Bedroom 1 - Window Sill	Dust Wipe - 2.15" x 27" Area	BDL < 30.3 µg/ft²
183-76-11D 2305023	Not Applicable	Field Blank	BDL < 12.2 µg
183-76-12D 2305024	Not Applicable	Field Blank	BDL < 12.2 µg

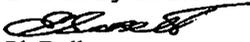
BDL = Below Detectable Limits Reporting Limit = 0.3 ppm
Liability Limited to Cost of Analysis
Results Applicable to Those Items Tested Results are Not Blank Corrected All QC within Control Limits Unless Otherwise Indicated
AIHA Accreditation No. 100263 Rhode Island DOH No. AAL-072T3 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AAS-2095



Eastern Analytical Services, Inc.

Bulk Sample Report

RE: CPN 183-76 - Diversified Technology Consultants (DTC) - Site 003 - 153 Twin Brook Road - Hamden, CT

Date Collected: 08/06/2014
Collected By: Dan Sullivan
Date Received: 08/07/2014
Date Analyzed: 08/07/2014
Analyzed By: Everton Byron Barrett
Signature: 
Analyte: Pb Bulk
Analytical Method: EPA 3050B/7000B
NYS Lab Number: 10851

Client: Chem Scope, Inc.
15 Moulthrop Street
North Haven, CT 06473

Sample ID# / Lab ID#	Sample Location	Sample Notes	Concentration
183-76-1S 2305008	Side A - 2' from Side A, 6" from Front Porch	Soil - 2" Deep Grab	25.2 mg/kg 0.01 %
183-76-2S 2305009	Side C - 15' from Side C, 2' from Back Porch	Soil - 2" Deep Grab	35.3 mg/kg 0.01 %
183-76-3S 2305010	Side D - 2' from Side D, 6' from Side A	Soil - 2" Deep Grab	63.1 mg/kg 0.01 %

BDL = Below Detectable Limits Reporting Limit = 0.3 ppm

Liability Limited to Cost of Analysis

Results Applicable to Those Items Tested Results are Not Blank Corrected All QC within Control Limits Unless Otherwise Indicated Soil Samples Reported on Dry Weight Basis - Paint Samples Reported as Received
AIHA Accreditation No. 100263 Rhode Island DOH No. AAL-072T3 Massachusetts DOL No. A A 000072 Connecticut DOH No. PH-0622 Maine DEP No. LA-024 Vermont DOH No. AAS-2095

PO# 1305

Chem Scope, Inc.
15 Moulthrop Street, North Haven CT 06473
203-865-5605

Form FL-4A Rev 11/12/13
(Issued By SC)

CHAIN OF CUSTODY

Emailed _____
Faxed _____
Called _____
Logged

Site 003

Sample Source: 153 Twin Brook Road, Hamden, CT

CS Job CS# 183-76

Sampled by: Don Allen Date Sampled: 8/6/14 Customer Name: Diversified Technology Consultants (DTC) -

CS Sample#	Client Sample#	Sample Description	Comments (sg ft)
183-76-1D	Kitchen	Floor - 12" x 12" on linoleum	1.0 sg ft
183-76-2D	living room	" " " " wood	" "
183-76-3D	bedroom 3	" " " "	" "
183-76-4D	bedroom #2	" " " "	" "
183-76-5D	bedroom #1	" " " "	" "
183-76-6D	Kitchen	Window sill 2.15x3.1 on wood	0.46 sg ft
183-76-7D	living room	" " 2.15x3.5 on wood	0.52 sg ft
183-76-8D	bedroom 3	" " 2.15x2.7 " "	0.40 sg ft
183-76-9D	bedroom 2	" " 2.15x3.1 " "	0.46 sg ft
183-76-10D	bedroom 1	" " 2.15x2.7 " "	0.40 sg ft
183-76-11D	-	Blank	-
183-76-12D	-	Blank	-
183-76-1S	side A	2' from side A, 6" from front porch	2" deep grab
183-76-2S	side C	15' from side C, 2' from back porch	2" deep grab
183-76-3S	side D	2' from side D, 6' from side A	2" deep grab

} Lead in Dust (ug/ft²)
} Lead in Soil (ppm)

Sample Turnaround: 48 hr

Analysis Requested (if variable, use comment column) Lead in Dust / Lead in Soil

Check if you want sample returned _____ (sampled will be disposed of after 30 days).

Relinquished by Don Allen Date 8/6/14 Time _____ Received by _____
Relinquished by _____ Date _____ Time _____ Received by _____

Other Special Instructions: _____

Result Transmittal Instructions (for Chem Scope to transmit): Tell DS for Report

FOR CHEM SCOPE, INC. TO FILL OUT IF SAMPLES ARE GOING TO OUTSIDE LAB:

Name of Laboratory: EAS Method of Transportation to Laboratory: Fed Ex

Result Transmittal Instructions (for outside Lab to Chem Scope, Inc): PLEASE FAX RESULTS

The person submitting samples is responsible for obtaining true and representative samples, for complying with applicable regulations and for the use of the data obtained from the analysis. For example, many states have licensing and laboratory approval requirements. Please contact the individual states if you have any questions regarding specific sampling or approval requirements. For Connecticut sites, we have licensed inspectors available to collect client samples and to perform building inspections.

Dear Laboratory Customer or Potential Customer,

New laboratory accreditation standards require us to provide our clients information about our services to make sure that your requirements for testing are adequately defined, documented and understood. The following is for your information. Please call us if you have any questions or comments.

Type of Samples:

/ / PCM cassettes are routinely run by NIOSH Method 7400.

/ / Bulk materials are run by EPA Method: #600/R-93/116.

Air Samples: NIOSH 7400 Method counts all fibers. This method may be used for personal air samples and for finals. Two field blanks must be submitted for each set of samples. In the unlikely event that there is to be any deviation from the standard test, you will be consulted by phone before the work begins. Those clients who have not had NIOSH 582 or AHERA asbestos training courses (either supervisor or project monitor) should consult with the lab director for more information. The test parameters are further explained in the analytical report.

Bulk materials: sampled are analyzed by the latest EPA Method: (#600/R-93/116) which uses polarized light microscopy (PLM). When asbestos is detected and the amount is estimated to be <10%, we automatically point count the samples. When there are interfering substances present, we may use ashing, acid washing or other procedures described in the method to handle the interference. Those clients who have not had AHERA asbestos training courses (either inspector, supervisor or project designer) should consult with the lab director for more information. The test parameters are further explained in the analytical report.

All Samples must be clearly labeled with source name and identification number or sufficient information from the client to make this sample uniquely identified. (We will then add our notebook #, page # (batch) and unique number within the batch.) Samples must be in a clean, air tight package such as a zip loc bag. Appropriate completed paperwork must accompany the sample. Bulk and air samples may not be submitted in the same package.

As soon as available bench top results will be faxed to you and reports will then be mailed. We will retain air samples for at least three months and bulk samples for 6 months unless you advise us otherwise.

You are welcome to visit the laboratory at any time to discuss the work, monitor the work or verify our testing services. We appreciate your business and encourage any feedback regarding improving our services or our quality system. Please take a minute to complete the following survey and mail/fax it to ChemScope, Inc.

Customer Service Survey

To help us improve our services give your opinions to the following:

- 1- The printed laboratory report was complete and easy to understand. YES NO
If no, please explain _____.
- 2- The turn around time for results met your expectations/needs. YES NO
If no, please explain _____.
- 3- How likely are you to recommend ChemScope Inc. to someone?
 Excellent Very Good Good Fair Poor
- 4- How likely are you to return to ChemScope in the future if the need arises?
 Excellent Very Good Good Fair Poor
5. On a scale of 1 to 5 where 1 represents "Satisfied" and 5 represents "Dissatisfied", how would you rate your level of overall satisfaction.
 1 2 3 4 5
- 6- Please add any additional comments or suggestions that would be helpful when you use our services:

Name _____ Company _____

Address _____ Telephone/e-mail _____

Can we contact you regarding this survey? YES NO

Appendix C Sample Location Drawings

Appendix D Site Reference Drawings

Appendix E Copy of Risk Assessor's License/Certification

STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

LEAD INSPECTOR RISK ASSESSOR

DANIEL P. SULLIVAN

CERTIFICATION NO.
002131

CURRENT THROUGH
04/30/15

VALIDATION NO.
03-790779


SIGNATURE


COMMISSIONER

CERT# L-600 - 763

CHEMSCOPE TRAINING DIVISION
LEAD INSPECTOR/RISK ASSESSOR REFRESHER
8HOUR TRAINING CERTIFICATE

Daniel P. Sullivan
15 Moulthrop Street , North Haven CT

Has attended an 8 hour course on the subject discipline on
11/08/2013 and has passed a written and hands on skills examination.

The above individual has successfully completed the above training course approved in accordance with the Department of Public Health Standards established pursuant to Section 20-477 of the Connecticut General Statutes.

Course syllabus includes all required topics of State of Connecticut DPH and EPA.

Examination Date: 11/08/2013

Expiration Date: 11/08/2014

Under civil and criminal penalties of law for the making or submission of false or fraudulent statements or representations (U.S.C. 1001 and 15 U.S.C. 2615), I certify that this training complies with all applicable requirements of Title IV of TSCA, 40 CFR part 745 and any other applicable Federal, State, or local requirements.



Ronald D. Arena or Brian Santos
Training Director Training Manager

Chem Scope, Inc.
15 Moulthrop Street
North Haven CT 06473
(203) 865-5605

Appendix F Copy of Firm's Lead Activity License/Certification

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE BOARD OF NAMED ORDINARY LICENSEES
OF THE DEPARTMENT OF PUBLIC HEALTH
LEAD CONSULTANT CONTRACTOR

CHEMSCOPE INC

DEPT NO
000164

EXPIRES
07/31/15

VALIDATION NO
03-847539


SIGNATURE


COMMISSIONER



**Connecticut Department of
Energy & Environmental Protection**
79 Elm Street
Hartford, CT 06106-5127
www.ct.gov/deep

**CHEM SCOPE, INC.
15 MOULTHROP STREET
NORTH HAVEN, CT 06473**

12/30/2013

Dear Registrant:

Enclosed is a Certificate of Use for the Radioactive Materials and Industrial X-Ray Device Registration submitted by your facility to the department.

This certificate will serve two purposes. First, this is a way for us to acknowledge to you that your registration has been processed. Second, it is a way for our inspection staff to know that you have the appropriate registration for your radioactive materials and equipment.

The Radioactive Materials and Industrial X-Ray Device Registration must be renewed each year. Notification will be sent to you in the month of November prior to the expiration of this registration to renew your registration.

When corresponding with our office regarding your registration please use the "Application No." indicated on the certificate. This number is unique to your facility and its location.

If you have any questions regarding the Radioactive Materials and Industrial X-Ray Device Registration please feel free to call the Radiation Division at 860-424-3029.

Enclosure



Connecticut Department of
Energy & Environmental Protection
79 Elm Street
Hartford, CT 06106-5127
www.ct.gov/deep

Certificate of Use

Issued To

CHEM SCOPE, INC.

For

Radioactive Material and Industrial X-Ray Device Registration

**Daniel C. Esty
Commissioner**

Site Located at:
15 Moulthrop St,
North Haven, CT 06473
Reference: 0808-2014

Application No: 201306468
Issue Date: 12/24/2013
Expiration Date: 12/31/2014

**Appendix G Copy of XRF Training Certificate and XRF Performance
Characteristics Sheet**

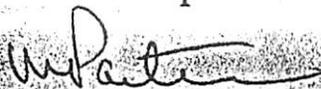
Certificate of Achievement

This is to certify that

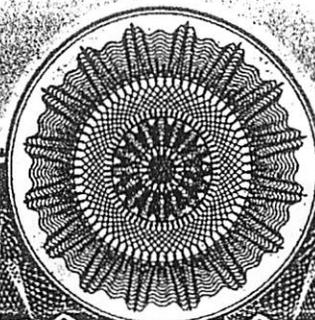
Daniel P. Sullivan
of Chem Scope

on the 2nd day of December 1994 successfully completed the factory training for
RMD's LPA-1 Lead Paint Inspection System

including, but not limited to, the topics of Radiation Safety
and the Proper Use of the Instrument.



Jacob Paster, Vice-President of RMD
44 Hunt St., Watertown, Massachusetts



Performance Characteristic Sheet

EFFECTIVE DATE: December 1, 2006

EDITION NO.: 5

MANUFACTURER AND MODEL:Make: *Radiation Monitoring Devices*Model: *LPA-1*Source: *⁵⁷Co*

Note: This sheet supersedes all previous sheets for the XRF instrument of the make, model, and source shown above for instruments sold or serviced after June 26, 1995. For other instruments, see prior editions.

FIELD OPERATION GUIDANCE

OPERATING PARAMETERS:

Quick mode or 30-second equivalent standard (Time Corrected) mode readings.

XRF CALIBRATION CHECK LIMITS:0.7 to 1.3 mg/cm² (inclusive)**SUBSTRATE CORRECTION:**For XRF results below 4.0 mg/cm², substrate correction is recommended for:

Metal using 30-second equivalent standard (Time Corrected) mode readings.
None using quick mode readings.

Substrate correction is not needed for:

Brick, Concrete, Drywall, Plaster, and Wood using 30-second equivalent standard (Time Corrected) mode readings
Brick, Concrete, Drywall, Metal, Plaster, and Wood using quick mode readings

THRESHOLDS:

30-SECOND EQUIVALENT STANDARD MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Results corrected for substrate bias on metal substrate only	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	0.9
	Plaster	1.0
	Wood	1.0

QUICK MODE READING DESCRIPTION	SUBSTRATE	THRESHOLD (mg/cm ²)
Readings not corrected for substrate bias on any substrate	Brick	1.0
	Concrete	1.0
	Drywall	1.0
	Metal	1.0
	Plaster	1.0
	Wood	1.0

BACKGROUND INFORMATION

EVALUATION DATA SOURCE AND DATE:

This sheet is supplemental information to be used in conjunction with Chapter 7 of the HUD *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing* ("HUD Guidelines"). Performance parameters shown on this sheet are calculated from the EPA/HUD evaluation using archived building components. Testing was conducted on approximately 150 test locations in July 1995. The instrument that performed testing in September had a new source installed in June 1995 with 12 mCi initial strength.

OPERATING PARAMETERS:

Performance parameters shown in this sheet are applicable only when properly operating the instrument using the manufacturer's instructions and procedures described in Chapter 7 of the HUD Guidelines.

XRF CALIBRATION CHECK:

The calibration of the XRF instrument should be checked using the paint film nearest 1.0 mg/cm² in the NIST Standard Reference Material (SRM) used (e.g., for NIST SRM 2579, use the 1.02 mg/cm² film).

If readings are outside the acceptable calibration check range, follow the manufacturer's instructions to bring the instruments into control before XRF testing proceeds.

SUBSTRATE CORRECTION VALUE COMPUTATION :

Chapter 7 of the HUD Guidelines provides guidance on correcting XRF results for substrate bias. Supplemental guidance for using the paint film nearest 1.0 mg/cm² for substrate correction is provided:

XRF results are corrected for substrate bias by subtracting from each XRF result a correction value determined separately in each house for single-family housing or in each development for multifamily housing, for each substrate. The correction value is an average of XRF readings taken over the NIST SRM paint film nearest to 1.0 mg/cm² at test locations that have been scraped bare of their paint covering. Compute the correction values as follows:

Using the same XRF instrument, take three readings on a bare substrate area covered with the NIST SRM paint film nearest 1 mg/cm². Repeat this procedure by taking three more readings on a second bare substrate area of the same substrate covered with the NIST SRM.

Compute the correction value for each substrate type where XRF readings indicate substrate correction is needed by computing the average of all six readings as shown below.

For each substrate type (the 1.02 mg/cm² NIST SRM is shown in this example; use the actual lead loading of the NIST SRM used for substrate correction):

$$\text{Correction value} = (1^{\text{st}} + 2^{\text{nd}} + 3^{\text{rd}} + 4^{\text{th}} + 5^{\text{th}} + 6^{\text{th}} \text{ Reading}) / 6 - 1.02 \text{ mg/cm}^2$$

Repeat this procedure for each substrate requiring substrate correction in the house or housing development.

EVALUATING THE QUALITY OF XRF TESTING:

Randomly select ten testing combinations for retesting from each house or from two randomly selected units in multifamily housing. Use either the Quick Mode or 30-second equivalent standard (Time Corrected) Mode readings.

Conduct XRF re-testing at the ten testing combinations selected for retesting.

Determine if the XRF testing in the units or house passed or failed the test by applying the steps below.

Compute the Retest Tolerance Limit by the following steps:

Determine XRF results for the original and retest XRF readings. Do not correct the original or retest results for substrate bias. In single-family and multi-family housing, a result is defined as a single reading. Therefore, there will be ten original and ten retest XRF results for each house or for the two selected units.

Calculate the average of the original XRF result and retest XRF result for each testing combination.

Square the average for each testing combination.

Add the ten squared averages together. Call this quantity C.

Multiply the number C by 0.0072. Call this quantity D.

Add the number 0.032 to D. Call this quantity E.

Take the square root of E. Call this quantity F.

Multiply F by 1.645. The result is the Retest Tolerance Limit.

Compute the average of all ten original XRF results.

Compute the average of all ten re-test XRF results.

Find the absolute difference of the two averages.

If the difference is less than the Retest Tolerance Limit, the inspection has passed the retest. If the difference of the overall averages equals or exceeds the Retest Tolerance Limit, this procedure should be repeated with ten new testing combinations. If the difference of the overall averages is equal to or greater than the Retest Tolerance Limit a second time, then the inspection should be considered deficient.

Use of this procedure is estimated to produce a spurious result approximately 1% of the time. That is, results of this procedure will call for further examination when no examination is warranted in approximately 1 out of 100 dwelling units tested.

BIAS AND PRECISION:

Do not use these bias and precision data to correct for substrate bias. These bias and precision data were computed without substrate correction from samples with reported laboratory results less than 4.0 mg/cm² lead. The data which were used to determine the bias and precision estimates given in the table below have the following properties. During the July 1995 testing, there were 15 test locations with a laboratory-reported result equal to or greater than 4.0 mg/cm² lead. Of these, one 30-second standard mode reading was less than 1.0 mg/cm² and none of the quick mode readings were less than 1.0 mg/cm². The instrument that tested in July is representative of instruments sold or serviced after June 26, 1995. These data are for illustrative purposes only. Actual bias must be determined on the site. Results provided above already account for bias and precision. Bias and precision ranges are provided to show the variability found between machines of the same model.

30-SECOND STANDARD MODE READING MEASURED AT	SUBSTRATE	BIAS (mg/cm ²)	PRECISION* (mg/cm ²)
0.0 mg/cm ²	Brick Concrete Drywall Metal Plaster Wood	0.0 0.0 0.1 0.3 0.1 0.0	0.1 0.1 0.1 0.1 0.1 0.1
0.5 mg/cm ²	Brick Concrete Drywall Metal Plaster Wood	0.0 0.0 0.0 0.2 0.0 0.0	0.2 0.2 0.2 0.2 0.2 0.2
1.0 mg/cm ²	Brick Concrete Drywall Metal Plaster Wood	0.0 0.0 0.0 0.2 0.0 0.0	0.3 0.3 0.3 0.3 0.3 0.3
2.0 mg/cm ²	Brick Concrete Drywall Metal Plaster Wood	-0.1 -0.1 -0.1 0.1 -0.1 -0.1	0.4 0.4 0.4 0.4 0.4 0.4

*Precision at 1 standard deviation.

CLASSIFICATION RESULTS:

XRF results are classified as positive if they are greater than the upper boundary of the inconclusive range, and negative if they are less than the lower boundary of the inconclusive range, or inconclusive if in between. The inconclusive range includes both its upper and lower bounds. Earlier editions of this *XRF Performance Characteristic Sheet* did not include both bounds of the inconclusive range as "inconclusive." While this edition of the Performance Characteristics Sheet uses a different system, the specific XRF readings that are considered positive, negative, or inconclusive for a given XRF model and substrate remain unchanged, so previous inspection results are not affected.

DOCUMENTATION:

An EPA document titled *Methodology for XRF Performance Characteristic Sheets* provides an explanation of the statistical methodology used to construct the data in the sheets, and provides empirical results from using the recommended inconclusive ranges or thresholds for specific XRF instruments. For a copy of this document call the National Lead Information Center Clearinghouse at 1-800-424-LEAD. A HUD document titled *A Nonparametric Method for Estimating the 5th and 95th Percentile Curves of Variable-Time XRF Readings Based on Monotone Regression* provides supplemental information on the methodology for variable-time XRF instruments. A copy of this document can be obtained from the HUD lead web site, www.hud.gov/offices/lead.

This XRF Performance Characteristic Sheet was developed by QuanTech, Inc., under a contract from the U.S. Department of Housing and Urban Development (HUD). HUD has determined that the information provided here is acceptable when used as guidance in conjunction with Chapter 7, Lead-Based Paint Inspection, of HUD's *Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing*.

Appendix H "LEAD SPEAK" – A Brief Glossary

Abatement: A measure or set of measures designed to permanently eliminate lead-based paint hazards or lead-based paint. Abatement strategies include the removal of lead-based paint, enclosure, encapsulation, replacement of building components coated with lead-based paint, removal of lead-contaminated dust, and removal of lead-contaminated soil or overlaying of soil with a durable covering such as asphalt (grass and sod are considered interim control measures). All of these strategies require preparation; cleanup; waste disposal; post-abatement clearance testing; recordkeeping; and, if applicable, monitoring. (For full EPA definition, see 40 CFR 745.223).

Bare soil: Soil not covered with grass, sod, some other similar vegetation, or paving, including the sand in sandboxes.

Chewable surface: An interior or exterior surface painted with lead-based paint that a young child can mouth or chew. A chewable surface is the same as an “accessible surface” as defined in 42 U.S.C. 4851b(2). Hard metal substrates and other materials that cannot be dented by the bite of a young child are not considered chewable.

Deteriorated paint: Any paint coating on a damaged or deteriorated surface or fixture, or any interior or exterior lead-based paint that is peeling, chipping, blistering, flaking, worn, chalking, alligating, cracking, or otherwise becoming separated from the substrate.

Dripline/foundation area: The area within 3 feet out from the building wall and surrounding the perimeter of a building.

Dust-lead hazard: Surface dust in residences that contains an area or mass concentration of lead equal to or in excess of the standard established by the EPA under Title IV of the Toxic Substances Control Act. EPA standards for dust-lead hazards, which are based on wipe samples, are published at 40 CFR 745.65(b); as of the publication of this edition of these *Guidelines*, these are 40 µg/ft² on floors and 250 µg/ft² on interior windowsills. Also called lead-contaminated dust.

Friction surface: Any interior or exterior surface, such as a window or stair tread, subject to abrasion or friction.

Garden area: An area where plants are cultivated for human consumption or for decorative purposes.

Impact surface: An interior or exterior surface (such as surfaces on doors) subject to damage by repeated impact or contact.

Interim controls: A set of measures designed to temporarily reduce human exposure or possible exposure to lead-based paint hazards. Such measures include, but are not limited to, specialized cleaning, repairs, maintenance, painting, temporary containment, and the establishment and operation of management and resident education programs. Monitoring, conducted by owners, and reevaluations, conducted by professionals, are integral elements of interim control. Interim controls include dust removal; paint film stabilization; treatment of friction and impact surfaces; installation of soil coverings, such as grass or sod; and land use controls. Interim controls that disturb painted surfaces are renovation activities under EPA’s Renovation, Repair and Painting Rule.

Lead-based paint: Any paint, varnish, shellac, or other coating that contains lead equal to or greater than 1.0 mg/cm² as measured by XRF or laboratory analysis, or 0.5 percent by weight (5000 mg/g, 5000 ppm, or 5000 mg/kg) as measured by laboratory analysis. (Local definitions may vary.)

Lead-based paint hazard: A condition in which exposure to lead from lead-contaminated dust, lead-contaminated soil, or deteriorated lead-based paint would have an adverse effect on human health (as established by the EPA at 40 CFR 745.65, under Title IV of the Toxic Substances Control Act). Lead-based paint hazards include, for example, **paint-lead hazards, dust-lead hazards, and soil-lead hazards.**

Paint-lead hazard: Lead-based paint on a friction surface that is subject to abrasion and where a dust-lead hazard is present on the nearest horizontal surface underneath the friction surface (e.g., the window sill, or floor); damaged or otherwise deteriorated lead-based paint on an impact surface that is caused by impact from a related building component; a chewable lead-based painted surface on which there is evidence of teeth marks; or any other deteriorated lead-based paint in any residential building or child-occupied facility or on the exterior of any residential building or child-occupied facility.

Play area: An area of frequent soil contact by children of under age 6 as indicated by, but not limited to, such factors including the following: the presence of outdoor play equipment (e.g., sandboxes, swing sets, and sliding boards), toys, or other children's possessions, observations of play patterns, or information provided by parents, residents, care givers, or property owners.

Soil-lead hazard: Bare soil on residential property that contains lead in excess of the standard established by the EPA under Title IV of the Toxic Substances Control Act. EPA standards for soil-lead hazards, published at 40 CFR 745.65(c), as of the publication of this edition of these *Guidelines*, is 400 µg/g in play areas and 1,200 µg/g in the rest of the yard. Also called lead-contaminated soil.

Appendix I Additional Lead and Lead Safety Resource

Key Units of Measurement

Gram (g or gm): A unit of mass in the metric system. A nickel weighs about 1 gram, as does a 1 cube of water 1 centimeter on each side. A gram is equal to about 35/1000 (thirty-five thousandths of an ounce). Another way to think of this is that about 28.4 grams equal 1 ounce.

µg (microgram): A microgram is 1/1000th of a milligram. To put this into perspective, a penny weighs 2 grams. To get a microgram, you would need to divide the penny into 2 million pieces. A microgram is one of those two million pieces.

µg/dL (microgram per deciliter): used to measure the level of lead in children's and worker's blood to establish whether intervention is needed. A deciliter is a little less than a half a cup.

µg/ft² (micrograms per square feet): the unit used to express levels of lead in dust samples. All reports should report levels of lead in dust in µg/ft².

mg/cm² (milligrams per square centimeter): used to report levels of lead in paint thru XRF testing.

ppm (parts per million): Typically used to express the concentrations of lead in soil. Can also be used to express the amount of lead in a surface coating on a mass concentration basis. This measurement can also be shown as: µg/g, mg/kg or mg/l.

ppb (parts per billion): Typically used to express the amount of lead found in drinking water. This measurement is also sometimes expressed as: µg/L (micrograms per liter). EPA/HUD Lead-Based Paint and Lead-Based Paint Hazard Standards

Lead-Based Paint (may be determined in either of two ways)

- Surface concentration (mass of lead per area) 1.0 µg/cm²
- Bulk concentration (mass of lead per volume) 0.5%, 5000 µg/g, or 5000 ppm

Dust-thresholds for Lead-Contamination

- Floors 40 µg/ft²
- Interior Window Sills 250 µg/ft²
- Window Troughs (clearance examination only) 400 µg/ft²

Soil-thresholds for Lead Contamination

- Play areas (used by children under age 6) 400 µg/g, or 400 ppm
- Other areas 1200 µg/g, or 1200 ppm

Resources For Additional Information On Lead-Based Paint And Lead-Based Paint Hazards:

National Lead information Center & Clearinghouse: 1-800-424 LEAD

www.epa.gov/lead/pubs/nlic.htm

Centers for Disease Control and Prevention Lead Program: www.cdc.gov/lead Toll-free

CDC Contact Center: 800-CDC-INFO; TTY 888-232-6348

Consumer Product Safety Commission www.cpsc.gov Toll-free consumer hotline: 1-800-638-2772; TTY 301-595-7054

Environmental Protection Agency Lead Program: www.epa.gov/lead 202-566-0500

HUD Office of Healthy Homes and Lead Hazard Control: www.hud.gov/offices/lead 202-402-7698

Connecticut Department of Public Health, Lead Poisoning Prevention Program

<http://www.ct.gov/dph/>

Hearing- or speech-challenged individuals may access the federal agency numbers above through TTY by calling the toll-free Federal Relay Service at 800-877-8339; see also

<http://www.federalrelay.us/tty>.

Scott Feulner
Diversified Technology Consultants (DTC)
2321 Whitney Avenue, Suite 301
Hamden, CT 06518

5/6/2014

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 1 OF 5**

TABLE OF CONTENTS

Contents	Page(s)
Table of Contents	1
Introduction	2
Inspection Report Synopsis	3-4
Limitations of the Inspection	4
Recommendations	5

Attachments:

- Scope of Inspection Drawing(s) – 1 page(s)
- ACM location drawing(s) - 2 page(s)
- PLM Certificate of Analysis report with chain of custody - 6 page(s)
- Sample location drawing(s) - 1 page(s)

Report Distribution:

Scott Feulner, DTC Scott.Feulner@teamdtc.com
Curtis Graham, DTC graham.curtis@teamdtc.com
Michael Casey, DTC michael.casey@teamdtc.com

File Location:

NAS AAUM-Reports\AsbInsp\DS-Prereno_March2014.doc

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 2 OF 5**

INTRODUCTION

EXECUTIVE SUMMARY: Asbestos containing materials (ACM) were detected within the scope of this inspection and will need to be properly removed and disposed of prior to renovation that would disturb these materials. Abatement work must be done by a licensed asbestos abatement contractor using proper procedures and practices with licensed and trained individuals.

BUILDING DESCRIPTION: The subject building is a single-family, one-story, ranch-style house totaling approximately 1000 sq ft, which was built in 1951 of wood-frame construction. Heat is supplied from a furnace in the basement, through forced air ducts. At the time of our screening, there were no children under the age of six residing at this subject house and the house was not being used as a daycare facility.

BACKGROUND: We understand the subject house suffered damage as a result of hurricane Sandy on October 29-30, 2012. The house is scheduled to be renovated. We understand the storm caused roof damage which lead to moisture damage in the Kitchen and Living Room. Based on this damage the following items are scheduled for removal and replacement: kitchen floor, kitchen ceiling, kitchen walls, living room ceiling and living room wall A.

SCOPE OF INSPECTION: Asbestos Pre-Renovation Inspection of the kitchen and living room only at the subject house, as directed by our client.

Our work included the following:

- Collection and analysis of building materials within the scope of renovation for asbestos, as required by the regulations.
- A list with quantity, type and location of asbestos containing materials (ACM) in the scope.
- Report of the findings including ACM location drawings.

This investigation and information provided in this report depends partly on background information provided by the client. This report is intended for the use of the client. The scope of services performed may not be appropriate for other users and any use of this report by third parties is at their sole risk. This report is intended to be used in its entirety. No excerpts may be taken to be representative of this report.

TEST PARAMETERS: This is an Asbestos Pre-Renovation Inspection intended to identify the presence, location, and quantity of any asbestos containing building materials which are part of the Renovation for compliance with OSHA 1926.1101 (k)(2)(i) and CT DPH 19a-332a-1 through 16.

For sampling, EPA Wet Methods are used to prevent fiber release. Building materials sampled are analyzed at our laboratory by EPA method 600/R-93/116. This is currently the approved EPA Test method, which uses Polarized Light Microscopy with Dispersion Staining. The laboratory is accredited by NIST/NVLAP and AIHA, and is a Connecticut Approved Environmental Laboratory for Asbestos Analysis.

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 3 OF 5**

INSPECTION REPORT SYNOPSIS

LOCATION NAME AND ADDRESS: Site 003
153 Twin Brook Road, Hamden, CT
Application #2072

INSPECTION DATE(S): 4/25/2014

QUALIFICATIONS: The Inspection was conducted by Daniel P. Sullivan:

- EPA & State of Connecticut Accredited Asbestos Inspector, Project Monitor & Project Designer
- State of Connecticut Licensed Asbestos Inspector/Management Planner (#000019)
- State of Connecticut Licensed Asbestos Project Monitor (#000036)
- State of Connecticut Licensed Asbestos Project Designer (#000096)

Dan was assisted by Ziyang Wang.

For information about Chem Scope, Inc., log onto <http://www.chem-scope.com>.

FINDINGS: The following asbestos containing materials (ACM) were detected in the Scope of the Inspection:

<u>MATERIAL</u>	<u>LOCATION</u>	<u>~FOOTAGE</u>
<u>INTERIOR:</u>		
Marble-style pliable linoleum* with white backing and sticky adhesive* on Gold/White pliable ACM linoleum with gray fibrous backing and adhesive (on yellow pliable linoleum* with black fibrous paper backing and brown adhesive on wood floor)	Kitchen	150 sq ft
Beige ACM taping compound on sheetrock*	Living Room Ceiling	275 sq ft
	Living Room Wall A	175 sq ft
	Total	450 sq ft

*Because these materials are adhered to an ACM material these material will also need to be treated as an asbestos containing material.

*>1% Asbestos was found in the combined results of the beige taping compound and the sheetrock layer; Consequently, the sheetrock and compound is OSHA and EPA-DPH regulated. With additional extensive sampling it may be possible to establish areas of non-asbestos taping compound, but additional sampling may also lead to more inconsistencies. See attached ACM location drawings for exact locations.

**ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 4 OF 5**

INSPECTION REPORT SYNOPSIS (cont)

FINDINGS (CONT):

The following is a summary table of the materials that tested as non-Asbestos Containing Material (ACM) (<1%) within the Scope of Work (not already summarized previously):

Material	Location	Sample #'s	Findings
Light gray crumbly sheetrock with brown paper backing and white face coat and white crumbly sheetrock taping compound (walls and ceiling)	Kitchen	183-76-7,9,10, 12	No Asbestos Detected
Black fibrous paper and adhesive (on yellow fiberglass batt insulation, above sheetrock ceiling)	Kitchen and Living Room	183-76-15,16	No Asbestos Detected
Brown fibrous paper with foil backing (behind sheetrock wall A)	Living Room Wall A	183-76-17,18	No Asbestos Detected

LIMITATIONS OF INSPECTION

It is important to note that every effort is made to detect asbestos (ACM) in the path of the renovation by our inspectors. It is not practical or prudent to demolish the entire wall and ceiling system during an inspection. The owner should be aware of this in case suspect materials or concealed suspect materials are uncovered during the actual renovation.

If suspect materials that were previously not accessible or not sampled during this inspection are discovered during the renovation, or if the scope of the renovation changes to include disturbance of new materials not inspected, then renovation must stop and the materials must be sampled by a CT DPH licensed asbestos inspector prior to disturbance of these materials.

ASBESTOS PRE-RENOVATION INSPECTION
SITE 003 – 153 TWIN BROOK ROAD, HAMDEN, CT
APPLICATION #2072
CS#183-76, 4/25/2014, PAGE 5 OF 5

RECOMMENDATIONS

All Asbestos Containing Materials (ACM) detected in the path of the inspection must be removed prior to the disturbance of these materials.

Asbestos removal is regulated by federal and state agencies. Abatement work must be done by a licensed asbestos abatement contractor using proper procedures and practices, including containment, decontamination facilities, negative air units and trained and CT DPH licensed workers. Final re-occupancy testing is also required, if the building is going to be reoccupied after the asbestos removal and strongly recommended even if the building is not going to be re-occupied such as in the case of building demolition, for removal of greater than three (3) sq. ft or linear ft of ACM. A CT DPH Licensed Project Monitor is always required for final visual inspections after asbestos removal.

Please also keep in mind that notification to the DPH is required for asbestos abatement involving greater than 10 linear feet or 25 square feet of or for any demolition. Disposal of all ACM is regulated by EPA and the Connecticut DEEP; an EPA approved landfill must be used.

OSHA regulations 1926.1101 requires that before asbestos removal or repair work (class I, II or III work) is initiated, building owners/facility owners must notify their own employees and employers who are bidding on such work, of the quantity and location of ACM or PACM (presumed asbestos containing material) present in such areas. Also for inadvertently discovered ACM or PACM there is a 24-hour notification requirement to the owner and all employers at the site.

If you have any questions or need more information please call me. Thank you for calling on us.

Sincerely,



Dan Sullivan
Vice President, Operations

ChemScope Inc.

Site 003
153 Twin Brook Road, Hamden, CT
Main Floor
CS# 183-76, 4-25-14

SCOPE OF INSPECTION DRAWING
Side C



LEGEND OF SYMBOLS

 Scope of Inspection

NIS Not in Scope of Inspection

NOTATIONS

DRAWN BY:
LEIGH HONOROF

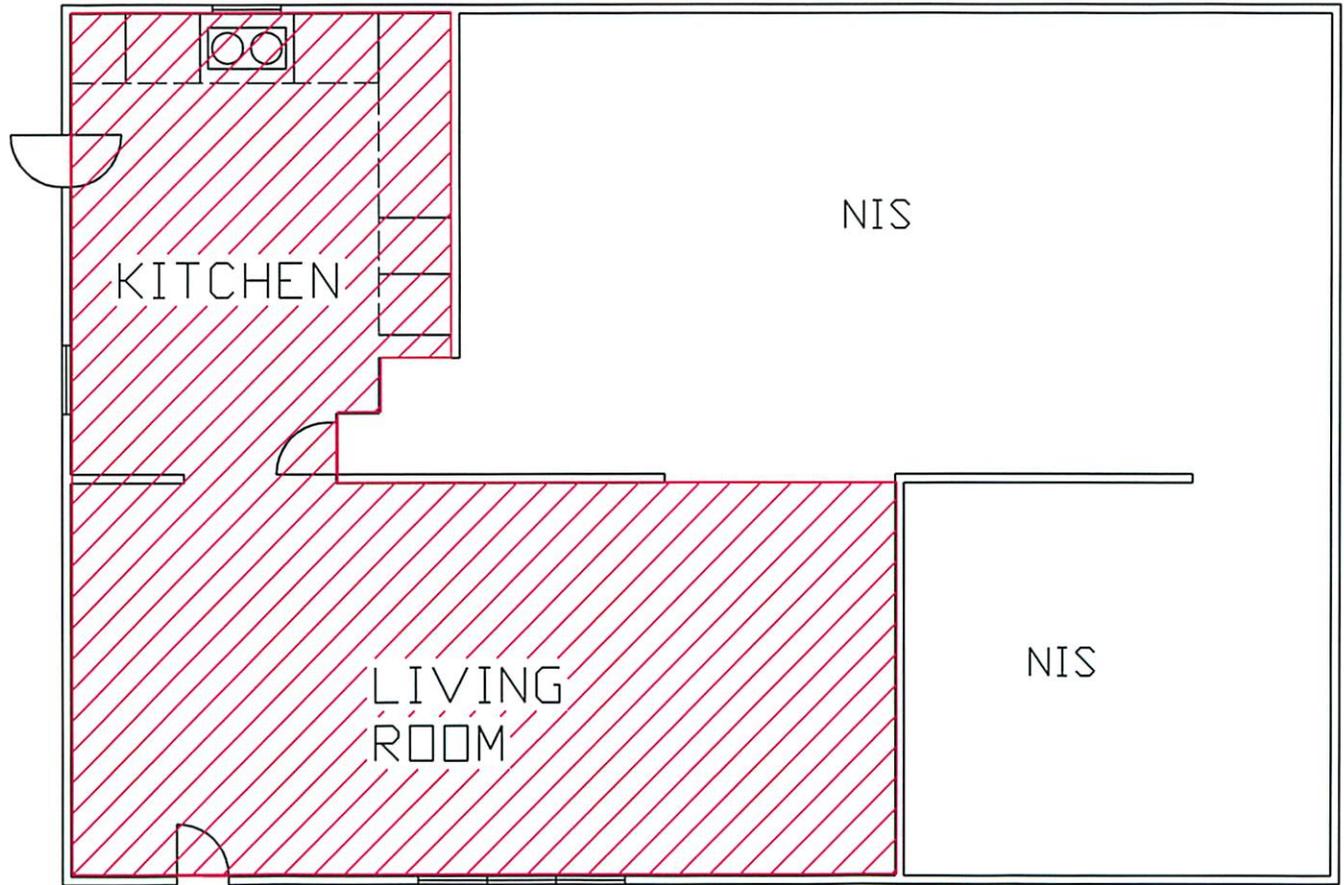
ChemScope Inc.

SHEET TITLE:
ASBESTOS, LEAD &
MOLD INSPECTION
153 TWIN BROOK RD
HAMDEN, CT
MAIN FLOOR

CHEMSCOPE NUMBER:
CS# 183-76
SCALE:
NOT TO SCALE
DATE:
4/25/14

DRAWING NUMBER

1S



Side B

Side D

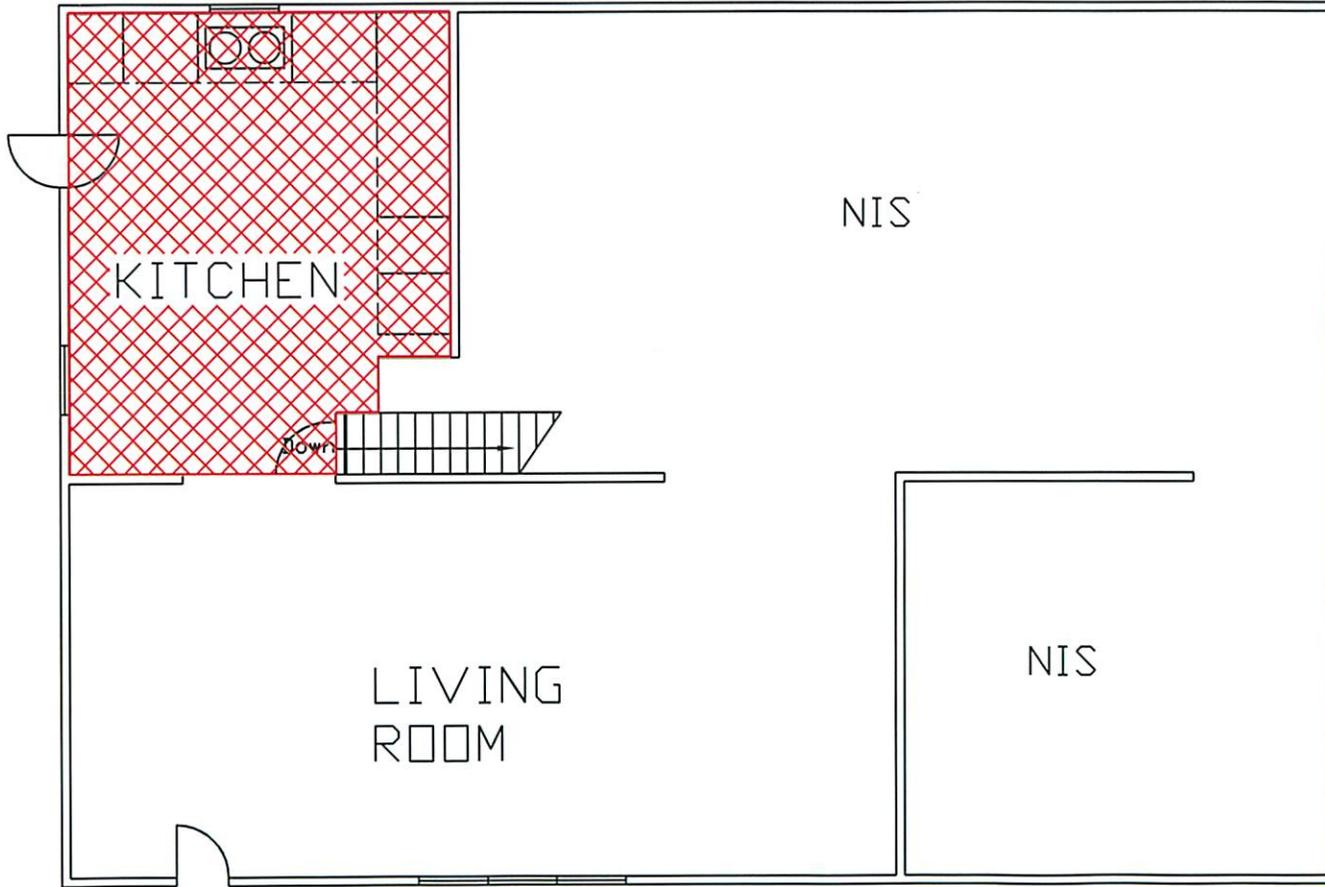
Side A

TWIN BROOK RD

ChemScope Inc.

Site 003
153 Twin Brook Road, Hamden, CT
Main Floor
CS# 183-76, 4-25-14

ACM LOCATION DRAWING



← TWIN BROOK RD →



LEGEND OF SYMBOLS

	Location of ACM Linoleum In Scope of Inspection See Report for details
NIS	Not in Scope of Inspection

NOTATIONS

DRAWN BY:
LEIGH HONOROF

ChemScope Inc.

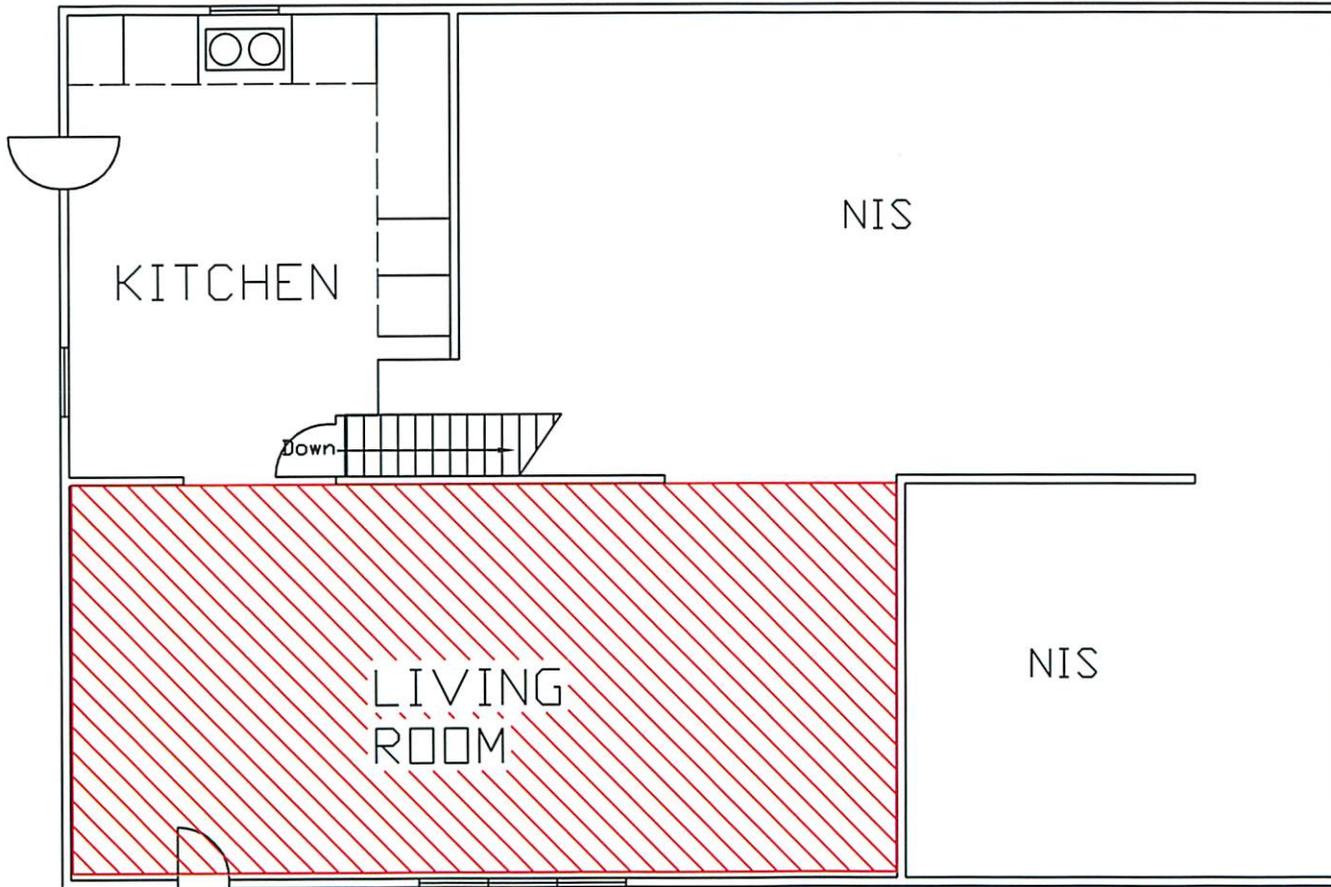
SHEET TITLE:
ASBESTOS, LEAD &
MOLD INSPECTION
153 TWIN BROOK RD
HAMDEN, CT
MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	1A1
DATE 4/25/14	

ChemScope Inc.

Site 003
153 Twin Brook Road, Hamden, CT
Main Floor
CS# 183-76, 4-25-14

ACM LOCATION DRAWING



← TWIN BROOK RD →



LEGEND OF SYMBOLS

 Location of ACM
Sheetrock walls &
ceilings in Scope

See report for details

NIS Not in Scope
of Inspection

NOTATIONS

DRAWN BY:
LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:

ASBESTOS, LEAD &
MOLD INSPECTION

153 TWIN BROOK RD
HAMDEN, CT

MAIN FLOOR

CHEMSCOPE NUMBER:
CS# 183-76

SCALE:
NOT TO SCALE

DATE:
4/25/14

DRAWING NUMBER

1A2

Certificate Of Analysis

Diversified Technology Consultants (DTC) - Scott Feulner

2321 Whitney Avenue

Suite 301

Hamden CT 06518

5/2/2014

CS# 183-76

Page 1 of 4

Bulk sample(s) from Site 003, 153 Twin Brook Road, Hamden, CT collected by Dan Sullivan (assisted by Ziyang Wang) on 4/25/2014

Asbestos Identification in the samples. Examination made by Polarized Light Microscopy (PLM) per EPA Test Method 600/R-93/116

Sample Identification

Findings (Analyzed 5/2/14)

183-76-1 Marble-style pliable linoleum with white backing and sticky adhesive (on gold/white pliable linoleum with gray fibrous backing and adhesive on yellow pliable linoleum with black fibrous paper backing and brown adhesive on wood floor) / 1st Floor, Kitchen

Not Analyzed

183-76-2 Marble-style pliable linoleum with white backing and sticky adhesive (on gold/white pliable linoleum with gray fibrous backing and adhesive on yellow pliable linoleum with black fibrous paper backing and brown adhesive on wood floor) / 1st Floor, Kitchen

Not Analyzed

183-76-3 Gold/white pliable linoleum with gray fibrous backing and adhesive (from sample #1) / 1st Floor, Kitchen

*22% Chrysotile Asbestos
14% Non- Fibrous Particles
64% Volatile on Ignition*

183-76-4 Gold/white pliable linoleum with gray fibrous backing and adhesive (from sample #2) / 1st Floor, Kitchen

Not Analyzed

183-76-5 Yellow pliable linoleum with black fibrous backing and brown adhesive (from sample #1, on wood) / 1st Floor, Kitchen

*No Asbestos Detected
32% Non- Fibrous Particles
68% Volatile on Ignition*

Bulk sample(s) from Site 003, 153 Twin Brook Road, Hamden, CT collected by Dan Sullivan (assisted by Ziyang Wang) on 4/25/2014

Asbestos Identification in the samples. Examination made by Polarized Light Microscopy (PLM) per EPA Test Method 600/R-93/116

Sample Identification

Findings (Analyzed 5/2/14)

183-76-6 Yellow pliable linoleum with black fibrous backing and brown adhesive (from sample #2, on wood) / 1st Floor, Kitchen

No Asbestos Detected
38% Non- Fibrous Particles
62% Volatile on Ignition

183-76-7 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat (wall) / 1st Floor, Kitchen

No Asbestos Detected
75% Non- Fibrous Particles
25% Volatile on Ignition

183-76-8 Light gray crumbly sheetrock with brown fibrous paper backing and light beige face coat (wall) / 1st Floor, Living Room

No Asbestos Detected
78% Non- Fibrous Particles
22% Volatile on Ignition

183-76-9 White crumbly sheetrock taping compound (wall) / 1st Floor, Kitchen

No Asbestos Detected
87% Non- Fibrous Particles
13% Volatile on Ignition

183-76-10 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat (ceiling) / 1st Floor, Kitchen

No Asbestos Detected
76% Non- Fibrous Particles
24% Volatile on Ignition

183-76-11 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat (ceiling) / 1st Floor, Living Room

No Asbestos Detected
79% Non- Fibrous Particles
21% Volatile on Ignition

183-76-12 White crumbly sheetrock taping compound (ceiling) / 1st Floor, Kitchen

No Asbestos Detected
88% Non- Fibrous Particles
12% Volatile on Ignition

Bulk sample(s) from Site 003, 153 Twin Brook Road, Hamden, CT collected by Dan Sullivan (assisted by Ziyang Wang) on 4/25/2014

Asbestos Identification in the samples. Examination made by Polarized Light Microscopy (PLM) per EPA Test Method 600/R-93/116

Sample Identification

Findings (Analyzed 5/2/14)

183-76-13 Beige crumbly sheetrock taping compound (ceiling) / 1st Floor, Living Room

*4% Chrysotile Asbestos (point counted)
80% Non- Fibrous Particles
17% Volatile on Ignition*

183-76-14 Black fibrous paper and adhesive (on yellow fiberglass batt insulation, above sheetrock ceiling) / 1st Floor, Kitchen

*No Asbestos Detected
<1% Non- Fibrous Particles
60% Volatile on Ignition
40% Fiberglass*

183-76-15 Black fibrous paper and adhesive (on yellow fiberglass batt insulation, above sheetrock ceiling) / 1st Floor, Living Room

*No Asbestos Detected
<1% Non- Fibrous Particles
70% Volatile on Ignition
30% Fiberglass*

183-76-16 Brown fibrous paper with foil backing (behind sheetrock wall) / 1st Floor, Living Room

*No Asbestos Detected
17% Non- Fibrous Particles
83% Volatile on Ignition
<1% Mineral Wool*

183-76-17 Brown fibrous paper with foil backing (behind sheetrock wall) / 1st Floor, Living Room

*No Asbestos Detected
16% Non- Fibrous Particles
84% Volatile on Ignition
<1% Mineral Wool*

183-76-18 Light gray crumbly sheetrock with brown fibrous paper backing and beige face coat and beige crumbly sheetrock taping compound (ceiling) / 1st Floor, Living Room

*1-2% Chrysotile Asbestos (point counted)
76% Non- Fibrous Particles
22% Volatile on Ignition*

**PARAMETERS
ASBESTOS PLM ANALYSIS
(Revised 3/22/13)**

1. *Materials which contain >1% asbestos (greater than 1%) by PLM (polarizing light microscopy) analysis are considered to be asbestos containing materials under EPA and the State of Connecticut Regulations. OSHA still regulates material with <1%. (Contact laboratory for information.) {Note: A more sensitive method is available called TEM (transmission electron microscopy). TEM may detect asbestos fibers that PLM cannot see, but the above agencies' enforcement is based on PLM analysis. Rules may differ for states other than Connecticut. It is best to check with the individual state. For example, New York State requires TEM confirmation of negative PLM results on floor tile}.*
2. *If no asbestos is detected in a sample, or if the asbestos content is less than 1% by PLM, additional samples of the same material should be submitted for confirmation. Please check with the laboratory for guidance on the number of samples needed. Sample collection in Connecticut must be by a DPH Licensed Asbestos Inspector. Many other states also require licensing.*
3. *Floor Tile Mastic: Mastic under floor tile should be separately sampled by scraping some of the mastic from the floor to avoid contamination from the floor tile.*
4. *Although Chem Scope, Inc. takes great effort to insure accuracy in the estimation of asbestos in the materials analyzed, no quantitation method is without some uncertainty. Based on independent calibration studies and comparison of Chem Scope's quantitative results with NVLAP and AIHA round robin programs we estimate our uncertainty in quantitation to be relatively small. The average relative uncertainty of the estimate is calculated to be 35% for samples that contain less than 10% asbestos. This means a estimate of 10% asbestos in a sample has a probable range of 6.5% to 13.5% while an estimate of 1% has a range of 0.65% to 1.35%.*
5. *The presence of non-asbestos components, which are recognized by the PLM analyst, is reported with the estimated amounts. This is not an exhaustive analysis for the non-asbestos materials since the primary purpose is to determine if asbestos is present and, if so, how much is present of each type of asbestos.*
6. *Results reported apply only to the sample(s) analyzed.*
7. *Special treatment of samples: Chem Scope, Inc. routinely uses gravimetric sample reduction techniques such as low temperature ashing or acid dissolution on samples like floor tile, roofing materials, glue dots, or high cellulose content samples prior to PLM analysis. These methods are used to aid in the PLM analysis and to provide better quantitative data. Layered samples, if possible, are analyzed separately as individual layers. However, in accordance with the method, if any layer contains >1% asbestos (greater than 1%) it is to be considered an asbestos containing material. All results are reported to the original sample basis.*
8. *Sample results are not corrected for blanks. Analytical blanks are run daily and if contamination is suspected the samples are rerun.*
9. *Chem Scope, Inc. performs "400 point" point counting when the asbestos content is visually estimated to be less than 10%. There is no additional charge for this analysis.*

*The Scope of Accreditation referenced in this report applies to bulk asbestos fiber analysis by PLM (Polarized Light Microscopy). Accreditation does not imply endorsement by NVLAP, NIST or any Federal or State Agency.
This report pertains only to the samples tested and may not be reproduced in part.
Condition of the samples at the time of receipt was acceptable unless otherwise noted on the Certificate of Analysis.
See test parameters above and attached chain of custody form.
We would love to hear from you. Comments? Questions? Please call or email us at chem.scope@snet.net.*

**ChemScope, Inc. is accredited by AIHA LAP, LLC LAB #100134
NVLAP Lab Code 101061-0.**

Connecticut Department of Public Health (DPH) Approved Environmental Lab PH 0581

Signature

Analyst

Signature
(if applicable)

Inspector

Authorized Signature or
Suzanne Cristante
Laboratory Director

Authorized Signature or
Izabela Kremens
Quality Manager

Authorized Signature

Rohald Arena
President

Dear Laboratory Customer or Potential Customer,

New laboratory accreditation standards require us to provide our clients information about our services to make sure that your requirements for testing are adequately defined, documented and understood. The following is for your information. Please call us if you have any questions or comments.

Type of Samples:

- // PCM cassettes are routinely run by NIOSH Method 7400.
- // Bulk materials are run by EPA Method: #600/R-93/116.

Air Samples: NIOSH 7400 Method counts all fibers. This method may be used for personal air samples and for finals. Two field blanks must be submitted for each set of samples. In the unlikely event that there is to be any deviation from the standard test, you will be consulted by phone before the work begins. Those clients who have not had NIOSH 582 or AHERA asbestos training courses (either supervisor or project monitor) should consult with the lab director for more information. The test parameters are further explained in the analytical report.

Bulk materials: sampled are analyzed by the latest EPA Method: (#600/R-93/116) which uses polarized light microscopy (PLM). When asbestos is detected and the amount is estimated to be <10%, we automatically point count the samples. When there are interfering substances present, we may use ashing, acid washing or other procedures described in the method to handle the interference. Those clients who have not had AHERA asbestos training courses (either inspector, supervisor or project designer) should consult with the lab director for more information. The test parameters are further explained in the analytical report.

All Samples must be clearly labeled with source name and identification number or sufficient information from the client to make this sample uniquely identified. (We will then add our notebook #, page # (batch) and unique number within the batch.) Samples must be in a clean, air tight package such as a zip loc bag. Appropriate completed paperwork must accompany the sample. Bulk and air samples may not be submitted in the same package.

As soon as available bench top results will be faxed to you and reports will then be mailed. We will retain air samples for at least three months and bulk samples for 6 months unless you advise us otherwise.

You are welcome to visit the laboratory at any time to discuss the work, monitor the work or verify our testing services. We appreciate your business and encourage any feedback regarding improving our services or our quality system. Please take a minute to complete the following survey and mail/fax it to ChemScope, Inc.

Customer Service Survey

To help us improve our services give your opinions to the following:

- 1- The printed laboratory report was complete and easy to understand. YES NO
If no, please explain _____.
- 2- The turn around time for results met your expectations/needs. YES NO
If no, please explain _____.
- 3- How likely are you to recommend ChemScope Inc. to someone?
 Excellent Very Good Good Fair Poor
- 4- How likely are you to return to ChemScope in the future if the need arises?
 Excellent Very Good Good Fair Poor
5. On a scale of 1 to 5 where 1 represents "Satisfied" and 5 represents "Dissatisfied", how would you rate your level of overall satisfaction.
 1 2 3 4 5
- 6- Please add any additional comments or suggestions that would be helpful when you use our services:

Name _____ Company _____
Address _____ Telephone/e-mail _____

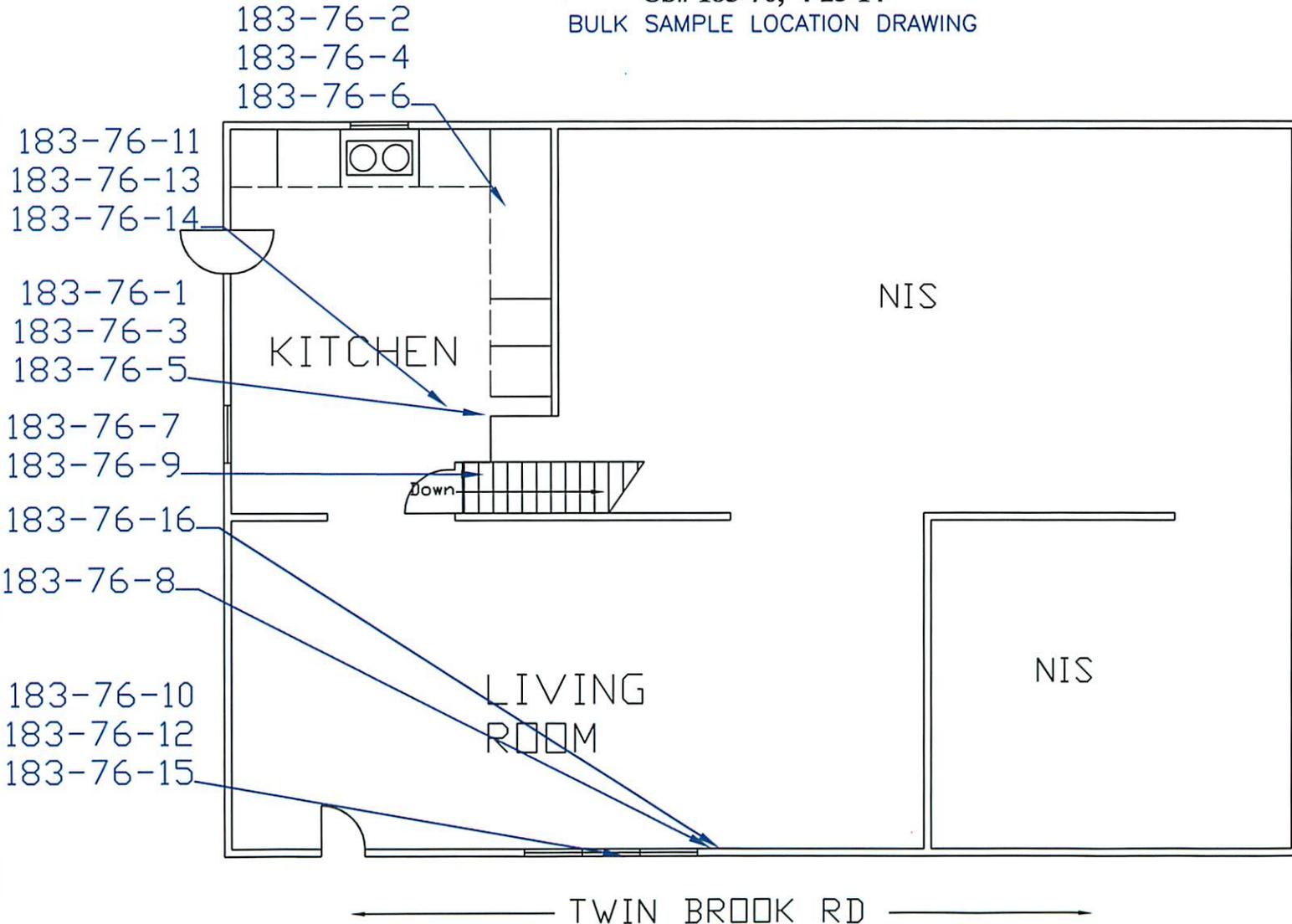
Can we contact you regarding this survey? YES NO

ChemScope Inc.

Site 003
153 Twin Brook Road, Hamden, CT
Main Floor

CS# 183-76, 4-25-14

BULK SAMPLE LOCATION DRAWING



LEGEND OF SYMBOLS

1	Bulk Sample No.
NIS	Not in Scope of Inspection

NOTATIONS

DRAWN BY:
LEIGH HONOROF

ChemScope Inc.

SHEET TITLE:
ASBESTOS, LEAD & MOLD INSPECTION
153 TWIN BROOK RD
HAMDEN, CT
MAIN FLOOR

CHEMSCOPE NUMBER: CS# 183-76	DRAWING NUMBER
SCALE NOT TO SCALE	1 B
DATE 4/25/14	