RFP 15-2014
Environmental Consulting Services

For:

Lexington-Fayette Urban County Government

Request For Proposal

Air Source Technology, Inc.
131 Prosperous Place, Suite 17
Lexington, Kentucky 40509

Submittal Date: April 4, 2014

Table of Contents

Section **Page**

LFUCG RFP #15-2014 – EEOC, DBE, & GENERAL PROVISIONS SUBMITTALS 2

LFUCG RFP #15-2014 FOR ENVIRONMENTAL CONSULTING SERVICES 3

A. BASIC QUALIFICATIONS 3
B. BACKGROUND AND EXPERIENCE 9
C. INFORMATION REQUIRED FROM CONSULTANT 9

EEOC, DBE, & GENERAL PROVISIONS SUBMITTALS ..... Appendix A

ASTI STATEMENT OF QUALIFICATIONS ..... Appendix B

SAMPLE REPORTS ..... Appendix C

GENERAL WORK PLAN ..... Appendix D

PERSONNEL – RESUMES & CERTIFICATIONS ..... Appendix E

LFUCG ASBESTOS RESPONSIBILITIES ..... Appendix F

LFUCG LEAD RESPONSIBILITIES ..... Appendix G

LFUCG MOLD RESPONSIBILITIES ..... Appendix H

FEE SCHEDULE (SEPARATE DOCUMENT) ..... Appendix I

LFUCG RFP #15-2014 – EEOC, DBE, & General Provisions Submittals

The Lexington-Fayette Urban County Government (LFUCG) encourages the participation of minority- and women-owned businesses in Lexington-Fayette Urban County Government contracts. To encourage Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE) Contract participation, which consists of Minority-Owned Business Enterprises (MBE) and Woman-Owned Business Enterprises (WBE), and in accordance with LFUCG RFP #15-2014; the following documents are provided:

1. Firm Submitting Proposal Form
2. Affirmative Action Plan, including WORKFORCE ANALYSIS FORM
3. AFFIDAVIT
4. EQUAL OPPORTUNITY AGREEMENT
5. LFUCG MWDBE PARTICIPATION FORM
6. MWDBE QUOTE SUMMARY FORM
7. LFUCG STATEMENT OF GOOD FAITH EFFORTS
8. GENERAL PROVISIONS.

The above documents are signed as appropriate and enclosed in Appendix A: **EEOC, DBE, & GENERAL PROVISIONS SUBMITTALS.**

LFUCG RFP #15-2014 for Environmental Consulting Services

Air Source Technology, Inc. – Submission Requirements Section

(Excerpt from RFP)

II. Submission Requirements:

EACH RESPONDENT MUST PROVIDE ONE (1) ORIGINAL AND SEVEN (7) HARDCOPIES OF THE PROPOSAL AND AN ELECTRONIC PDF VERSION OF DOCUMENT ON CD OR FLASHDRIVE WHICH INCLUDES A WRITTEN STATEMENT IN THE PROPOSAL ADDRESSING THE FOLLOWING:

A. Basic Qualifications

1. Knowledge of content and requirements of the RFP.

As shown in the enclosed Statement of Qualifications (Appendix A) and other submittals, Air Source Technology, Inc. has demonstrated a wide range of environmental, health and safety consulting expertise since 1994.

2. Each respondent must have a minimum of five (5) documented years of continuous experience providing specific consulting services for each discipline selected for bid, i.e., Asbestos, Lead-Based Paint, Mold consulting services and Associated Analytical Testing Services.

AIR SOURCE TECHNOLOGY, INC. ASBESTOS EXPERIENCE

ASTI has been providing asbestos consulting services to numerous clients since 1994. Some of ASTI's personnel have been providing these services since 1985. Asbestos consulting services include but are not limited to: *Asbestos Building Inspections* (EPA AHERA protocol, ASTM protocol for Asbestos Screening or Comprehensive Surveys, EPA NESHAP protocol), EPA AHERA *Asbestos Management Plans*, *Asbestos Operations & Maintenance (O&M) Plans* (EPA & OSHA), *Asbestos Abatement Specifications* (Renovation & Demolition), and *Asbestos Air Monitoring* (EPA & OSHA).

AIR SOURCE TECHNOLOGY, INC. LEAD EXPERIENCE

ASTI has been providing lead services to a variety of clients since 1994. Some of ASTI's personnel have over 25 years of experience in providing lead-based paint inspections (a surface-by-surface investigation to determine the presence of lead-based paint), lead risk assessments (conducted to determine the existence, nature, severity, and location of lead hazards), and lead clearance testing (a visual inspection and surface dust testing of the work area) per regulations 902 KAR, Sections 48:010 through 48:040 of the Commonwealth of Kentucky, Cabinet of Health Services, Department for Public Health, Division of Environmental Health and Community Safety. Additionally, ASTI provides various clients testing services for lead-in-drinking water, lead waste characterization (TCLP analysis), and airborne lead (fume or particles) exposure monitoring.

AIR SOURCE TECHNOLOGY, INC. MOLD EXPERIENCE

ASTI has been providing mold consulting services to numerous clients since 1994. Mold consulting services include but are not limited to: Mold and moisture inspections, mold remediation specifications, and post remediation verification inspection and testing (air & surface wipes). Indoor air quality concerns sometimes extend beyond mold. ASTI has significant experience in many aspects of indoor air quality, including dust, HVAC evaluation, chemical exposures, odors, building envelope issues, etc.

3. Respondent must demonstrate management and technical expertise sufficient for performing a program of the size detailed in this RFP. The respondent must include a plan that demonstrates the consultant's understanding and capacity to handle the requirements detailed in this RFP.

Appendix D provides the General Work Plan. For specialized laboratory expertise, ASTI relies on the following AIHA-accredited laboratories for analytical services:

ASBESTOS LABORATORIES

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101882-0

Environmental Hazards Services, L.L.C.
Richmond, VA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2013-01-01 through 2013-12-31
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101895-0

McCall and Spero Environmental, Inc.
Louisville, KY

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2013-07-01 through 2014-06-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101895-0

McCall and Spero Environmental, Inc.
Louisville, KY

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

AIRBORNE ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2013-07-01 through 2014-06-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

LEAD LABORATORIES

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Environmental Hazards Services, LLC
7469 White Pine Road, Richmond, VA 23237
Laboratory ID: 100420

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓	INDUSTRIAL HYGIENE	Accreditation Expires: 05/01/2014
✓	ENVIRONMENTAL LEAD	Accreditation Expires: 05/01/2014
✓	ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires: 05/01/2014
☐	FOOD	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

S. D. Allen Ike, Jr., PhD, CIH, CSP
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 12: 03/29/2012

Date Issued: 03/30/2012

AIHA Laboratory Accreditation Programs, LLC
SCOPE OF ACCREDITATION

Environmental Hazards Services, LLC
7469 White Pine Road, Richmond, VA 23237

Laboratory ID: **100420**
Issue Date: 03/30/2012

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or revocation. A complete listing of currently accredited Industrial Hygiene laboratories is available on the AIHA-LAP, LLC website at: http://www.aihaaccreditedlabs.org

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 03/01/1990

IHLAP Scope Category	Field of Testing (FoT)	Technology sub-type/ Detector	Published Reference Method/Title of In-house Method	Method Description or Analyte *(for internal methods only)*
Spectrometry Core	Atomic Absorption	FAA	EPA 600/R-93/200	
			EPA SW-846 7000B	
			EPA SW-846 7420	
			NIOSH 6009	
			NIOSH 7082	
			OSHA ID-145	
	Inductively-Coupled Plasma	ICP/AES	EPA SW-846 6010C	
			NIOSH 7300	
			OSHA ID-125	
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)		NIOSH 7400	
Miscellaneous Core	Gravimetric		NIOSH 0500	
			NIOSH 0600	

AIHA Laboratory Accreditation Programs, LLC

The laboratory participates in the following AIHA-LAP, LLC-approved proficiency testing programs:

- ✓ AIHA-PAT Programs, LLC IHPAT Metals
- ☐ AIHA-PAT Programs, LLC IHPAT Organic Solvents
- ☐ AIHA-PAT Programs, LLC IHPAT Silica
- ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (3M)
- ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (SKC)
- ☐ AIHA-PAT Programs, LLC IHPAT Diffusive Sampler (AT)
- ✓ AIHA-PAT Programs, LLC IHPAT Asbestos
- ☐ AIHA-PAT Programs, LLC Bulk Asbestos (BAPAT)
- ☐ AIHA-PAT Programs, LLC Beryllium (BePAT)
- ☐ HSE Workplace Analytical Scheme for Proficiency (WASP) (Formaldehyde)
- ☐ HSE Workplace Analytical Scheme for Proficiency (WASP) (Thermal Desorption Tubes)
- ☐ Pharmaceutical Round Robin
- ☐ Compressed/Breathing Air Round Robin
- ☐ National Voluntary Laboratory Accreditation Program (NVLAP - determined at the time of site assessment)
- ☐ New York State Department of Health (NYS DOH – PCM and TEM)
- ☐ EPA Air and Emissions standards for indoor air quality
- ☐ Institut für Arbeitsschutz der Deutschen Gesetzlichen Unfallversicherung (IFA, formerly BGIA)
- ☐ Institut de Recherche Robert-Sauvé en Santé et en Sécurité du Travail (IRSST)

tive: 09/28/2011
t_IHLAP_R6
1 of 2

Effective: 09/28/2011
Scope_IHLAP_R6
Page 2 of 2

MOLD LABORATORIES

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

Aerobiology Laboratory Associates, Inc.
43760 Trade Center Place, Suite 100, Dulles, VA 20166
Laboratory ID: 102977

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

☐ INDUSTRIAL HYGIENE	Accreditation Expires:
☐ ENVIRONMENTAL LEAD	Accreditation Expires:
✓ ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires: 10/01/2014
☐ FOOD	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

S. D. Allen Iske, PhD, CIH, CSP
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 12: 03/29/2012

Date Issued: 09/28/2012

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMLab P&K, LLC.
1150 Bayhill Dr., Suite 100 San Bruno, CA 94066
Laboratory ID: 102856

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA-LAP), LLC accreditation to the ISO/IEC 17025:2005 international standard, *General Requirements for the Competence of Testing and Calibration Laboratories* in the following:

LABORATORY ACCREDITATION PROGRAMS

✓ INDUSTRIAL HYGIENE	Accreditation Expires: 07/01/2014
☐ ENVIRONMENTAL LEAD	Accreditation Expires:
✓ ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires: 07/01/2014
☐ FOOD	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached **Scope of Accreditation**. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2005 and AIHA-LAP, LLC requirements. This certificate is not valid without the attached **Scope of Accreditation**. Please review the AIHA-LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

S. D. Allen Iske, PhD, CIH, CSP
Chairperson, Analytical Accreditation Board

Cheryl O. Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision 12: 03/29/2012

Date Issued: 06/29/2012

4. Three references which include contact names and phone numbers.

Asbestos References include:

1. Scott Kelsey, LFUCG Division of Facilities & Fleet Management, 1555 Old Frankfort Pike, Lexington, KY 40504. Telephone: (859) 425-2825
2. Bryan Makinen, Director of Environmental Health & Safety/Risk Management & Insurance, Eastern Kentucky University, Mattox Hall, 201, 521 Lancaster Avenue, Richmond, KY 40475-3102. Telephone: (859) 622-2421
3. Maziar Torabi, Commonwealth of Kentucky, Division of Engineering, Dept. for Facilities & Support Services, Bush Building, 403 Wapping Street, Frankfort, KY 40601. Telephone: (502) 782-0335
4. Kelly Breeding, Fayette County Public Schools, 400 Springhill Drive, Lexington, KY 40503. Telephone: (859) 338-2330
5. Lisa Westendorf, VA Hospital of Lexington, Department of Veteran Affairs, 1101 Veteran Drive, Lexington, KY 40502-2236. Telephone: (859) 233-4511 ext. 4176

Lead References include:

1. Scott Kelsey, LFUCG Division of Facilities & Fleet Management, 1555 Old Frankfort Pike, Lexington, KY 40504. Telephone: (859) 425-2825
2. Linda Wolfe, USDA Rural Development, 771 Corporate Drive Suite 200, Lexington, KY 40503-5477. Telephone: (859) 224-7302
3. Maziar Torabi, Commonwealth of Kentucky, Division of Engineering, Dept. for Facilities & Support Services, Bush Building, 403 Wapping Street, Frankfort, KY 40601. Telephone: (502) 782-0335
4. Lisa Westendorf, VA Hospital of Lexington, Department of Veteran Affairs, 1101 Veteran Drive, Lexington, KY 40502-2236. Telephone: (859) 233-4511 ext. 4176

Mold & IAQ References include:

1. Scott Kelsey, LFUCG Division of Facilities & Fleet Management, 1555 Old Frankfort Pike, Lexington, KY 40504. Telephone: (859) 425-2825
2. Bryan Makinen, Director of Environmental Health & Safety/Risk Management & Insurance, Eastern Kentucky University, Mattox Hall, 201, 521 Lancaster Avenue, Richmond, KY 40475-3102. Telephone: (859) 622-2421
3. Maziar Torabi, Commonwealth of Kentucky, Division of Engineering, Dept. for Facilities & Support Services, Bush Building, 403 Wapping Street, Frankfort, KY 40601. Telephone: (502) 782-0335
4. Larry Curry, Facilities Director, Madison County Public Schools, 700 North 2nd Street, Richmond, KY 40475. Telephone: (859) 314-1479
5. Darren Sparkman, Facilities Director, Morgan County Public Schools, 212 University Drive, West Liberty, KY 41472. Telephone: (606) 495-5133

5. A list of all owned equipment for each discipline. All equipment is calibrated and maintained in accordance with industry standards or manufacturer recommendations.

Discipline	Eqpt General Description	Quantity
Asbestos	High Volume Sampling Pumps	14
	Microscope, suitable for PLM	3
	Personal Sampling Pumps	18
	Sampling Materials & Supplies, including suitable media for surfaces, air, water, etc.	
Lead	Sampling Materials & Supplies, including suitable media for surfaces, air, water, etc.	
	Personal Sampling Pumps (Same as asbestos)	18
Mold & Indoor Air Quality	Infrared Camera	1
	Sampling Pumps, non-viable	2
	Sampling Pumps, viable	2
	Moisture Meter	5
	Miran Infrared Spectrometer	1
	RAE Systems Photo-Ionization Detector	1
	Borescope	1
	Portable Particle Counter (high volume HVAC analysis)	1
	Handheld Particle Counter (HVAC)	3
	Micro-manometer (building pressure & HVAC)	3
	Anemometer (HVAC)	2
	Flowhood (HVAC)	1
	Sampling Materials & Supplies, including suitable media for surfaces, air, water, etc.	

B. Background and Experience

1. The respondent must include company's background and experiences. State the number of years in business as an individual owner, partnership, corporation or other business entity. The respondent must include experience as outlined in each discipline scope of work section (i.e. Asbestos, Lead, Mold and Analytical Laboratory Services).

Appendix A - Statement of Qualifications and other submittals show a wide range of environmental, health and safety consulting expertise since 1994

C. Information Required From Consultant

Proposals must be submitted in the format outlined below. The proposal must address all requirements of the RFP. Information thought to be germane to the requirements outlined, should be provided as an appendix.

1. **KNOWLEDGE OF THE DISCIPLINES** -Respondent must demonstrate an understanding of each environmental discipline selected for bid (Asbestos, Lead-Based Paint, Mold consulting services and Associated Analytical Testing Services). Submittals must show a thorough understanding of the requirements outlined herein.

Sample reports in Appendix C demonstrate ASTI's knowledge of the disciplines.

2. **WORK PLAN** -Respondent must describe in narrative form, a technical plan for performing required work activities associated with each discipline selected for bid, Asbestos, Lead-Based Paint, Mold consulting services and Associated Analytical Testing Services.

Appendix D provides the General Work Plan.

3. **PRIOR EXPERIENCE** -The proposal must address each company's experience with projects relating to the services required by this RFP for Asbestos, Lead-Based Paint, Mold consulting and Associated Analytical Testing Services. Respondent must provide a list that includes the customer names, company, agency, and contacts for verification. Information provided in this proposal will be followed up by the LFUCG. Failure to provide adequate information for verification may result in a disqualification.

Sample reports in Appendix C demonstrate ASTI's knowledge of the disciplines.

LIST OF REPRESENTATIVE ASBESTOS PROJECTS

1. LFUCG: 2014
    a. Developed Asbestos Abatement Specifications for the Dunbar Center and Carver Center Crawlspace areas.
    b. Developed Asbestos Abatement Specifications for the Government Center 12th Floor Ceiling.
    c. Developed Asbestos Abatement Work Procedures for the 115 Cisco Road floor tile and mastic.
    d. Developed Asbestos Abatement Work Procedures for the Bell House boiler project.
2. Eastern Kentucky University: 2009 to present

Conducted Campus Wide Asbestos Inspections (EPA NESHAPs and OSHA protocols), conducted EPA AHERA Asbestos Inspection for EKU Model Lab School, developed EPA AHERA Management Plan for EKU Model Lab School, developed Asbestos O&M Plan for EKU Model Lab School and conducted asbestos air monitoring services for numerous abatement projects.

3. VA Hospital of Lexington: 2007 to present
   Conducted asbestos renovation surveys, developed asbestos abatement specifications and collected airborne asbestos exposure and area clearance sampling for several VA Hospital buildings at the Leestown Road and Cooper Drive sites.
4. Commonwealth of Kentucky: 2003 to present
   Conducted numerous asbestos renovation and demolition surveys, developed asbestos abatement specifications and collected airborne asbestos area clearance sampling for several properties statewide. Projects include but are not limited to Campus-wide Surveys at Eastern State and Western State Hospitals, several Government Buildings, several State Parks, and KCTCS college campuses.
5. Fayette County Public Schools: 1995 to present
   Conducted numerous asbestos renovation and demolition surveys, developed asbestos abatement specifications and collected airborne asbestos area clearance sampling for several schools. Additionally, ASTI has performed EPA AHERA services (3 year reinspections, 6 month surveillances, annual notices, record maintenance) for the entire school system.
6. Other Representative Clients: 1995 to present
   Air Source Technology, Inc. has conducted numerous EPA AHERA Services (Inspections, Management Plans, Record Maintenance, etc.), renovation & demolition surveys, project abatement specifications and air monitoring for residential, public and commercial clients statewide. Clients include several colleges, public school systems, housing authorities, community development entities, consulting firms, local & state government agencies, commercial property management companies and homeowners.

LIST OF REPRESENTATIVE LEAD PROJECTS

1. LFUCG: 2013
   a. Developed Lead Abatement Specifications (Paint Stabilization & Encapsulation) and Conducted Lead Clearance Sampling for the Old Human Resources Area at the Government Center.
   b. Developed Lead Abatement Specifications (Paint Stabilization & Repainting) for the Government Center Lobby Area.
   c. Conducted a building wide Lead Risk Assessment at the Old Lexington Fayette County Courthouse (History Museum) and provided a cost scenario for different abatement options (paint stabilization versus component removal & replacement).
2. USDA Rural Development: 2003 to present
   Conducted numerous Lead Inspections, Lead Risk Assessments and Lead Clearance Testing for residential properties statewide.
3. VA Hospital of Lexington: 2008 to present
   Conducted various Lead Testing Services including lead exposure risk assessments for airborne lead & surface dust, paint testing and post abatement clearance testing.
4. Commonwealth of Kentucky: 2003 to present
   Conducted numerous Lead Inspections, Lead Risk Assessments, Lead Clearance Testing and Lead in Drinking Water for military, public and commercial properties statewide. Projects include several National Guard Armories, The Governor's Mansion, several State Parks and several KCTCS college campuses.
5. Community Ventures: 2007 to present
   Conducted numerous Lead Risk Assessments and Lead Clearance Testing for residential properties throughout Central Kentucky.
6. Other Representative Clients: 1995 to present
   Air Source Technology, Inc. has conducted numerous Lead Inspections, Lead Risk Assessments and Lead Clearance Testing for residential, public and commercial properties statewide. Clients include several colleges, public school systems, housing authorities,

community development entities, consulting firms, local & state government agencies, commercial property management companies and homeowners.

LIST OF REPRESENTATIVE MOLD PROJECTS

1. LFUCG: 2013 & 2014

   Conducted several indoor air quality, mold & moisture investigations (History Museum, Arts Center, Government Center, Government Center Annex, Police Evidence Room, Police Training Center, and Switow Building.
2. Eastern Kentucky University: 2008 to present

   Conducted numerous indoor air quality, mold & moisture investigations at administration buildings, residence halls and classroom buildings.
3. Commonwealth of Kentucky: 2003 to present

   Conducted numerous indoor air quality, mold & moisture investigations at several properties statewide. Projects include but are not limited to several Government Buildings, several State Parks, and numerous Vocational Schools and KCTCS college campuses.
4. Madison County Public Schools: 2004 to present

   Conducted numerous indoor air quality, mold & moisture investigations at several school buildings.
5. Morgan County Public Schools: 2005 to present

   Conducted numerous indoor air quality, mold & moisture investigations at several schools. In 2008 ASTI conducted a system wide IAQ investigation at eight schools.
6. Other Representative Clients: 1995 to present
   Air Source Technology, Inc. has conducted numerous indoor air quality, mold & moisture investigations for several clients statewide. Clients include several colleges, public school systems, community development entities, consulting firms, architectural firms, local & state government agencies, commercial property management companies, hospitals and homeowners.

4. **PERSONNEL** — List individuals from your company (with employment history) who will be working on the LFUCG projects. For each individual, provide a brief resume that includes the following: Education, Experience, Certification(s), and the responsibilities each will be assigned. A copy of any Employee Certifications should be included along with other documentation.

Appendix E provides resumes, certifications, and background information for ASTI employees.

Employees are also listed below, sorted by general discipline:

- Project Management and Control, Indoor Environmental Quality (IEQ), Environmental Monitoring, & IEQ Building Sciences
  - Bruce N. Fergusson, CIH, CIEC™ , PE (ret),
    Certified Industrial Hygienist
    Board-awarded by the American Board of Industrial Hygiene ™
    Council-certified Indoor Environmental Consultant (CIEC) ™
    Board-awarded by the American Council for Accredited Certification ™
    Retired Professional Engineer No. 10823
  - Michael B. McGonigle, MSPH, CIEC™
    Council-certified Indoor Environmental Consultant (CIEC) ™
    Board-awarded by the American Council for Accredited Certification™

- Christopher K. Adkins, MSIH

- Environmental Monitoring, Asbestos/Lead/Hazardous Waste Specifications, Indoor Environmental Quality, Certified Building Science Thermography, & Industrial Hygiene Compliance/Evaluation
  - Michael B. McGonigle, MSPH, CIEC™
- Medical Facility Services, USP797 Certification, Cleanroom Validation, ICRA, ILSM, & Infection Prevention Construction Monitoring
  - Christopher K. Adkins, MSIH
  - Bruce N. Fergusson, PE (retired), CIEC™
  - Michael B. McGonigle, MSPH, CIEC™
- Industrial Hygiene Compliance/Evaluation, Expert Witness, and Indoor Air Quality
  - Bruce N. Fergusson, CIH, PE (ret), CIEC ™
  - Michael B. McGonigle, MSPH, CIEC™
  - Christopher K. Adkins, MSIH
- Environmental Monitoring, AHERA/Asbestos Inspector/Management Planners, Indoor Air Quality, & Industrial Hygiene Compliance
  - Michael B. McGonigle, MSPH, CIEC™
  - Christopher K. Adkins, MSIH
  - Daniel R. Violette
  - Brian Leifeld
- Safety Consultation & Training
  - Daniel R. Violette
  - Christopher K. Adkins, MSIH
  - Michael B. McGonigle, MSPH, CIEC™

Important Note regarding indoor air quality certifications: The indoor air quality certification designations held by ASTI are third-party accredited by CESB, the Council for Engineering and Scientific Specialty Boards. This means that those designations meet the high standards for field experience and independence required of CESB-accredited certification programs, such as the programs that administer the Professional Engineering license or Certified Industrial Hygienist. The certifying bodies are independent of any training or course providers, ensuring no conflict-of-interest issues.

Considering the rigorous regulatory requirements associated with Lead-Based Paint, ASTI maintains the appropriate employee training for methods and equipment:

Michael McGonigle

1. Radiation Safety Training (February 1992) Scitec Corporation, Atlanta, Georgia
2. Lead Abatement Ohio Core training (August 1997) Lead Inspector/Hazard Risk Assessor training, University of Cincinnati, Cincinnati, OH

3. Lead Inspector/Hazard Risk Assessor refresher training (1999, 2001, 2003, 2005, 2007, 2009, 2011 & 2013.

Dan Violette - Lead Safe Renovator (May 2012) Lead Consortium, Cincinnati, OH

XRF Equipment:

XRF Manufacturer: **Innov-X Systems, Inc.** XRF Device: **Alpha 3000 Inspector**

5. **FEE SCHEDULE** — The information requested in this section is for LFUCG's use only. These schedules will be used for evaluation and not as the sole criteria for an award. This portion of the proposal must be bound and sealed separately from the remainder of the proposal. Information for the cost and price analysis evaluation must be submitted on the completed cost breakdown form(s) and fee schedules included in this RFP. Only one (1) price per line item is permitted. Rates and costs provided on the form(s) should cover all related overhead, profit, supplies, materials, travel, etc., for performance of work required. Request for compensation beyond that stated on the Cost Breakdown form will be rejected. Costs shown on the Cost Breakdown form(s) will remain firm and fixed for the duration of this contract.

The Fee Schedule is a separate document as required by the RFP.

Appendix A

EEOC, DBE, & GENERAL PROVISIONS SUBMITTALS

Firm Submitting Proposal: Air Source Technology, Inc.

Complete Address: 131 Prosperous Place, Ste 17, Lexington, KY 40509
Street City Zip

Contact Name: Bruce Fergusson Title: President

Telephone Number: 859-299-0046 Fax Number: 859-299-0494

Email address: bfergusson@airsourcetechnology.com

AIR SOURCE TECHNOLOGY, INC.

AFFIRMATIVE ACTION PLAN
FOR MINORITIES, PERSONS WITH DISABILITIES, AND WOMEN

131 PROSPEROUS PLACE, SUITE #17
STREET

LEXINGTON	KENTUCKY	40509
CITY	STATE	ZIP

Contact Person: Bruce Fergusson

Phone: 859-299-0046

Fax: 859-299-0494

Federal Identification Number: 03-0517369

E-Mail Address: bfergusson@airsourcetechnology.com

Table of Contents

Table of Contents.....2

I Company Description.....3

II Organizational Diagram.....3

III Equal Employment Opportunity/Affirmative Action (EEO/AA) Policy Statement.....4

IV Assignment of Responsibilities for the Equal Employment Opportunity/Affirmative Action Program.....5

V Dissemination of Affirmative Action Policy and Plan.....6

VI Recruitment of Employees.....7

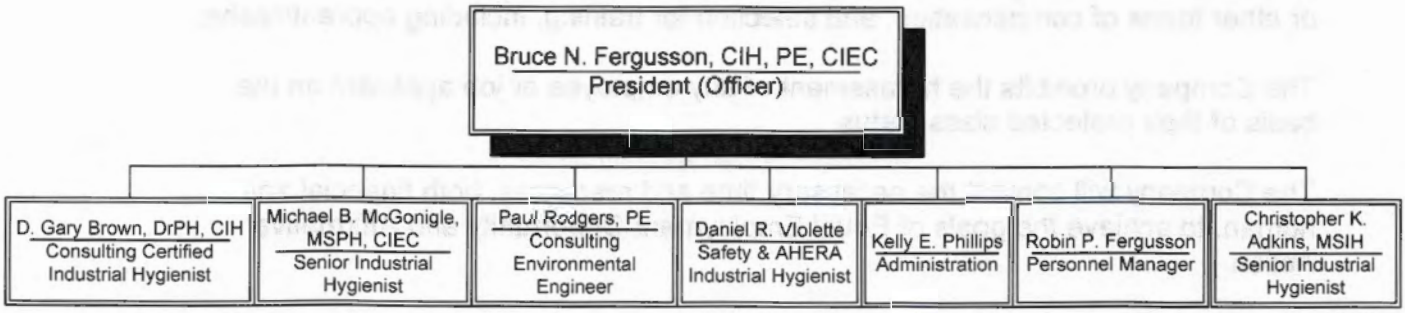
VII Problems Areas/Deficiency Identification and Analysis.....8

VIII Internal Audit and Reporting System.....10

I Company Description

Air Source Technology, Inc (ASTI) was founded in 1994 to meet the needs of Kentucky industrial, medical, residential, and educational facilities by providing a comprehensive, state-of-the-art approach to environmental, health and safety issues. Combining over 140 years of experience, our consultants are familiar with almost any environment.

II Organizational Diagram



III Equal Employment Opportunity/Affirmative Action (EEO/AA) Policy Statement

This statement is to reaffirm the policy of Air Source Technology, Inc., hereinafter referred to as "the Company" to provide Equal Employment Opportunity to all employees and applicants for employment in accordance with all applicable Equal Employment Opportunity/ Affirmative Action laws, directives and regulations of Federal, State and Local governing bodies or agencies thereof.

The Company will not discriminate against any employee or applicant for employment because of race, color, sex, national origin, sexual orientation, age, handicap, marital status, familial status or religion.

The Company will take Affirmative Action to ensure that all employment practices are free of such discrimination. Such employment practices include, bur are not limited to, the following: hiring, upgrading, demotion, transfer, recruitment or recruitment advertising, selection layoff, disciplinary action, termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

The Company prohibits the harassment of any employee or job applicant on the basis of their protected class status.

The Company will commit the necessary time and resources, both financial and human, to achieve the goals of Equal Employment Opportunity and Affirmative Action.

The Company will evaluate the performance of its management and supervisory personnel on the basis of their involvement in achieving these Affirmative Action objectives as well as other established criteria. Any employee of this company or subcontractors to this company who do not comply with the Equal Employment Opportunity Policies and Procedures set forth in this statement and plan will be subject to disciplinary action. Any subcontractor not complying with all applicable Equal Employment Opportunity/Affirmative Action laws, directives and regulations of the Federal, State and local-governing bodies or agencies thereof, specifically including Chapter 26.5, Part II, City of Tampa Code, will be subject to appropriate legal sanctions.

The Company has appointed Robin Fergusson as EEO Coordinator to manage the Equal Employment Opportunity Program. The responsibilities include monitoring all Equal Employment Opportunity activities and reporting the effectiveness of this Affirmative Action Program, as required by Federal, State and Local agencies. If any employee or applicant for employment believes he/she has been discriminated against, they are urged to contact the EEO Coordinator.

Signature  Date: April 1, 2014

(Chief Executive Officer)

IV Assignment of Responsibilities for the Equal Employment Opportunity/Affirmative Action Program

The EEO Coordinator for the Company is Robin Fergusson.
The duties of the EEO Coordinator are the following:

A. Develop and update written affirmative action plans consistent with the Company's policy.

B. Implement affirmative action program including internal and external dissemination of the Company's policy and program.

C. Coordinate recruitment and employment of women and minorities.

D. Serve as a liaison between the Company, its Contractors and various agencies.

E. Serve as a liaison between protected class groups and the Company.

F. Conduct and/or coordinate EEO training and orientation of Company supervisors, managers and subcontractors to inform them of their responsibilities pursuant to the affirmative action plan.

G. Ensure that managers and supervisors understand it is their responsibility to take action to prevent the harassment of protected class employees and applicants for employment.

H. Ensure all minorities and women are provided equal opportunity as it relates to company-sponsored training programs, recreation/social activities, benefit plans, pay and other working conditions without regard to race, sex, color, etc.

I. Review the qualifications of all employees to ensure that minorities and women are given full opportunity for transfers and promotions.

J. Audit periodically the training programs, the hiring and promotion patterns to remove impediments to the attainment of the Affirmative Action goals and objectives.

K. Design, implement and maintain annual EEO audit, reporting, and record systems which will measure the effectiveness of the Company's AAP and determine whether or not their goals and objectives have been attained. The records and reports will be made available to the appropriate enforcement agencies.

L. Identify any problem areas and recommend solutions.

M. Keep management informed of the latest developments in the area of EEO.

N. Receive, investigate and attempt to resolve all EEO complaints.

O. Coordinate the implementation of necessary remedial actions to meet compliance requirements and goals.

P. Hold regular discussions with project managers, supervisors and employees to ensure the Company's equal employment opportunity policies are being followed.

Q. Monitor subcontractors and work sites to ensure compliance in such areas as:

1. Proper employment of women and minority employees.
2. Proper display of EEO posters.
3. Working conditions exist free of harassment and intimidation due to race, sex, national origin, etc.

V Dissemination of Affirmative Action Policy and Plan

A. Internal Dissemination

1. The policy statement will be permanently and conspicuously displayed in areas such as employee bulletin boards, lunch areas, and construction sites. The Company as an equal employment opportunity employer will also print the policy statement in the company newsletter and other publications.

2. All employees and contractors will be furnished a copy of the policy statement and be notified of location and availability of the affirmative action plan. This policy will be made available to all employees including part-time, temporary and seasonal employees.

3. The EEO/AA policies of the Company will be included in the organization's policy manual.

4. The Company will review the organization's EEO/AA policies with all employees and management at least once a year.

5. The Company will also conduct orientation and training sessions to thoroughly inform staff and management of the company's EEO/AA commitment.

6. Develop internal communication of obligations to engage in affirmative action efforts to employ women and minorities, in such a manner as to foster understanding, acceptance, and support

among executive, management, supervisor, and all other employees, and to encourage such persons to take the necessary action to aid Company in meeting this obligation.

B External Dissemination

1. The Company will include nondiscrimination clauses in all union agreements, and review all contractual provisions to ensure that they are nondiscriminatory. The Company will meet with union officials to inform them of the EEO/AA policies and request their cooperation.
2. The Company will notify all recruitment sources, including the protected class media, of the EEO/AA policy and encourage them to refer women and minority individuals to assist them in achieving the affirmative action objectives.
3. The Company will include the statement "Equal Opportunity Employer/Contractor" or "Affirmative Action Employer/Contractor" in all advertisements recruiting employees and contractors.
4. The Company will notify all subcontractors, vendors, and suppliers verbally and in writing of its EEO/AA policy requiring supportive action on their part.

VI Recruitment of Employees

A. When the Company adds employees it will use media that targets women and minorities to advertise the openings. Sufficient time will be allowed after the publication of the advertisement to generate sufficient numbers of protected class applicants.

B. All solicitations or advertisements for employees placed by or in behalf of the Company or its subcontractors will state that all qualified applicants will receive consideration for employment, regardless of their race, religion, color, sex, national origin, sexual orientation, age, handicap, familial status, or marital status. Copies of advertisements for employees must be kept on file for review by enforcement agencies.

C. The Company will not indicate in help-wanted advertisements a preference, limitation, specification or discrimination based on sex, unless sex is a bona fide occupational qualification for a particular job involved. The placement of an advertisement in columns classified by publishers on the basis of sex, such as columns headed, "Male" or "Female" will be considered as an expression of a preference, limitation, specification or discrimination based on sex.

D. Acting recruiting programs, where applicable, will be carried out at secondary schools, community colleges, and colleges with predominantly minority and female enrollments. Recruiting efforts at all schools will incorporate efforts to reach minorities and females.

E. The Company and its subcontractors will make job opportunity information equally available to potential applicants from both protected and non-protected class groups, unless there is a bona fide occupational requirement for a particular job.

F. The Company will actively encourage present minority and females to recruit other minorities and females, and where reasonable, provide after school, summer and vacation employment to minorities and females, both onsite and in other areas of their workforce.

G. Recruitment brochures pictorially presenting work situations will include minorities and females of the Company's workforce.

H. Special efforts will be made to include minorities and females on personnel relations staff.

VII Problems Areas/Deficiency Identification and Analysis

A. Areas for Analysis

1. **Workforce Composition:** (state the results of Company's Workforce & Under-utilization Analysis and/or Goals & Timetable, sections IX and X)

2. **Applicant Flow Composition:** (using records maintained as a part of the Company's Internal Audit and Reporting System (see Part XII) will aid in restating the Company's Statement of Commitment in more concrete terms here)

3. **Total Selection Process:** (after reviewing application forms, interview procedures, validity of tests given to prospective employees, job descriptions, and the qualifications necessary to perform each job for deficiencies that might unnecessarily exclude minorities or women, state the results of Company's review here). Typical language will be "After a review of the Company's Total Selection Process, the Company has found _____")

4. **Transfer and Promotion Practices:** (after reviewing the rate of transfers and promotions for minorities and women relative to non-minorities and males, state the results of Company's review here. Typical language will be "After a review of the Company's Transfer and Promotion Practices, the Company has found_____")

5. **Facilities and Employer-Sponsored Activities:** (after reviewing the participation of minorities and women in company-sponsored recreation activities, social events and use of facilities that may generate conditions or practices that lead to exclusion or low participation, state the results of the Company's review here. Typical language will be "After a review of the Company's Facilities and Employer-Sponsored Activities, the Company has found _____")

6. **Seniority Practices and Contract Provisions:** (after reviewing the Company's seniority practices and contract provisions for adverse impacts on minorities and/or women, state the results here. Typical language will be "After a review of the Company's Seniority Practices and Contract Provisions, the Company has found_____")

7. **Employer Training and Apprenticeship Programs:** (after reviewing records of under-representation or low participation by minorities and/or women in training and apprenticeship programs, state results here. Typical language will be "After a review of the Company's Employer Training and Apprenticeship Programs, the Company has found_____")

8. **Workforce Attitude:** (after reviewing the attitude of the Company's workforce for misunderstandings and/or lack of support for equal employment and affirmative action objectives and requirements, state results here. Typical language will be "After a review of the Company's Workforce Attitudes, the Company has found _____")

9. **Records, Posters and Subcontractor Notification:** (after reviewing the actual maintenance of records, posting of notices, and notifications to subcontractors for compliance with EEO/AA requirements, state results here. Typical language will be "After a review of the Company's Records, Posters and Subcontractor Notifications, the Company has found_____")

B. **Problem Areas:** Check all that apply

____1. Under-utilization of minorities or women in specific job categories.
____2. Movement of minorities or women occurs at a lesser rate.
____3. Selection process eliminates minorities or women at a higher rate.
____4. Application forms not in compliance with the laws.
____5. Inaccurate position descriptions or qualifications.
____6. Invalid selection procedures.
____7. Higher rejections rate of minority or female referrals.

____8. Exclusion of minorities or women from employer-sponsored programs/activities.
____9. Segregation at facilities.
___10. Seniority provisions contributing to discrimination.
___11. Employees at all levels not supporting affirmative action policies.
___12. Under-representation of minorities or females in training programs.
___13. Lack of formal evaluation of the EEO/AA program's effectiveness.
___14. EEO/AA clause not on purchase orders/contracts.
___15. EEO/AA posters not displayed.

VIII Internal Audit and Reporting System

Records will be maintained by race and sex of all personnel actions, e.g., applicant flow, new hires, promotions, transfers, training, demotions, layoffs, recalls and terminations. These records will be kept separate from individual employee personnel files.

WORKFORCE ANALYSIS FORM

Name of Organization: AIR SOURCE TECHNOLOGY, INC.

Date: 04 / 01 / 2014

Categories	Total	White		Latino		Black		Other		Total	
		M	F	M	F	M	F	M	F	M	F
Administrators	2		2								
Professionals	4	4									
Superintendents											
Supervisors											
Foremen											
Technicians	1	1									
Protective Service											
Para-Professionals											
Office/Clerical											
Skilled Craft											
Service/Maintenance											
Total:	7										

Prepared by: Barry Jergens President

Name & Title

AFFIDAVIT

Comes the Affiant, AIR SOURCE TECHNOLOGY, INC., and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is AIR SOURCE TECHNOLOGY, INC. and he/she is the individual submitting the proposal or is the authorized representative of AIR SOURCE TECHNOLOGY, INC., the entity submitting the proposal (hereinafter referred to as "Proposer").

2. Proposer will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.

3. Proposer will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.

4. Proposer has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.

5. Proposer has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Proposer will not violate any provision of the campaign finance laws of the Commonwealth.

6. Proposer has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as "Ethics Act."

Continued on next page

7. Proposer acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

Bruce Ferguson, President 4/4/14

STATE OF Kentucky

COUNTY OF Fayette

The foregoing instrument was subscribed, sworn to and acknowledged before me by Kelly Phillips Robin Ferguson on this the 4 day of April, 2013: 2014 (witness)

My Commission expires: 1/18/18

Kelly Phillips

NOTARY PUBLIC, STATE AT LARGE

EQUAL OPPORTUNITY AGREEMENT

The Law

- Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.

- Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and sub-contractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.

- Section 503 of the Rehabilitation Act of 1973 states:

  The Contractor will not discriminate against any employee or applicant for employment
  because of physical or mental handicap.

- Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal contracts.

- Section 206(A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:

  The Secretary of Labor may investigate the employment practices of any Government
  contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.

****

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractors may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped and aged persons.

Signature

AIR SOURCE TECHNOLOGY, INC.
Name of Business

LFUCG MWDBE PARTICIPATION FORM
Bid/RFP/Quote Reference #15-2014

The MWDBE subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately.

MWDBE Company, Name, Address, Phone, Email	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1Aerobiology Laboratory Association 43760 Trade Center Place, Ste 100, Dulles, VA, 20166 email: lab@aerobiology.net Ph: 877-648-9150	Biological laboratory analyses	TBD	TBD
2.			
3.			
4.			

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

AIR SOURCE TECHNOLOGY, INC.
Company

4/1/14
Date

Company Representative

President
Title

MWDBE QUOTE SUMMARY FORM

Bid/RFP/Quote Reference # 15-2014

The undersigned acknowledges that the minority subcontractors listed on this form did submit a quote to participate on this project.

Company Name	Contact Person
AIR SOURCE TECHNOLOGY, INC.	Bruce Fergusson
Address/Phone/Email	**Bid Package / Bid Date**
131 Prosperous Place, Ste #17, Lexington, KY 859-299-0046; bfergusson@airsourcetechnology.com	RFP #15-2014, April 4, 2014.

MWDBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communication (email, phone meeting, ad, event etc)	Total dollars $$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female
Aerobiology Laboratory Association 43760 Trade Center Place, Ste 100, Dulles, VA, 20166 Attn: Chris Blevins email: lab@aerobiology.net Ph: 877-648-9150			Ongoing	Lab Analyses	email, phone	2013 Utilization $13,029.00	Female

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

AIR SOURCE TECHNOLOGY, INC.
Company

Bruce Fergusson
Company Representative

4/1/14
Date

President
Title

LFUCG STATEMENT OF GOOD FAITH EFFORTS
Bid/RFP/Quote # 15-2014

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE business enterprises on the project and can supply the appropriate documentation.

N/A Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms to participate.

N/A Included documentation of advertising in the above publications with the bidders good faith efforts package

_____ Attended LFUCG Central Purchasing Economic Inclusion Outreach event

_____ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs of subcontracting opportunities

_____ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms

_____ Requested a list of MWDBE subcontractors or suppliers from LFUCG Economic Engine and showed evidence of contacting the companies on the list(s).

_____ Contacted organizations that work with MWDBE companies for assistance in finding certified MWBDE firms to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

_____ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less that seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

_____ Followed up initial solicitations by contacting MWDBEs to determine their level of interest.

_____ Provided the interested MWBDE firm with adequate and timely information about the plans, specifications, and requirements of the contract.

✓
_____ Selected portions of the work to be performed by MWDBE firms in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE participation, even when the prime contractor may otherwise perform these work items with its own workforce

✓
_____ Negotiated in good faith with interested MWDBE firms not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

_____ Included documentation of quotations received from interested MWDBE firms which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

_____ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE goals.

_____ Made an effort to offer assistance to or refer interested MWDBE firms to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

✓
_____ Made efforts to expand the search for MWBE firms beyond the usual geographic boundaries.

_____ Other - any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE participation.

Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement. Documentation of Good Faith Efforts are to be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

AIR SOURCE TECHNOLOGY, INC.
Company

Company Representative

9/1/14
Date

President
Title

GENERAL PROVISIONS

1. Each Respondent shall comply with all Federal, State & Local regulations concerning this type of service or good.

   The Respondent agrees to comply with all statutes, rules, and regulations governing safe and healthful working conditions, including the Occupational Health and Safety Act of 1970, *29 U.S.C. 650 et. seq.*, as amended, and KRS Chapter 338. The Respondent also agrees to notify the LFUCG in writing immediately upon detection of any unsafe and/or unhealthful working conditions at the job site. The Respondent agrees to indemnify, defend and hold the LFUCG harmless from all penalties, fines or other expenses arising out of the alleged violation of said laws.

2. Failure to submit ALL forms and information required in this RFP may be grounds for disqualification.

3. Addenda: All addenda, if any, shall be considered in making the proposal, and such addenda shall be made a part of this RFP. Before submitting a proposal, it is incumbent upon each proposer to be informed as to whether any addenda have been issued, and the failure to cover in the bid any such addenda may result in disqualification of that proposal.

4. Proposal Reservations: LFUCG reserves the right to reject any or all proposals, to award in whole or part, and to waive minor immaterial defects in proposals. LFUCG may consider any alternative proposal that meets its basic needs.

5. Liability: LFUCG is not responsible for any cost incurred by a Respondent in the preparation of proposals.

6. Changes/Alterations: Respondent may change or withdraw a proposal at any time prior to the opening; however, no oral modifications will be allowed. Only letters, or other formal written requests for modifications or corrections of a previously submitted proposal which is addressed in the same manner as the proposal, and received by LFUCG prior to the scheduled closing time for receipt of proposals, will be accepted. The proposal, when opened, will then be corrected in accordance with such written request(s), provided that the written request is contained in a sealed envelope which is plainly marked "modifications of proposal".

7. Clarification of Submittal: LFUCG reserves the right to obtain clarification of any point in a bid or to obtain additional information from a Respondent.

8. Bribery Clause: By his/her signature on the bid, Respondent certifies that no employee of his/hers, any affiliate or Subcontractor, has bribed or

attempted to bribe an officer or employee of the LFUCG.

9. Additional Information: While not necessary, the Respondent may include any product brochures, software documentation, sample reports, or other documentation that may assist LFUCG in better understanding and evaluating the Respondent's response. Additional documentation shall not serve as a substitute for other documentation which is required by this RFP to be submitted with the proposal,

10. Ambiguity, Conflict or other Errors in RFP: If a Respondent discovers any ambiguity, conflict, discrepancy, omission or other error in the RFP, it shall immediately notify LFUCG of such error in writing and request modification or clarification of the document if allowable by the LFUCG.

11. Agreement to Bid Terms: In submitting this proposal, the Respondent agrees that it has carefully examined the specifications and all provisions relating to the work to be done attached hereto and made part of this proposal. By acceptance of a Contract under this RFP, proposer states that it understands the meaning, intent and requirements of the RFP and agrees to the same. The successful Respondent shall warrant that it is familiar with and understands all provisions herein and shall warrant that it can comply with them. No additional compensation to Respondent shall be authorized for services or expenses reasonably covered under these provisions that the proposer omits from its Proposal.

12. Cancellation: If the services to be performed hereunder by the Respondent are not performed in an acceptable manner to the LFUCG, the LFUCG may cancel this contract for cause by providing written notice to the proposer, giving at least thirty (30) days notice of the proposed cancellation and the reasons for same. During that time period, the proposer may seek to bring the performance of services hereunder to a level that is acceptable to the LFUCG, and the LFUCG may rescind the cancellation if such action is in its best interest.

    A. Termination for Cause

    (1) LFUCG may terminate a contract because of the contractor's failure to perform its contractual duties

    (2) If a contractor is determined to be in default, LFUCG shall notify the contractor of the determination in writing, and may include a specified date by which the contractor shall cure the identified deficiencies. LFUCG may proceed with termination if the contractor fails to cure the deficiencies within the specified time.

15. Authority to do Business: The Respondent must be a duly organized and authorized to do business under the laws of Kentucky. Respondent must be in good standing and have full legal capacity to provide the services specified under this Contract. The Respondent must have all necessary right and lawful authority to enter into this Contract for the full term hereof and that proper corporate or other action has been duly taken authorizing the Respondent to enter into this Contract. The Respondent will provide LFUCG with a copy of a corporate resolution authorizing this action and a letter from an attorney confirming that the proposer is authorized to do business in the State of Kentucky if requested. All proposals must be signed by a duly authorized officer, agent or employee of the Respondent.

16. Governing Law: This Contract shall be governed by and construed in accordance with the laws of the Commonwealth of Kentucky. In the event of any proceedings regarding this Contract, the Parties agree that the venue shall be the Fayette County Circuit Court or the U.S. District Court for the Eastern District of Kentucky, Lexington Division. All parties expressly consent to personal jurisdiction and venue in such Court for the limited and sole purpose of proceedings relating to this Contract or any rights or obligations arising thereunder. Service of process may be accomplished by following the procedures prescribed by law.

17. Ability to Meet Obligations: Respondent affirmatively states that there are no actions, suits or proceedings of any kind pending against Respondent or, to the knowledge of the Respondent, threatened against the Respondent before or by any court, governmental body or agency or other tribunal or authority which would, if adversely determined, have a materially adverse effect on the authority or ability of Respondent to perform its obligations under this Contract, or which question the legality, validity or enforceability hereof or thereof.

18. Contractor understands and agrees that its employees, agents, or subcontractors are not employees of LFUCG for any purpose whatsoever. Contractor is an independent contractor at all times during the performance of the services specified.

19. If any term or provision of this Contract shall be found to be illegal or unenforceable, the remainder of the contract shall remain in full force and such term or provision shall be deemed stricken.

Barry Jerzem, President — 4/1/14

Signature — Date

(3) A default in performance by a contractor for which a contract may be terminated shall include, but shall not necessarily be limited to:

(a) Failure to perform the contract according to its terms, conditions and specifications;

(b) Failure to make delivery within the time specified or according to a delivery schedule fixed by the contract;

(c) Late payment or nonpayment of bills for labor, materials, supplies, or equipment furnished in connection with a contract for construction services as evidenced by mechanics' liens filed pursuant to the provisions of KRS Chapter 376, or letters of indebtedness received from creditors by the purchasing agency;

(d) Failure to diligently advance the work under a contract for construction services;

(e) The filing of a bankruptcy petition by or against the contractor; or

(f) Actions that endanger the health, safely or welfare of the LFUCG or its citizens.

B. At Will Termination

Notwithstanding the above provisions, the LFUCG may terminate this contract at will in accordance with the law upon providing thirty (30) days written notice of that intent, Payment for services or goods received prior to termination shall be made by the LFUCG provided these goods or services were provided in a manner acceptable to the LFUCG. Payment for those goods and services shall not be unreasonably withheld.

13. Assignment of Contract: The contractor shall not assign or subcontract any portion of the Contract without the express written consent of LFUCG. Any purported assignment or subcontract in violation hereof shall be void. It is expressly acknowledged that LFUCG shall never be required or obligated to consent to any request for assignment or subcontract; and further that such refusal to consent can be for any or no reason, fully within the sole discretion of LFUCG.

14. No Waiver: No failure or delay by LFUCG in exercising any right, remedy, power or privilege hereunder, nor any single or partial exercise thereof, nor the exercise of any other right, remedy, power or privilege shall operate as a waiver hereof or thereof. No failure or delay by LFUCG in exercising any right, remedy, power or privilege under or in respect of this Contract shall affect the rights, remedies, powers or privileges of LFUCG hereunder or shall operate as a waiver thereof.

Appendix B

ASTI Statement of Qualifications

Air Source Technology, Inc. - Statement of Qualifications

For

Professional Environmental, Health, & Safety Services

Industrial Hygiene & OSHA Audits

Advanced Building Science Investigations

Litigation/Forensic Expert Witness

Medical Facility Environmental & Exposure Monitoring

Cleanroom & Lab Hood Validation

LEED™-Related Building IEQ Commissioning

Certified Healthcare Contractor

Certified Lead Assessment

Hazardous Waste Material Assessment & Abatement Specifications

AHERA-Certified Asbestos Assessment & Specifications

OSHA Safety Training

Certified Industrial Hygienist

Certified Indoor Environment Consultant (CIEC)

Certified Building Science Infrared Thermography

Services Provided to Industrial, Commercial, Medical, Residential, and Public Institution Clients

Table of Contents

I. Firm Identification 3

II. Personnel 4

A. Firm Organization Chart 4

B. Personnel by Discipline 4

III. Company Overview 6

IV. Practice Areas 9

V. Professional References 13

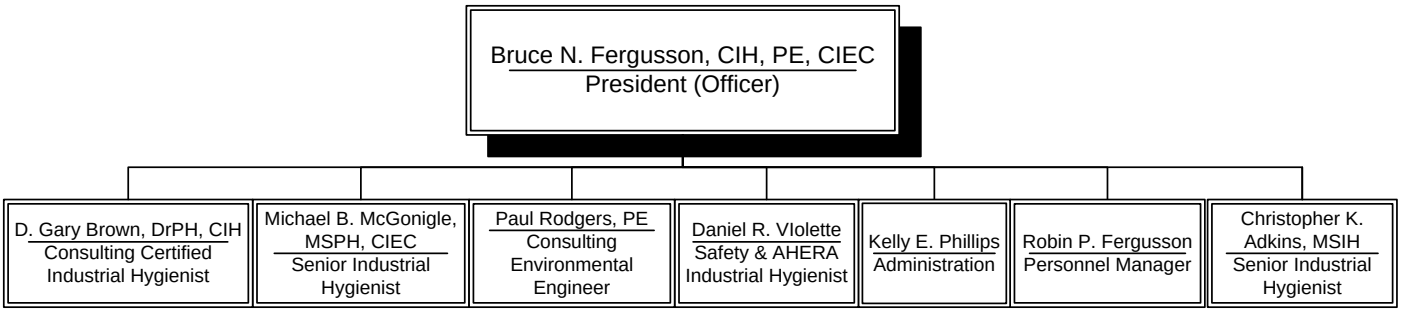
VI. High Profile & Notable Projects 14

I. Firm Identification

Firm Name:	Air Source Technology, Inc.
Address:	131 Prosperous Place – Unit 17
City, State, and ZIP:	Lexington, KY 40509
Telephone Number:	859-299-0046
FAX Number:	859-299-0494
Web Site:	www.airsourcetechnology.com
Designated Contact:	Bruce N. Fergusson, CIH, CIEC, PE (retired) (bfergusson@airsourcetechnology.com)
Errors & Omissions Liability Insurance:	American Safety Risk Retention Group, Everest Indemnity Company
General Liability:	Traveler's Insurance
Duration of Business:	Since 1994

II. Personnel

A. Firm Organization Chart



B. Personnel by Discipline

- Project Management and Control, Indoor Environmental Quality (IEQ), Environmental Monitoring, & IEQ Building Sciences
    - Bruce N. Fergusson, CIH, CIEC™ , PE (ret),
      Certified Industrial Hygienist
      Board-awarded by the American Board of Industrial Hygiene ™
      Council-certified Indoor Environmental Consultant (CIEC) ™
      Board-awarded by the American Council for Accredited Certification ™
      Retired Professional Engineer No. 10823
    - Michael B. McGonigle, MSPH, CIEC™
      Council-certified Indoor Environmental Consultant (CIEC) ™
      Board-awarded by the American Council for Accredited Certification™
    - Christopher K. Adkins, MSIH
- Environmental Monitoring, Asbestos/Lead/Hazardous Waste Specifications, Indoor Environmental Quality, Certified Building Science Thermography, & Industrial Hygiene Compliance/Evaluation
    - Michael B. McGonigle, MSPH, CIEC™
- Medical Facility Services, USP797 Certification, Cleanroom Validation, ICRA, ILSM, & Infection Prevention Construction Monitoring
    - Christopher K. Adkins, MSIH
    - Bruce N. Fergusson, PE (retired), CIEC™
    - Michael B. McGonigle, MSPH, CIEC™
- Hazardous Waste Specifications, Ground water Issues, & Removal Services
    - Paul Rodgers, PE (Consultant)

Industrial Hygiene Compliance/Evaluation, Expert Witness, and Indoor Air Quality

- D. Gary Brown, DrPH, CIH (Consultant)
  Certified Industrial Hygienist
  Board-awarded by the American Board of Industrial Hygiene™.
- Bruce N. Fergusson, CIH, PE (ret), CIEC ™
- Michael B. McGonigle, MSPH, CIEC™
- Christopher K. Adkins, MSIH

- Environmental Monitoring, AHERA/Asbestos Inspector/Management Planners, Indoor Air Quality, & Industrial Hygiene Compliance
  - Michael B. McGonigle, MSPH, CIEC™
  - Christopher K. Adkins, MSIH
  - Daniel R. Violette
  - Brian Leifeld
- Safety Consultation & Training
  - Daniel R. Violette
  - Christopher K. Adkins, MSIH
  - Michael B. McGonigle, MSPH, CIEC™

Important Note: The certification designations held by ASTI are third-party accredited by CESB, the Council for Engineering and Scientific Specialty Boards. This means that those designations meet the high standards for field experience and independence required of CESB-accredited certification programs, such as the programs that administer the Professional Engineering license or Certified Industrial Hygienist. The certifying bodies are independent of any training or course providers, ensuring no conflict-of-interest issues.

III. Company Overview

Air Source Technology, Inc (ASTI) was founded in 1994 to meet the needs of Kentucky industrial, medical, and educational facilities by providing a comprehensive, state-of-the-art approach to environmental, health and safety issues. Our organization is client-focused with our consultants cross-trained to verify each other's work and to compliment each other's experience and expertise. With over 140 years of combined experience, our consultants are familiar with almost any environment.

ASTI leads Kentucky in proper monitoring of the health care environment by pioneering the use of latest methods and equipment. Our state of the art approach to measuring and monitoring critical environments, including clean rooms, pharmacies, in vitro fertilization clinics, and various crucial hospital settings, is combined with a common sense, engineering approach to anticipate, avoid, and if needed, solve problems in these critical settings. ASTI has working relationships with the foremost experts in the country, enabling access to the most advanced methods of investigative testing, analysis, and interpretation. A board-certified industrial hygienist, Mr. Fergusson currently serves as an officer of the local APIC Bluegrass Chapter No. 23 for Infection Control and Prevention. Mr. Fergusson was also an invited active participant on the regulatory panel that drafted Commonwealth of Kentucky Mold Remediation Regulation, 40 KAR 2:330.

ASTI has been invited to present peer-reviewed technical papers at professional conferences on the following topics:

- **Legionella Mitigation in Healthcare Facilities** (KSHE Membership Publication)
- **Response to Water Intrusions and Potential Mold Growth** (KSHE Conference)
- **Environmental Testing of a Large Hospital** (AIHce 2008 & IAQA 2009 Conferences)
- **Average Radon Levels vs. Actual Occupant Exposure Levels in a Public School** (IAQA 2010 Conference)
- **A Systematic Examination of the Building Envelope** (IAQA 2011 Conference)
- **Alternative Approaches to Post Remediation Verification** (IAQA 2012 Conference)

- **Moisture Migration within and through the Building Envelope** (IAQA 2012 Conference)
- **Airborne Mold Sampling: Practical Applications** (IAQA 2014 Conference)

ASTI has long-standing relationships with the leading labs in the country. Each lab is selected, based on their individual industry-leading abilities in a particular type of analysis. This approach assures you of the most accurate lab work and provides us with the cumulative experiences of our laboratory partners. Our long-term affiliations with our labs also allow us to manage analytical costs.

Our operating philosophy is to provide our clients with professional services, focused on our client's long-term best interests. We understand our client's need to evaluate cost/benefit ratios, with continued compliance to applicable regulations and with the confidence of safe working and living environments.

Professional associations include the following:

- American Industrial Hygiene Association (AIHA)
- Kentucky Society of Healthcare Engineers (KSHE)
- Association for Professionals in Infection Control and Epidemiology, Inc. (APIC)
- Indoor Air Quality Association (IAQA)
- American Conference of Governmental Industrial Hygienists (ACGIH)
- American Council for Accredited Certification (ACAC) (an accreditation organization sanctioned by Council of Engineering and Scientific Specialty Boards)
- Better Business Bureau of Central & Eastern Kentucky, Inc.
- Institute of Environmental Sciences and Technology (IEST)
- National Voluntary Laboratory Accreditation Program (NVLAP) Certificate of Accreditation to ISO/IEC 17025:2005 for PCM asbestos analysis
- Controlled Environment Testing Association (CETA)

Professional services include the following:

- Industrial Hygiene (IH) Assessment, Safety Training & Consultation
- Medical Facility Environmental Monitoring: Project Planning, & Infection Control Risk Assessments
- Cleanroom and HEPA Filtration System Certifications per ISO criteria
- Pharmaceutical Facility Evaluations per USP <797>
- LEED™ Building IAQ Commissioning
- Hazardous Waste Abatement Specifications & Management
- Indoor Environmental Quality (IEQ), including mold and other bio-aerosols, Volatile Organic Compounds (VOCs), Radon, and other contaminants
- Cleanroom Assessment & Verification
- IEQ Investigations into building science-related causes & solutions
- OSHA Safety & Health Audits, “Side-by-Side” OSHA IH Monitoring
- Asbestos/Lead design services, asbestos, lead, and other hazardous material building inspections
- Advanced Building Envelope Investigations
- Litigation Consulting Services

An established firm with no ties to remediation contractors, ASTI provides independent assessments of environmental, health and safety problems without conflict of interest issues. We use the latest state-of-the-art precision equipment calibrated per manufacturer and industry standards, including real-time measuring instruments, high-precision sampling pumps, and infrared thermography imaging, to troubleshoot IH and IEQ issues. Each year we help over 200 clients with various environmental, medical environment, industrial hygiene, safety, or indoor environmental quality concerns.

Our Operating Philosophy: Matthew 22:37-40, The “Golden Rule,” and Common Sense

IV. Practice Areas

A. Critical Environments (Medical, Pharmaceutical, Cleanrooms):

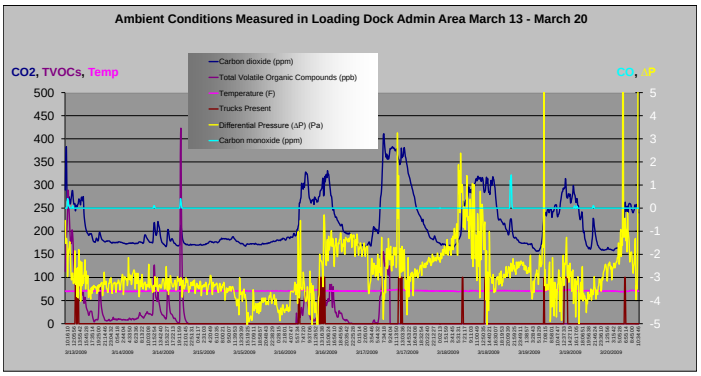
- Environmental testing & LEED™ commissioning for new healthcare facilities.
- Certification of Manufacturing Cleanroom Environments
- Consulting & Sampling for Infection Control/Prevention criteria
- Testing for TVOCs, bioaerosols, NAAQS environmental constituents
- Verifying HVAC relative pressure/balance for OR's, Protective Environments, & Isolation Rooms
- HVAC & facility consulting for building upgrades
- Legionella sampling & related consulting
- Pre-Construction Risk Assessment (PCRA)
- Infection Control Risk Assessment (ICRA)
- Pharmacy Hood Certifications per USP797
- Environmental microbial monitoring during construction
- Onsite inspection & in-progress job monitoring
- Indoor air quality investigations
- Employee anesthetic gas exposure monitoring

B. Indoor Air Quality & Building Investigations

- Building Science Consultation with Builders, Facility Managers, Attorneys, & Owners for moisture control issues
- Indoor air quality investigations for various contaminants, including mold, VOCs, metals & other fumes, bio-aerosols, etc.
- Long Term indoor environment studies
- Radon measurements
    - Short term & long term datalogging
    - HVAC system interactions

- Remediation project management.
- Building Science
    - Visual examinations
    - Infrared thermographic diagnostics
    - Moisture migration evaluations
    - Contaminant pathway analyses

- HVAC Evaluations
    - Particulate evaluations per NADCA standards
    - Detailed study of HVAC design and operation
    - Ventilation efficiency studies
    - Remediation plan & surveillance
- Remediation Plans & Alternative/Interim Solutions
    - Performance-based remediation plans
    - Statistically defensible verification methods
    - Risk-based post-remediation verification

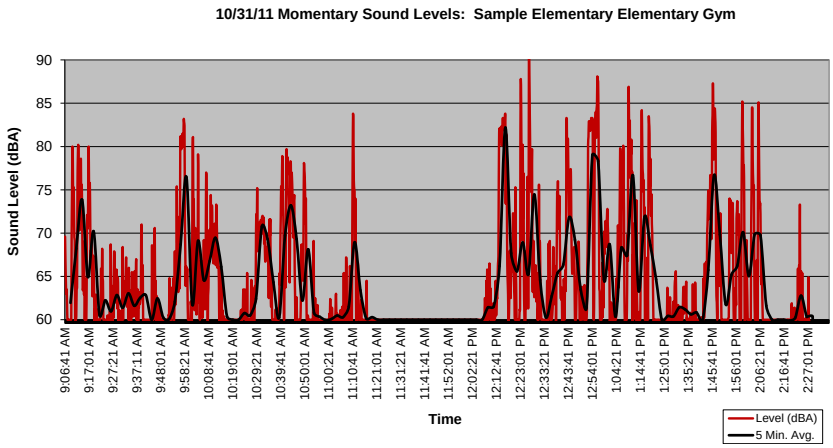


C. Industrial Hygiene and OSHA Compliance

ASTI provides on-site investigations, audits, OSHA exposure testing, production baseline measurements, and employee training programs for industrial clients, as well as medical facilities. ASTI knows the difference between simply executing regulatory sampling protocols to document employee exposures and solving possible workers compensation issues. We can provide industrial hygiene plans to suit any manufacturing environment.

Clients who have concerns within the workplace involving employee safety or comfort count on us to provide the following specialized services:

- Employee Exposure Assessments
- Welding Fumes
- Production Process Fumes Monitoring
- Local Exhaust Ventilation Testing & Evaluation
- Certified Lead-Based Paint Surveys
- Production Process Optimization
- Chemical Hygiene Plans
- OSHA Side-by-Side Exposure Validation
- Sound Level Surveys & Noise Dosimetry
- Respirator Protection Programs/Fit Testing



D. Asbestos, Lead, and Environmental Concerns

Asbestos

ASTI has over 50 years of combined experiences in the asbestos industry. ASTI has long-term relationships with over 90 schools districts across Kentucky, providing periodic inspections and asbestos records management. ASTI's industrial hygienists were a part of the earliest implementation efforts of the Asbestos Hazard Emergency Response Act (AHERA), going back to the mid-eighties. Out staff includes AHERA Inspector/Management Planners and AHERA Project Designers that provide the full range of asbestos-related consulting services.

Lead

ASTI has over 20 years of experience in providing lead-based paint inspections (a surface-by-surface investigation to determine the presence of lead-based paint), lead risk assessments (conducted to determine the existence, nature, severity, and location of lead hazards), and lead clearance testing (a visual inspection and surface dust testing of the work area) per regulations 902 KAR, Sections 48:010 through 48:040 of the Commonwealth of Kentucky, Cabinet of Health Services, Department for Public Health, Division of Environmental Health and Community Safety.

Environmental Management

ASTI regularly works with state and federal authorities at hazardous spill sites to manage and control potential exposure risks. In preparation for building renovations or demolitions, ASTI performs comprehensive building surveys for hazardous building materials, providing estimated inventory of materials, estimated removal costs, material locations, etc. ASTI has performed such surveys at some of the largest facilities in Kentucky as shown in the Notable Projects Section.

ASTI also provides expert witness support for attorneys by performing the detailed site investigations, site screening, and out-of-the-ordinary sampling sometimes required in environmental litigation preparation.

V. Professional References

Clark Regional Medical Center
Contact: Paul Elkins
Winchester, KY 40391
(859) 745-3528

University of Kentucky
Contacts:
Ms. Lee Poore, CIH
Director of OHS
Lexington, KY 40508
(859) 257-2924

Mr. John Zachem, PE
Physical Plant Manager II
(859) 257-1479

Ms. Cibina Harris, RN CIC
Infection Prevention and Control
UK HealthCare Chandler Medical Center
(859) 323-6337
Price Contract No. UK-0848-9D

Pattie A. Clay Regional Medical Center
Contact: Mr. Eddie Beach
789 Eastern By Pass
Richmond, KY 40475
(859) 625-3150

Mac Crawford Builders, Inc.
Contact: Mac Crawford
2509 Mercer Road
Lexington, Kentucky 40508
(859) 226-0634

Lexmark International, Inc.
Contact: John Gagel, CIH
Director of EHS
Lexington, KY 40511
(859) 232-6462

Ball Homes
Contact: Mike Ball, President
3609 Walden Drive
Lexington, KY 40517
(859) 268-1191 (main)

Kenton County Schools
Contacts: Rob Haney
20 Kenton Lands Road
Erlanger, KY 41018
(859) 344-8888

Commonwealth of Kentucky
Division of Engineering
Contact: Maziar Torabi, PE, LEED AP
702 Capital Ave
Frankfort, KY 40601
502-564-3155 X227
Master Agreement No. 1200000190

Back Construction, Inc.
Contact: Rob Hundley, Kyle Whalen
965 Contract Street
Lexington, Kentucky 40505
859-225-2225

Georgia Pacific
Contact: Ron Ingram
EHS Director
451 Harbison Road
Lexington, KY 40511
859-259-9175

Fayette County Public Schools
Contact: Mr. Jeff Harris
400 Springhill Drive
Lexington, Kentucky 40503
(859) 981-4063

Jackson Kelly, Attorneys at Law
Contact: John W. Hays
175 East Main Street
Lexington, KY 40588-9945
859-255-9500

Stites & Harbison, PLLC, Attorneys at Law
Contact: W. Blaine Early, III
250 West Main Street, Suite 2300
Lexington, KY 40507-1758
859-226-2284

VI. High Profile & Notable Projects

1. UK Chandler Medical Center

ASTI conducted environmental baseline sampling and various other environmental measurements, such as isolation room differential pressure verifications, at the UK HealthCare Chandler Medical Center. ASTI is working with the hospital's Infection Prevention and Control professionals, as well as the physical plant engineers, to ensure appropriate measures are implemented during construction to minimize impact on the patient population in existing adjacent facilities. ASTI conducted baseline environmental sampling of the Emergency Department, Central Sterile Supply, the 6th and 7th floors, and the Operating Room Suites as part of the commissioning process at this new facility.

As part of the expansion, ASTI also worked with hospital engineering staff to conduct a study of environmental conditions in existing ICU patient care areas to benchmark performance required for operation. Data included ambient particulate levels, HVAC conditions and performance, and staff operations as part of a gap analysis to study building areas that were being considered for upgrading to high risk patient care.

In another medical center-related study, ASTI diagnosed IAQ issues associated with the Markey Cancer Center. The study revealed that the adjacent building, connected by a pedestrian walkway, was interfering with proper pressurization of the Markey Center.

2. High-profile IAQ Study - Old Fayette County Courthouse:

ASTI performed a systematic evaluation of the old Fayette County Courthouse for Lexington-Fayette Urban County Government (LFUCG). Occupancy issues included lead paint hazards, asbestos-containing building materials, and building envelope issues that had caused mold growth. ASTI conducted various indoor air quality assessments and created a plan, including budgetary estimates for corrective actions that would be required to make the building safe for continued occupancy.

The study components included a detailed visual survey, radon screening measurements, a lead paint inspection, a

review of asbestos-containing building materials, long term differential pressure measurements, an infrared survey of the building, moisture measurements of various building components, and data-logging of conditions within the building.

3. High-profile University of Kentucky IAQ:

ASTI performed a complete and systematic evaluation for the University of Kentucky of a seven year old fraternity house that housed approximately 90 occupants. The standard of care for this project was driven by the highly-publicized nature of the situation. ASTI conducted a complete diagnostic effort that included examining the design and implementation of major building systems, including the building envelope, HVAC systems, as well as indoor environmental issues associated with fungal growth.

- ASTI conducted an in-depth building baseline study
- Verified & managed refurbishment of the HVAC systems
- ASTI tested the HVAC systems per NADCA protocol
- Identified and managed correction of building envelope issues
- Supervised the resulting mold remediation project
- The building IEQ was evaluated upon completion of this project
- A 400+ page report was issued, describing the problem, process and successful corrective measures. Expected litigation was avoided.

Mr. John Zachem, PE, Director of Physical Plant at the university, was the University's project manager for this work.

4. University of Kentucky Biomedical/Biological Sciences Research Building – Environmental Re-commissioning & Post-Remediation Verification:

A new and partially occupied research facility (the University of Kentucky Biomedical/Biological Sciences Research Building) experienced a steam leak that was undetected for months. ASTI diagnosed the issues, supervised the remediation and sampling for this building which is used for advanced medical research at the University of Kentucky campus. ASTI conducted the final post-remediation verification (PRV) and "re-commissioning" of the final two floors of the building prior to occupancy. Due to the sensitivity of research activities, ASTI used

state-of-the-art Quantitative Polymerase Chain Reaction (qPCR) to best conduct PRV testing at the facility.

In a separate project, ASTI designed the Local Exhaust Ventilation systems for the Aviary Study center and projected direction for overall facility HVAC design criteria required for occupant safety and biological studies.

Ms. Lee Poore, CIH, Director of OHS at the university, can provide more background about ASTI's involvement with various projects for the university.

5. Prentice Women's Hospital Environmental & LEED Commissioning:

Northwestern Memorial Hospital built the new Prentice Women's Hospital (PWH), a state-of-the-art facility that will support the highest quality of care for women at all stages of life. Opening in late 2007, the new 17-story hospital encompasses nearly 1 million square feet and houses one of the largest birthing centers and neonatal intensive care units in the Midwest, with the capacity for 13,600 births. The new hospital expands comprehensive programs in women's health, offering services such as ultrasound, genetic counseling, radiology, surgery, high-risk obstetrics, breast health, and gynecologic oncology. It serves as the access point for women's healthcare throughout the Northwestern Memorial campus. The physicians and staff provide care and treatment options ranked among the most advanced in the world.

- ASTI provided testing services to help ensure that the hospital provides a safe and healthy environment for its patients, staff, and visitors within the new facility and to successfully test for LEED™ criteria.
    1. Document baseline indoor environmental parameters prior to occupancy and comparing against recognized acceptable indoor air quality/infection control standards/guidelines for new construction;
    2. Collect representative bioaerosol, TVOC, surface biological, and water samples throughout the patient care areas of the building to ensure that they are free of known contaminant sources and that control systems are functioning properly;
    3. Measure relative pressures throughout the building to ensure that patient care areas maintain the appropriate air pressure differentials;
    4. Conduct visual inspections within the building to identify any outstanding safety and infection control related items that may jeopardize the patient care environment.

- As a follow-up to the successful project, Mr. Fergusson and Mr. Fiore, CIH for NMH, delivered a presentation at the 2008 AIHA annual conference, describing the hospital testing processes and test results.

6. Eastern State Hospital Hazmat Survey:

ASTI performed a complete site survey for asbestos and other potentially hazardous materials, such as PCBs, mercury, etc., at the old Eastern State Hospital in Lexington, Kentucky for the Kentucky Division of Engineering & Contract Administration. The survey work was performed in accordance with applicable hazardous material regulations and standards as established by the United States Environmental Protection Agency and the Commonwealth of Kentucky. In general, ASTI followed the survey protocol outlined in ASTM International (ASTM) Document E2308-05, Standard Guide for Limited Asbestos Screens of Buildings.

Twenty five (25) buildings were surveyed, totaling approximately 550,000 square feet of space. The project completed on-time and under budget, while observing HIPPA regulations concerning patient privacy and operating protocols that are appropriate for a hospital setting.

7. Western State Hospital Survey:

Similarly, ASTI completed a site survey for asbestos and other potentially hazardous materials, such as PCBs, mercury, etc., at the old Western State Hospital in Hopkinsville, Kentucky for the Kentucky Division of Engineering & Contract Administration. The survey work was performed in accordance with applicable hazardous material regulations and standards as established by the United States Environmental Protection Agency and the Commonwealth of Kentucky. In general, ASTI followed the survey protocol outlined in ASTM International (ASTM) Document E2308-05, Standard Guide for Limited Asbestos Screens of Buildings.

Over forty (40) buildings were surveyed, totaling approximately 600,000 square feet of space. The project completed on-time and under budget, while observing HIPPA regulations concerning patient privacy and operating protocols that are appropriate for a hospital setting.

8. Transylvania University Educational Laboratory Forensic Study:

ASTI performed an evaluation of HVAC systems, operational methods, and general conditions of the educational laboratory storage areas in the Brown Science Building. Ventilation design and system operation were reviewed. Proper environmental conditions for worker safety were confirmed and documented, along with opportunities for improvement. ASTI worked with CMTA Consulting Engineers during this study.

9. High Profile Emergency Environmental Remediation Testing:

- ASTI supervised the successful remediation of a highly publicized mercury spill event that affected multiple buildings on the campus. ASTI designed and implemented a rigorous post-remediation test protocol to provide certification to the EPA and public health authorities, in addition to minimizing the possibilities of litigation.
- ASTI performed a complete site survey of the campus for asbestos containing building materials for the purposes of employee safety at the Eastern Kentucky University in Richmond, Kentucky. Approximately (30) buildings were surveyed, representing roughly 1,500,000 square feet of space. The project completed on-time and for less than half the quoted not-to-exceed budget

VII. Additional Medical Facility References

While several medical facility references are listed in the previous paragraph, additional medical contacts are shown below that may also provide information about ASTI's capabilities, reliability, and experience.

University of Kentucky Hospital, Lexington, KY - ASTI has provided environmental infection control consulting, environmental microbial sampling, renovation monitoring consulting, and fungal remediation consulting to assist this facility.

Contact: Ms. Cibina Harris, Infection Preventionist 859-323-6337

Central Baptist Hospital, Lexington, KY – ASTI has provided patient area environmental infection control consulting & microbial sampling, fungal remediation guidance, microbiology laboratory environmental monitoring, and ambient airborne particulate-related air quality consulting.

Contacts: Mr. Vince Braddock, Maintenance Supervisor 859-260-6790

Ms. Dee Anderson, RN, MSN, CIC, Infection Control Officer 859-260-6638

Baptist Health Richmond, Richmond, KY - ASTI has provided environmental infection control consulting, environmental microbial sampling, and fungal remediation consulting to assist this facility.

Contact: Eddie Beach, Director of Physical Plant 859-625-3150

Lake Cumberland Regional Hospital, Somerset, KY - ASTI has provided environmental infection control consulting, HVAC system consulting, environmental microbial sampling, and fungal remediation consulting to assist this facility.

Contact: Keith Reed, CHFM, Director of Physical Plant 606-678-3464

Trover Health System, Madisonville, KY - ASTI has provided HVAC system consulting, environmental microbial sampling, and fungal remediation consulting to assist this facility.

Jack Merrill, CHE, CHFM, CHPA 270-825-5969

Norton Brownsboro Hospital, Louisville, KY - ASTI has provided patient area environmental infection control consulting & microbial sampling, fungal remediation guidance, and ambient airborne particulate-related air quality consulting.

Mark Cox, Facility Manager 502-394-6459

Appendix C
Sample Reports

March 9, 2013

Mr. Scott Kelsey
Facilities Manager
Lexington-Fayette Urban County Government (LFUCG)
Division of Building Mtce & Construction
1555 Old Frankfort Pike
Lexington, KY 40504

Re: Lexington Division of Police – Revision 1 Corrects Original Issue Date
Indoor Air Quality in Evidence Room

Dear Mr. Kelsey:

Thanks for your assistance during our brief survey of the Evidence Room on March 6th at the Lexington Division of Police (LDP). There are simple recommendations that will improve air quality of the Evidence Room, based on my observations of a few obvious issues. After these recommendations are implemented, we can investigate more subtle contaminant sources and solutions, if needed.

1. For HVAC design purposes the LDP Evidence Room (LDP-ER) should be treated as a laboratory. Install an exhaust fan and place the Evidence Room under negative pressure with respect to adjacent spaces. The 2011 ASHRAE Handbook – HVAC Applications indicate 8 Air Changes per Hour (ACH) is a reasonable design objective. Consult your HVAC professional for implementation specifics that will include transfer grills, an exhaust fan, and enforcement of door closure procedures.
2. Personnel described procedures to dry and condition narcotic evidence, such as marijuana, prior to storage in the LDP-ER. However, it is evident some specimens are not dried, resulting in moisture movement through the cardboard containers with mold growth on the cardboard storage boxes.
    a. Use a surface cleaner to clean visible growth on wood storage shelves and apply an antimicrobial coating, such as Foster 40-25, or water-based Kilz Premium Primer.

b. Cut openings in the shelving end panels to promote air movement.

c. Before painting, install two 1X1 longitudinal rails to space the cardboard boxes off the shelf, allowing drying.

d. Space the storage boxes with approximately 2 inches in between boxes to promote drying. Consider dedicating one section area to marijuana storage for storage efficiency.

Refer to publications, such as the EPA document, *Mold Remediation in Schools and Commercial Buildings* (www.epa.gov) and the CDC (www.cdc.gov) website for useful general information about dealing with mold in a commercial environment. Regarding Item No.1, additional information may be found at International Association for Property and Evidence, Inc. website (www.iape.org) and the enclosed article about a NIOSH Health Hazard Evaluation (HHE) of a crime lab. Also, the department's lab hoods should be verified at least annually for proper operation, such as flow pattern and face velocity.

Should you or the staff at the Division of Police have any questions as you begin to implement, please do not hesitate to contact me at our Lexington office (859) 299-0046.

Sincerely,

Bruce N. Fergusson, CIH, CIEC, PE (inactive)

Enclosures

LIMITED SITE SURVEY AT

LEXINGTON HISTORY MUSEUM
OLD FAYETTE COUNTY COURTHOUSE
215 West Main Street
Lexington, Kentucky

Prepared For:
Mr. Scott Kelsey
Division of Building Mtce & Construction
Lexington-Fayette Urban County Government
1555 Old Frankfort Pike
Lexington KY 40504

Surveys Performed By:

Chris Adkins, MSIH
Bruce Fergusson, CIEC, PE (retired)

Air Source Technology, Inc.
160 Prosperous Place, Suite 201
Lexington, Kentucky 40509

Revised Report Date: September 29, 2012

ASTI Project # C7710

Table of Contents

Section **Page**

EXECUTIVE SUMMARY 1

INTRODUCTION & SCOPE 3

SITE VISIT PROTOCOLS 5

OBSERVATIONS AND NOTES 10

RECOMMENDATIONS 19

REFERENCES 25

PHOTOGRAPHS ..... Appendix A

LAB RESULTS ..... Appendix B

PROPOSED STUDY PLAN ..... Appendix C

Executive Summary

September 27th Revision 2 Summary Update:

Radon screening test results indicate the need for a long term test for more reliable data. Given the relative pressure variability due to atmospheric conditions and other implementation issues, positive pressurization of the occupied space with respect to adjacent contaminated spaces is recommended to reduce occupant exposure risk to the various potentially airborne hazardous contaminants until the hazards are removed. Even so, an operations and management plan should be implemented to minimize the risks of occupant exposure to potential contaminants in the penthouse and basement, as well as lead paint hazards that have been identified by a separate study.

September 20th Revision 1 Summary Update:

The water source that is most likely causing water damage in the Fallen Heroes Room is a leakage path from the second floor balcony, which is not shedding water outward. Visible mold growth noted above the ceiling on the first floor may be remedied by properly-trained maintenance personnel. Asbestos debris in the crawlspace prevented crawlspace depressurization and blocked implementation of aspects of the planned follow-up inspection. Short term Radon testing results shall be added in Revision 2.

Regarding Option 3 as presented in the original report, if the occupied space is to be isolated from the basement and penthouse; (1) either the crawlspace must have the asbestos abated or encapsulated to enable depressurization and the penthouse placed under active ventilation, or (2) the occupied space should positively pressurized with respect to adjacent contaminated spaces. The second option is most likely the easiest to implement, given the unknowns concerning ventilating the penthouse and the known contamination of the basement/crawlspace.

August 9th Original Summary:

Conditions observed are typical for structure of this type, age, and condition. Maintenance issues and suspect legacy contamination issues at this structure indicate attention is required to isolate occupants from possible exposure. The first set of lab results indicate that immune-compromised and other susceptible individuals should not enter certain portions of the building, specifically the first floor “Fallen Heroes” Exhibit, the first floor hallway, and the first floor north corner Public Safety Exhibit. Limited

rainfall has reduced water intrusion issues at this time; however, site observations support these recommendations to reduce potential exposure risks.

Follow-up visits and monitoring of certain site conditions is planned. **Appendix C: Proposed Study Plan** provides details of the methodology that is planned to collect the data needed to support further recommendations.

The Old Fayette County Courthouse is not conducive to a straightforward solution due to real-world budgetary considerations and occupancy requirements. This IAQ study will presume three options exist for this structure:

Option 1: Conduct restoration of HVAC, plumbing, and infrastructure systems, coupled with complete abatement of suspected contamination (bioaerosol and otherwise) to provide a safe environment throughout the building.

Option 2: Abandon the building.

Option 3: Isolate contaminated spaces to provide a safe and manageable environment in the currently occupied spaces.

Upon completion of the follow-up assessments, a Remediation Plan will be issued that specifies sampling, building modification recommendations, and verification criteria to confirm success of the remediation process.

Considering the conditions observed; no air sampling is needed to justify recommending the cleaning and/or removal of water-damaged materials. Air sampling results are not a reliable indicator of relative airborne mold levels. V*ery briefly stated* (italics added for emphasis, BNF), there are no exposure guidelines for molds and their associated contaminant exposure mechanisms of volatile mycotoxins and airborne spores. The following is an excerpt from the California Department of Public Health's (CDPH) *Statement on Building Dampness, Mold, and Health*:

CDPH has concluded that the presence of water damage, dampness, visible mold, or mold odor in schools, workplaces, residences, and other indoor environments is unhealthy. We recommend against measuring indoor microorganisms or using the presence of specific microorganisms to determine the level of health hazard or the need for urgent remediation. Rather, we strongly recommend addressing water damage, dampness, visible mold, and mold odor by (a) identification and correction of the source of water that may allow microbial growth or contribute to other problems, (b) the rapid

drying or removal of damp materials, and (c) the cleaning or removal of mold and moldy materials, as rapidly and safely as possible, to protect the health and well-being of building occupants, especially children.

Revision Notes: September 20th Revision 1 reports information and data associated with follow-up study onsite visits. Another revision will be issued upon completion of the Radon screening tests in the basement. **September 27th Revision 2** reports Radon screening test results. **September 29th Revision 3** adds comments on interpreting results and additional reference documents.

Introduction & Scope

Mr. Scott Kelsey of the Lexington-Fayette Urban County Government (LFUCG) contacted ***Air Source Technology, Inc.*** **(ASTI)** and requested a survey inside the Old Fayette County Courthouse, located at 215 West Main Street in Lexington, Kentucky. LFUCG desired an assessment of conditions related to suspect mold growth in the structure. The objectives of this initial visit were (1) to assess and identify indoor air quality issues that may affect occupancy and (2) provide information needed to plan a follow-up study. The follow-up study will provide a corrective action plan for water intrusions and support a mold remediation plan to allow continued occupancy.

Photographs were collected to document building conditions at the time of the survey. LFUCG desired airborne mold sampling as part of the initial assessment. A preliminary report was filed on June 26, 2012 for an initial assessment.

September 20th Revision 1 Updates:

The follow-up study was conducted, except for active ventilation measurements and a closer physical inspection, which were not feasible due to asbestos debris in the crawlspace.

A Note Regarding ASTI Diagnostic Services: In determining the causes of Indoor Air Quality (IAQ) problems, ASTI may provide analyses of building characteristics and may present documents that describe building construction methods. These analyses may potentially provide IAQ solutions, including structural diagrams and construction techniques. These documents are no substitute for professional consultation regarding Heating Ventilation and Air Conditioning (HVAC) or various building construction issues. ASTI always recommends the use of a duly licensed professional engineer, contractor, or architect whenever such structural or HVAC solutions are presented. This report is intended to document site survey results and to provide the owner with information and options, which will enable them to make an informed decision whether professional assistance is needed or desired. A formal mold remediation specification/plan may be required by a professional remediation contractor. Also, for legal and professional reasons, the remediation contractor may require additional testing/sampling. The information and recommendations in this report supersede all other communications. Amendments and revisions to this report will be issued if required.

Site Visit Protocols

SITE VISIT

Conditions in the structure were surveyed for visible signs of past or present water damage and for visible filamentous fungal growth. A limited survey of the perimeter of the structure was also conducted. The building is currently occupied by a small staff for the Lexington History Museum. An informal interview was conducted with museum staff members that were present during the initial site survey. No invasive investigations were conducted during the initial survey. Due to safety reasons, the crawlspace was not entered; however that will occur during a planned follow-up visit. Certain areas were not accessible for inspection; but they will also be available during the planned follow-up visit.

September 20th Revision 1 update: Due to reported asbestos debris, the crawlspace was not available for inspection. The second floor balcony was available for inspection during the follow-up visit.

PHOTOGRAPHS

Photographs were collected using the Cannon Power Shot S20 IS. The S20 IS model is a 12.0 Mega-pixel camera with a 12X optical digital zoom. It has a built-in flash and several features to enhance images in various shooting situations. The S20 IS provides Canon's latest advanced technologies including the DIGIC III Image Processor, so both still images and movies are rendered with fine detail and luminous clarity. Raw digital images are archived separately, with only copies of the original raw digital images processed as appropriate for clarity in the report

TRAMEX ENCOUNTER MOISTURE PLUS MOISTURE METER

The Tramex Encounter Moisture Plus Non-Destructive Moisture Meter detects moisture in wood, dry wall plaster and brick without leaving any marks.

Features:

- Non-destructive moisture measurement of wood, plaster, drywall, block, brick roofing and most building materials

- Deep 1" signal penetration to detect excess moisture in the substrate under a range of covering materials such as drywall, wall coverings, ceramic tiles, carpet, etc.
- Wide range of readings of 5% to 30% on the wood scale and 0 to 100% comparative scale
- Hold reading facility and automatic switch off when not being used
- Rubber electrode pads in direct contact with material being tested
- Readings of 0% to 1+% for drywall

For surface readings of the various building materials, a baseline reading from a nearby dry area is measured for comparison with suspected “wet” portions of similar building materials. A factory-supplied field-calibration reference is used to field verify the accuracy of the instrument prior to each use.

BIOAEROSOL SAMPLES

Non-viable Fungal Samples were collected by drawing 15 liters of air per minute for five minutes through a Zefon Air-O-Cell disposable cassette that may be used for microscopic identification of molds, pollens, insect parts, skin cell fragments, fibers and inorganic particulate. The *BUCK BioAire*™ Model B520 Bioaerosol Sampling Pump was field-calibrated with a *BUCK* Calibration Rotameter.

Analysis was performed by Environmental Microbiology Laboratory, Inc. (EM Lab) located at 1150 Bayhill Drive, Suite 100, San Bruno, CA 94066. EM Lab is accredited by the American Industrial Hygiene Association (AIHA) in Environmental Microbiology. The Director of Aerobiology, Dr. Harriet Burge, is one of the leading microbiology professionals in the United States.

FLIR SYSTEMS EX-320 IR CAMERA

The FLIR SYSTEMS EX320 was used to collect thermographs. The EX320 sees temperature differences as small as 0.08°C and provides 76,800 picture elements in each image. Thermography is the use of an infrared imaging and measurement camera to measure thermal

energy emitted from an object. Thermal or infrared (IR) energy is radiated energy that is not visible because its wavelength is too long to be detected by the human eye. It is the part of the electromagnetic spectrum that we perceive as heat. Infrared thermography allows us to "see" what our eyes cannot.

IR inspections can be useful in providing documentation of building material moisture conditions, plumbing & other building water leaks, flooding & fire water-damaged building material assessments, energy use inefficiency, and electrical problems. Since water on materials will evaporate and cool them, wet building materials may be detected by the IR camera as relatively cool areas. Verification of potential material moisture content is then provided by other measurement methods and tools.

MULTI-CHANNEL DATA LOGGER AND SENSORS

HOBO H22-001 Energy Logger

FlexSmart™ signal conditioning

Setra Model 264
Very Low Differential Pressure Transducer

The **HOBO Energy Logger** multi-channel data logger is a modular, re-configurable data logging system for energy and industrial monitoring applications. The system can be accessed using the RS-232 serial interface, Ethernet or remote data access email communications.

Snap-in **FlexSmart™** signal conditioning modules convert signals from many types of sensors. HOBOware® software sets up data logging parameters and processes accumulated data. The 12-bit FlexSmart Analog Input Module for use with the H22-001 Energy Logger handles two single-ended input channels with user-configurable ranges of 0 to 20mA DC or 0 to 20 V DC which is suitable for 2.5-, 5-, and 10-volt sensors.

Setra Systems Model 264 pressure transducers sense differential or gauge (static) pressure and convert this pressure difference to a proportional electrical output for either unidirectional or bidirectional pressure ranges. The 264 Series is offered with a

high level analog 0 to 5 VDC or 4 to 20 mA output. The sensor units are temperature compensated to 0.033% full scale/ °F thermal error over the temperature range of 0°F to +150°F.

Pressure relationships were monitored and reported at the following two locations: (1) between the basement (See Location 8 on Sketch 1 in Appendix A for the specific location.) and the first floor stairway landing and (2) across the penthouse entrance door.

TEMPERATURE DATA LOGGER

HOBO® Data Logger

The HOBO U12 Temperature / Relative Humidity / 2 External Data Logger is a four-channel logger with 12-bit resolution and can record up to 43,000 measurements or events. The two external channels accept a variety of sensors, including temperature and split-core AC current sensors as well as 4-20 mA and voltage input cables. The logger uses a direct USB interface for launching and data readout by a computer. HOBOware® software sets up data logging parameters and processes accumulated data.

Temperature was monitored at three locations for this project: (1) the first floor stairway landing at the first floor pressure sensor, (2) the penthouse at the penthouse pressure sensor, and (3) at an offsite location at a covered entranceway.

RADON DATA LOGGER

The Sun Nuclear Model 1028 Continuous Radon Monitor is a patented detection device that is used to measure the concentration of radon gas. The unit is designed for professional inspectors to use in homes and buildings. The radon monitor connects to a computer via a USB or serial cable. The Windows software can be used to download measurements, set parameters, and print reports on a printer connected to a computer. The Model 1028 radon monitor has been EPA verified and radon proficiency programs approved.

Specifications:

Description	Value
Measurement Range	0.1 to 9999 picocuries/liter (pCi/l) or 1 becquerels per cubic meter (Bq/m3) to 99.99 kilo becquerels per cubic meter (kBq/m3)
Accuracy	±25% or 1 pCi/l, whichever is greater after 24 hours
Detector	Diffused-junction photodiode Active volume—9.4 cm3, Dome volume—63 cm3
Measurement Interval	1, 2, 4, 8, 12, 16, 20 or 24-hour intervals, selectable by user
Test Duration	1, 12, 24, 36, 48, 60, 72, 84, 96, 100, 999 hours, selectable by user (maximum of 720 measurements)
Sensitivity	3 counts per hour per picocurie per liter (cph/pCi/l)
Disturbance Sensor	Inertial switch

As a screening tool, short term Radon readings were collected from September 19th to September 26th. The continuous Radon monitor was placed in the basement in a space that would be a likely contaminant pathway to the first floor. (See Location 8 on Sketch 1 in Appendix A for the specific location.)

Observations, Results, and Notes

The following observations and history were noted at the time of the site visits:
Please see Appendix A for photographs.

1. Mr. Kelsey provided the following information prior to the initial site visit:
    a. The courthouse currently houses the Lexington History Museum on the first, second, and third floors with the fourth floor used for storage only.
    b. The basement and penthouse are currently secured areas with no access to history museum occupants.
    c. HVAC fans still operate in the hallways only. Most of the building uses window-mounted heat pumps to provide temperature control in occupied spaces. No detailed HVAC information is currently available.
    d. A history of past water issues associated with plumbing has been reported. Portions of the plumbing have been shut down to prevent leaks.
    e. In the north Public Safety Exhibit, mold was reported as removed from wall-mounted pictures.
    f. The elevator shaft had been cleaned and dried prior to the visit.
    g. A history of animal inhabitation in the attic and penthouse was reported.
2. Visible suspect fungal growth was observed on the surface of the west wall of the “Fallen Heroes” Exhibit Room. Water staining was also noted in the same area.
3. Several areas of damp building materials and debris were noted in the basement.
4. A light musty odor was noted in the Fallen Heroes Room, Third Floor Courtroom storage room, and the Northeast stairway.
5. Evidence of overflow from the northeast roof scupper was noted on the northeast wall boundary of the Public Safety Room and Third Floor Courtroom storage room.
6. Water-damaged debris and materials were observed in several storage areas, crawlspace, and basement.
7. Visible growth was noted on ceiling tiles on the first floor in the west hallway entrance and Room 120.

September 20th Revision 1 - Observations and History updates:

8. An accredited asbestos inspector, Mr. Kelsey reported asbestos debris in the crawlspace.
9. Evidence of past water leaks from plumbing, gaps in piping insulation, and visible suspect mold growth on pipe insulation were noted above the dropped ceiling in the west hallway entrance and in Room 120.
10. Stained ceiling tiles were noted along the west exterior wall of Room 120, adjoining the hallway.
11. Damp measurements were obtained along sections of wall adjacent to the northwest corner near the visibly-damaged wall.
12. Heavy staining due to apparent HVAC condensate was noted under a second floor heat pump on the northwest exterior wall.
13. Established vegetation is growing on the northwest second floor balcony. Little HVAC condensate staining was noted under the balcony with an operating heat pump present on the balcony.
14. Two open grates, one near the building and one near the sidewalk are present in the former mechanical equipment portion of the basement.
15. Temperatures and differential pressure relationships in the basement and in the penthouse were measured and data logged from August 23rd to September 14th.

BIOAEROSOLS

There are no "official standards of guidelines" for fungal or bacterial bioaerosols or combinations of both. A general regulatory standard or recommended guideline for bioaerosols is not scientifically supportable because: a) culturable microorganisms and countable biological particles do not comprise a single entity (they are complex mixtures); b) human responses to bioaerosols range from innocuous effects to serious depending on the specific agent and the occupants susceptibility to it; c) it is not possible to collect and evaluate all bioaerosol components using a single method; and d) at present, information relating culturable or countable bioaerosol concentrations to health effects is generally insufficient to describe exposure-response relationships. Generally speaking however, if visible microbial growth can be seen it should be addressed and corrected.

Airborne Mold Spores: June 19th, 2012		
Sample #	**Location**	**Total Fungi (spores/M^3)**
LF1	1st Floor Fallen Heroes Room	1400
LF2	1st Floor Public Safety Main	1900
LF3	2nd Floor Hall	1200
LF4	2nd Floor Ms. Watkins' Office	760
LF5	3rd Floor Rm 312	240
LF6	3rd Floor Stairwell	650
LF7	Outdoors	8800

Low levels of common environmental airborne fungi were identified indoors. In general, species correlated well with those found outdoors, with the exception of the Fallen Heroes Room. Those results are consistent with indoor amplification of molds. Results from other areas do not indicate indoor amplification of molds. Keep in mind this was a snapshot and represents the day of testing only. See Appendix B for lab results. Airborne levels vary due to numerous factors, including sporulation of fungal colonies, air patterns within the building, diurnal sporulation cycles of certain fungal species, etc.

MULTI-CHANNEL DATA LOGGER / PRESSURE SENSORS AND TEMPERATURES

Differential pressures logged from August 23rd through September 14th indicate reversal of relative pressure polarity between both (1) the contaminated Penthouse and adjacent 4th floor and (2) the basement and adjacent 1st floor during periods of high outdoors temperatures. Extreme swings in relative pressures within the structure were noted due to thunderstorms and due to structural windward and leeward pressure loading from gusty winds. Fairly tight correlation between outdoor temperature and differential pressures within the structure are shown in the charted data.

Differential pressure data collected during close-to-worst case conditions of 90 degree summer weather indicates the approximate relative pressurization required to isolate the occupied space during summer weather. For perspective, guidelines for isolating hospital rooms that serve patients with communicable airborne diseases specify a minimum differential pressure of 2.5 Pascals (Pa). Standards for isolating asbestos abatement containment areas are 5 Pa of differential pressure.

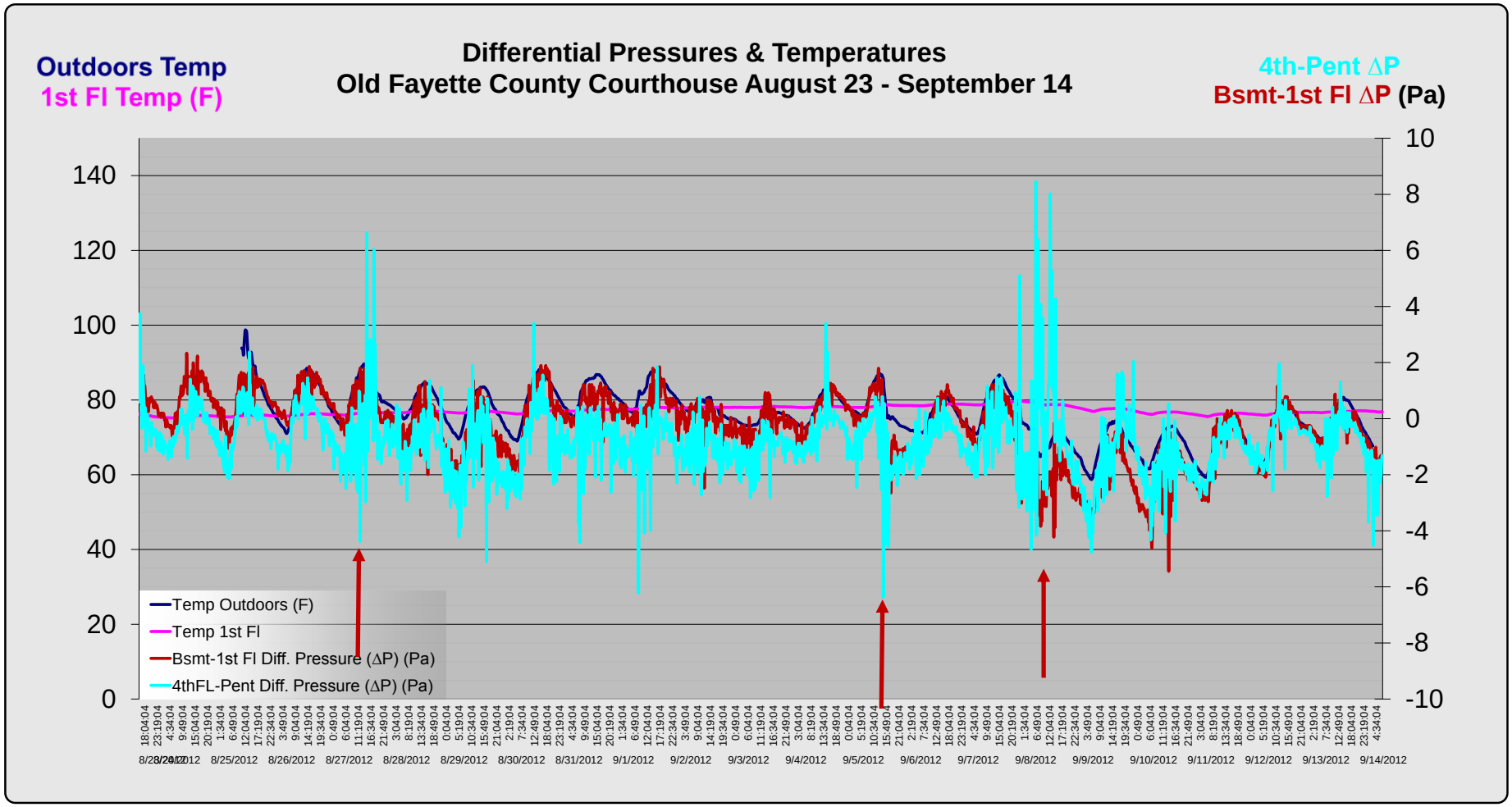
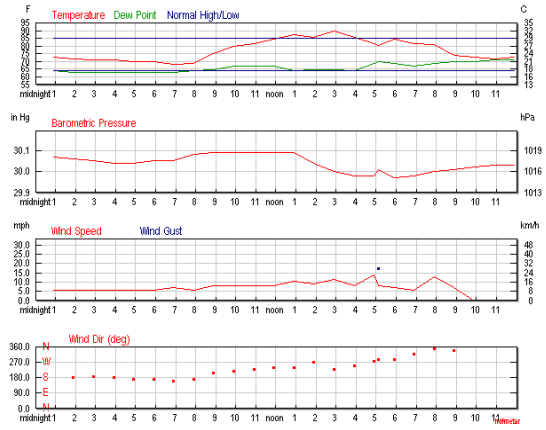
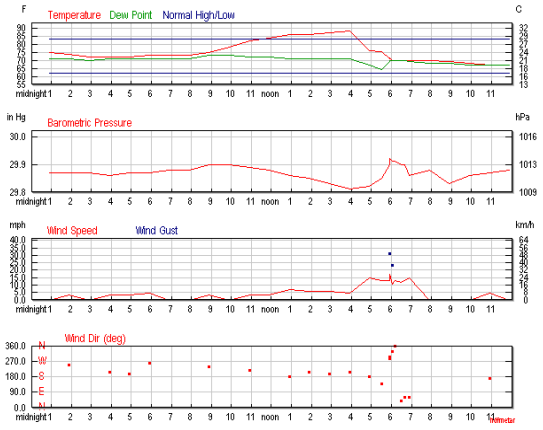
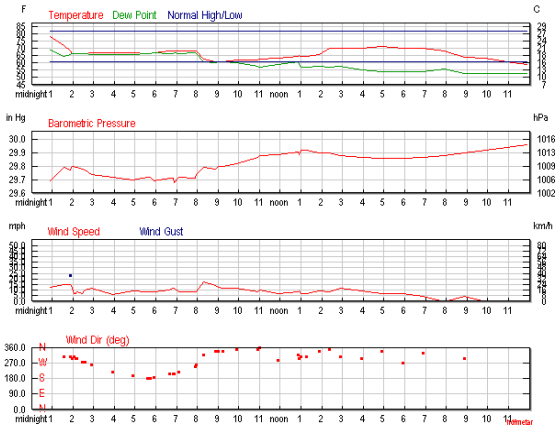


Figure 1: Differential pressure relationships between the basement and the first floor and the 4th floor and the penthouse utility space are charted above. Three examples of the effects of abnormal weather conditions are indicated at arrow indicators.

		
August 25th weather **note**	September 5th weather **note**	September 8th weather **note**

Note: Charts provided courtesy of www.wunderground.com history, accessed September 15th.

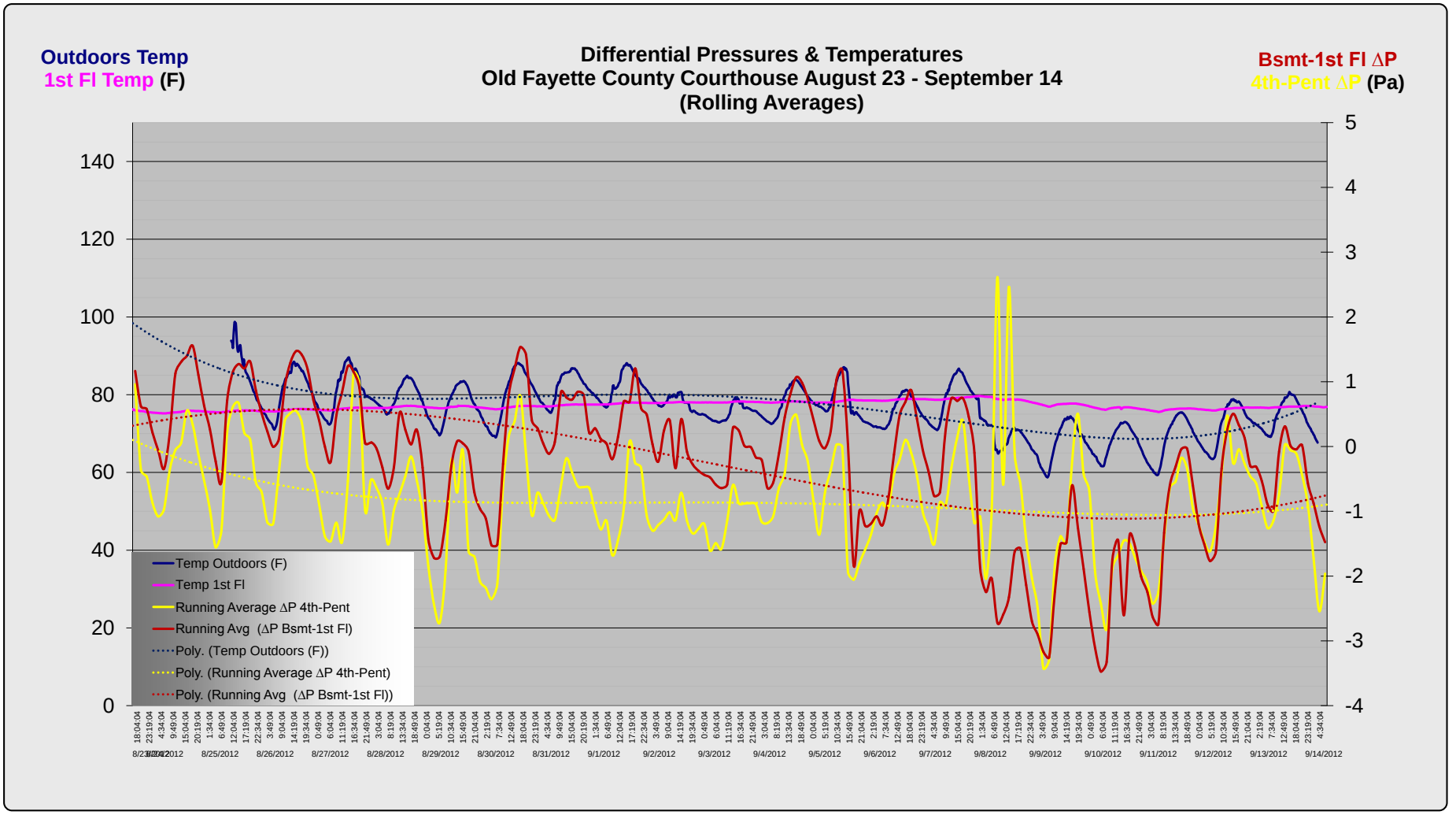


Figure 2: Rolling averages of differential pressure relationships are shown for clarity.

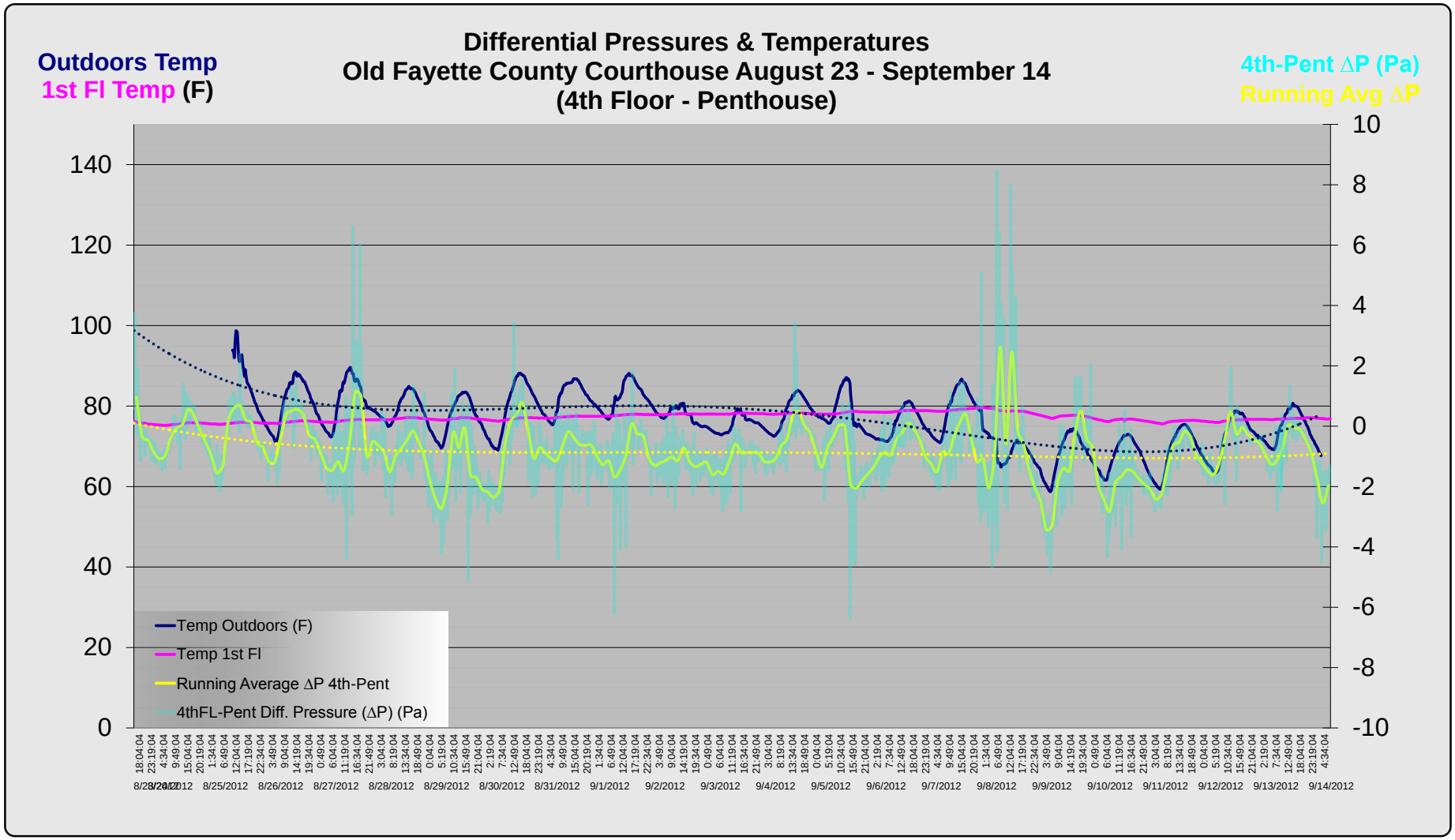


Figure 3: Rolling averages of 4th floor/penthouse and raw data peaks are compared.

RADON

As an indoor contaminant, radon is unique in two ways. First, it is the only naturally occurring indoor contaminant (other than biological contaminants); it is not a product of modern or ancient technology. Second, it poses a lifetime lung cancer risk many orders of magnitude higher than commercial chemicals considered by EPA to pose significant cancer risks to the population. Radon is a noble gas produced in the radioactive decay of radium, found in uranium ores and a number of common minerals. It diffuses into buildings from the ground, and its subsequent decay products can be breathed and can cause lung cancer.

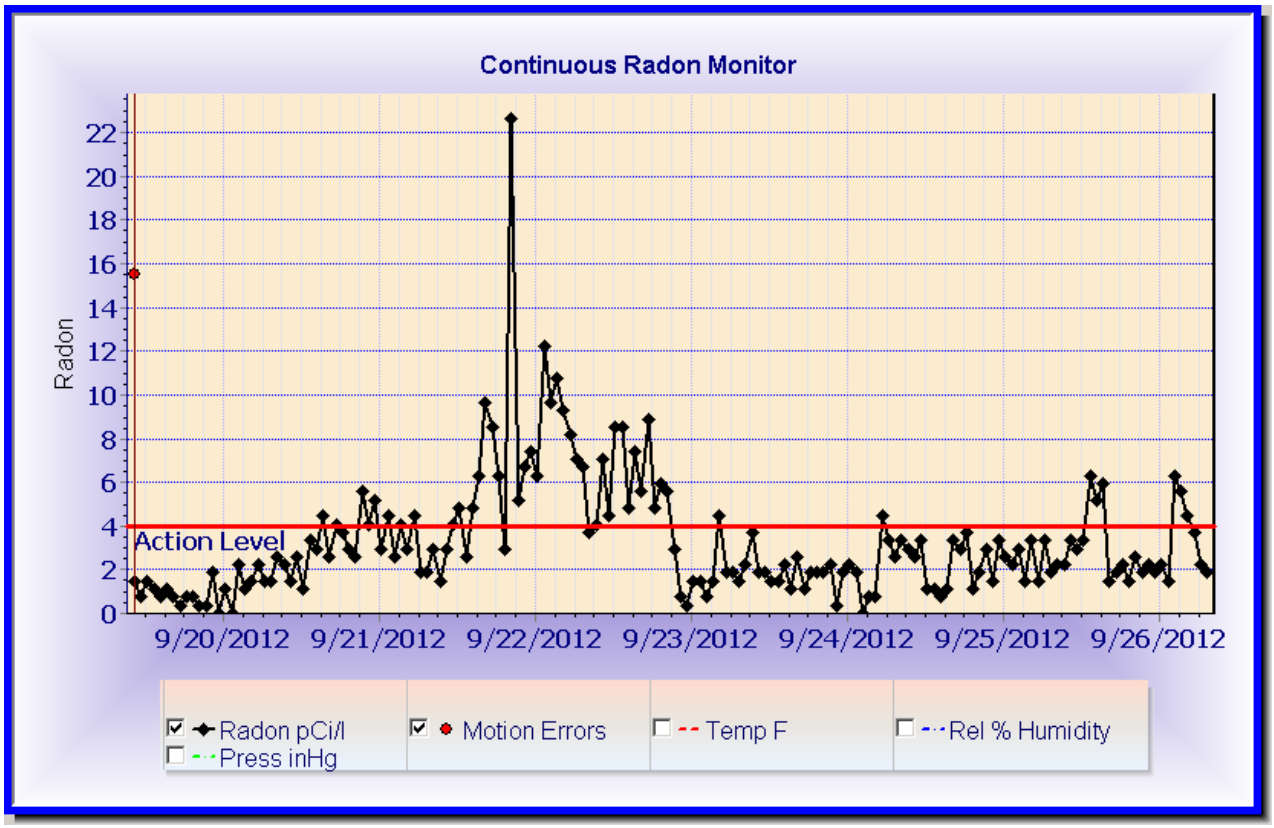
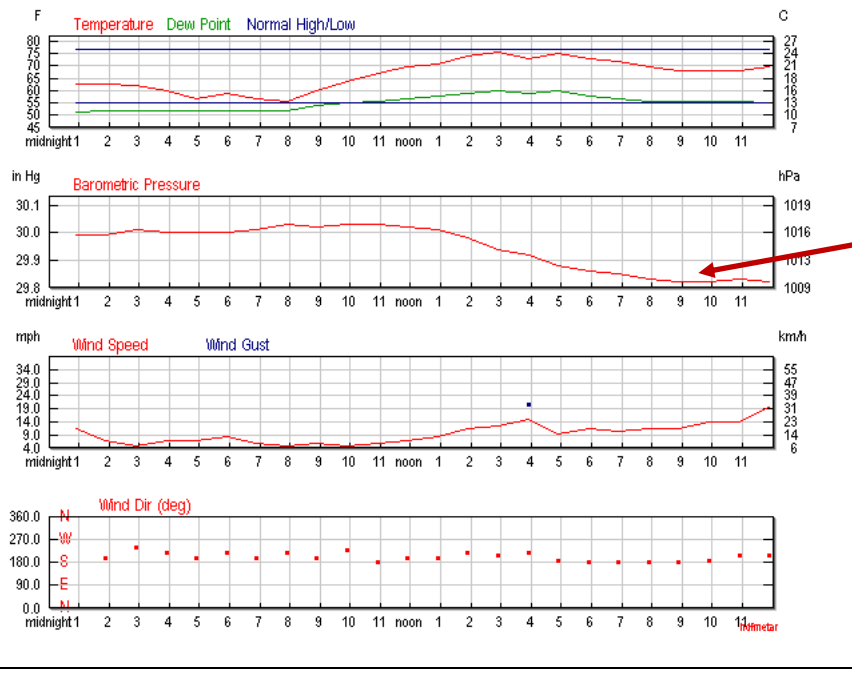


Figure 4: Hourly readings of Radon from September 19th to September 26th. The EPA average for the measurement period is 3.3pCi/l, which is below the EPA action limit of 4pCi/l. However the average is skewed by the aberrant weather noted on September 21st, which correlates with the spiked readings during that evening. Long term data is needed to put the effects of weather in proper perspective.

The following chart shows the drop in atmospheric barometric pressure that corresponds to the spiked Radon readings noted during the evening of September 21st.



September 21st weather **note**

Note: Chart provided courtesy of www.wunderground.com history, accessed September 26th.

Recommendations

September 27th Revision 2 Summary Update:

Radon screening test results indicate the need for a long term test for more reliable data. Given the relative pressure variability due to atmospheric conditions and other implementation issues, positive pressurization of the occupied space with respect to adjacent contaminated spaces is recommended to reduce occupant exposure risk to the various potentially airborne hazardous contaminants until the hazards are removed. Even so, an operations and management plan should be implemented to minimize the risks of occupant exposure to potential airborne contaminants in the penthouse and basement, as well as lead paint hazards that have been identified by a separate study.

September 20th Revision 1 Summary Update:

The water source that is most likely causing water damage in the Fallen Heroes Room is a leakage path from the second floor balcony, which is not shedding water outward. Visible mold growth noted above the ceiling on the first floor may be remedied by properly-trained maintenance personnel. Asbestos debris in the crawlspace prevented crawlspace depressurization and blocked implementation of aspects of the planned follow-up inspection. Short term Radon testing results shall be added in Revision 2.

Regarding Option 3 as presented in the original report, if the occupied space is to be isolated from the basement and penthouse; (1) either the asbestos must be abated or encapsulated to enable depressurization of the crawlspace and the penthouse placed under active ventilation, or (2) the occupied space must be positively pressurized with respect to the adjacent contaminated spaces. The second option is most likely the easiest to implement, given the unknowns concerning ventilating the penthouse and the known contamination of the basement/crawlspace. A blower door test would generate the approximate amount of outside air needed to positively pressurize the occupied space.

August 9th Original Summary:

Conditions observed are typical for structure of this type, age, and condition. Maintenance issues and suspect legacy contamination issues at this structure indicate attention is required to isolate occupants from possible exposure. The first set of lab results indicate that immune-compromised and other susceptible individuals should not

enter certain portions of the building, specifically the first floor “Fallen Heroes” Exhibit, the first floor hallway, and the first floor north corner Public Safety Exhibit. Limited rainfall has reduced water intrusion issues at this time; however, site observations support these recommendations to reduce potential exposure risks.

Follow-up visits and monitoring of certain site conditions are planned. **Appendix C: Proposed Study Plan** provides details of the methodology that is planned to collect the data needed to support further recommendations.

The Old Fayette County Courthouse is not conducive to a straightforward solution due to real-world budgetary considerations and occupancy requirements. This IAQ study will presume three options exist for this structure:

Option 1: Conduct restoration of HVAC, plumbing, and infrastructure systems, coupled with complete abatement of suspected contamination (bioaerosol and otherwise) to provide a safe environment throughout the building.

Option 2: Abandon the building.

Option 3: Isolate contaminated spaces to provide a safe and manageable environment in the currently occupied spaces.

Upon completion of the follow-up assessments, a Remediation Plan will be issued that specifies sampling, building modification recommendations, and verification criteria to confirm success of the remediation process.

For our perspective on mold testing, consider that the conditions conducive to mold growth of species that are not considered “dangerous” by some “authorities” are also conditions that would support the growth of known pathogenic species. Consequently, observing suspect visible growth in areas with conditions that also indicate inadequate water/moisture control is sufficient reason to recommend correcting the water problem without incurring the expense of mold testing prior to action. Mold testing by an independent third party testing authority, formally known as an Indoor Environmental Professional (IEP) in remediation guidance standards, may occur following remediation to confirm satisfactory action and to prevent the appearance of a conflict of interest. This is the common sense approach preferred by ASTI unless legal and health circumstances warrant rigorous methods for documentation and diagnostic purposes.

Considering the conditions observed; no air sampling is needed to justify recommending the cleaning and/or removal of water-damaged materials. Air sampling results are not a reliable indicator of relative airborne mold levels. V*ery briefly stated* (italics added for emphasis, BNF), there are no exposure guidelines for molds and their associated contaminant exposure mechanisms of volatile mycotoxins and of airborne spores. The following is an excerpt from the California Department of Public Health's (CDPH) *Statement on Building Dampness, Mold, and Health*:

CDPH has concluded that the presence of water damage, dampness, visible mold, or mold odor in schools, workplaces, residences, and other indoor environments is unhealthy. We recommend against measuring indoor microorganisms or using the presence of specific microorganisms to determine the level of health hazard or the need for urgent remediation. Rather, we strongly recommend addressing water damage, dampness, visible mold, and mold odor by (a) identification and correction of the source of water that may allow microbial growth or contribute to other problems, (b) the rapid drying or removal of damp materials, and (c) the cleaning or removal of mold and moldy materials, as rapidly and safely as possible, to protect the health and well-being of building occupants, especially children.

Old Fayette County Courthouse IAQ Project Note: Given the high profile nature of this investigation, a mutual decision was made to collect a select number of samples to satisfy the inevitable critics that would question why no samples were collected. However, the air sample results should be considered only as possible indicators of hidden growth, not as evidence contrary to visual observations. Reference 24 details several examples of air sampling providing a false indicator of mold growth.

Note that professional mold remediation firms may require a mold remediation plan that specifies the scope of necessary mold remediation work and that outlines the post-remediation verification (PRV) and its associated PRV criteria for acceptance of the remediation work. The PRV criteria define success for the remediation contractor. The contractor uses this documentation and associated testing as legal protection that gives proof they have satisfactorily completed the remediation work as specified by the IEP.

In general, Air Source Technology, Inc. makes the following recommendations to homeowners and facility managers to address indoor air quality concerns:

A. If dealing with mold (suspect or confirmed) always use the proper Personal Protective Equipment (PPE). According to Reference No. 3, EPA's mold remediation guidelines, this includes at least a N95 respirator, rubber gloves, and goggles. Refer to Reference No. 3, the EPA mold remediation document, for guidance in determining if professional assistance might be warranted or desired.

B. As discovered, clean any visible microbial contamination with a detergent, biocide and/or mild bleach solution (1 part bleach to 10 parts water), depending on the surface. Refer to Reference Numbers 3 & 4 (both are government-sponsored documents, which are available free from the Internet) for additional information regarding remediation techniques and about how to determine the need for professional assistance.

For the Lexington-Fayette County Urban Government, Air Source Technology, Inc. makes the following recommendations to address indoor air quality concerns in the surveyed areas prior to implementing the mold remediation plan:

1. A follow-up study should be conducted after rainfall to identify the specific water intrusion pathways. Refer to Appendix C for details of a proposed follow-up study.
2. In conjunction with the follow-up study, a remediation plan will be provided to remove mold growth.
3. Correct water intrusion issues prior to conducting the mold remediation work.
4. Normal moisture content of remaining building materials should be confirmed prior to verification of remediation.
5. Although outside the scope of this study, a qualified electrician should address the power provided to the window-mounted heat pumps.
6. Considering the current moisture migration pathway through the porous stone/masonry exterior wall of the Public Safety Room, placing a vapor barrier (the glass face of a wall-mounted picture) on the wall ensures a surface that may be at dew point, causing mold growth inside the picture. To stop moisture movement into the picture frame that will reach the glass surface, take the following steps:

a. Apply an oil-based primer (two coats will probably be needed) to the paper backside of the frame to act as a vapor barrier and to stop moisture-laden air movement into the picture.

b. Apply Foster 40-25 or Foster 40-20 to the primed backside to stop mold growth the new condensing surface.

c. Install spacers, if possible, to increase the distance of the wall-mounted picture from the wall, increasing circulation behind the picture.

This will stop mold growth within the picture frames until the moisture intrusion can be corrected.

September 20th Revision 1 Updates:

7. The water source that is most likely causing water damage in the Fallen Heroes Room is a leakage pathway within the brick and stone façade that originates at the second floor balcony. Remove the vegetation on the balcony, identify and seal the intrusion points on the balcony, and provide an outward drainage path away from the building wall.
8. Collect and aggregate condensate drains from window-mounted heat pumps and direct their flow away from the building envelope.
9. If window-mounted heat pumps are to continue being used, install them more properly with closer attention to drainage patterns and air leakage and electrical service. Consult a professional mechanical engineer for details.
10. Considering the HVAC piping has been decommissioned in the building, remove damaged pipe insulation on the first floor, observing safety precautions as described above.
11. If the building is to be renovated, consult an experienced masonry professional to closely inspect the stone work, repair damaged sections, and apply an appropriate sealant to minimize moisture movement within the envelope.
12. Consult a roofing specialist to address scupper and gutter overflow issues associated with the north corner roof drainage.

September 27th Revision 1 Updates:

13. When the short term datalogger was placed in the basement, a long term sensor was also left in the same space, which was selected to measure levels in a likely potential radon pathway to the rest of the building. A long term Radon test, using multiple sensors is recommended for more reliable data. Additional long term sensors would provide a better insight into Radon levels in other basement areas and their relationship to potential contaminant pathways to the rest of the building.

14. Consider the following effects of placing the basement under negative pressure for isolation purposes: (1) the issues associated with filtering exhausted air from the basement and (2) the deleterious effect of probably increasing basement radon levels due to negative pressurization. Positive pressurization of occupied spaces for isolation purposes is recommended, if the building is to be occupied before to correcting hazard issues in the contaminated spaces.

    Also, an operations and management plan should be implemented to minimize the risks of occupant exposure to potential contaminants in the penthouse and basement, as well as lead paint hazards that have been identified by a separate study.

APPLICABLE REFERENCES

1. Guidance for Clinicians on the Recognition and Management of Health Effects Related to Mold Exposure and Moisture Indoors, 2004, University of Connecticut Health Center with EPA sponsorship and input,
2. Standard and Reference Guide for Professional Water Damage Restoration (IICRC S500), 3rd Edition, 2006, Institute of Inspection, Cleaning and Restoration Certification (IICRC)
3. Mold Remediation in Schools and Commercial Buildings, (EPA Document 402-K-01-001, September 2008 edition). Environmental Protection Agency (EPA)
4. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, November 2008, New York City Department of Health (NYCDOH)
5. Centers for Disease Control & Prevention (CDC) web site
6. Assessment, Remediation, and Post-Remediation Verification of Mold in Buildings – AHIA Guideline 3-2004, 2004, American Industrial Hygiene Association (AIHA).
7. Recognition, Evaluation, and Control of Indoor Mold – AHIA Guideline 2008, 2008, American Industrial Hygiene Association (AIHA)
8. Standard and Reference Guide for Professional Mold Remediation (IICRC S520), 2nd Edition, 2008, Institute of Inspection, Cleaning and Restoration Certification (IICRC).
9. Mahooti-Brooks, N., Storey, E., Yang, C., Simcox, N., Turner, W., Hodgson, M. "Characterization of Mold and Moisture Indicators in the Home" *Journal of Occupational and Environmental Hygiene,* 1: 826-839. December 2004.
10. Bioaerosols, Assessment and Control, 1999, American Conference of Governmental Industrial Hygiene (ACGIH).
11. Moisture Control Handbook – *Principles and Practices for Residential and Small Commercial Buildings*, 1994, John Wiley & Sons, Inc
12. Moisture Control Handbook Errata, Issued by Joseph Lstiburek, June 22, 2002
13. Standards of Practice for the Assessment of Indoor Environmental Quality, Volume I: Mold Sampling: Assessment of Mold Contamination, 2nd Edition, June 2003, Indoor Environmental Standards Organization (IESO).
14. Yang, Chin S., Ellringer, Paul J. "Antifungal treatments and Their Effect on Fibrous Glass Liner," *ASHRAE Journal*, April 2004. American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
15. *"Prevention and Remediation of Damp Indoor Environments," (Chapter 6, pp. 270-310*) of the 2004 Institute of Medicine (IOM) report Damp Indoor Spaces and Health.

16. *"Ability of Bleach and Other Biocide Treatments to Remove and Prevent Mold Growth on Douglas-fir Lumber", Forest Products Journal Volume 54 No. 4: 45-49 (2004)*

17. Post-Remediation Verification and Clearance testing for Mold and Bacteria – Risk-Based Levels of Cleanliness Standards, 3rd Edition, 2010, OEHCS, Inc, Publications Division

18. Building Science for Building Enclosures, 2005. Building Sciences Press. Straube, J.F., Burnett, E.F.P.

19. Builder's Guide to Mixed-Humid Climates, 2005, Energy & Environmental Building Association, Joseph Lstiburek, Ph.D., PE

20. Krause, M., et. al., "*Controlled Study of Mold Growth and Cleaning Procedure on Treated and Untreated Wet Gypsum Wallboard in an Indoor Environment"* Journal of Occupational and Environmental hygiene, 2006, Volume 3: 445-441.

21. *Healthy and Affordable Housing: Practical Recommendations for Building, Renovating and Maintaining Housing*, 2005, U.S. Dept. of Housing and Urban Development and the Building America Program at the U.S. Dept. of Energy.

22. Fergusson, B.N., *A Systematic Examination of the Building Envelope*, 2011, Proceedings of the 14th Annual Meeting and Indoor Air Expo, San Antonio, Texas, Indoor Air Quality Association

23. Fergusson, B.N., *Moisture Migration Within and Through the Building Envelope*, 2012, Proceedings of the 15th Annual Meeting and Indoor Air Expo, Las Vegas, Nevada, Indoor Air Quality Association

24. Adkins, C. K., Fergusson, B.N., *Alternative Approaches to Post Remediation Verification*, Proceedings of the 15th Annual Meeting and Indoor Air Expo, Las Vegas, Nevada, Indoor Air Quality Association

25. Statement on Building Dampness, Mold, and Health, September 2011, California Department of Public Health

26. Guidelines for Design and Construction of Health Care Facilities, 2010, ASHE (American Society for Healthcare Engineering of the American Hospital Association)

27. ANSI/ASHRAE/ASHE Standard 170-2008, Ventilation of Health Care Facilities

Appendix A

Images & Sketches

June 19th Photographs

Photograph #1: Satellite view ("North" is vertical)

Photograph #2: Northwest wall in Fallen Heroes Memorial Room with visible mold and efflorescence

Photograph #3: Pipe chase in Fallen Heroes Memorial Room

Photograph #4: Debris inside pipe chase and water-stained drywall

Photograph #5: Construction of exterior wall inside pipe chase

Photograph #6: Debris in crawlspace under west quadrant of building (typical)

Photograph #7: Access crawlspace at basement hallway near stairway

Photograph #8: Basement - active water intrusion

Photograph #9: Basement - active water intrusion

Photograph #10: Basement - active water intrusion

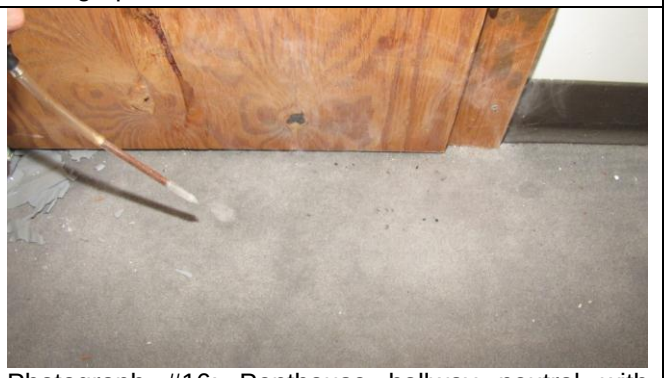
Photograph #11: Basement - active water intrusion

Photograph #12: Basement potential exhaust vent

Photograph #13: Basement - active water intrusion

Photograph #14: Penthouse entrance

Photograph #15: Penthouse negative with respect to hallway



Photograph #16: Penthouse hallway neutral with respect to adjacent attic storage room

Photograph #17: Attic debris

Photograph #18: Sample LF-1 Fallen Heroes Room

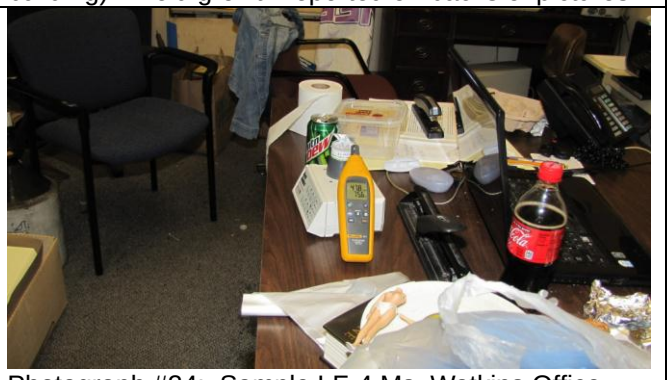
Photograph #19: Northwest entrance of First Floor Hallway with visible growth on ceiling tile

Photograph #20: Room 121 stained ceiling tile northwest wall

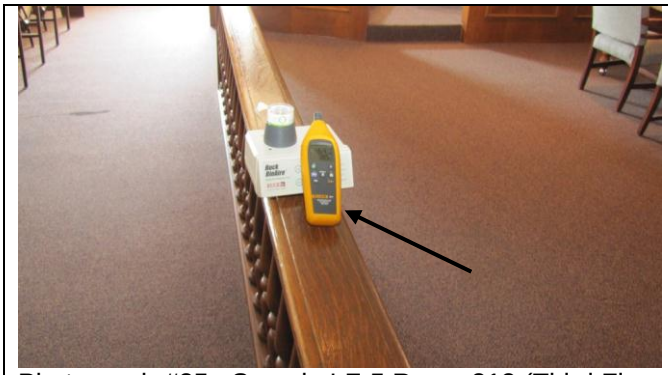
Photograph #21: Sample LF-2 Public Safety Room (east corner of building)

Photograph #22: Public Safety Room (east corner of building) - mold growth reported on backs of pictures

Photograph #23: Sample LF-3 Second Floor Hallway



Photograph #24: Sample LF-4 Ms. Watkins Office



Photograph #25: Sample LF-5 Room 312 (Third Floor Courtroom)

Photograph #26: Third Floor Storage room (east corner) with light musty odor

Photograph #27: East corner with overflow from rooftop scupper and poor slope on window-mounted heat pump (Note staining on stone.)

Photograph #28: First floor Public Safety Room below Photograph #27

Photograph #29: West balcony in vicinity of issues in first floor hallway (See Photographs #2 & #19)

Photograph #30: Room 312 heat pump with poor outward slope

Photograph #31: Another heat pump with poor outward slope (typical)

Photograph #32: Sample LF-6 Third Floor Stairway

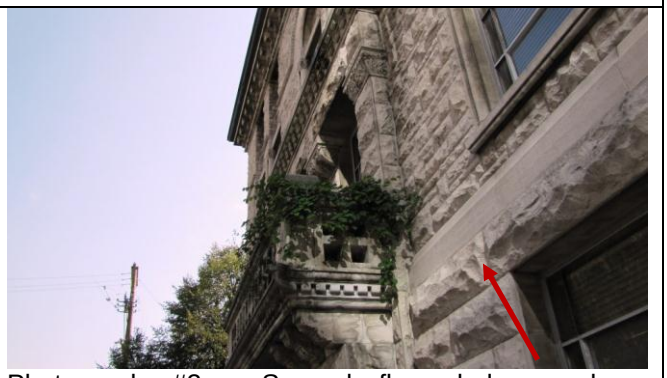
Photograph #33: Extension cord powering heat pump (typical)

Photograph #34: Condensate from heat pump (southwest wall)

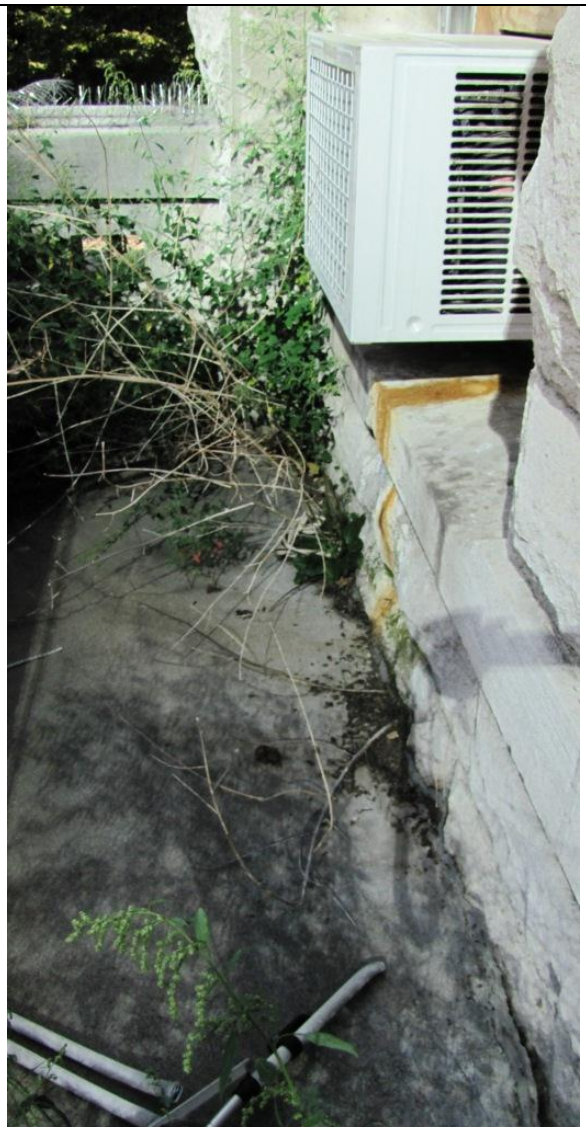
Sketch 1: Approximate location of basement area with respect to first floor
(Note: HVAC equipment is located under sidewalk. Perspective of Photograph # 6 is indicated by the black arrow.) Numbers indicate various photograph locations on first floor and in basement.

September 14th Photographs

Photograph #1: Second floor northwest balcony

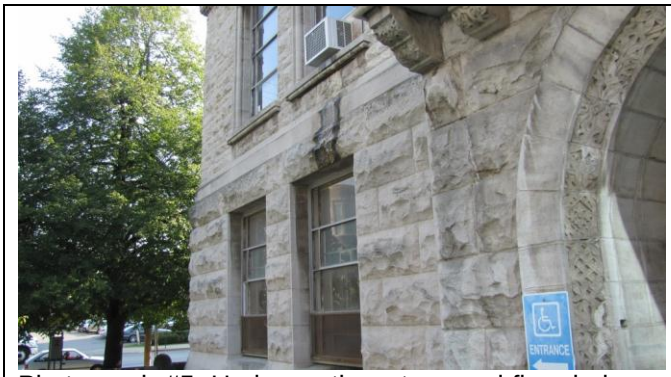


Photograph #2: Second floor balcony above northwest wall in Fallen Heroes Memorial Room with visible mold and efflorescence (arrow)



Photograph #3: Northwest second floor balcony with working heat pump

Photograph #4: Heavy water staining under a working heat pump



Photograph #5: Under northwest second floor balcony with working heat pump and little evidence of water

Photograph #6: Under northwest second floor balcony with working heat pump and little evidence of water

Photograph #7: Heavy vegetation on second floor balcony

Photograph #8: Water intrusion at second floor balcony window

Photograph #9: Basement open grate near building

Photograph #10: Basement open grate near sidewalk

Photograph #11: Visible staining above ceiling tiles in Fallen Heroes Room

Photograph #12: Baseline moisture measurements in Fallen Heroes Room

Photograph #13: " Wet" measurement in Fallen Heroes Room inner wall (typical)

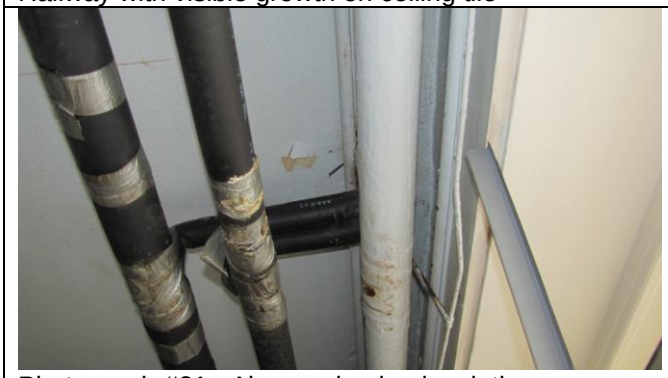
Photograph #14: Wet" measurement in Fallen Heroes Room outer wall (typical)

Photograph #15: Inner wall construction near corner in Fallen Heroes Room

Photograph #16: Above Room 120 stained ceiling tile northwest wall – (Note suspect ACM pipe joint)

Photograph #17: Northwest entrance of First Floor Hallway with visible growth on ceiling tile

Photograph #18: Above Photograph #17 with visible suspect growth



Photograph #21: Air gaps in pipe insulation

Photograph #24: Above Photograph #17 elevated moisture content

Appendix B

Lab Results

Appendix C
Proposed Study Plan

Proposed Follow-up IAQ Study Plan (Presumes Option 3)

1. ASTI conducted an initial site survey on June 19th to assess conditions, collect limited air sampling, and prepare for follow-up visits and monitoring. The following is a very brief summary of conditions as noted on the June 19th visit:
    a. Lab results from initial limited air sampling indicate mold issues in Fallen Heroes Exhibit Room and possibly north Public Safety Exhibit Room.
    b. Visual evidence of chronic water intrusion issues.
    c. Very limited knowledge of HVAC systems as currently operating.
    d. Initial observations, constrained by current relatively arid conditions, indicate limited areas of active mold growth within functioning occupied spaces. Further conclusions will follow the follow-up visits.
2. ASTI will conduct a follow-up visit (preferably after rainfall) of the following areas of interest, noting that more items may arise after rain:
    a. Inspect crawlspace (using appropriate PPE) and elevator shaft and potential contamination pathways to adjacent spaces.
    b. Inspect second floor west end for water intrusion pathway(s) into Fallen Heroes Exhibit Room and the First Floor west hallway ceiling.
    c. Confirm northwest outdoor grate locations and their suitability for exhaust venting of the basement.
    d. Conduct closer inspection of exterior north corner.
    e. Investigate HVAC ductwork configuration and HVAC-related inter-floor potential contamination pathways.
    f. Update report.
3. Conduct differential pressure (ΔP) monitoring to determine suitability of structure for isolation of currently contaminated basement and penthouse from adjacent occupied space.

a. Setup data-logging equipment to monitor long term ΔP trends (1) between the basement and first floor and (2) between the basement and outdoors.

b. Setup data-logging equipment to monitor long term differential pressure (ΔP) trends (1) between the fourth floor and the third floor and (2) between the fourth floor and the penthouse.

c. Track conditions at least 15 days to include a thunderstorm. If no high winds, thunderstorm, low pressure system, or other weather disturbance occurs, then continue to monitor until one happens. Verify operation after one day, then on a weekly basis until complete.

d. Depending on results, attempt to determine air flow required to isolate contaminated spaces from adjacent occupied spaces. This may require equipment rental and minor temporary baffle construction to generate test conditions and verify feasibility of active isolation through pressure.

e. Update report with recommendations and remediation plan, if applicable.

Lead-Based Paint
Risk Assessment Report

215 West Main Street
Lexington, KY 40507

Prepared For:

Scott Kelsey
Lexington Fayette Urban County Government
1555 Old Frankfort Pike
Lexington, KY 40504

Conducted By:

Air Source Technology, Inc.
160 Prosperous Place, Suite 201
Lexington, Kentucky 40509
(859) 299-0046

Michael B. McGonigle

Michael B. McGonigle, Certified Risk Assessor
Kentucky Certification Number: KY 41-009
EPA Certificate Number: LRA-270

Report Date: July 12, 2012

TABLE OF CONTENTS

Part I: Identifying Information **Page**

1. Owner Name, Address and Phone Number Cover Page
2. Risk Assessor Name and Certification Number Cover Page
3. Date of Risk Assessment Cover Page
4. Summary 1-3

Part II: Results of Management, Maintenance and Environmental Analysis

5. Resident Questionnaire 4
6. Maintenance/Paint Condition Information Form 5-6
7. Building Condition Form 7
8. Brief Narrative Description of Dwelling Selection Process 8
9. Analysis of Previous XRF Testing Report 8
10. List of Location and Type of Actual or Suspected Lead Hazards 8
11. Deteriorated Paint Sampling Results 9
12. Soil Sampling Results 10
13. Dust Sampling Results 11

Part III: Potential Lead Control Plan

14. Lead Hazard Control Options 12
15. Recommended Paint Management 16
16. Interim Control Options and Estimated Costs 16
17. Abatement Options and Estimated Costs 16
18. Reevaluation Schedules for Different Options 17
19. Certificate of Lead-Based Paint Compliance 18

Appendices

Photographs
Laboratory Results
Sample Locations
List of Certified Lead Professionals
EPA's Lead Brochure
Kentucky Lead Certification

SUMMARY

At the request of Scott Kelsey, LFUCG, a lead -based paint risk assessment was conducted at the History Museum, 215 West Main Street, Lexington, Kentucky. The property inspected was a five story commercial property with basement. The original construction date was thought to be 1898 with at least one major renovation in the 1960's. Michael B. McGonigle, a Certified Risk Assessor (Kentucky Certification Number KY 41-009), conducted the lead risk assessment on July 10, 2012.

The building was evaluated and most of the building paint on floors 1 thru 4 was in good or fair condition. The paint in the penthouse and basement was in poor condition.
The following lead hazards were identified:

1. ***Deteriorated lead-based paint on the interior building components.***
2. ***Lead dust on the floors and other components.***

WHAT IS A LEAD HAZARD ?

Lead is hazardous, especially for children who are 6 or younger. People can get lead in their bodies by breathing or swallowing lead dust, or by eating soil or paint chips with lead in them.

Lead-based paint is defined any paint or surface coating that contains lead equal to or in excess of 1.0 milligram per square centimeter (1.0 mg/cm^2) or equal to or in excess of 0.5% by weight.

Lead-based paint is a hazard when it is:

1) on **friction surfaces**. The paint on surfaces like window sashes and jambs can break down during normal use and release lead. When a window is opened and closed, it can rub through to the lead-based paint and cause dust and chips to be released.
2) on **impact surfaces**. A door and doorframe banging together can chip paint. Surfaces like floors or stairs that are walked on or rubbed, scratched or grated can release lead. Movement of toys and furniture, and even people walking can cause lead dust.
3) on **child-accessible surfaces**. These are surfaces, such as windowsills, railings, door edges and stair edges that have been or may be chewed on or mouthed by a child.
4) **deteriorating, e.g., chipping, peeling, flaking, or chalking**. When lead paint breaks down or is disturbed due to remodeling, renovating, dry scraping or water damage, paint chips and dust can be released that can contaminate the building and be easily ingested by young children through hand-to-mouth activity.

Only deteriorated paint was sampled. However, many other "intact" painted surfaces were not tested per the regulatory protocol defined in the Kentucky Cabinet for Health

Services, Department of Public Health, Division of Environmental Health & Community Safety, 902 KAR 47:100E.

Other components not tested should be examined for lead content prior to scraping or sanding when repainting becomes necessary in the future.

To determine if a lead hazard exists, compare the results of the laboratory analysis for a sample to the following standards. If the results are equal to or higher than these standards, a lead hazard is present.

Most of the painted surfaces were in good or fair condition with minor peeling or a small amount of paint missing. A considerable portion of the paint in the penthouse and basement areas is in poor condition. EPA and HUD define a ***paint** hazard* to be lead-based paint in any deteriorated condition. Poor paint condition is defined as follows: 1) greater than 10 % deterioration of the total surface for interior and exterior components with small surface areas (window sills, baseboards, soffits, trim); 2) more than 2 square feet deteriorated for interior components with large surface areas (walls, ceilings, floors, doors); or 3) more than 10 square feet deteriorated for exterior components with large surface areas (siding, porch ceilings, porch floors). ***Lead paint in deteriorated condition was identified, therefore, the paint is considered to be a hazard.***

The HUD and EPA standard for ***soil*** is 400 μg/g (ppm) for high contact areas (play areas). Additionally, the HUD and EPA standard for areas children are less likely to contact (building perimeter) is 1,200 μg/g. All other areas must be less than 5,000 μg/g. No bare soil was noted in play areas or building perimeter. The soil around the building was not tested and therefore is not considered a lead hazard.

The HUD and EPA ***dust*** standard is 40 $\mu g/ft^2$ for floors, 250 $\mu g/ft^2$ for interior window sills, and 400 $\mu g/ft^2$ for window troughs. The dust standard for horizontal exterior surfaces is 800 $\mu g/ft^2$. ***The lead dust levels on the floors and other interior surfaces of this building are considered a lead hazard.***

The owners are advised to implement the following interim control measures which are acceptable based on HUD's 1995 Guidelines for the evaluation and Control of Lead-Based Paint Hazards in Housing.

- HEPA vacuuming and wet washing with an appropriate cleaning agent.
- Stabilize the paint on all deteriorated surfaces of the building.

After the work has been completed, clearance dust samples are recommended to make certain that the building is lead-safe before occupants or general public are allowed into the building.

Reevaluation: Because existing dust levels exceeded the applicable standard by more than a factor of ten, the reevaluation frequency is recommended at six months, one year, and two years. However, the owner or owner's representative should visually

survey painted surfaces at least annually and whenever information indicates a possible problem.

The risk assessment is used to identify both existent and potential lead hazards in the building environment that can be a contributing factor to lead poisoning. Lead poisoning in children under six years of age can cause serious and potential life long health effects to the child. In adults and children large concentrations of lead in the body can damage the nervous system, reproductive function, and can even be fatal. It is important to act quickly to correct all known lead hazards to reduce or eliminate additional exposure. It is the responsibility of the building owner to make this report available to any future purchasers of the property.

Occupant Questionnaire ***Not conducted***

1. (a) Do you have any children that live in your home? Yes____ No___.
   (If no children skip to Question 5.)
   (b) If yes, how many? ___. Ages? _____
   (c) Record blood lead levels, if known. _____
   (d) Are there women of child-bearing age present? Yes____ No___.
2. Location of the rooms/areas where each child sleeps, eats, and plays.

Name of child	Location of bedroom	Location of all rooms where child eats	Primary location where child plays indoors	Primary location where child plays indoors

3. Where are toys stored/kept? _____
4. Is there any visible evidence of chewed or peeling paint on the woodwork, furniture, or toys? Yes____ No ____.

Family Use Patterns

5. Which entrances are used most frequently? _____
6. Which windows are opened most frequently? _____
7. Do you use window air conditioners? If yes, where? _____
8. (a) Do any household members garden? Yes __ No __
   (b) Location of garden? _____
   (c) Are you planning any landscaping activities that will remove grass or ground covering? Yes _____ No __.
9. (a) How often is the household cleaned? _____
   (b) What cleaning methods do you use? _____
10. (a) Did you recently complete any building renovations? Yes ___ No _____
    (b) If yes, where? _____
    (c) Was building debris stored in the yard? If yes, where? _____
11. Are you planning any building renovations? _____
12. (a) Do any household members work in a lead-related industry? Yes __ No __
    (b) If yes, where are dirty work clothes placed and cleaned? _____

MAINTENANCE/PAINT CONDITION INFORMATION FORM

1. Condition of Paint on Selected Surfaces
   Recorded during on site investigation by risk assessor

Building Component	Location Notes	Paint condition (intact, fair, poor, or not present)	Deterioration due to friction or impact?	Deterioration due to moisture?	Location of painted component with visible bite marks
Building siding	Masonry	N/A			
Exterior trim	Masonry	N/A			
Exterior window	Aluminum	N/A			
Exterior doors		Fair			
Railings		Fair			
Porch floors		N/A			
Other porch surfaces		N/A			
Interior doors		Fair			
Ceilings		Intact			
Walls	Poor in penthouse and basement	Fair			
Interior windows		Fair			
Interior floors		N/A			
Stairways		Fair			
Radiator (or cover)		Fair			
Kitchen cabinets		N/A			
Bathroom cabinets		N/A			
Other surfaces	Poor in penthouse and basement	Fair			

If the overall condition of a component is similar throughout a dwelling, that condition should be recorded. If a component in a couple of locations is in poor condition but the overall condition is good or fair, the specific sites of the badly deteriorated paint should be noted. The specific locations of any component with bite marks should be recorded.

MAINTENANCE/PAINT CONDITION INFORMATION FORM
(Not provided)

2. Painting frequency and methods

   a. How often is painting completed?

   b. Is painting completed upon vacancy, if necessary?
   ___ Yes ___ No

   c. Who does the painting? ___ Property Owner ___ Residents
   (if residents skip to question 2)

   d. Is painting accompanied by scraping, sanding, or paint removal?
   ___ Yes ___ No

   e. How are paint dust/chips cleaned up? (check one)
   ___ Sweeping ___ Vacuum ___ Mopping
   ___ HEPA/wet wash/HEPA cycle ___ Other

   f. Is the work area sealed off during painting?
   ___ Yes ___ No

   g. Is furniture removed from the work area?
   ___ Yes ___ No

   h. If no, is furniture covered during work with plastic?
   ___ Yes ___ No

3. Is there a preventive maintenance program?
   ___ Yes ___ No

4. Describe work order system (if applicable, attach copy of work order form).

5. How are resident complaints received and addressed? How are requests prioritized? If formal work orders are issued, is the presence or potential presence of lead-based paint considered in the work instructions?

6. Record location of dwellings recently prepared for reoccupancy.
   _____, _____, _____.

BUILDING CONDITION FORM

CONDITION	YES	NO
Roof missing parts of surfaces (tiles, boards, shakes, etc.)		**X**
Roof has holes or large cracks		**X**
Gutter or downspouts broken or missing		**X**
Chimney masonry cracked, bricks loose or missing, obviously out of plumb		**X**
Exterior or interior walls have obvious large cracks or holes, requiring more than routine painting	**X**	
Exterior siding has missing boards or shingles		**X**
Water stains on interior walls or ceilings	**X**	
Walls or ceilings deteriorated	**X**	
Two or more windows or doors broken, missing, or boarded up		**X**
Porch or steps have major elements broken, missing, or boarded up		**X**
Foundation has major cracks, missing material, structural leans, or visibly unsound		**X**
Total number*	**3**	

* If the “yes” column has 2 or more checks, the building is considered to be in poor condition. Less than 2 checks in the “yes” column means that the building appears to be maintained and the Standard Reevaluation Schedule does not need to be revised. Only buildings in “good” condition are eligible for the Lead Hazard Screen.

Notes:

Brief Narrative Description of Dwelling Selection Process

N/A

Analysis of Previous XRF Testing

Previous XRF testing was available for review and identified several locations with lead-based paint.

List of Location and Type of Actual or Suspected Lead Hazards

The following lead hazards were identified:

1. Deteriorated lead-based paint on the interior building components.
2. Lead dust on the floors and other components.

FIELD SAMPLING FORM FOR DETERIORATED PAINT
(Note: Bulk vacuum cleaner dust included on this page)

Name of risk assessor: Michael B. McGonigle
Name of property owner: Lexington Fayette Urban County Government
Property address: 215 West Main Street, Lexington, KY

Sample Number	Component Samples	Rooms Included in Sample	Color	Lab Result (% by weight)
P-1	**Wall**	**Penthouse**	**Green**	**55**
P-2	**Column**	**Penthouse**	**Beige**	**40**
P-3	Wall	4th Floor	Beige	<0.0035
P-4	Door	4th Floor	Cream	0.073
P-5	Wall	4th Floor	Cream	0.021
P-6	**Wall**	**3rd Floor Courtroom**	**Beige**	**5.4**
P-7	**Arch**	**2nd Floor**	**Green**	**48**
P-8	Wall	2nd Floor	Beige	<0.0066
P-9	Wall	1st Floor	Beige	0.0056
P-10	Window Sill	1st Floor	Beige	0.15
P-11	**Wall**	**Basement**	**Beige**	**1.3**
P-12	**Wall**	**Basement**	**Beige**	**6.6**
P-13	Door Casing	Exterior Entrance	Black	0.3*****
P-14	**QA/QC Paint Spike**	**N/A**	**Gray**	**0.70**
D-1	Bulk vacuum cleaner dust	4th Floor	Gray/Brown	0.22
HUD standard		0.5 % by weight, 1.0 mg/cm^2 ,or 5000 μg/g		

***** Lab note: Sample contained substantial amounts of substrate which may affect the calculated results.

Total Number of Samples This Page **15**.
Page 1 of 1

Date of Sample Collection: 7/10/12
Date Shipped to Lab: 7/10/12
Date Results Reported 7/11/12
Approved by Deborah Britt

Field Sampling Form For Soil

(Composite Sampling Only)

Name of risk assessor: Michael B. McGonigle
Name of property owner: Lexington Fayette Urban County Government
Property address: 215 West Main Street, Lexington, KY

Sample Number	Location	Bare or Covered	Lab Result (μg/g)
	Building perimeter	Bare Spots	
EPA & HUD Standard for high contact areas (play area)			400 μg/g (ppm)
EPA & HUD Standard for bare soil, non-play area, drip line			1,200 μg/g (ppm)
EPA & HUD Standard for all other soil areas			5,000 μg/g (ppm)

Note: No play area or perimeter soil around building and therefore no soil samples collected.

Collect only top 1/2 inch of soil.

Total number of samples this page **0**

Page 1 of 1

Date of Sample Collection: _____ Date Shipped to Lab: _____
Date Results Reported _____ Approved by _____

Field Sampling Form for Dust

Name of risk assessor: Michael B. McGonigle
Name of property owner: Lexington Fayette Urban County Government
Property address: 215 West Main Street, Lexington, KY

Sample Number	Rooms included in sample	Dimensions sampled (in. x in.)	Total surface area sampled (ft2)	Type of surface sampled	Is surface smooth and cleanable?	Lab Result (μg/ft2)
W-1	**Penthouse**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**1,800,000**
W-2	**Penthouse**	**6 x 36**	**1.5**	Window sill	**yes**	**120,000**
W-3	4th Floor	8 x 56	3.11	Window sill	yes	49
W-4	**4th Floor**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**310**
W-5	**4th Floor**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**130**
W-6	4th Floor	8 x 56	3.11	Window sill	yes	65
W-7	4th Floor	3.5 x 31	3.83	Window sill	yes	11
W-8	4th Floor	12 x 12	1.0	Carpet	no	16
W-9	4th Floor	8 x 56	3.11	Window sill	yes	26
W-10	4th Floor	12 x 12	1.0	Carpet	no	13
W-11	3rd Floor	8 x 55.5	3.08	Window sill	yes	21
W-12	3rd Floor	12 x 12	1.0	Carpet	no	<10
W-13	3rd Floor	12 x 12	1.0	Smooth floor	yes	23
W-14	3rd Floor	10 x 42	2.92	Window sill	yes	8.2
W-15	3rd Floor	8.5 x 55.5	3.28	Window sill	yes	6.2
W-16	3rd Floor	12 x 12	1.0	Carpet	no	<10
W-17	3rd Floor	8.5 x 55.5	3.28	Window sill	yes	46
W-18	3rd Floor	12 x 12	1.0	Smooth floor	yes	38
W-19	2nd Floor	17 x 53	6.26	Window sill	yes	27
W-20	**2nd Floor**	**12 x 12**	**1.00**	**Smooth floor**	**yes**	**54,000**
W-21	2nd Floor	8.5 x 54	3.19	Window sill	yes	30
W-22	**2nd Floor**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**120**
W-23	2nd Floor	8 x 53	2.94	Mantle	yes	23
W-24	**2nd Floor**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**78,000**
W-25	2nd Floor	16 x 54	6.0	Window sill	yes	150
W-26	**2nd Floor**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**170**
W-27	1st Floor	17 x 54.5	6.43	Window sill	yes	21
W-28	1st Floor	12 x 12	1.0	Carpet	no	<10
W-29	1st Floor	10 x 54.5	3.78	Window sill	yes	5.3
W-30	1st Floor	12 x 12	1.0	Smooth floor	yes	<10
W-31	1st Floor	17 x 61	7.2	Window sill	yes	2.2
W-32	1st Floor	12 x 12	1.0	Carpet	no	16
W-33	1st Floor	8 x 54	3.0	Window sill	yes	22
W-34	1st Floor	12 x 12	1.0	Carpet	no	<10
W-35	**Basement**	**12 x 12**	**1.0**	**Smooth floor**	**yes**	**9,600**
W-36	**Basement**	**12 x 12**	**1.0**	**Shelf**	**yes**	**10,000**
W-37	QA/QC Lab Spike					180
W-38	QA/QC Field Blank					<3.4
W-39	QA/QC Field Blank					<10

HUD standards: 40 μg/ft^2 (floors), 250 μg/ft^2 (interior window sills), 400 μg/ft^2 (window well)
Total number of samples this page **39**.
Page 1 of 1.
Date of Sample Collection: 7/10/12 Date Shipped to Lab: 7/10/12
Date Results Reported 7/11/12 Approved by Deborah Britt

LEAD HAZARD CONTROL OPTIONS

RECOMMENDATIONS AND ORDERS

The results of this risk assessment identified locations where lead paint exists. A complete report of these locations is attached along with the results of any laboratory testing that was performed. The Owners of property are advised that the mere presence of leaded surfaces does not constitute a hazard, provided that painted surfaces and the substrate underneath the paint remains intact. Any intact lead-based paint on surfaces should be considered **potential lead hazards**.

Immediate lead hazards exist when paint that contains lead is:

- Chipping, peeling or flaking
- Chalking (creates lead dust)
- Friction surfaces (i.e., Parts of the window that rub together when opened & closed)
- Impact surfaces (door components banging together, any surface that is walked on, rubbed or scratched)
- Available & accessible surfaces (an area which can be mouthed by a child - windowsills, banisters, door edges, etc.)
- Disturbed by remodeling, renovating, and/or repainting
- Deteriorated surfaces caused from plumbing leaks, roof leaks, etc.

Correcting all immediate lead hazards should be done as soon as possible. Controlling the lead in the building through interim control measures can reduce immediate lead hazards.

TREATMENT OPTIONS

Owners have several options relative to the type of control measures chosen to reduce occupant exposure to lead hazards. Owners should consult with a licensed lead abatement contractor to obtain cost estimates for different treatments and choose the option that is financially acceptable to them.

Permanent abatement techniques - These include *removal* of lead-based paint or painted components, *enclosure,* or *encapsulation.* Each of these measures is designed to permanently eliminate the lead hazard for life of the building or remain effective for at least 20 years. These methods require no long-term monitoring or maintenance.

Abatement of lead hazards through replacement, removal, enclosure, or encapsulation of lead-contaminated surfaces must be done by a licensed lead abatement contractor. The only exception to this requirement is that an individual may do the work on his private residence without a license. An updated list of licensed lead abatement contractors can be obtained by calling the Kentucky Department of Public Health at (502) 564-4537.

Permanent abatement techniques include:

- Building component replacement

  Removal of doors, windows, trim and other building items that are coated with lead- based paint. Replace components with new lead-free components.

- Enclosure

  Attaching a durable barrier to building components. Seal edges and seams with caulk or sealant. Some appropriate enclosure materials are:

Surface location	Covering material
Interior finish	drywall, paneling, wainscot
Exterior finish	aluminum, vinyl siding
Exterior trim	aluminum or vinyl coil stock
Steps	vinyl or rubber tread and riser coverings
Floors	underlayment & vinyl or other sheet finish goods

- Paint removal

  1) On site.

  a) Heat guns (limited areas only) -temperatures below 1100 ºF

  b) Mechanical removal (HEPA sanding, wet scraping, HEPA vacuum blasting, HEPA vacuum needle gun).

  c) Chemical removal

  2) Offsite

  a) Chemical or other means at a facility not on the abatement site.

- Encapsulation

  Encapsulation renders lead-based paint inaccessible. Generally, encapsulants are attached to the surface by bonding the product directly to the surface or by using an adhesive.

- Permanent soil covering

  Cover bare soil with concrete, asphalt, or other permanent materials.

- Soil removal and replacement

  Bare soil above the HUD & EPA lead standards require removal of the top two to six inches of lead contaminated soil. Replace with new soil.

Interim controls are designed to reduce human exposure to lead. These controls include specialized cleaning, repair of deteriorated substrates, re-painting, temporary containment or covering, routine maintenance practices that promote dust-suppression, and thorough clean-up. Interim controls require continued monitoring over the life of the building.

Interim controls include:

- Paint film stabilization. Five key steps:

  1) Repair moisture or substrate problems.

2) Remove all loose surface material through wet scraping or wet sanding. This can be done by lightly misting areas where paint is to be removed using a spray bottle of water and a paint scraper. Or areas can be scrubbed with a wet abrasive sponge. Be sure to use plastic or a drop cloth to catch loose pieces of paint. Wrap any loose paint chips up in plastic (or the drop cloth) and dispose properly. Keep occupants, particularly children and pregnant women out of the work area. No more than two square feet of a floor, wall or ceiling should be disturbed.
3) Eliminate surface contaminants through cleaning and deglossing. This could include one or more of the following:
   a) Chemical degreasing or HEPA vacuum assisted sanding.
   b) Washing with multi-purpose cleaners.
   c) Thorough rinsing.
4) Paint application using appropriate primer -oil-based or alkyd-based.
5) Topcoat non-flat paint application from the same manufacturer - two coats.

- Friction and impact reduction
  Friction surfaces can be treated either by covering the surfaces with an abrasion resistant material to eliminate the friction *or* by repairing the component to good working condition so less dust is created.
  Impact surfaces can be protected by placing barriers in front of the impact surface (e.g., new shoe molding in front of baseboards).

- Dust removal / Cleaning
  Pick up debris, paint chips and dust from dirty or dusty areas, <u>especially from window troughs (wells)</u>. Use a vacuum cleaner equipped with a high efficiency particulate air (HEPA) filter or use a wet paper towel. Clean windowsills and window troughs with a general all-purpose cleaner and rinse with fresh water. Wet mop floors with a general all- purpose cleaner and rinse with fresh water.

- Soil covering
  Bare soil areas with lead concentrations equal or greater than 400 ppm and less than 5,000 ppm should be covered. Covering uses a non-permanent method such as: sod, grass, mulch, tilling, landscaping.

- Monitoring
  Check past repairs involving painted surfaces for deterioration regularly, at least annually and whenever information indicates a possible problem.

Lead abatement and lead reduction does not include the following set of measures designed to temporarily reduce lead hazards:

a) Vacuuming surfaces of a structure with a vacuum cleaner equipped with a high efficiency particulate air filter (HEPA).
b) Cleaning surfaces of a structure with lead-specific or high phosphate detergent.
c) Wet-scrubbing no more than two square feet of a floor, wall, or ceiling surface to remove peeling, chipping, chalking or cracking paint prior to repainting.

d) Activities to change use patterns or establish barriers between children and lead-contaminated bare soil including the temporary covering of lead-contaminated bare soil with mulch or gravel, the planting of ground cover or shrubbery, or fencing lead-contaminated soil to restrict access.

PROHIBITIVE MEASURES

NO DRY SCRAPING, DRY SANDING, OR OPEN FLAME STRIPPING OF LEAD CONTAINING SURFACES IS PERMITTED. NO MACHINE GRINDING OR SANDING WITHOUT HEPA VACUUM EXHAUST ATTACHMENTS IS PERMITTED. NO UNCONTAINABLE HYDRO-BLASTING OF EXTERIOR SURFACES OR USE OF HEAT GUNS REACHING TEMPERATURES ABOVE 1100ºF IS PERMITTED.

Protect occupants:
Occupants, especially young children must be kept away from the abatement area. Proper and thorough cleanup is important so that dust and paint chips are not left behind at the end of the job. After abatement work is done the building must pass a clearance test that will include dust wipe samples, to ensure that no lead dust, debris or paint chips are left behind. A visual check of past repairs involving painted surfaces should be done annually and whenever information indicates a possible problem.

Lead-Based Paint Policy Statement

The Owner may decide to adopt a lead-based paint policy statement, as follows:

The Owner is committed to controlling lead-based paint hazards in all its buildings. The Owner has the authority to direct all activities associated with lead hazard control, including directing training, issuing special work orders, informing building occupants, responding to cases of children with elevated blood lead levels, correcting lead-based paint hazards on an emergency repair basis, and any other efforts that may be appropriate. The Owner's plan to control such hazards is detailed in a risk assessment report and lead hazard control plan.

(Signed) _____ (Date) _____
(Owner)

(Signed) _____ (Date) _____
(Lead Hazard Control Program Manager)

Name of Individual in Charge of Lead-Based Paint Hazard Control Program

_____

Recommended Paint Management

If painted surfaces will be disturbed during a particular repair job, the painted surface should be tested to determine if it has lead-based paint on it, unless it has been tested previously by reliable testing. All surfaces should be considered suspected lead-based paint until they have been tested. If lead-based paint is present (or is suspected to be present), the maintenance worker should take the necessary precautions by wetting down the surface and performing cleanup. If the surface area is large, clearance testing should be completed before occupants are allowed back in the area.

Paint chips are often cleaned up by sweeping. Mopping or other wet methods should be used instead. If building occupants are present, the work area should be sealed off so that leaded dust does not enter the occupied areas. Any furniture present should be moved or covered with plastic. The possible presence of lead-based paint should be considered in all repair and maintenance work.

Additional lead-based paint testing at some point is recommended to determine exactly where all lead-based paint is located so that it can be properly managed. The practice of examining the condition of the paint periodically is recommended. The owner should tell building occupants to report any paint that is peeling, chipping, flaking, chalking, or otherwise deteriorating so that it can be repaired quickly and safely.

Interim Control Options and Estimated Costs

The costs shown below include labor, materials, worker protection, site containment and cleanup. These are only very rough estimates that may not be accurate; a precise estimate should be obtained from a certified lead-based paint abatement contractor.

Hazard No. 1: Deteriorated Lead-Based Paint on interior components

a. Loose Paint Removal followed by Paint Film Stabilization $77,500.00

Hazard No. 2: Lead dust on floors and other components

a. Dust Removal (Cleaning) $60,000.00

Abatement Options and Estimated Costs

Hazard No. 1: Deteriorated Lead-Based Paint on interior components

a. Remove lead paint $1,750,000.00
b. Enclose components $80,000.00
c. Remove and Replace Window Components.....$40,000.00

Reevaluation Schedule

Each of these treatments are recommended to be reexamined by a certified risk assessor at specific time intervals to make certain that they remain effective and to ensure that new lead-based hazards do not appear. The interim controls are less expensive initially, but they may be more expensive in the long run since they need to be reevaluated more frequently. The replacement and paint removal methods are more expensive initially, but do not require any reevaluation. The standard schedule for reevaluating the home is shown on the following page.

Schedule	Evaluation Results	Action Taken	Reevaluation Frequency (conducted by Risk Assessor)	Visual Survey (by owner or owner's representative)
1	The average of leaded dust levels sampled exceeded the applicable standard by more than a factor of ten.	Interim controls and/or hazard abatement, but not including window replacement.	6 months, 1 year, 2 years	Annually and whenever information indicates a possible problem.
2	Same as above	Interim controls and/or hazard abatement, including window replacement.	6 months, 2years	Same as above
3	Same as above	Abatement of all lead-based paint using encapsulation or enclosure.	None	Same as above
4	Same as above	Removal of all lead-based paint.	None	None

Taken from Table 6.1 of the HUD *Guidelines.*

Signatures (Risk Assessor and Owner), Date and Certificate of Lead-Based Paint Compliance

See next page.

CERTIFICATE OF LEAD-BASED PAINT COMPLIANCE

I hereby certify that on _____ the building located at 215 West Main Street, Lexington, Kentucky meets the criteria established by the Department of Housing and Urban Development and EPA Title X for lead safety. Either no lead-based paint hazards were identified or all lead-based paint hazards have been corrected.

_____

(Owner)

_____

(Authorized Signature)

KENTUCKY
DEPARTMENT OF HEALTH
DIVISION OF CHILDHOOD LEAD POISONING PREVENTION

APPENDICES

Photograph #1: Front view of 215 West Main Street, Lexington, KY.

Photograph #2: Paint sample location for Penthouse wall (P-1).

Photograph #3: Paint sample location for penthouse column (P-2).

Photograph #4: Paint sample location for 4th floor wall (P-3).

Photograph #5: Paint sample location for 4th floor door (P-4).

Photograph #6: Paint sample location for 4th floor wall (P-5).

Photograph #7: Paint sample location for 3rd floor wall (P-6).

Photograph #8: Paint sample location for 2nd floor arch (P-7).

Photograph #9: Paint sample location for 2nd floor wall (P-8).

Photograph #10: Paint sample location for 1st floor wall (P-9).

Photograph #11: Paint sample location for 1st floor window sill (P-10).

Photograph #12: Paint sample location for basement wall (P-11).

Photograph #13: Paint sample location for basement wall (P-12).

Photograph #14: Paint sample location for exterior door casing (P-13).

Photograph #15: Wipe sample location for penthouse floor (W-1).

Photograph #16: Wipe sample location for penthouse window sill (W-2).

Photograph #17: Wipe sample location for 4th floor window sill (W-3).

Photograph #18: 4th floor wipe sample location for floor (W-4).

Photograph #19: 4th floor wipe sample location from hallway floor (W-5).

Photograph #20: Wipe sample location from 4th floor window sill (W-6).

Photograph #21: Wipe sample location 4th floor window sill (W-7).

Photograph #22: 4th floor wipe sample location from floor (W-8).

Photograph #23: Wipe sample location from 4th floor window sill (W-9).

Photograph #24: 4th floor wipe sample location from floor (W-10).

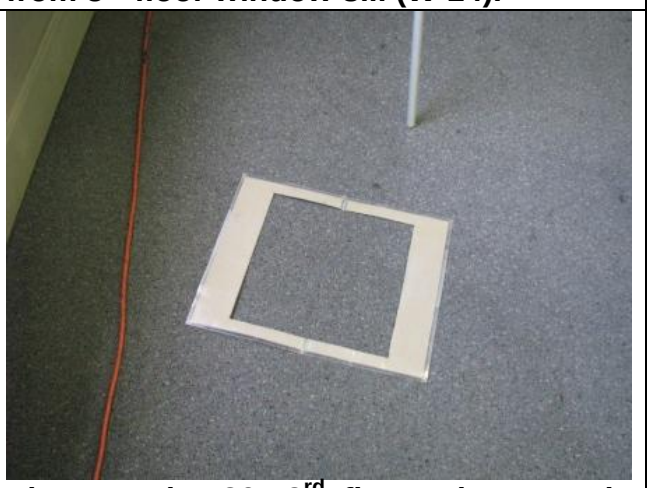
Photograph #25: Wipe sample location from 3rd floor window sill (W-11).

Photograph #26: 3rd floor wipe sample location from floor (W-12).

Photograph #27: 3rd floor wipe sample location from hallway floor (W-13).

Photograph #28: Wipe sample location from 3rd floor window sill (W-14).

Photograph #29: Wipe sample location from 3rd floor window sill (W-15).



Photograph #30: 3rd floor wipe sample location from floor (W-16).

Photograph #31: Wipe sample location from 3rd floor window sill (W-17).

Photograph #32: 3rd floor wipe sample location from floor (W-18).

Photograph #33: Wipe sample location from 2nd floor window sill (W-19).

Photograph #34: 2nd floor wipe sample location from floor (W-20).

Photograph #35: 2nd floor wipe sample location from hallway floor (W-22).

Photograph #36: 2nd floor wipe sample location from mantle (W-23).

Photograph #37: Wipe sample location from floor base of Indian door (W-24).

Photograph #38: Wipe sample location from 2nd floor window sill (W-25).

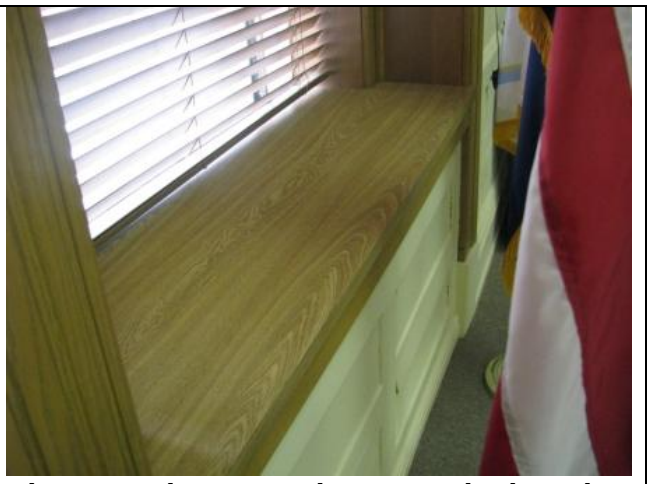
Photograph #39: 2nd floor wipe sample location from floor (W-26).

Photograph #40: Wipe sample location from 1st floor window sill (W-27).

Photograph #41: 1st floor wipe sample location from floor (W-28).

Photograph #42: Wipe sample location from 1st floor window sill (W-29).

Photograph #43: 1st floor wipe sample location from floor (W-30).



Photograph #44: Wipe sample location from 1st floor window sill (W-31).

Photograph #45: 1st floor wipe sample location from floor (W-32).

Photograph #46: Wipe sample location from 1st floor window sill (W-33).

Photograph #47: 1st floor wipe sample location from floor (W-34).

Photograph #48: Wipe sample location from basement floor (W-35).

 **Photograph #49: Basement wipe sample location from shelf (W-36).**	

EHS Laboratories

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Lead Paint Chip Analysis Report

Report Number: 12-07-01122

Client: Air Source Technology Inc.
160 Prosperous Pl. Ste. 201
Lexington, KY 40509

Received Date: 07/11/2012
Analyzed Date: 07/11/2012
Reported Date: 07/11/2012

Project/Test Address: C7723; LFUCG, Lexington, KY
Collection Date: 07/10/2012

Client Number: 18-4340

Laboratory Results

Fax Number: 859-299-0494

Lab Sample Number	Client Sample Number	Collection Location	Pb (ug/g) ppm	% Pb by Wt.	Narrative ID
12-07-01122-002	P-1		550000	55	
12-07-01122-003	P-2		400000	40	
12-07-01122-004	P-3		<35	<0.0035	L04
12-07-01122-005	P-4		730	0.073	
12-07-01122-006	P-5		210	0.021	L04
12-07-01122-007	P-6		54000	5.4	L04
12-07-01122-008	P-7		480000	48	L04
12-07-01122-009	P-8		<66	<0.0066	
12-07-01122-010	P-9		56	0.0056	
12-07-01122-011	P-10		1500	0.15	
12-07-01122-012	P-11		13000	1.3	

Environmental Hazards Services, L.L.C

Client Number: 18-4340 Report Number: 12-07-01122
Project/Test Address: C7723; LFUCG, Lexington, KY

Lab Sample Number	Client Sample Number	Collection Location	Pb (ug/g) ppm	% Pb by Wt.	Narrative ID
12-07-01122-013	P-12		66000	6.6	L04
12-07-01122-014	P-13		3000	0.30	L04
12-07-01122-015	P-14		7000	0.70	

Sample Narratives:

L04: Sample contains substantial amounts of substrate which may affect the calculated results with units of ppm and % by weight.

Method: EPA SW846 7000B

Reviewed By Authorized Signatory: Deborah Britt

Deborah Britt
QA/QC Clerk

The HUD lead guidelines for lead paint chips are 0.50% by Weight, 5000 ppm, or 1.0 mg/cm². The Reporting Limit (RL) is 10.0 ug Total Pb. Paint chip area and results are calculated based on area measurements determined by the client. All internal quality control requirements associated with this batch were met, unless otherwise noted.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, etc., was provided by the client. Results reported above in mg/cm3 are calculated based on area supplied by client. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714.

LEGEND	Pb=lead	ug = microgram	ppm = parts per million
	ug/g = micrograms per gram	Wt. = weight	

EHS Laboratories

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Lead Dust Wipe Analysis Report

Report Number: 12-07-01122

Client: Air Source Technology Inc.
160 Prosperous Pl. Ste. 201
Lexington, KY 40509

Received Date: 07/11/2012
Analyzed Date: 07/11/2012
Reported Date: 07/11/2012

Project/Test Address: C7723; LFUCG, Lexington, KY
Collection Date: 07/10/2012

Client Number: 18-4340

Laboratory Results

Fax Number: 859-299-0494

Lab Sample Number	Client Sample Number	Collection Location	Surface	Total Pb (ug)	Wipe Area (ft^2)	Concentration (ug/ft^2)	Narrative ID
12-07-01122-016	W-1		FL	1820000	1.00	1800000	
12-07-01122-017	W-2		SL	182000	1.50	120000	
12-07-01122-018	W-3		SL	153	3.11	49	
12-07-01122-019	W-4		FL	310	1.00	310	
12-07-01122-020	W-5		FL	126	1.00	130	
12-07-01122-021	W-6		SL	201	3.11	65	
12-07-01122-022	W-7		SL	41.7	3.83	11	
12-07-01122-023	W-8		FL	16.4	1.00	16	
12-07-01122-024	W-9		SL	80.3	3.11	26	
12-07-01122-025	W-10		FL	13.4	1.00	13	
12-07-01122-026	W-11		SL	65.0	3.08	21	
12-07-01122-027	W-12		FL	<10.0	1.00	<10	
12-07-01122-028	W-13		FL	23.0	1.00	23	
12-07-01122-029	W-14		SL	24.0	2.92	8.2	

Environmental Hazards Services, L.L.C

Client Number: 18-4340 Report Number: 12-07-01122
Project/Test Address: C7723; LFUCG, Lexington, KY

Lab Sample Number	Client Sample Number	Collection Location	Surface	Total Pb (ug)	Wipe Area (ft^2)	Concentration (ug/ft^2)	Narrative ID
12-07-01122-030	W-15		SL	20.3	3.28	6.2	
12-07-01122-031	W-16		FL	<10.0	1.00	<10	
12-07-01122-032	W-17		SL	152	3.28	46	
12-07-01122-033	W-18		FL	37.6	1.00	38	
12-07-01122-034	W-19		SL	169	6.26	27	
12-07-01122-035	W-20		FL	54400	1.00	54000	
12-07-01122-036	W-21		SL	96.1	3.19	30	
12-07-01122-037	W-22		FL	115	1.00	120	
12-07-01122-038	W-23		O	66.6	2.94	23	
12-07-01122-039	W-24		FL	77700	1.00	78000	
12-07-01122-040	W-25		SL	877	6.00	150	
12-07-01122-041	W-26		FL	168	1.00	170	
12-07-01122-042	W-27		SL	138	6.43	21	
12-07-01122-043	W-28		FL	<10.0	1.00	<10	
12-07-01122-044	W-29		SL	19.9	3.78	5.3	
12-07-01122-045	W-30		FL	<10.0	1.00	<10	
12-07-01122-046	W-31		SL	15.6	7.20	2.2	
12-07-01122-047	W-32		FL	15.8	1.00	16	
12-07-01122-048	W-33		SL	66.5	3.00	22	
12-07-01122-049	W-34		FL	<10.0	1.00	<10	
12-07-01122-050	W-35		FL	9570	1.00	9600	
12-07-01122-051	W-36		O	10400	1.00	10000	
12-07-01122-052	W-37		FL	185	1.00	180	
12-07-01122-053	W-38		SL	<10.0	3.00	<3.4	

Environmental Hazards Services, L.L.C

Client Number: 18-4340 Report Number: 12-07-01122
Project/Test Address: C7723; LFUCG, Lexington, KY

Lab Sample Number	Client Sample Number	Collection Location	Surface	Total Pb (ug)	Wipe Area (ft^2)	Concentration (ug/ft^2)	Narrative ID
12-07-01122-054	W-39		FL	<10.0	1.00	<10	

Method: EPA SW846 7000B
Accreditation #:

Reviewed By Authorized Signatory: Deborah Britt

Deborah Britt
QA/QC Clerk

The Federal lead guidelines for dust clearance levels by wipe sampling: Floors (FL) - 40 ug/ft^2, Interior Window Sills (SL) - 250 ug/ft^2, Window Wells (WW) - 400 ug/ft^2. The Reporting Limit (RL) is 10.0 ug Total Pb. Reported results are not corrected for field blanks. Dust wipe area and results are calculated based on area measurements determined by the client. All internal quality control requirements associated with this batch were met, unless otherwise noted.

Legend	ug = microgram	ug/ft^2 = micrograms per square foot	Pb = lead
	mL = milliliter	ft^2 = square foot	

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Lead Bulk Analysis Report

Report Number: 12-07-01122

Client: Air Source Technology Inc.
160 Prosperous Pl. Ste. 201
Lexington, KY 40509

Collection Date: 07/10/2012
Received Date: 07/11/2012
Analyzed Date: 07/11/2012
Reported Date: 07/11/2012

Project/Test Address: C7723; LFUCG, Lexington, KY

Client Number: 18-4340

Fax Number: 859-299-0494

Laboratory Results

Lab Sample Number	Client Sample Number	Collection Location	Pb (ug/g) ppm	% Pb by Wt.	Narrative ID
12-07-01122-001	D-1		2200	0.22	

Method: EPA SW846 7000B

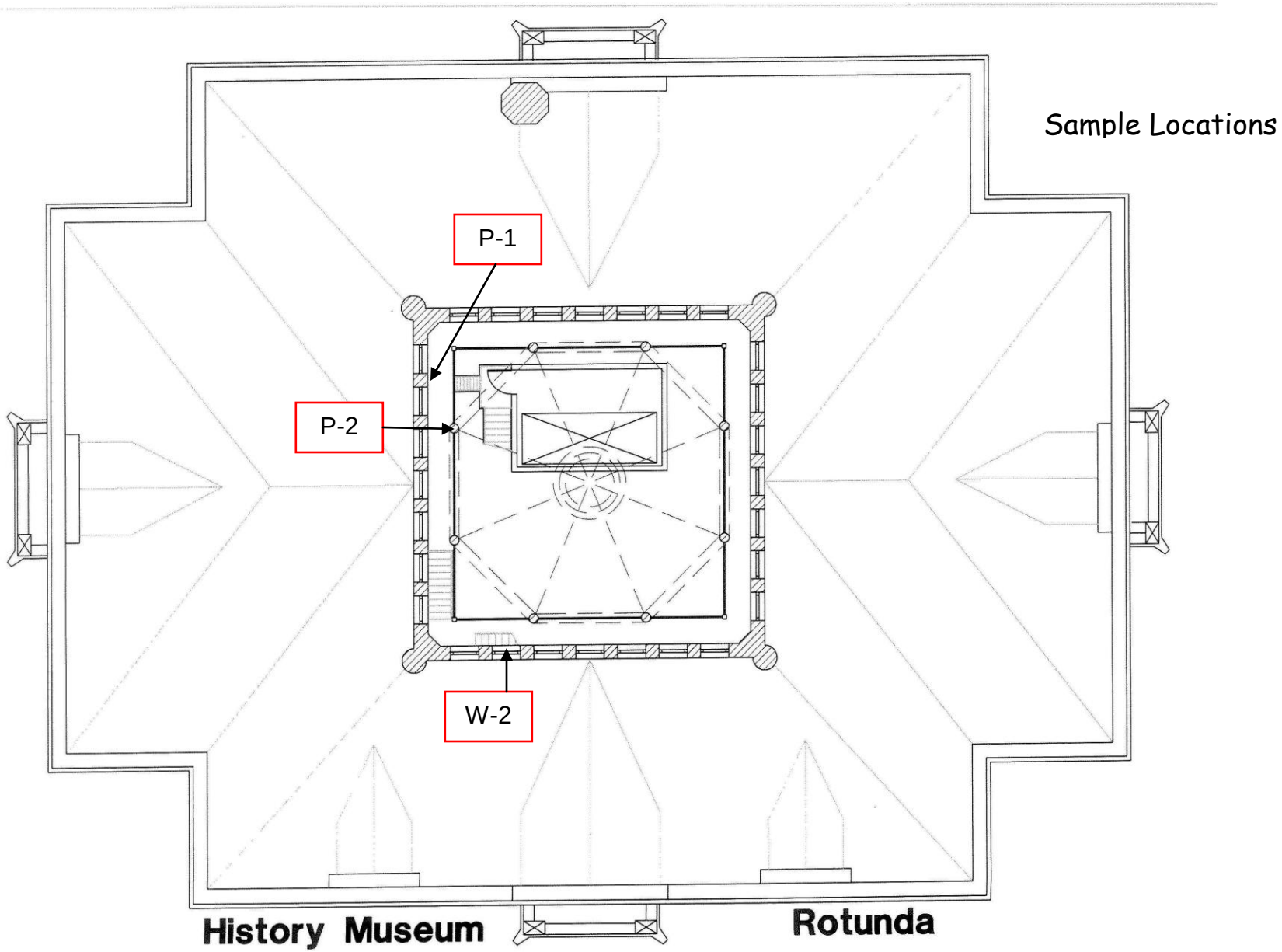
Reviewed By Authorized Signatory: Deborah Britt

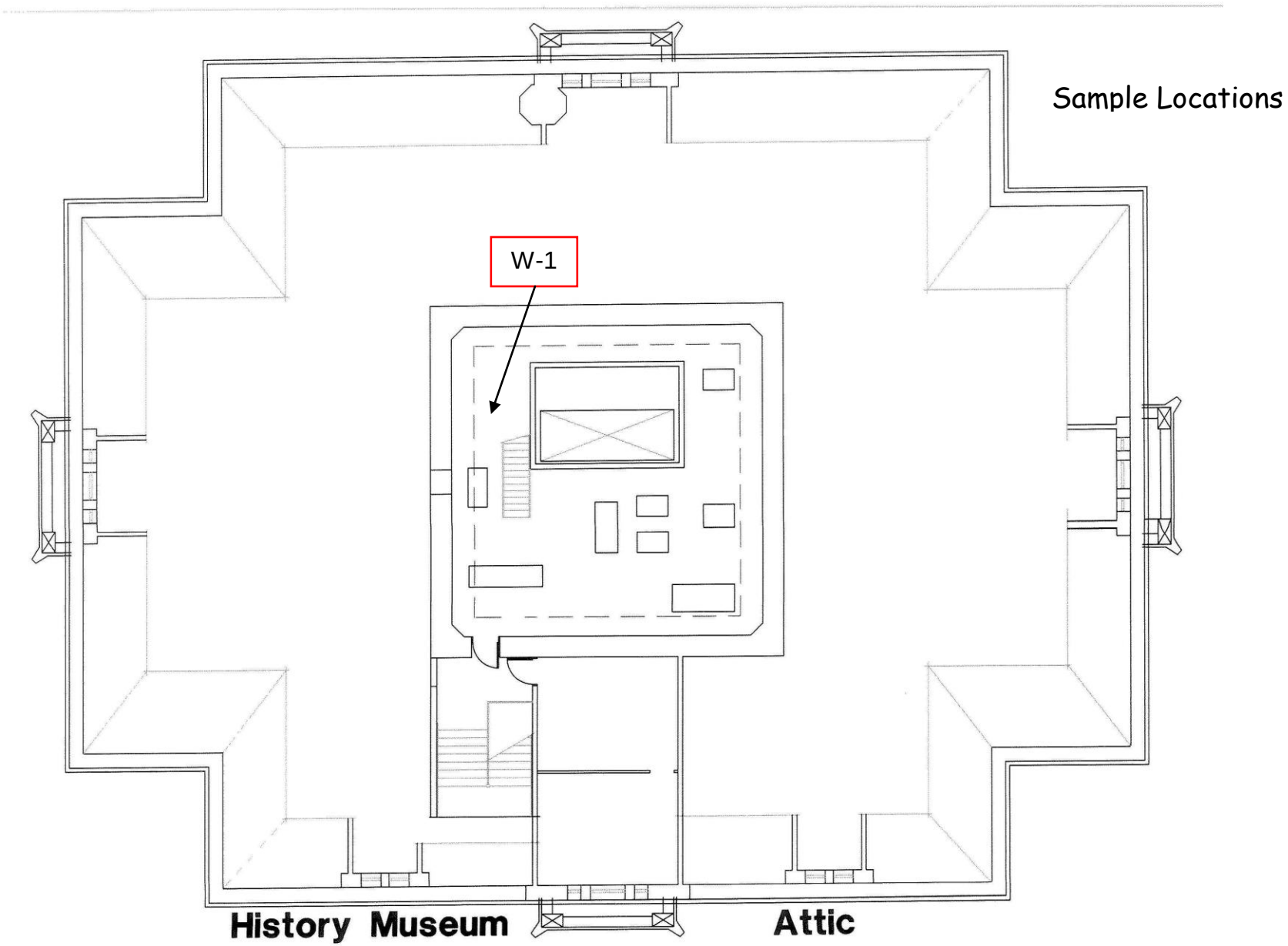
Deborah Britt
QA/QC Clerk

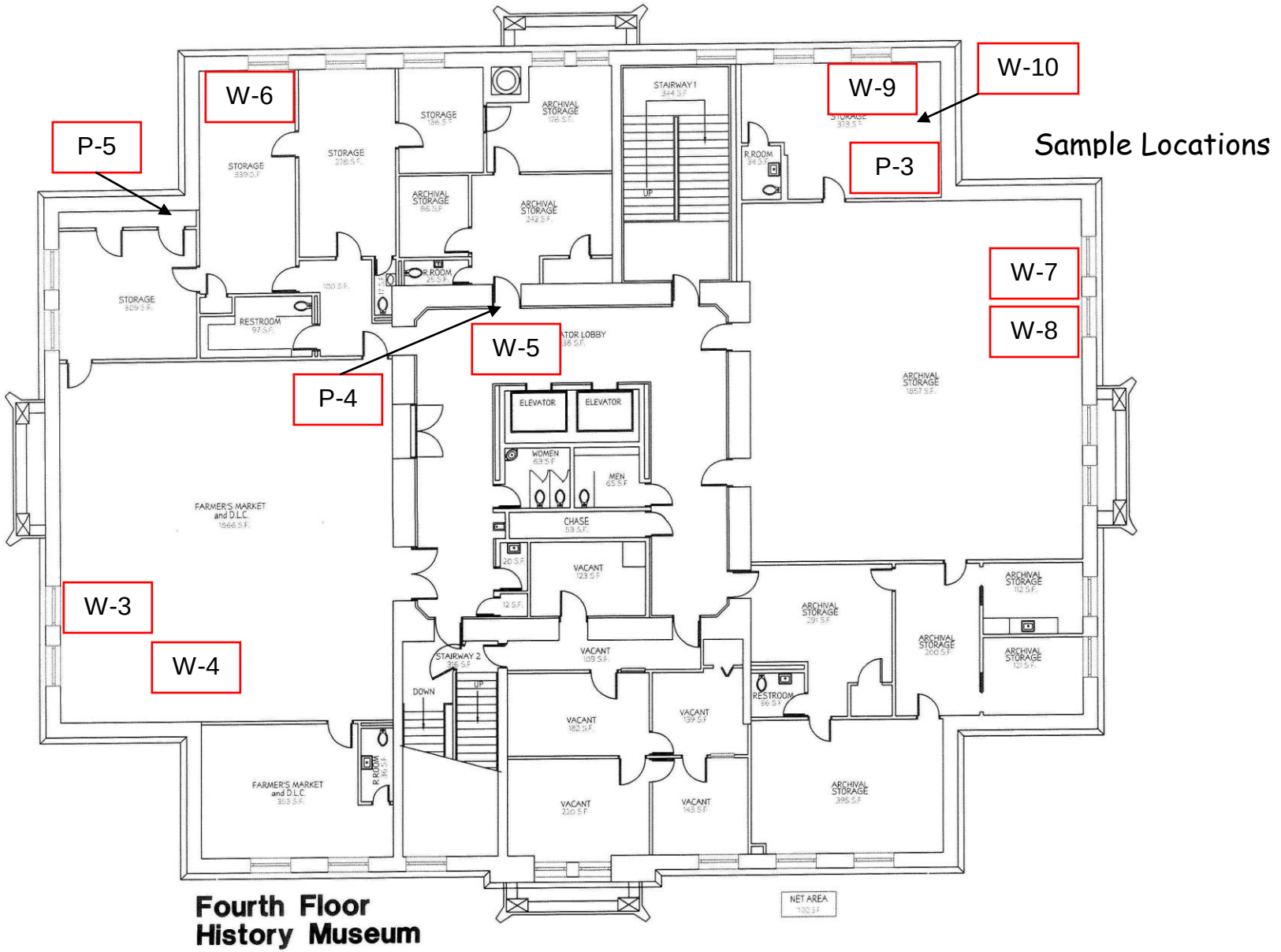
The Reporting Limit (RL) is 10.0 ug Total Pb. All internal quality control requirements associated with this batch were met, unless otherwise noted.

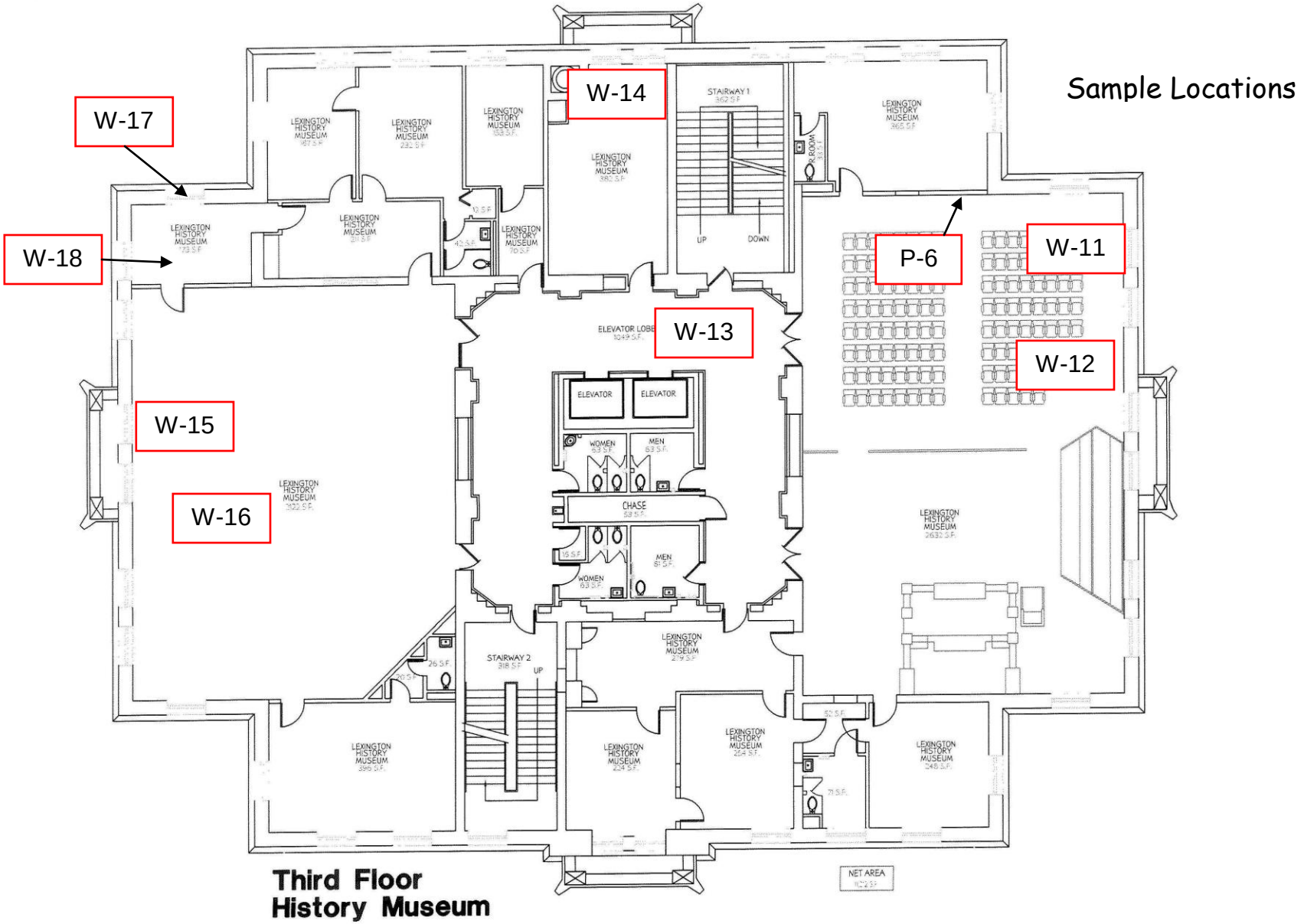
The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. EHS sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C.

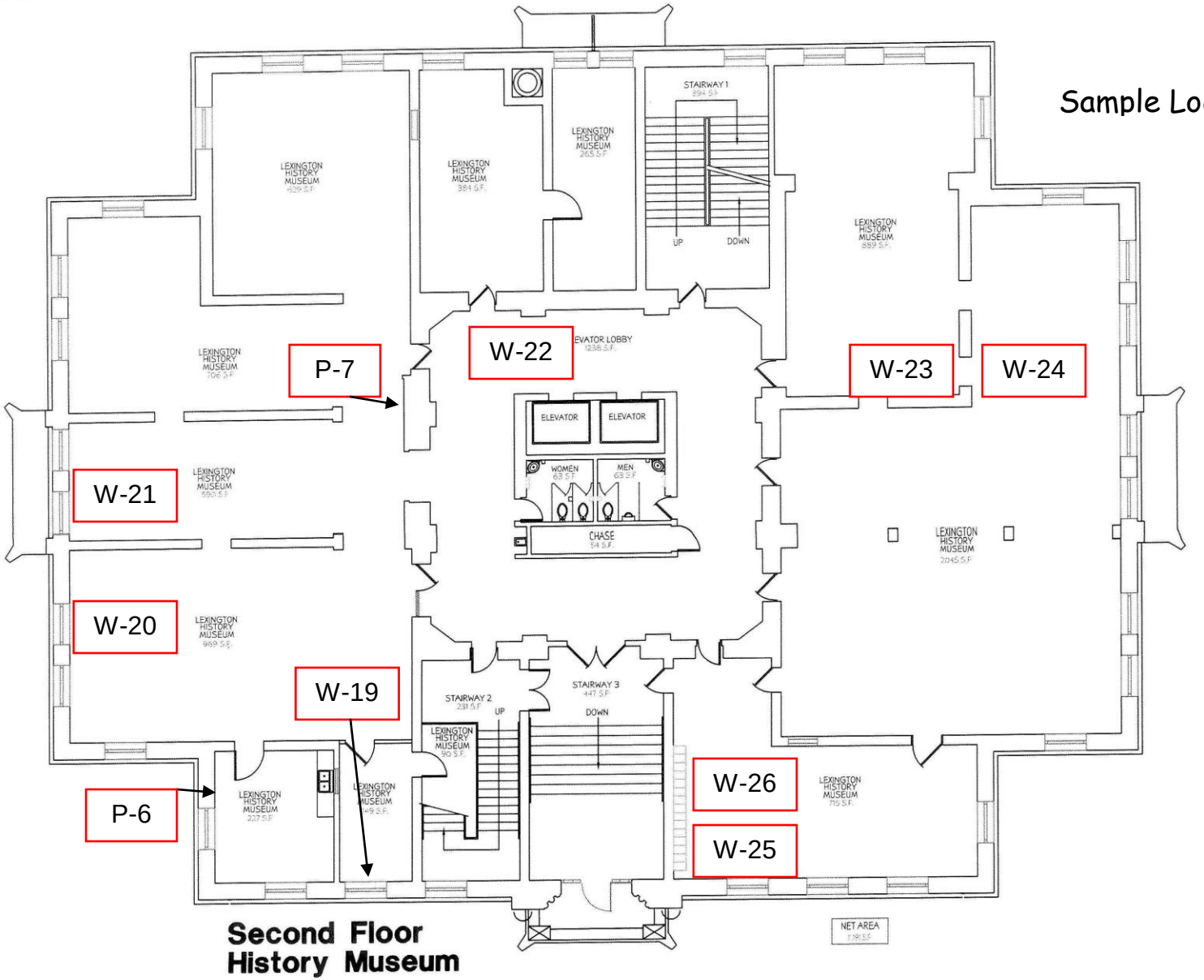
LEGEND	Pb=lead	ug = microgram	ppm = parts per million
	ug/g = micrograms per gram	Wt. = weight	

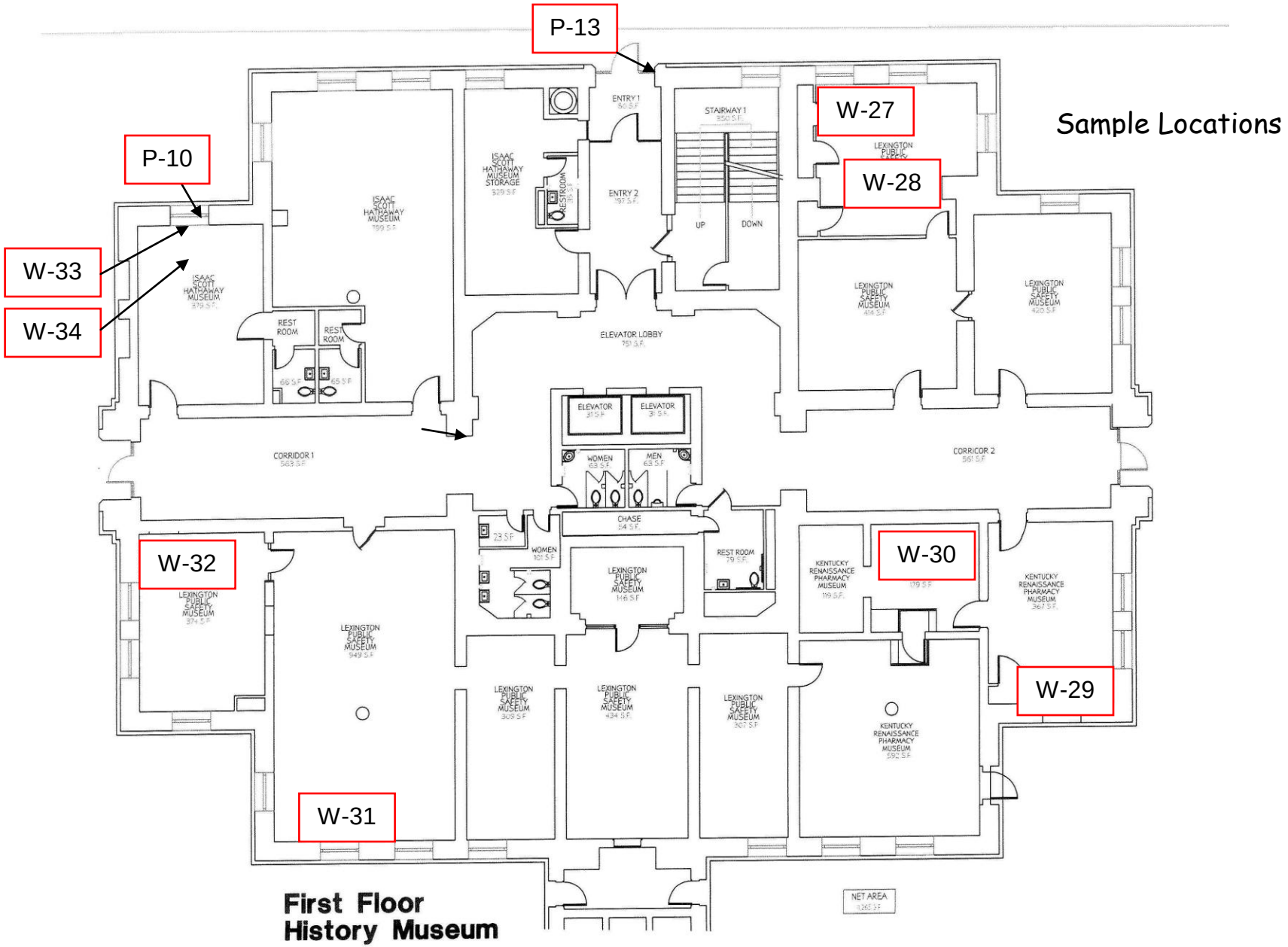

Sample Locations
P-1
P-2
W-2
History Museum
Rotunda


Sample Locations
W-1
History Museum
Attic

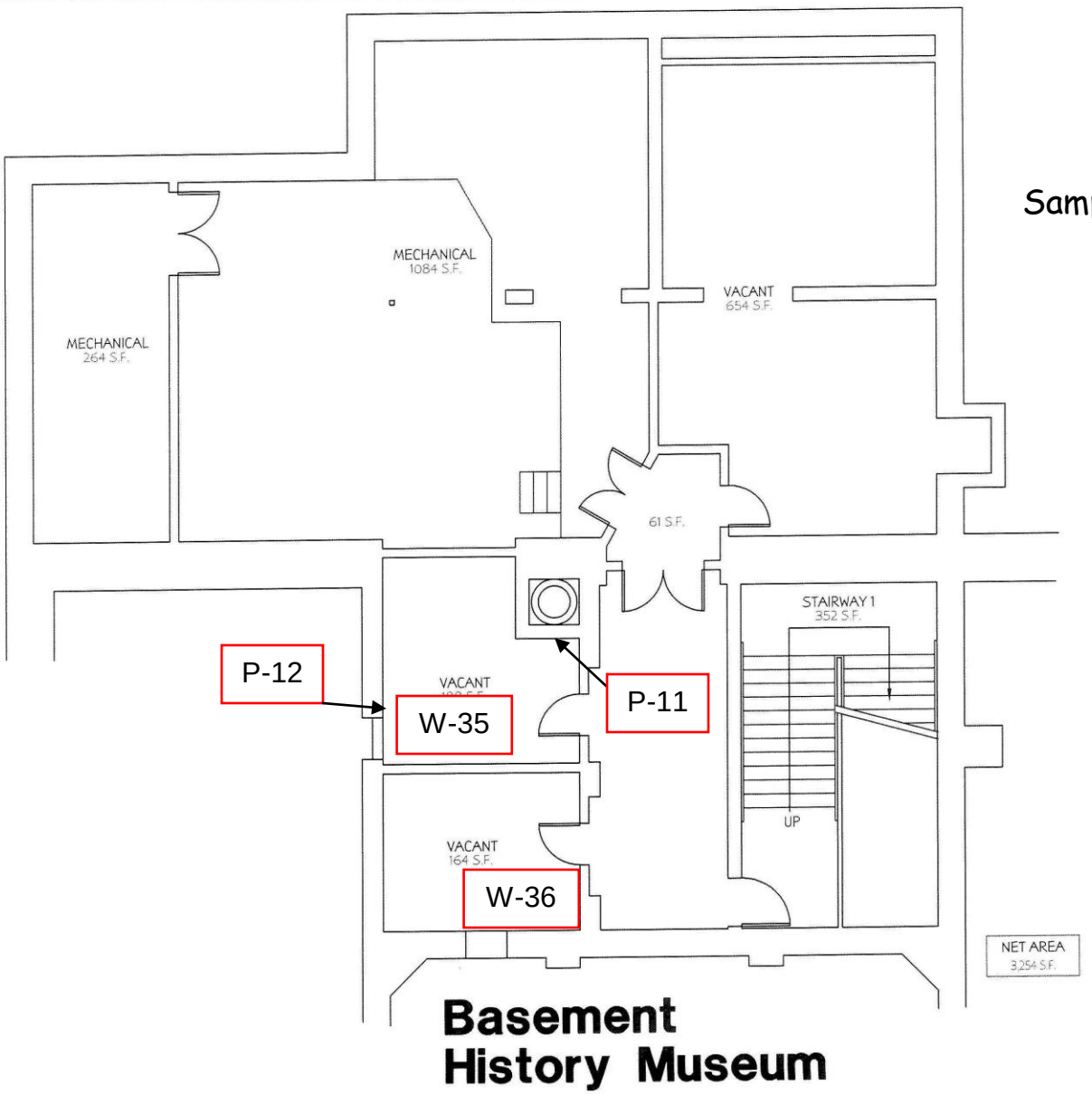

W-6
P-5
W-9
W-10
P-3
Sample Locations
W-7
W-8
W-5
P-4
W-3
W-4
STORAGE
STORAGE
STORAGE
ARCHIVAL STORAGE
ARCHIVAL STORAGE
STAIRWAY 1
R.ROOM
RESTROOM
ELEVATOR
ELEVATOR
WOMEN
MEN
CHASE
VACANT
VACANT
VACANT
VACANT
VACANT
STAIRWAY 2
DOWN
UP
RESTROOM
FARMER'S MARKET and D.L.C.
FARMER'S MARKET and D.L.C.
ARCHIVAL STORAGE
ARCHIVAL STORAGE
ARCHIVAL STORAGE
ARCHIVAL STORAGE
ARCHIVAL STORAGE
NET AREA
Fourth Floor
History Museum


Sample Locations
W-17
W-18
W-14
W-13
W-15
W-16
P-6
W-11
W-12
Third Floor
History Museum


Sample Locations
P-7
W-22
W-23
W-24
W-21
W-20
W-19
P-6
W-26
W-25
STAIRWAY 1
STAIRWAY 2
STAIRWAY 3
ELEVATOR
ELEVATOR
WOMEN
MEN
CHASE
LEXINGTON HISTORY MUSEUM
NET AREA
Second Floor
History Museum


P-13
P-10
W-33
W-34
W-27
W-28
W-32
W-30
W-29
W-31
Sample Locations
First Floor
History Museum
ENTRY 1
ENTRY 2
STAIRWAY 1
UP
DOWN
ELEVATOR LOBBY
ELEVATOR
WOMEN
MEN
CHASE
REST ROOM
CORRIDOR 1
CORRICOR 2
NET AREA
ISAAC SCOTT HATHAWAY MUSEUM
ISAAC SCOTT HATHAWAY MUSEUM STORAGE
LEXINGTON PUBLIC SAFETY MUSEUM
KENTUCKY RENAISSANCE PHARMACY MUSEUM

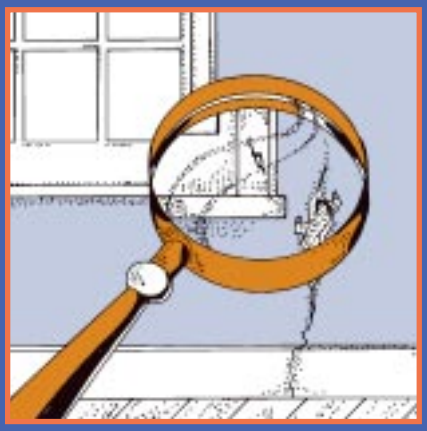
Sample Locations



Kentucky Environmental Lead Program

Listing of certified lead detection and abatement companies

KRS 211. 9063 states that "all persons who perform or offer to perform lead-hazard detection or lead-hazard abatement services in target housing or child-occupied facilities shall be certified pursuant" to 902 KAR 48:020. The following companies are certified by the State of Kentucky to perform lead-based paint detection and/or abatement activities.



Protect Your Family From Lead in Your Home

United States
Environmental Protection
Agency

United States Consumer
Product Safety Commission

U.S. EPA Washington DC 20460
U.S. CPSC Washington DC 20207

EPA747-K-94-001
May 1995

Kentucky Environmental Lead Program

275 East Main Street
Frankfort, KY 40621

Mike McGonigle
Risk Assessor 41-009
D.O.B.: 12/1/1956

EXP: August 15, 2013

Cabinet for Health and Family Services

Kentucky

INDOOR AIR QUALITY
INVESTIGATION AT

PHOENIX BUILDING

For:
Lexington Fayette Urban County Government

Testing Performed By:

Bruce Fergusson, CIH, PE (retired)

Air Source Technology, Inc.
131 Prosperous Place, Suite 17
Lexington, Kentucky 40509

Report Date: September 5, 2013

ASTI Project # D8189

Table of Contents

Section	Page
EXECUTIVE SUMMARY	1
INTRODUCTION	1
SAMPLING ENVIRONMENT & METHODS	3
DISCUSSION OF RESULTS	5
CONCLUSIONS AND RECOMMENDATIONS	8
APPLICABLE GUIDANCE	9
LABORATORY RESULTS	Appendix A
PHOTOGRAPHS	Appendix B

Executive Summary

Within the limits of the observations, testing conducted, analyses performed, and after remedial action by LFUCG, the air quality in the Seventh Floor of the Phoenix Building was found to be within normal ranges and recommended guidelines for measured VOC parameters. For continued control, HVAC systems have been modified to isolate potential residual VOC sources from occupied office spaces.

Revision Notes: 09/05/13 Initial Issue

Introduction

Mark Arnold of the Lexington-Fayette Urban County Government (LFUCG) contacted Air Source Technology, Inc. (ASTI) and requested assistance due to suspected elevated levels of volatile organic compounds (VOCs). Mr. Arnold explained the VOCs became apparent on the 7th floor of the Phoenix Building during the roofing repair project in progress at that time. Mr, Arnold explained that several employees had complained of odors and various symptoms they believed were associated with the VOCs. Mr. Fergusson met Mr. Arnold onsite to begin an investigation of possible VOC sources and to address potential occupant safety concerns.

Inspection and testing was scheduled to determine if air quality parameters and building conditions were within normal and acceptable guidelines. The Scope of Work included monitoring for VOCs; visual evaluation of onsite conditions and of the HVAC systems; and lab analyses of volatile organic compounds. Recommendations were made during the investigation for temporary relief of VOC levels and for long-term management of residual VOC sources.

A Note Regarding ASTI Diagnostic Services: In determining the causes of Indoor Air Quality (IAQ) problems, ASTI may provide analyses of building characteristics and may present documents that describe building construction methods. These analyses may potentially provide IAQ solutions, including structural diagrams and construction techniques. These documents are no substitute for professional consultation regarding Heating Ventilation and Air Conditioning (HVAC) or various building construction issues. ASTI always recommends the use of a duly licensed professional engineer, contractor, or architect whenever such structural or HVAC solutions are presented. This report is

intended to document site survey results and to provide the owner with information and options, which will enable them to make an informed decision whether professional assistance is needed or desired. In some cases, a formal mold remediation specification/plan may be required by a professional remediation contractor. Also, for legal and professional reasons, the remediation contractor may require additional testing/sampling. The information and recommendations in this report supersede all other communications. Amendments and revisions to this report will be issued as needed.

Sampling Environment & Methods

ENVIRONMENT

The 7th Floor of the Phoenix Building is occupied by LFUCG Planning Division staff. Several occupants had complained of various symptoms due to vapors. Occupants were relocated to other spaces within the building with brief access allowed only for access to records. The roof was being re-surfaced and re-insulated at the time of the investigation. Traditional asphalt-related roof components, along with two-part spray polyurethane foam ("Handy Foam – Quick Cure" with Methyl Bisphenol Isocyanate [MDI]) were being used to construct the new roof. A visual survey of the exterior wall above the ceiling was conducted early in the investigation. During remediation large portable fans were used to promote air changes and to place the 7th floor occupied space under slight positive pressure with respect to the plenum space.

REAL-TIME TOTAL VOLATILE ORGANIC COMPOUNDS (TVOC) MEASUREMENTS

The ppbRAE 3000 handheld Volatile Organic Compound (VOC) Monitor (Model PGM-7240) is an extremely sensitive Photo-ionization Detector (PID) for real-time monitoring of volatile organic compounds (VOCs) at parts per billion (ppb) levels. With a highly compact design, it is used as a broadband VOC gas monitor and datalogger for work in hazardous environments. The RAE patented PID sensor has sensitivity down to ppb levels, including humidity compensation with in-built temperature, humidity, pressure sensors. Features and specifications are as follows:

Resolution:	1 ppb with 10.6 eV UV Lamp
Calibration:	Multiple point calibration for zero and span calibration memory for 8 Calibration gases
Measurement range:	0-10,000 ppm equivalent Isobutylene (without dilution) with 1 ppb Minimum Level of Detection
Response time:	T90 < 3 seconds
Gases detected:	VOCs with Ionization Potential < 11.7 eV
Correction factors:	Over 220 corrections factors built-in in the instrument.
Sampling Pump:	Internal pump 400 cc/min
UV Lamps:	9.8 eV, 10.6 eV, 11,7 eV UV Lamps

For this project, the PID was used to track progress during the investigation and to identify potential VOC sources.

TOTAL VOLATILE ORGANIC PASSIVE MONITORS

Additonal air samples were collected using passive vapor monitor badges manufactured by Advanced Chemical Sensor, Inc. The vapor badges make longer sampling periods easier (no worries about pump failure) to achieve better sensitivity and laboratory detection/quantification limits. All samples were collected with the media in the breathing zone to represent occupant exposure. After sampling, the badge samples were sent to Advanced Chemical Sensors, Inc. located in Boca Raton, Florida.

In 1976 the company Advanced Chemical Sensors was founded by Laurence D. Locker, (Ph.D., M.I.T.) to develop improved methods to measure exposure to toxic vapors regulated by U.S. occupational safety laws. The technique of passive monitoring was developed to eliminate the need for a mechanical pump to collect the air sample. The pump is replaced by a solid adsorbent separated from the ambient air by a porous membrane. This device acts like a pump, but with no moving parts. The cost saving and the ease of use gives this method wide application to measure employee exposure and room concentrations of many chemicals. A U.S. Patent was issued to Dr. Locker in l982. A subsequent patent was issued in Japan in 2001. The products are used in health care facilities, by government agencies and by many of the largest industrial corporations.

Project D8189 Notes: For this project, passive sensors were placed in locations of the highest PID readings to determine which individual compounds were present. Each sample set was in place for at least 24 hours to provide sensitivity to the parts-per-billion level. When an assessment of a general area was desired, the sensor was placed in the general return air stream of a HVAC return grill.

During initial passive sensor VOC testing, portable circulation fans were deactivated to allow accumulation of vapors for diagnostic purposes. During final testing in July, HVAC systems were operating in normal mode. After this testing, additional exhaust capacity was brought online for added vapor control.

Discussion of Results

OBSERVATIONS & NOTES

The following observations and information were noted:

1. Strong odors, similar to a combination of gasoline and model glue were noted during the initial June 1st visit. Odors persisted during subsequent visits. Onsite visits, some with PID measurements, some with passive sensor measurements, and some with visual and olfactory observations, were made on June 1, June 2, June 3, June 7, June 8, June 20, June 21, July 1 (AM & PM), 3, 9, July 19 (AM & PM), July 23 (AM & PM), July 25 (AM & PM).
2. Initial Conditions:
    a. Some HVAC systems used the open plenum as a return path.
    b. Fresh air was continuously supplied to the open plenum above the dropped ceiling from the north exterior wall.
    c. Visible signs of dripping from above the roof deck were noted along the perimeter exterior walls. These locations were also the sites of higher PID readings.
3. Passive sensor sampling with EPA Method TO-15 lab analyses were conducted on June 1st-3rd, June 20th- 21st, and July 23rd-25th. (The roof cement constituents are detected by this particular protocol, as well as by the PID instrument.)
4. Active ventilation was setup, using large portable fans to create a calculated air change per hour (ACH) rate of approximately 4 – 5 ACH. Building personnel and contractors were informed about the ventilation arrangements and the 7th floor was isolated from normal occupancy. During active ventilation operation, odors greatly subsided and PID readings were reduced to 100ppb – 200ppb levels, allowing brief access by occupants to collect documents.
5. Visible suspect mold was noted in the men's restroom during June 8th visit, which was then reported to the building manager. Mr. Arnold reported the affected area was remediated.

6. The space above the ceiling tile operated as an HVAC return plenum. With the gaps and the perimeter and drip lines of suspected roofing cement, confirmed with elevated PID readings, one apparent VOC source was identified.
7. The polyurethane foam insulation is a quick cure type.
8. Considering the open return plenum and observed visible drip lines, a contractor installed a high density foam sealant about the perimeter to isolate the plenum from the roofing cement sources above.
9. Then the 7th floor was heat-cycled and ventilated to force VOC off-gassing without significant success. Ceiling tiles were sometimes missing during in-progress visits.
10. Late in the course of the project Mr. Arnold reported the HVAC systems were cleaned and renovated with ducted return plenums. Also, the open space above the dropped ceiling was placed under negative pressure, using exhaust fans to minimize vapor intrusion into the occupied space below.
11. Reading then consistently dropped to warrant the final test period for lab analyses.

VOLATILE ORGANIC COMPOUNDS

A significant variety of organic compounds are known to contaminate indoor air. Sources of hydrocarbons include combustion by-products, cooking, construction materials, furnishings, paints, varnishes & solvents, adhesives & caulks, gasoline & motor vehicle emissions, office equipment, home & personal care products, bioeffluents, and pesticides. In most instances, concentrations of individual hydrocarbons in indoor air are several magnitudes lower than regulatory standards or recommended guidelines for individual compounds. Health concerns associated with hydrocarbons in public access buildings center on the additive effects of the sum total of hydrocarbons present. ASTI generally identifies total hydrocarbons below 1 ppm in healthy office environments and uses 1 ppm as a guideline number to warrant further investigation. While not a health standard, LEED™ building commissioning standards call for less than 500µg/m^3 of VOCs.

The following VOC levels were detected:

Passive Monitor: Total Volatile Organic Compounds (TVOCs)			
Date	**Sample ID**	**Location/Comments**	**Concentration ($\mu g/m^3$)**
Initial Diagnostic Test Period			
06/01/13 to 06/03/13	59848	Room 711 (Ambient)	889
	60114	Room 711- Plenum	1040
In-Progress Test Period			
06/20/13 to 06/21/13	60113	Main Lobby Return Grill	1221
	60115	721 Sallee Office	1136
Final Test Period			
07/23/13 to 07/25/13	67705	Open Cubicle Return Grill	542
	68069	Open Cube Copy Room	511

While slightly above LEED standards, the final set of passive sensor measurements (07/23/13 to 07/25/13) does not indicate VOC levels that are hazardous to the normal, healthy adult. See Appendix A for lab results with ASTI-inserted notes regarding exposure guidelines for specific compounds.

Conclusions and Recommendations

Within the limits of the observations, testing conducted, analyses performed, and after remedial action by LFUCG, the air quality in the Seventh Floor of the Phoenix Building was found to be within normal ranges and recommended guidelines for measured VOC parameters. For continued control, HVAC systems have been modified to isolate potential residual VOC sources from occupied office spaces.

In general, with respect to the minor mold issue in the men's restroom, Air Source Technology, Inc. makes the following recommendations to improve potential air quality and address occupant concerns:

1. With the common occurrence of mold growth and the inevitable problems with building envelopes and plumbing, we highly recommend that the building maintenance staff become familiar with the EPA document, Mold Remediation in Schools and Commercial Buildings. Most problems can be handled at low cost, if managed promptly. This document provides guidance to allow most mold problems to be properly and safely handled in-house.
2. When water intrusion or water leaks are discovered, dry the affected building materials as quickly as possible to minimize potential mold growth.
3. If discovered on building materials that can be cleaned (such as the HVAC supply diffusers), clean any visible microbial contamination with a detergent, biocide and/or mild bleach solution (1 part bleach to 10 parts water), depending on the surface and the preference of the maintenance personnel. Refer to Reference Numbers 3 & 5 (both are government-sponsored documents, which are available free from the Internet) for additional information regarding remediation techniques and determining the need for professional assistance.
4. Replace any building materials that cannot be cleaned (i.e., suspect mold growth on drop ceiling tiles, drywall, etc.).

With respect to the residual VOCs adjacent to the 7th floor: Although unlikely, considering the engineering controls put into place, maintain an ongoing dialog with the occupants, to detect any signs of a changes in VOCs within the 7th floor.

APPLICABLE GUIDANCE

1. LEED 2009 Green Building Design and Construction Reference Guide, 2009, United States Green Building Council
2. Indoor Air Quality Testing in the Living Building Challenge 1.3/2.0/2.1; Imperative 9 - Indoor Air Quality Testing; September 21, 2012; International Living Future Institute
3. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA Document 625/R-96/010b, January 1999). Environmental Protection Agency (EPA)
4. Compendium of Methods for the Determination of Air Pollutants in Indoor Air (EPA Document 600/4-90/010, April 1990). Environmental Protection Agency (EPA)
5. EPA Section 01445 - Testing for Indoor Air Quality, Baseline IAQ, and Materials
6. U.S. EPA, "BASE Quality Assurance Project Plan," Office of Research and Development and Office of Air and Radiation, U.S. EPA, Washington, DC, (1996).
7. U.S. EPA, "A Standardized EPA Protocol for Characterizing indoor Air Quality in Large Office Buildings," Office of Research and Development and Office of Air and Radiation, U.S. EPA, Washington, DC, (2003)
8. Turner, S.; Lewis, M.; *Air Sampling Protocol for LEED™ Gold Office Project*, October 2003; HPAC Engineering
9. *Organic Vapor Monitors (OVM) – How do Their Results Stack Up?* 2008, The Analyst; Galson Labs, Inc.
10. Fergusson, B.N, *Case Study: Initial Environmental Testing of a Large Hospital*, (AIHce 2008 PO 128), Proceedings from the American Industrial Hygiene Conference & Exposition (AIHce) 2008
11. Industrial Hygiene Reference & Study Guide, Third Edition, 2011, American Industrial Hygiene Association® (AIHA)
12. *Chapter 11 - Sampling of Gases and Vapors,* The Occupational Environment: Its Evaluation, Control, and Management, 3rd Edition, 2011, American Industrial Hygiene Association® (AIHA)
13. Standard and Reference Guide for Professional Water Damage Restoration (IICRC S500), 3rd Edition, 2006, Institute of Inspection, Cleaning and Restoration Certification (IICRC)

14. Mold Remediation in Schools and Commercial Buildings, (EPA Document 402-K-01-001, September 2008 edition). Environmental Protection Agency (EPA)

15. Guidelines on Assessment and Remediation of Fungi in Indoor Environments, November 2008, New York City Department of Health (NYCDOH)

16. Centers for Disease Control & Prevention (CDC) web site

17. Assessment, Remediation, and Post-Remediation Verification of Mold in Buildings – AHIA Guideline 3-2004, 2004, American Industrial Hygiene Association (AIHA).

18. Recognition, Evaluation, and Control of Indoor Mold – AHIA Guideline 2008, 2008, American Industrial Hygiene Association (AIHA)

19. Standard and Reference Guide for Professional Mold Remediation (IICRC S520), 2nd Edition, 2008, Institute of Inspection, Cleaning and Restoration Certification (IICRC).

20. Krause, M., et. al., "*Controlled Study of Mold Growth and Cleaning Procedure on Treated and Untreated Wet Gypsum Wallboard in an Indoor Environment*" Journal of Occupational and Environmental hygiene, 2006, Volume 3: 445-441.

21. Fergusson, B.N., *A Systematic Examination of the Building Envelope*, 2011, Proceedings of the 14th Annual Meeting and Indoor Air Expo, San Antonio, Texas, Indoor Air Quality Association

22. Fergusson, B.N., *Moisture Migration Within and Through the Building Envelope*, 2012, Proceedings of the 15th Annual Meeting and Indoor Air Expo, Las Vegas, Nevada, Indoor Air Quality Association

23. Statement on Building Dampness, Mold, and Health, September 2011, California Department of Public Health

24. NIOSH Alert (Publication No. 2013–102) Preventing Occupational Respiratory Disease from Exposures Caused by Dampness in Office Buildings, Schools, and Other Nonindustrial Buildings, November 2012

25. T. Anderson Memo, dated October 11, 2011, "Foster Fungicidal Protective Coating Application on Painted Surfaces and Mold Removal," H.B. Fuller Construction Products Inc

Appendix A

Laboratory Analysis Results

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson 7/26/2013
AIR SOURCE TECHNOLOGY, INC.
131 Prosperous Pl., Unit 17
Lexington KY 40509

ORGANIC VAPOR ANALYSIS REPORT

SAMPLE NO	DATE	NAME	EXPOSURE TIME (hr)	CONCENTRATION (ppm)
67705	07/23/13 to 07/25/13	Open Cubicle Return Grill Ambient RA Grill # 2	15:15 – 9:40 = 42.42	Total VOCs: 542. µg/m³

OSHA does not have a PEL for isobutane, which is affirmed as "generally recognized as safe" as a direct human food ingredient (21 CFR 184.1165 (https://www.osha.gov/dts/chemicalsampling/data/CH_247840.html)

Limonene is on FDA's list of synthetic flavoring substances and adjuvants that are Generally Recognized as Safe (GRAS) (21 CFR 182.60)

ACGIH TLV 500 PPM	Acetone	15.4 ppb, 37.0 µg/m³	
NIOSH REL: TWA 300 ppm (1050 mg/m3)	Cyclohexane	1.7 ppb, 5.8 µg/m³	
NIOSH REL: TWA 1000 ppm (1900 mg/m3)	Ethyl Alcohol	12.3 ppb, 23.2 µg/m³	
	Isobutane	4.4 ppb, 10.5 µg/m³	
(Pentane Isomer)	2-Methylbutane	16.7 ppb, 49.2 µg/m³	N/A
	D-Limonene	2.4 ppb, 13.1 µg/m³	
	4-Ethyltoluene	21.7 ppb, 106. µg/m³	N/A
ACGIH TLV - 20 PPM	Toluene	0.84 ppb, 3.2 µg/m³	
ACGIH TLV - 600 ppm	Pentane Isomers	36.7 ppb, 111. µg/m³	
	Propyl Benzene	8.6 ppb, 34.5 µg/m³	N/A
ACGIH TLV - 25 PPM	1,2,4-Trimethylbenzene	25.8 ppb, 129. µg/m³	
ACGIH TLV - 100ppm	Xylene	4.7 ppb, 20.3 µg/m³	

Note: 1 ppm=1,000 ppb

For office and residential indoor air quality, there are no established limits for individual volatile organic vapor (VOCs) in the U.S. The U.S. Green Building Council recommends a maximum of 500 µg/m³ for total VOCs in LEED designated structures. U.S. OSHA specifies permissible exposure limits for individual chemicals in the workplace.

Typical limits for indoor air quality in some other countries are: Toluene-0.07 ppm, Xylene-0.20 ppm, Ethyl Benzene-0.88 ppm, Styrene-0.05 ppm, Paradichlorobenzene-0.04 ppm.

The chemicals tested are listed on the next page. The chemicals that are not reported above are not detected. No concentration is above 0.018 ppm.

15442

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson 7/26/2013
AIR SOURCE TECHNOLOGY, INC.
131 Prosperous Pl., Unit 17
Lexington KY 40509

Acetone
Acetonitrile
Acrylonitrile
Allyl Chloride
Benzene
Benzene, 1-Chloro-4 (Trifluoromethyl)
Benzyl Chloride
1,3-Butadiene
Butane
2- Butanone (MEK)
2-Butoxyethylacetate
Butyl Acetate
Butyl Cellosolve
1-Butyl Alcohol
2-Butyl Alcohol
Carbon Tetrachloride
Cellosolve
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexene
Cyclohexanol
Cyclohexanone
Dibromochloromethane
1,4-Dichlorobenzene
1,2 Dichloroethane
1,2-Dichloropropane
Dimethyl Formamide
Dimethyl Sulfoxide
Dioxane
Ethyl Acetate
Ethyl Alcohol
Ethyl Benzene
2-Ethyl-1-Hexanol
Ethyl Ether
2-Ethylhexyl Acetate
Ethyl Methacrylate
4-Ethyltoluene
Heptane
2-Heptanone
Hexane
Hexane Isomers
1-Hexanol
Hexone (MIBK)
Isobutane
Isopropyl Alcohol
Isooctane
d-Limonene
Methyl Acetate
Methyl Acrylate
2-Methyl Butane
2-Methyl Pentane
3-Methyl Hexane
Methyl Chloroform
5-Methyl-2-Hexanone
Methyl Methacrylate
Methyl-t- butyl Ether
Methyl Styrene
Methylene Chloride
Pentane
Pentyl Acetate
2-Pentanone
Perchloroethylene
n-Propyl Acetate
Propylene Glycol Methyl Ether Acetate
Propyl Benzene
n-Propyl Bromide
Propylene Oxide
Pyridine
Styrene
Tetrahydrofuran
Toluene
1,1,1-Trichloroethane
Trichloroethylene
1,2,4-Trimethylbenzene
Vinyl Acetate
Vinylidene Chloride
Xylene

Method of Analysis: EPA TO-15 (Supplemented by OSHA and NIOSH methods)

15442

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson 7/26/2013
AIR SOURCE TECHNOLOGY, INC.
131 Prosperous Pl., Unit 17
Lexington KY 40509

ORGANIC VAPOR ANALYSIS REPORT

SAMPLE NO	DATE	NAME	EXPOSURE TIME (hr)	CONCENTRATION (ppm)
68069	07/23/13 to 07/25/13	Open Cube (Copy Rm) RA Grill # 1	15:20 − 9:40 = 42.33	

Total VOCs: 511. µg/m³

Acetone	16.2 ppb, 38.8 µg/m³
Cyclohexane	2.3 ppb, 7.9 µg/m³
Ethyl Alcohol	11.9 ppb, 22.4 µg/m³
Isobutane	3.6 ppb, 8.6 µg/m³
2-Methylbutane	19.8 ppb, 58.3 µg/m³
D-Limonene	3.2 ppb, 17.8 µg/m³
4-Ethyltoluene	26.8 ppb, 131. µg/m³
Propyl Benzene	10.6 ppb, 42.2 µg/m³
1,2,4-Trimethylbenzene	31.6 ppb, 158. µg/m³
Xylene	6.1 ppb, 26.6 µg/m³

Note: 1 ppm=1,000 ppb

For office and residential indoor air quality, there are no established limits for individual volatile organic vapor (VOCs) in the U.S. The U.S. Green Building Council recommends a maximum of 500 µg/m³ for total VOCs in LEED designated structures. U.S. OSHA specifies permissible exposure limits for individual chemicals in the workplace.

Typical limits for indoor air quality in some other countries are: Toluene-0.07 ppm, Xylene-0.20 ppm, Ethyl Benzene-0.88 ppm, Styrene-0.05 ppm, Paradichlorobenzene-0.04 ppm.

The chemicals tested are listed on the next page. The chemicals that are not reported above are not detected. No concentration is above 0.018 ppm.

15443

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson 7/26/2013
AIR SOURCE TECHNOLOGY, INC.
131 Prosperous Pl., Unit 17
Lexington KY 40509

Acetone
Acetonitrile
Acrylonitrile
Allyl Chloride
Benzene
Benzene, 1-Chloro-4 (Trifluoromethyl)
Benzyl Chloride
1,3-Butadiene
Butane
2- Butanone (MEK)
2-Butoxyethylacetate
Butyl Acetate
Butyl Cellosolve
1-Butyl Alcohol
2-Butyl Alcohol
Carbon Tetrachloride
Cellosolve
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexene
Cyclohexanol
Cyclohexanone
Dibromochloromethane
1,4-Dichlorobenzene
1,2 Dichloroethane
1,2-Dichloropropane
Dimethyl Formamide
Dimethyl Sulfoxide
Dioxane
Ethyl Acetate
Ethyl Alcohol
Ethyl Benzene
2-Ethyl-1-Hexanol
Ethyl Ether
2-Ethylhexyl Acetate
Ethyl Methacrylate
4-Ethyltoluene
Heptane
2-Heptanone
Hexane
Hexane Isomers
1-Hexanol
Hexone (MIBK)
Isobutane
Isopropyl Alcohol
Isooctane
d-Limonene
Methyl Acetate
Methyl Acrylate
2-Methyl Butane
2-Methyl Pentane
3-Methyl Hexane
Methyl Chloroform
5-Methyl-2-Hexanone
Methyl Methacrylate
Methyl-t- butyl Ether
Methyl Styrene
Methylene Chloride
Pentane
Pentyl Acetate
2-Pentanone
Perchloroethylene
n-Propyl Acetate
Propylene Glycol Methyl Ether Acetate
Propyl Benzene
n-Propyl Bromide
Propylene Oxide
Pyridine
Styrene
Tetrahydrofuran
Toluene
1,1,1-Trichloroethane
Trichloroethylene
1,2,4-Trimethylbenzene
Vinyl Acetate
Vinylidene Chloride
Xylene

Method of Analysis: EPA TO-15 (Supplemented by OSHA and NIOSH methods)

15443

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson
AIR SOURCE TECHNOLOGY, INC.
160 Prosperous Pl., Suite 201
Lexington KY 40509

6/24/2013

ORGANIC VAPOR ANALYSIS REPORT

SAMPLE NO	DATE	NAME	EXPOSURE TIME (hr)	CONCENTRATION (ppm)
60113	06/20/13 to 06/21/13	Main Lobby Ret. Grill	7:04 — 12:04 = 29.00	

Total VOC 1221.1 ug/m3

Acetone	11.8 ppb, 28.3 µg/m³
Ethyl Alcohol	30.4 ppb, 57.1 µg/m³
2-Methylbutane	57.5 ppb, 170. µg/m³
Pentane	90.5 ppb, 264. µg/m³
4-Ethyltoluene	52.5 ppb, 257. µg/m³
Toluene	1.9 ppb, 5.8 µg/m³
Propyl Benzene	21.6 ppb, 86.4 µg/m³
1,2,4-Trimethylbenzene	60.0 ppb, 300. µg/m³
Xylene	12.1 ppb, 52.5 µg/m³

338.3 ppb total

Note: 1 ppm=1,000 ppb

For office and residential indoor air quality, there are no established limits for individual volatile organic vapor (VOCs) in the U.S. The U.S. Green Building Council recommends a maximum of 500 µg/m³ for total VOCs in LEED designated structures. U.S. OSHA specifies permissible exposure limits for individual chemicals in the workplace.

Typical limits for indoor air quality in some other countries are: Toluene-0.07 ppm, Xylene-0.20 ppm, Ethyl Benzene-0.88 ppm, Styrene-0.05 ppm, Paradichlorobenzene-0.04 ppm.

The chemicals tested are listed on the next page. The chemicals that are not reported above are not detected. No concentration is above 0.03 ppm.

15319

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson 6/24/2013
AIR SOURCE TECHNOLOGY, INC.
160 Prosperous Pl., Suite 201
Lexington KY 40509

Acetone
Acetonitrile
Acrylonitrile
Allyl Chloride
Benzene
Benzene, 1-Chloro-4 (Trifluoromethyl)
Benzyl Chloride
1,3-Butadiene
Butane
2- Butanone (MEK)
2-Butoxyethylacetate
Butyl Acetate
Butyl Cellosolve
1-Butyl Alcohol
2-Butyl Alcohol
Carbon Tetrachloride
Cellosolve
Chlorobenzene
Chloroform
Cyclohexane
Cyclohexene
Cyclohexanol
Cyclohexanone
Dibromochloromethane
1,4-Dichlorobenzene
1,2 Dichloroethane
1,2-Dichloropropane
Dimethyl Formamide
Dimethyl Sulfoxide
Dioxane
Ethyl Acetate
Ethyl Alcohol
Ethyl Benzene
2-Ethyl-1-Hexanol
Ethyl Ether
2-Ethylhexyl Acetate
Ethyl Methacrylate
4-Ethyltoluene
Heptane
2-Heptanone
Hexane
Hexane Isomers
1-Hexanol
Hexone (MIBK)
Isobutane
Isopropyl Alcohol
Isooctane
d-Limonene
Methyl Acetate
Methyl Acrylate
2-Methyl Butane
2-Methyl Pentane
3-Methyl Hexane
Methyl Chloroform
5-Methyl-2-Hexanone
Methyl Methacrylate
Methyl-t- butyl Ether
Methyl Styrene
Methylene Chloride
Pentane
Pentyl Acetate
2-Pentanone
Perchloroethylene
n-Propyl Acetate
Propylene Glycol Methyl Ether Acetate
Propyl Benzene
n-Propyl Bromide
Propylene Oxide
Pyridine
Styrene
Tetrahydrofuran
Toluene
1,1,1-Trichloroethane
Trichloroethylene
1,2,4-Trimethylbenzene
Vinyl Acetate
Vinylidene Chloride
Xylene

Method of Analysis: EPA TO-15 (Supplemented by OSHA and NIOSH methods)

15319

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

ADVANCED CHEMICAL SENSORS INC.
101 Glades Road • Boca Raton, FL 33432
(561) 338-3116 • FAX: (561) 338-5737

AIHA LAP, LLC
ACCREDITED LABORATORY
INDUSTRIAL HYGIENE
ISO/IEC 17025:2005
www.aihaaccreditedlabs.org
LAB #102047

Reviewed by:
Laurence D. Locker, Ph.D.
Laboratory Director

Att: Bruce Fergusson
AIR SOURCE TECHNOLOGY, INC.
160 Prosperous Pl., Suite 201
Lexington KY 40509

6/24/2013

ORGANIC VAPOR ANALYSIS REPORT

SAMPLE NO	DATE	NAME	EXPOSURE TIME (hr)	CONCENTRATION (ppm)
60115	06/20/13 to 06/21/13	721 Sallee OFC (Blinds)	7:08 – 12:07 = 28.98	

Total VOC 1163.3 ug/m3

Acetone	9.3 ppb, 22.3 µg/m³
Ethyl Alcohol	29.0 ppb, 54.5 µg/m³
2-Methylbutane	53.1 ppb, 157. µg/m³
Pentane	84.5 ppb, 247. µg/m³
4-Ethyltoluene	50.1 ppb, 245. µg/m³
Propyl Benzene	20.1 ppb, 80.4 µg/m³
1,2,4-Trimethylbenzene	56.0 ppb, 280. µg/m³
Xylene	11.6 ppb, 50.1 µg/m³

313.7 ppb total

Note: 1 ppm=1,000 ppb

For office and residential indoor air quality, there are no established limits for individual volatile organic vapor (VOCs) in the U.S. The U.S. Green Building Council recommends a maximum of 500 µg/m³ for total VOCs in LEED designated structures. U.S. OSHA specifies permissible exposure limits for individual chemicals in the workplace.

Typical limits for indoor air quality in some other countries are: Toluene-0.07 ppm, Xylene-0.20 ppm, Ethyl Benzene-0.88 ppm, Styrene-0.05 ppm, Paradichlorobenzene-0.04 ppm.

The chemicals tested are listed on the next page. The chemicals that are not reported above are not detected. No concentration is above 0.03 ppm.

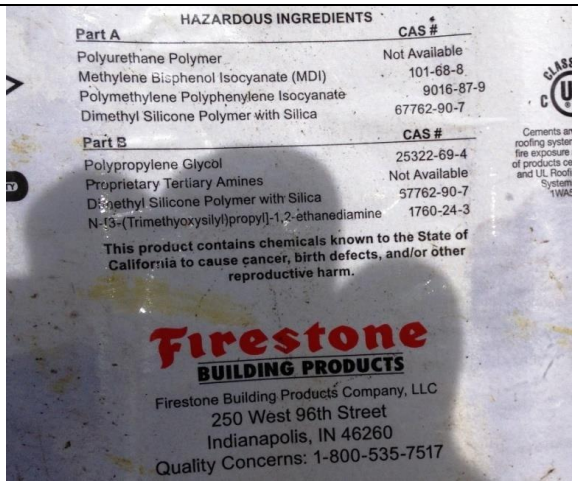
15320

The values reported are the average concentrations for the monitoring period used, based on the information provided by the user.
Analysis results for unexposed samples ("Blanks"), used for quality assurance testing, are not subtracted from the sample results reported.

Appendix B

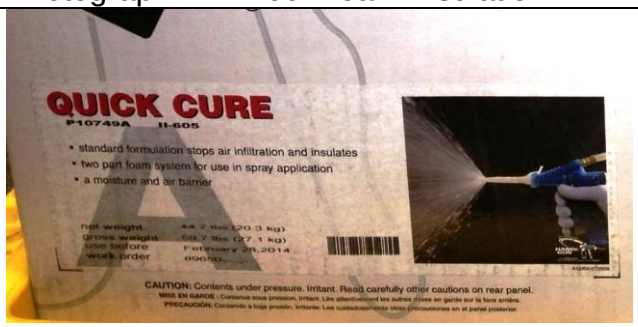
Photographs

Photograph #1: Roof Flashing Cement



Photograph #2: Roof Foam Insulation

Photograph #3: Roof Foam Insulation



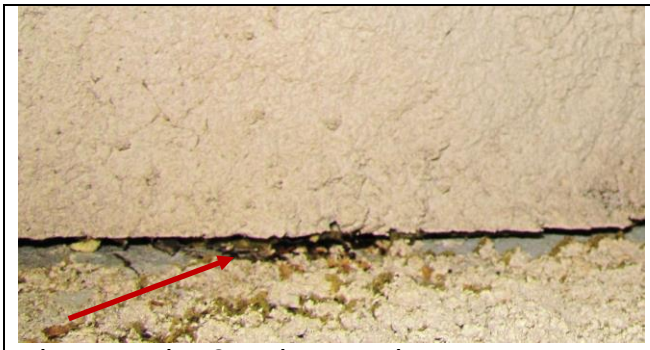
Photograph #4: Roof Foam Insulation

Photograph #5:

Photograph #6: Elevated PID reading (4.6 ppm) at perimeter

Photograph #7: High PID at drip (19 ppm)

Photograph #8: Drip at perimeter



Photograph #9: Drip at perimeter

Photograph #10: Gap at perimeter

SECTION 02 82 11
CEILING ASBESTOS ABATEMENT

TABLE OF CONTENTS

PART 1 - GENERAL 1
1.1 SUMMARY OF THE WORK 1
1.1.1 CONTRACT DOCUMENTS AND RELATED REQUIREMENTS 1
1.1.2 EXTENT OF WORK 1
1.1.3 ALTERNATE WORK 1
1.1.4 TASKS 1
1.1.5 CONTRACTORS USE OF PREMISES 2
1.2 VARIATIONS IN QUANTITY 2
1.3 STOP ASBESTOS REMOVAL 2
1.4 DEFINITIONS 3
1.4.1 GENERAL 3
1.4.2 GLOSSARY 3
1.4.3 REFERENCED STANDARDS ORGANIZATIONS 9
1.5 APPLICABLE CODES AND REGULATIONS 11
1.5.1 GENERAL APPLICABILITY OF CODES, REGULATIONS, AND STANDARDS 11
1.5.2 Asbestos Abatement CONTRACTOR RESPONSIBILITY 11
1.5.3 FEDERAL REQUIREMENTS 12
1.5.4 STATE REQUIREMENTS 12
1.5.5 LOCAL REQUIREMENTS 13
1.5.6 STANDARDS 13
1.5.7 EPA GUIDANCE DOCUMENTS 13
1.5.8 NOTICES 13
1.5.9 PERMITS/LICENSES 13
1.5.10 POSTING AND FILING OF REGULATIONS 14
1.5.11 LFUCG RESPONSIBILITIES 14
1.5.12 SITE SECURITY 14
1.5.13 EMERGENCY ACTION PLAN AND ARRANGEMENTS 15
1.5.14 PRE-CONSTRUCTION MEETING 16
1.6 PROJECT COORDINATION 16
1.6.1 PERSONNEL 16
1.7 RESPIRATORY PROTECTION 18
1.7.1 GENERAL - RESPIRATORY PROTECTION PROGRAM 18

1.7.2 RESPIRATORY PROTECTION PROGRAM COORDINATOR 18
1.7.3 SELECTION AND USE OF RESPIRATORS 18
1.7.4 MINIMUM RESPIRATORY PROTECTION 18
1.7.5 MEDICAL WRITTEN OPINION 18
1.7.6 RESPIRATOR FIT TEST 18
1.7.7 RESPIRATOR FIT CHECK 18
1.7.8 MAINTENANCE AND CARE OF RESPIRATORS 18
1.7.9 SUPPLIED AIR SYSTEMS 19
1.8 WORKER PROTECTION 19
1.8.1 TRAINING OF ABATEMENT PERSONNEL 19
1.8.2 MEDICAL EXAMINATIONS 19
1.8.3 PERSONAL PROTECTIVE EQUIPMENT 19
1.8.4 REGULATED AREA ENTRY PROCEDURE 19
1.8.5 DECONTAMINATION PROCEDURE 19
1.8.6 REGULATED AREA REQUIREMENTS 20
1.9 DECONTAMINATION FACILITIES 20
1.9.1 DESCRIPTION 20
1.9.2 GENERAL REQUIREMENTS 21
1.9.3 TEMPORARY FACILITIES TO THE PDF and W/EDF 21
1.9.4 PERSONNEL DECONTAMINATION FACILITY (PDF) 21
1.9.5 WASTE/EQUIPMENT DECONTAMINATION FACILITY (W/EDF) 23
1.9.6 WASTE/EQUIPMENT DECONTAMINATION PROCEDURES 24
PART 2 - PRODUCTS, MATERIALS AND EQUIPMENT 24
2.1 MATERIALS AND EQUIPMENT 24
2.1.1 GENERAL REQUIREMENTS 24
2.1.2 NEGATIVE PRESSURE FILTRATION SYSTEM 26
2.1.3 DESIGN AND LAYOUT 26
2.1.4 NEGATIVE AIR MACHINES (HEPA UNITS) 26
2.1.5 PRESSURE DIFFERENTIAL 27
2.1.6 MONITORING 28
2.1.7 AUXILIARY GENERATOR 28
2.1.8 SUPPLEMENTAL MAKE-UP AIR INLETS 28
2.1.9 TESTING THE SYSTEM 28
2.1.10 DEMONSTRATION OF THE NEGATIVE AIR PRESSURE SYSTEM 28
2.1.11 USE OF SYSTEM DURING ABATEMENT OPERATIONS 29
2.1.12 DISMANTLING THE SYSTEM 29

2.2 CONTAINMENT BARRIERS AND COVERINGS IN THE REGULATED AREA 29
2.2.1 GENERAL 29
2.2.2 PREPARATION PRIOR TO SEALING THE REGULATED AREA 29
2.2.3 CONTROLLING ACCESS TO THE REGULATED AREA 30
2.2.4 CRITICAL BARRIERS 30
2.2.5 PRIMARY BARRIERS 30
2.2.6 SECONDARY BARRIERS 30
2.2.7 EXTENSION OF THE REGULATED AREA 30
2.2.8 FIRESTOPPING 30
2.3 MONITORING, INSPECTION AND TESTING 31
2.3.1 GENERAL 31
2.3.2 SCOPE OF SERVICES OF THE LPIH/CIH CONSULTANT 32
2.3.3 MONITORING, INSPECTION AND TESTING BY CONTRACTOR CPIH 32
2.4 STANDARD OPERATING PROCEDURES 33
2.5 SUBMITTALS 34
2.5.1 PRE-START MEETING SUBMITTALS 34
2.5.2 SUBMITTALS DURING ABATEMENT 36
2.5.3 SUBMITTALS AT COMPLETION OF ABATEMENT 36
2.6 ENCAPSULANTS 36
2.6.1 TYPES OF ENCAPSULANTS 36
2.6.2 PERFORMANCE REQUIREMENTS 37
2.6.3 CERTIFICATES OF COMPLIANCE 37
PART 3 - EXECUTION 37
3.1 PRE-ABATEMENT ACTIVITIES 37
3.1.1 PRE-ABATEMENT MEETING 37
3.1.2 PRE-ABATEMENT INSPECTIONS AND PREPARATIONS 38
3.1.3 PRE-ABATEMENT CONSTRUCTION AND OPERATIONS 38
3.2 REGULATED AREA PREPARATIONS 39
3.3 CONTAINMENT BARRIERS AND COVERINGS FOR THE REGULATED AREA GENERAL: 39
3.4 REMOVAL OF ACM 39
3.4.1 WETTING acm 39
3.4.2 SECONDARY BARRIER AND WALKWAYS 40
3.4.3 WET REMOVAL OF ACM 40
3.4.4 WET REMOVAL OF AMOSITE 41
3.4.5 REMOVAL OF ACM/DIRT FLOORS AND OTHER SPECIAL PROCEDURES 41
3.5 LOCKDOWN ENCAPSULATION 41

3.5.1 GENERAL 41
3.5.2 DELIVERY AND STORAGE 41
3.5.3 WORKER PROTECTION 41
3.6 DISPOSAL OF ACM WASTE MATERIALS 41
3.6.1 GENERAL 41
3.6.2 PROCEDURES 42
3.7 PROJECT DECONTAMINATION 42
3.7.1 GENERAL 42
3.7.2 REGULATED AREA CLEARANCE 42
3.7.3 WORK DESCRIPTION 43
3.7.4 PRE-DECONTAMINATION CONDITIONS 43
3.7.5 FIRST CLEANING 43
3.7.6 PRE-CLEARANCE INSPECTION AND TESTING 43
3.7.7 LOCKDOWN ENCAPSULATION OF ABATED SURFACES 43
3.8 FINAL VISUAL INSPECTION AND AIR CLEARANCE TESTING 44
3.8.1 GENERAL 44
3.8.2 FINAL VISUAL INSPECTION 44
3.8.3 FINAL AIR CLEARANCE TESTING 44
3.8.4 FINAL AIR CLEARANCE PROCEDURES 44
3.9 ABATEMENT CLOSEOUT AND CERTIFICATE OF COMPLIANCE 45
3.9.1 COMPLETION OF ABATEMENT WORK 45
3.9.2 CERTIFICATE OF COMPLETION BY CONTRACTOR 45
3.9.3 WORK SHIFTS 45
ATTACHMENT #1 Certificate of Completion 46
ATTACHMENT #2 Worker’s Acknowledgement 47
ATTACHMENT #3 Affidavit of Med Surv, Resp Pro & Training 48
ATTACHMENT #4 Contractor’s Acceptance of Specifications 49
ATTACHMENT #5 Abatement Drawing 50

SECTION 02 82 11
CLASS I NEGATIVE PRESSURE ENCLOSURE ASBESTOS ABATEMENT SPECIFICATIONS

PART 1 - GENERAL

1.1 SUMMARY OF THE WORK

1.1.1 CONTRACT DOCUMENTS AND RELATED REQUIREMENTS

Drawings, general provisions of the contract, including general and supplementary conditions and other Division 01 specifications, shall apply to the work of this section. The contract documents show the work to be done under the contract and related requirements and conditions impacting the project. Related requirements and conditions include applicable codes and regulations, notices and permits, existing site conditions and restrictions on use of the site, requirements for partial owner occupancy during the work, coordination with other work and the phasing of the work. In the event the Asbestos Abatement Contractor discovers a conflict in the contract documents and/or requirements or codes, the conflict must be brought to the immediate attention of the Contracting Officer for resolution. Whenever there is a conflict or overlap in the requirements, the most stringent shall apply. Any actions taken by the Contractor without obtaining guidance from the Contracting Officer shall become the sole risk and responsibility of the Asbestos Abatement Contractor. All costs incurred due to such action are also the responsibility of the Asbestos Abatement Contractor.

1.1.2 EXTENT OF WORK

A. Below is a brief description of the estimated quantities of asbestos containing materials to be abated. These quantities are for informational purposes only and are based on the best information available at the time of the specification preparation. The Contractor shall satisfy himself as the actual quantities to be abated. Nothing in this section may be interpreted as limiting the extent of work otherwise required by this contract and related documents.

B. Removal, clean-up and disposal of approximately 1,200 square feet asbestos containing ceiling surfacing material in an appropriate regulated area.

C. Installation of suspended acoustical ceiling as specified in SECTION 09 51 00

1.1.3 ALTERNATE WORK

Not Applicable

1.1.4 TASKS

The work tasks are summarized briefly as follows:

A. Pre-abatement activities including pre-abatement meeting(s), inspection(s), notifications, permits, submittal approvals, regulated area preparations, emergency procedures arrangements, and standard operating procedures for asbestos abatement work.

B. Abatement activities including removal, encapsulation, clean-up and disposal of ACM waste, recordkeeping, security, monitoring, and inspections.

C. Cleaning and decontamination activities including final visual inspection, air monitoring and certification of decontamination.

1.1.5 CONTRACTORS USE OF PREMISES

A. The Contractor and Contractor's personnel shall cooperate fully with the LFUCG representative/consultant to facilitate efficient use of buildings and areas within buildings. The Contractor shall perform the work in accordance with the LFUCG specifications, drawings, phasing plan and in compliance with any/all applicable Federal, State and Local regulations and requirements.

B. The Contractor shall use the existing facilities in the building strictly within the limits indicated in contract documents as well as the approved pre-abatement work plan. Asbestos abatement drawings of partially occupied buildings will show the limits of regulated areas; the placement of decontamination facilities; the temporary location of bagged waste ACM; the path of transport to outside the building; and the temporary waste storage area for each building/regulated area. Any variation from the arrangements shown on drawings shall be secured in writing from the LFUCG representative through the pre-abatement plan of action.

1.2 VARIATIONS IN QUANTITY

The quantities and locations of ACM as indicated on the drawings and the extent of work included in this section are estimated which are limited by the physical constraints imposed by occupancy of the buildings. Accordingly, minor variations (+/- 5%) in quantities of ACM within the regulated area are considered as having no impact on contract price and time requirements of this contract. Where additional work is required beyond the above variation, the contractor shall provide unit prices for newly discovered materials and those prices shall be used for additional work required under the contractor.

1.3 STOP ASBESTOS REMOVAL

If the Contracting Officer; their field representative; or the LFUCG presents a written **Stop Asbestos Removal Order**, the Contractor/Personnel shall immediately stop all asbestos removal and maintain HEPA filtered air flow and adequately wet any exposed ACM. The Contractor shall not resume any asbestos removal activity until authorized to do so by the LFUCG. A stop asbestos removal order may be issued at any time the LFUCG determines abatement conditions/activities are not within specification requirements. Work stoppage will continue until conditions have been corrected to the satisfaction of the LFUCG. Standby time and costs for corrective actions will be borne by the Contractor, including the industrial hygienist's time. The occurrence of any of the following events shall be reported immediately by the Contractor’s competent person in writing to the LFUCG representative and shall require the Contractor to immediately stop asbestos removal/disturbance activities and initiate fiber reduction activities:

A. =/> 0.01 f/cc outside a regulated area;

B. breach/break in regulated area barrier(s);
C. less than –0.02” WCG pressure in the regulated area;
D. serious injury/death at the site ;
E. fire/safety emergency at the site ;
F. respiratory protection system failure;
G. power failure or loss of wetting agent; or
H. any visible emissions observed outside the regulated area.

1.4 DEFINITIONS

1.4.1 GENERAL

Definitions and explanations here are neither complete nor exclusive of all terms used in the contract documents, but are general for the work to the extent they are not stated more explicitly in another element of the contract documents. Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated therein.

1.4.2 GLOSSARY

Abatement - Procedures to control fiber release from asbestos-containing materials, typically during removal. Includes removal, encapsulation, enclosure, demolition and renovation activities related to asbestos.

ACE - Asbestos contaminated elements.

ACM - Asbestos containing material.

Aerosol - Solid or liquid particulate suspended in air.

Adequately wet - Sufficiently mixed or penetrated with liquid to prevent the release of particulates. If visible emissions are observed coming from the ACM, then that material has not been adequately wetted.

Aggressive method - Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact ACM.

Aggressive sampling - EPA AHERA defined clearance sampling method using air moving equipment such as fans and leaf blowers to aggressively disturb and maintain in the air residual fibers after abatement.

AHERA - Asbestos Hazard Emergency Response Act. Asbestos regulations for schools issued in 1987.

Aircell - Pipe or duct insulation made of corrugated cardboard which contains asbestos.

Air monitoring - The process of measuring the fiber content of a known volume of air collected over a specified period of time. The NIOSH 7400 Method, Issue 2 is used to determine the fiber levels in air.

Air sample filter - The filter used to collect fibers which are then counted. The filter is made of mixed cellulose ester membrane for PCM (Phase Contrast Microscopy) and polycarbonate for TEM (Transmission Electron Microscopy)

Amended water - Water to which a surfactant (wetting agent) has been added to increase the penetrating ability of the liquid.

Asbestos - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated or altered. Asbestos also includes PACM, as defined below.

Asbestos-containing material (ACM) - Any material containing more than one percent of asbestos.

Asbestos contaminated elements (ACE) - Building elements such as ceilings, walls, lights, or ductwork that are contaminated with asbestos.

Asbestos-containing waste material - Asbestos-containing material or asbestos contaminated objects requiring disposal.

Asbestos waste decontamination facility - A system consisting of drum/bag washing facilities and a temporary storage area for cleaned containers of asbestos waste. Used as the exit for waste and equipment leaving the regulated area. In an emergency, it may be used to evacuate personnel.

Authorized person - Any person authorized by the LFUCG, the Contractor, or government agency and required by work duties to be present in regulated areas.

Authorized visitor - Any person approved by the LFUCG; the contractor; or any government agency having jurisdiction over the regulated area.

Barrier - Any surface the isolates the regulated area and inhibits fiber migration from the regulated area.

Containment Barrier - An airtight barrier consisting of walls, floors, and/or ceilings of sealed plastic sheeting which surrounds and seals the outer perimeter of the regulated area.

Critical Barrier - The barrier responsible for isolating the regulated area from adjacent spaces, typically constructed of plastic sheeting secured in place at openings such as doors, windows, or any other opening into the regulated area.

Primary Barrier - Barriers placed over critical barriers and exposed directly to abatement work.

Secondary Barrier - Any additional sheeting used to isolate and provide protection from debris during abatement work.

Breathing zone - The hemisphere forward of the shoulders with a radius of about 150 - 225 mm (6 - 9 inches) from the worker's nose.

Bridging encapsulant - An encapsulant that forms a layer on the surface of the ACM.

Building/facility owner - The legal entity, including a lessee, which exercises control over management and recordkeeping functions relating to a building and/or facility in which asbestos activities take place.

Bulk testing - The collection and analysis of suspect asbestos containing materials.

Certified Industrial Hygienist (CIH) - One certified in practice of industrial hygiene by the American Board of Industrial Hygiene. An industrial hygienist Certified in Comprehensive Practice by the American Board of Industrial Hygiene.

Class I asbestos work - Activities involving the removal of Thermal System Insulation (TSI) and surfacing ACM and Presumed Asbestos Containing Material (PACM).

Class II asbestos work - Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic.

Clean room/Changing room - An uncontaminated room having facilities for the storage of employee's street clothing and uncontaminated materials and equipment.

Clearance sample - The final air sample taken after all asbestos work has been done and visually inspected. Performed by the LFUCG 's industrial hygiene consultant (LPIH/CIH).

Closely resemble - The major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

Competent person - In addition to the definition in 29 CFR 1926.32(f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f); in addition, for Class I and II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor.

Contractor's Professional Industrial Hygienist (CPIH) - The asbestos abatement contractor's industrial hygienist. The industrial hygienist must meet the qualification requirements of the PIH.

Count - Refers to the fiber count or the average number of fibers greater than five microns in length per cubic centimeter of air.

Decontamination area/unit - An enclosed area adjacent to and connected to the regulated area and consisting of an equipment room, shower room, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition - The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

Disposal bag - Typically 6 mil thick siftproof, dustproof, leaktight container used to package and transport asbestos waste from regulated areas to the approved landfill. Each bag/container must be labeled/marked in accordance with EPA, OSHA and DOT requirements.

Disturbance - Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM or PACM, no greater than the amount that can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or disposal bag which shall not exceed 60 inches in length or width.

ATTACHMENT #1 CERTIFICATE OF COMPLETION

CERTIFICATE OF COMPLETION

DATE:

PROJECT NAME:

ADDRESS:

1. I certify that I have personally inspected, monitored and supervised the abatement work of (specify regulated area or Building):
   which took place from / / / to / /
2. That throughout the work all applicable requirements/regulations and the LFUCG's specifications were met.
3. That any person who entered the regulated area was protected with the appropriate personal protective equipment and respirator and that they followed the proper entry and exit procedures and the proper operating procedures for the duration of the work.
4. That all employees of the Contractor engaged in this work were trained in respiratory protection, were experienced with abatement work, had proper medical surveillance documentation, were fit-tested for their respirator, and were not exposed at any time during the work to asbestos without the benefit of appropriate respiratory protection.
5. That I performed and supervised all inspection and testing specified and required by applicable regulations and LFUCG specifications.
6. That the conditions inside the regulated area were always maintained in a safe and healthy condition and the maximum fiber count never exceeded 1.0 f/cc, except as described below.
7. That the negative pressure system was installed, operated and maintained in order to provide a minimum of 4 actual air changes per hour with a continuous -0.02" of water column pressure.

Signature/Date:

Signature/Date:

ATTACHMENT #2 WORKER'S ACKNOWLEDGEMENT

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME: DATE:

PROJECT ADDRESS:

ABATEMENT CONTRACTOR'S NAME:

WORKING WITH ASBESTOS CAN BE HAZARDOUS TO YOUR HEALTH. INHALING ASBESTOS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS YOUR CHANCES OF DEVELOPING LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the owner for the above project requires that: You must be supplied with the proper personal protective equipment including an adequate respirator and be trained in its use. You must be trained in safe and healthy work practices and in the use of the equipment found at an asbestos abatement project. You must receive/have a current medical examination for working with asbestos. These things shall be provided at no cost to you. By signing this certificate you are indicating to the owner that your employer has met these obligations.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators and have been informed of the type of respirator to be used on the above indicated project. I have a copy of the written Respiratory Protection Program issued by my employer. I have been provided for my exclusive use, at no cost, with a respirator to be used on the above indicated project.

TRAINING COURSE: I have been trained by a third party, State/EPA accredited trainer in the requirements for an AHERA/OSHA Asbestos Abatement Worker training course, 32 hours minimum duration. I currently have a valid State accreditation certificate. The topics covered in the course include, as a minimum, the following:

Physical Characteristics and Background Information on Asbestos
Potential Health Effects Related to Exposure to Asbestos
Employee Personal Protective Equipment
Establishment of a Respiratory Protection Program
State of the Art Work Practices
Personal Hygiene
Additional Safety Hazards
Medical Monitoring
Air Monitoring
Relevant Federal, State and Local Regulatory Requirements, Procedures, and Standards
Asbestos Waste Disposal

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, occupational history, pulmonary function test, and may have included a chest x-ray evaluation. The physician issued a positive written opinion after the examination.

Signature:

Printed Name:

Social Security Number: Witness:

ATTACHMENT #3 AFFIDAVIT OF MED SURV, RESP PRO & TRAINING

AFFIDAVIT OF MEDICAL SURVEILLANCE, RESPIRATORY PROTECTION AND TRAINING/ACCREDITATION

LFUCG PROJECT NAME AND NUMBER:

LFUCG FACILITY:

ABATEMENT CONTRACTOR'S NAME AND ADDRESS:

1. I verify that the following individual

   Name: Social Security Number:

   who is proposed to be employed in asbestos abatement work associated with the above project by the named. Contractor, is included in a medical surveillance program in accordance with 29 CFR 1926.1101(m), and that complete records of the medical surveillance program as required by 29 CFR 1926.1101(m)(n) and 29 CFR 1910.20 are kept at the offices of the Contractor at the following address.

   Address:

2. I verify that this individual has been trained, fit-tested and instructed in the use of all appropriate respiratory protection systems and that the person is capable of working in safe and healthy manner as expected and required in the expected work environment of this project.

3. I verify that this individual has been trained as required by 29 CFR 1926.1101(k). This individual has also obtained a valid State accreditation certificate. Documentation will be kept on-site.

4. I verify that I meet the minimum qualifications criteria of the LFUCG specifications for a CPIH.

   Signature of CPIH: Date:

   Printed Name of CPIH:

   Signature of Contractor: Date:

   Printed Name of Contractor:

ATTACHMENT #4 CONTRACTOR'S ACCEPTANCE OF SPECIFICATIONS

ABATEMENT CONTRACTOR/COMPETENT PERSON(S) REVIEW AND ACCEPTANCE OF THE LFUCG'S ASBESTOS SPECIFICATIONS

LFUCG Project Location:

LFUCG Project #:

LFUCG Project Description:

This form shall be signed by the Asbestos Abatement Contractor Owner and the Asbestos Abatement Contractor's Competent Person(s) prior to any start of work at the LFUCG related to this Specification. If the Asbestos Abatement Contractor's/Competent Person(s) has not signed this form, they shall not be allowed to work on-site.

I, the undersigned, have read LFUCG's Asbestos Specification regarding the asbestos abatement requirements. I understand the requirements of the LFUCG's Asbestos Specification and agree to follow these requirements as well as all required rules and regulations of OSHA/EPA/DOT and State/Local requirements. I have been given ample opportunity to read the LFUCG's Asbestos Specification and have been given an opportunity to ask any questions regarding the content and have received a response related to those questions. I do not have any further questions regarding the content, intent and requirements of the LFUCG's Asbestos Specification.

At the conclusion of the asbestos abatement, I will certify that all asbestos abatement work was done in accordance with the LFUCG's Asbestos Specification and all ACM was removed properly and no fibrous residue remains on any abated surfaces.

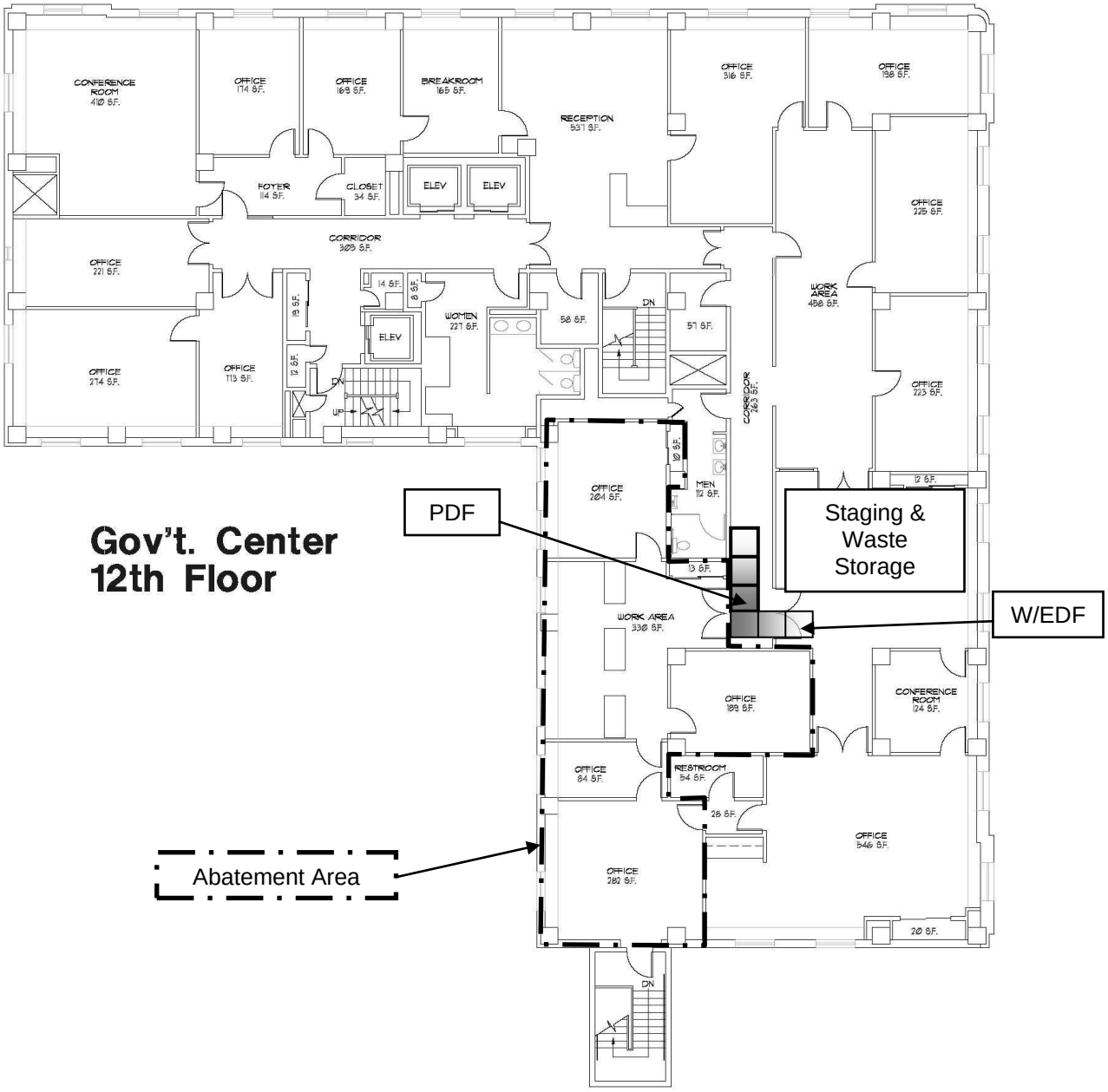
Abatement Contractor Owner's Signature Date

Abatement Contractor Competent Person(s) Date

Date

Date

ATTACHMENT #5 ABATEMENT DRAWING



- - - E N D - - -

SECTION 09 51 00
ACOUSTICAL CEILINGS

PART 1- GENERAL

1.1 DESCRIPTION

A. Metal ceiling suspension system for acoustical ceilings.

B. Acoustical units.

C. Adhesive application.

1.2 RELATED WORK

A. SCHEDULE FOR FINISHES – Attachment #1.

1.3 SUBMITTAL

A. Manufacturer's Literature and Data:

1. Ceiling suspension system, each type, showing complete details of installation.

1.4 DEFINITIONS

A. Standard definitions as defined in ASTM C634.

B. Terminology as defined in ASTM E1264.

1.5 APPLICABLE PUBLICATIONS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only.

B. American Society for Testing and Materials (ASTM):

A641/A641M-09 ..... Zinc-coated (Galvanized) Carbon Steel Wire

A653/A653M-11 ..... Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process

C423-09 ..... Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

C634-11 ..... Standard Terminology Relating to Environmental Acoustics

C635-13 ..... Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings

C636-13 ..... Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels

E84-13..... Surface Burning Characteristics of Building Materials

E119-12..... Fire Tests of Building Construction and Materials

E413-10..... Classification for Rating Sound Insulation.

E580-11..... Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint

E1264-08e1..... Classification for Acoustical Ceiling Products

C. International Organization for Standardization (ISO)

ISO 14644-1.....Classification of Air Cleanliness

PART 2- PRODUCTS

2.1 METAL SUSPENSION SYSTEM

A. ASTM C635, heavy-duty system, except as otherwise specified.
   1. Ceiling suspension system members may be fabricated from either of the following unless specified otherwise.
      a. Galvanized cold-rolled steel, bonderized.
      b. Extruded aluminum.
      c. Fire resistant plastic (glass fiber) having a flame spread and smoke developed rating of not more than 25 when tested in accordance with ASTM E84.
   2. Use same construction for cross runners as main runners. Use of lighter-duty sections for cross runners is not acceptable.

B. Exposed grid suspension system for support of lay-in panels:
   1. Exposed grid width not less than 22 mm (7/8 inch) with not less than 8 mm (5/16 inch) panel bearing surface.
   2. Fabricate wall molding and other special molding from the same material with same exposed width and finish as the exposed grid members.
   3. On exposed metal surfaces apply baked-on enamel flat texture finish in color unless specified otherwise in SCHEDULE FOR FINISHES – Attachment #1.

2.2 PERIMETER SEAL

A. Vinyl, polyethylene or polyurethane open cell sponge material having density of 1.3 plus or minus 10 percent, compression set less than 10 percent with pressure sensitive adhesive coating on one side.

B. Thickness as required to fill voids between back of wall molding and finish wall.

C. Not less than 9 mm (3/8 inch) wide strip.

2.3 WIRE

A. ASTM A641.

B. For wire hangers: Minimum diameter 2.68 mm (0.1055 inch).

C. For bracing wires: Minimum diameter 3.43 mm (0.1350 inch).

2.4 ANCHORS AND INSERTS

A. Use anchors or inserts to support twice the loads imposed by hangers attached thereto.

B. Hanger Inserts:
   1. Fabricate inserts from steel, zinc-coated (galvanized after fabrication).
   2. Flush ceiling insert type:
      a. Designed to provide a shell covered opening over a wire loop to permit attachment of hangers and keep concrete out of insert recess.

b. Insert opening inside shell approximately 16 mm (5/8 inch) wide by 9 mm (3/8 inch) high over top of wire.
c. Wire 5 mm (3/16 inch) diameter with length to provide positive hooked anchorage in concrete.

C. Clips:
1. Galvanized steel.
2. Designed to clamp to steel beam or bar joists, or secure framing member together.
3. Designed to rigidly secure framing members together.
4. Designed to sustain twice the loads imposed by hangers or items supported.

D. Tile Splines: ASTM C635.

2.5 CARRYING CHANNELS FOR SECONDARY FRAMING

A. Fabricate from cold-rolled or hot-rolled steel, black asphaltic paint finish, free of rust.

2.6 ADHESIVE

A. ASTM D1779, having flame spread index of 25 or less when tested in accordance with ASTM E84.

B. Developing minimum strength of 7 kg/m^2 (one psi) of contact surface 48 hours after installation in temperature of 21 °C (70 °F).

2.7 ACOUSTICAL UNITS

A. General:
1. Ceiling Tile shall meet minimum 37% bio-based content in accordance with USDA Bio-Preferred Product requirements.
2. ASTM E1264, weighing 3.6 kg/m^2 (3/4 psf) minimum for mineral fiber panels or tile.
3. Class A Flame Spread: ASTM 84
4. Minimum NRC (Noise Reduction Coefficient): 0.55 unless specified otherwise: ASTM C423.
5. Minimum CAC (Ceiling Attenuation Class): 40-44 range unless specified otherwise: ASTM E413.
6. Manufacturers standard finish, minimum Light Reflectance (LR) coefficient of 0.75 on the exposed surfaces, except as specified otherwise SCHEDULE FOR FINISHES – Attachment #1.
7. Lay-in panels: Sizes as shown in SCHEDULE FOR FINISHES – Attachment #1.

2.9 ACCESS IDENTIFICATION

Not Applicable

PART 3 EXECUTION

3.1 CEILING TREATMENT

A. Treatment of ceilings shall include sides and soffits of ceiling beams, furred work 600 mm (24 inches) wide and over, and vertical surfaces at changes in ceiling heights unless otherwise shown. Install acoustic tiles after wet finishes have been installed and solvents have cured.

B. Lay out acoustical units symmetrically about center lines of each room or space unless shown otherwise on reflected ceiling plan.

C. Moldings:

1. Install metal wall molding at perimeter of room, column, or edge at vertical surfaces.
2. Install special shaped molding at changes in ceiling heights and at other breaks in ceiling construction to support acoustical units and to conceal their edges.

D. Perimeter Seal:

1. Install perimeter seal between vertical leg of wall molding and finish wall, partition, and other vertical surfaces.
2. Install perimeter seal to finish flush with exposed faces of horizontal legs of wall molding.

3.2 CEILING SUSPENSION SYSTEM INSTALLATION

A. General:

1. Install metal suspension system for acoustical tile and lay-in panels in accordance with ASTM C636, except as specified otherwise.
2. Use direct or indirect hung suspension system or combination thereof as defined in ASTM C635.
3. Support a maximum area of 1.48 m^2 (16 sf) of ceiling per hanger.
4. Prevent deflection in excess of 1/360 of span of cross runner and main runner.
5. Provide extra hangers, minimum of one hanger at each corner of each item of mechanical, electrical and miscellaneous equipment supported by ceiling suspension system not having separate support or hangers.
6. Provide not less than 100 mm (4 inch) clearance from the exposed face of the acoustical units to the underside of ducts, pipe, conduit, secondary suspension channels, concrete beams or joists; and steel beam or bar joist unless furred system is shown,
7. Use main runners not less than 1200 mm (48 inches) in length.
8. Install hanger wires vertically. Angled wires are not acceptable except for seismic restraint bracing wires.

B. Anchorage to Structure:

1. Concrete:
   a. Install hanger inserts and wire loops required for support of hanger.
2. Steel:
   a. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels for attachment of hanger wires.
      (1) Size and space carrying channels to insure that the maximum deflection specified will not be exceeded.
      (2) Attach hangers to steel carrying channels, spaced four feet on center, unless area supported or deflection exceeds the amount specified.

ATTACHMENT #1

Schedule of Finishes

12TH FLOOR GOVT CTR.

SUBMITTED BY:
NexGen Building Supply
Lexington
164 Trade St
Lexington, KY, 40511
859-231-6150

QUOTE
#:213366 - 000
Expires on:02/28/2014

BILL TO: 100938
OTC - LEXINGTON - CREDIT CARD
164 TRADE ST
THANK YOU FOR YOUR BUSINESS!
LEXINGTON, KY 40511

SHIP TO: 100938
LFUCG
HAROLD
THANK YOU FOR YOUR BUSINESS!
LEXINGTON, KY 40511
Ph: 000-000-0000

Quote Date	Proposed Ship Date	To Be Shipped Via		
01/22/2014	01/22/2014			
Customer PO#	**Quote Entered By**	**Salesperson**		**Terms**
LFUCG	JOHN DILLON	HOUSE		CASH ONLY

QTY Ordered	UOM	QTY To Ship	UOM	Item Code	Description	Price	UOM	Price	UOM	Amount
1,216	SF	19	CT	C2110	RADAR 2110 SQ 5/8X2X2 @64SF	0.480	SF	30.720	CT	583.68
240	LF	1	CT	GDXL24-050N	12 MAIN TEE FR @20/CTN WHITE	0.449	LF	107.760	CT	107.76
60	LF	5	PC	GDXL24-050N	12 MAIN TEE FR @20/CTN WHITE	0.449	LF	107.760	CT	26.94
240	LF	2	CT	GDXL216-050N	2 CROSS TEE FR @60/CTN WHITE	0.410	LF	49.200	CT	98.40
60	LF	30	PC	GDXL216-050N	2 CROSS TEE FR @60/CTN WHITE	0.410	LF	49.200	CT	24.60
480	LF	2	CT	GDX422-050N	4 CROSS TEE @60/CTN WHITE	0.410	LF	98.400	CT	196.80
120	LF	30	PC	GDX422-050N	4 CROSS TEE @60/CTN WHITE	0.410	LF	98.400	CT	49.20
240	LF	20	PC	GM7-050	12X7/8 WALL MOLD @40/CTN WHITE	0.298	LF	143.040	CT	71.52
20	PC	20	PC	G1212-50-138	12 HANGER WIRE 12 GA @138/BDL	0.400	PC	55.200	BD	8.00
		1,071.70	LB		Total Shipping Weight					
					Subtotal of line items					1,166.90

NEXGEN CONTINUES TO GROW TO BETTER SERVE OUR CUSTOMERS. CHECK OUT OUR NEW SUPER CENTER AT 1099 GREENLEAF AVENUE, ELK GROVE VILLAGE, ILLINOIS

Quote Total
1,166.90

Ceiling tile and ceiling grid is returnable in full unopened cartons only

- - - E N D - - -

Appendix D
General Work Plan

Air Source Technology, Inc. - Consulting Work Plan

1. Air Source Technology, Inc. (ASTI) receives consulting work request from Lexington Fayette Urban County Government (LFUCG).
2. The specifics of the request are discussed. If necessary, a site visit shall be scheduled to determine the needed scope of work, how desired work will impact building occupant/activities and gather any additional pertinent information.
3. ASTI shall assign a separate project number for each separate work request and the specifics of the requested work. Specific information would include work site & point of contact, scope of work (i.e., asbestos/lead inspection, develop abatement specifications, indoor air quality (mold) investigation, mold remediation specifications, etc.) and desired timeline for completion.
4. ASTI will prepare for project needs (acquire floor plans, assemble equipment, notify labs & order sampling media), assign individual consultant or team members, and schedule site work.
5. After site work is completed, collected samples shall be shipped to appropriate laboratories (if applicable).
6. When all necessary information has been gathered and laboratory analysis received (if applicable), a project report or specifications shall be generated and submitted to LFUCG for approval.
7. After LFUCG review, if needed requested modifications shall be made and a revised report/specification shall be submitted. Note: All reports/specifications will be submitted within seven days of the assigned project completion date unless otherwise requested and agreed to by LFUCG and ASTI.

Supporting Laboratory Information (Note that other laboratories may be used, if their skills are better suited to a particular problem/situation with the prior approval of LFUCG):

Environmental Hazard Services, LLC EHS Laboratories (AIHA & NVLAP Accredited) 7469 Whitepine Road Richmond, VA 23237 Asbestos PLM & Lead Analysis (no water)	McCall and Spero Environmental. Inc. AIHA & NVLAP Accredited 1831 Williamson Court, Suite 100 Louisville, KY 40223 Asbestos TEM Analysis
Microbac Lab Certified by Comm. of KY for Drinking Water 2520 Regency Road Lexington, Kentucky 40503 Lead water analysis	Aerobiology Laboratory (Woman Owned Business) AIHA accredited 43760 Trade Center Pl, Suite 100 Dulles, VA 20166 Mold & Bacteria Analysis
EM Lab P&K AIHA accredited 1150 Bayhill Drive, Suite 100 San Bruno, CA 94066 Dust Characterization & Allergen Analysis	

Appendix E

Personnel – Resumes & Certifications

Bruce N. Fergusson, CIH, CIEC, PE (retired)
President

SUMMARY

President and owner of Air Source Technology, Inc. responsible for the overall planning, management, and financial accountability of the company. Directs ASTI project teams, oversees client communications, and provides focus for sales and marketing. Responsible for expanding the company's technical capabilities and services through research and direct involvement in field methods and results. Lecturer at international industrial hygiene conferences regarding real-world measurement methods for indoor air quality and for the medical environment.

EDUCATION

B.S.E.E. University of South Carolina, Columbia, South Carolina, 1978
(Engineering coursework included Thermodynamics, Heat Transfer, Fluid Dynamics, Advanced Electronic Design, Post-graduate Mathematics, Instrumentation, plus traditional Electrical Engineering courses)
Member of Tau Beta Pi Engineering Honor Society
Post-graduate engineering and accounting courses
Continuing Education on Industrial Hygiene at Eastern Kentucky University and on Indoor Air Quality at industry conferences since 2003

CERTIFICATIONS

Certified Industrial Hygienist No. 10354
American Board of Industrial Hygiene

Professional Engineer No. 10823 (retired)
Registered in South Carolina, 1984

Radon Measurement Specialist No. NRSB 5SS0076
National Radon Safety Board

Council-certified Indoor Environmental Consultant™ No. 0806027
Board-awarded by the American Council for Accredited Certification (ACAC)™

PROFESSIONAL EXPERIENCE

2003 - Present **Air Source Technology, Inc.**

PRESIDENT

Responsible for the overall operations of the company including administration, marketing, and financial aspects. Responsible for technology, data-collection protocols, client communications & reports, and quality control activities performed by the organization. Applied previous engineering instrumentation experience and installed new technical abilities to ASTI organization, including cleanroom certifications, formal facility commissioning and evaluation (LEED™-related testing), infrared thermography, and an engineering approach to building science evaluations of the building envelope and of associated HVAC systems.

- Active participant in industry trade organizations, including American Industrial Hygiene Association (AIHA), American Conference of Government Industrial Hygienists (ACGIH), Indoor Air Quality Association (IAQA), Association for Professionals in Infection Control and Epidemiology, Inc. (APIC), and Kentucky Society of Healthcare Engineers (KSHE), as a lecturer at trade educational forums and an invited contributor to trade publications for topics including:
  - Legionella (KSHE)
  - Response to Water Intrusions and Potential Mold Growth (KSHE)
  - Environmental Testing a of Large Hospital (AIHA 2008 Conference)
  - Environmental Testing of a Large Hospital (IAQA 2009 Conference)
  - Average Radon Levels vs. Actual Occupant Exposure Levels in a Public School (IAQA 2010 Conference)
  - A Systematic Examination of the Building Envelope (IAQA 2011 Conference)
  - Moisture Migration within and through the Building Envelope (IAQA 2012 Conference)
  - Alternative Approaches to Post Remediation Verification (IAQA 2012 Conference)
  - Airborne Mold Sampling: Practical Applications (IAQA 2014 Conference)
- Member of Better Business Bureau of Central & Eastern Kentucky, Inc. (BBB) with zero complaints
- Developed the field sampling methods and directed the implementation of initial environmental testing for the new UK Chandler Medical Center from 2010 to the present, including critical patient care areas
- Directly supervised or participated, and reviewed for quality assurance purposes over 3300 projects over past 7 years, evenly split between indoor air quality projects, asbestos-related projects, industrial hygiene, and environmental consulting.
- Developed the field sampling methods and directed the implementation of initial environmental testing for the Prentice Women's Hospital in downtown Chicago, a new 17 floor healthcare facility costing over $500M. Also conducted the pre-occupancy testing of the UK Chandler Emergency Department in 2010.
- Supervised and developed the sampling methods for the new Biomedical/Biological Sciences Research Building (BBSRB) located on the University of Kentucky campus, which had experienced an extreme water intrusion. Given the biological research nature of the facility, state-of-the-art DNA methods verified effective remediation of the extensive mold growth

- Diagnosed numerous building envelope issues related to vapor intrusion or water intrusion, using principles of thermodynamics, building construction, and fluid dynamics.
- Supervised cleanup of problematic industrial chrome-plating operation, designing post-remediation verification methods to comply with state guidelines
- Conducted comprehensive baseline testing, diagnostic examination, and post-remediation verification involving the University of Kentucky - SAE Fraternity Dormitory, a high profile mold case with multiple issues, including HVAC design and operation, building envelope integrity, maintenance, construction cleanliness, and non-compliance to architect specifications.

2000 – 2002 **NorthStar Communications Group**

DIRECTOR – ENGINEER & INSTALLATION SERVICES

Responsible for establishing new line of business (Engineer, Procure & Install services) for NorthStar at new office in Texas. Responsibilities included P&L accountability for the new office, ongoing management responsibilities, organizational planning & budget, creating and implementing operations practices. .

- As the ISO9001 Management Representative for the corporation, responsible for initial certification efforts, process improvement and documentation, and training
- Created new engineering procedures, using the Toyota Production System to reduce error rate by tenfold, based measured feedback received from ISO9001 customers

1997 – 1999 **Tele-Tech Company, Inc. (Subsidiary- Alcoa Fujikura, LTD.)**

DIRECTOR OF OPERATIONS, NATIONAL ACCOUNTS

As Department Head with P&L accountability, directed the operations of engineering, procurement & installation services delivered in the 48 contiguous states.

- Led installation operations division of 125 technicians
- Established field engineering methods for evaluating floor space and facility support systems that support new telecommunications sites
- Managed annual revenues of approximately $15 million, providing engineering & installation services for clients ranging from BellAtlantic (now know as Verizon) to Cisco Systems.

1981 – 1996 **BellSouth Telecommunications, Inc.**

1990 – 1996 MANAGER, ENGINEERING & SUPPLIER ALIGNMENT

Co-Leader of vendor management team for BellSouth, responsible for documenting new engineering and planning processes for BellSouth Capacity Management and for supervising project management groups.

- As a Subject Matter Expert (SME) was responsible for establishing engineering field survey methods of central office buildings
- Responsible for engineering and implementation of the BellSouth transmission network dedicated for the 1996 Olympic Games in Atlanta.
- Managed Engineering & Implementation of yearly construction budget of $35 to $50 million for the Atlanta metro area.
- Responsible for infrastructure engineering management group for Georgia, engineering building facility systems (power, environment, etc.) associated with telecommunications equipment.

1986 - 1989 MANAGER, ENGINEERING TRAINING

Developed and delivered detail engineering, project management, and engineering accounting courses for internal and external clients.

- Created and developed detail engineering course for building power installations
- Developed engineering accounting course to accommodate new Uniform Systems of Accounts Rewrite (USOAR)

1981 - 1985 ENGINEER, POWER & OPERATIONS SUPPORT SYSTEMS

First State Environmental Coordinator for the company environmental management program. Setup new hazardous waste management programs with the state Department of Health Environmental Control and negotiated appropriate regulatory variances to reduce costs. Engineered and managed projects for power plants and computer operations support systems

1983 - 1984 **INDEPENDENT CONSULTANT**
University of South Carolina

Provided environmental research services under government contract in conjunction with environmental engineering graduate studies.

Michael B. McGonigle
Director of Industrial Hygiene

SUMMARY

Professional knowledge of theoretical and applied environmental science relating occupational and public health.

- Senior Industrial Hygienist with 25 years of experience being responsible for quality assurance and oversight of industrial hygiene, environmental safety, and air quality services and compliance.
- Practiced in building construction investigations, hazardous material abatement design & oversight, indoor air quality evaluation & remediation, industrial hygiene & safety evaluation and regulatory compliance.
- Experienced professional trainer in a diversity of subjects, including indoor air quality, OSHA safety compliance and industrial hygiene.

EDUCATION

M.S., Public Health, Industrial Hygiene Focus
University of Kentucky

B.S., Environmental Science, Ecology Option
Morehead State University

REGISTRATIONS

Council-certified Indoor Environmental Consultant™
(Board-awarded by the American Indoor Air Quality Council™)
Registered Professional Industrial Hygienist - APIH Registry No. 01650995
Certified Building Thermographer
Accredited AHERA Asbestos Inspector/Management Planner
Accredited AHERA Asbestos Project Designer
Accredited Lead Risk Assessor

OCCUPATIONAL TRAINING

Basic Medical Specialist Course (March 1979)
US Academy of Health Sciences, Ft. Sam Houston, San Antonio

Respiratory Specialist Program - Certified Respiratory Therapist (May 1984)
US Academy of Health Sciences, Ft. Sam Houston, San Antonio

Asbestos Occupational Safety and Health (October 1985)
Kentucky Labor Cabinet, Lexington Kentucky

Sampling and Evaluating Airborne Asbestos Dust (582) (May 1987)
National Institute for Occupational Safety and Health, Cincinnati, Ohio

AHERA Accreditation for Inspectors and Management Planners (December 1987)
AHP Research, Inc., Marietta, Georgia

Asbestos Project Designer (AHERA) (May 1988)
Hall-Kimbrell Environmental Services, Lawrence, Kansas

Reducing Radon in Structures (July 1989)
Radon Reduction and Testing, Inc., Atlanta, Georgia

Indoor Air Quality Symposium and Workshop on Sampling & Analysis (February 1990)
Georgia Tech, Atlanta, Georgia

Criminal Enforcement of Environmental Law (September 1990_
Middleton & Reutlinger, Louisville, Kentucky

Ergonomics Symposium (November 1990)
Kentucky Safety and Health Network and the Ohio Valley Industrial Safety Association, Owensboro, Kentucky

Air Toxics Conference (January 1991)
Air and Waste Management Association, Louisville, Kentucky

Comprehensive Industrial Hygiene Review (March 1991)
Mideast Center for Occupational Health and Safety, St. Paul, MN

Radiation Safety Training Seminar (February 1992)
Scitec Corporation, Atlanta, Georgia

Continuous Emission Stack Monitoring Workshop (August 1994)
Entropy, Inc. Raleigh, N.C.

Lead Abatement Ohio Core training (August 1997)
Lead Hazard Risk Assessor training
University of Cincinnati, Cincinnati, OH

Indoor Air Quality Certification (October 2001)
Indoor Air Quality Association, Les Vegas, NV

Building Science Thermographer (October 2005)
Building Science Institute, Orlando, FL

Healthcare Contractor Certification (October 2006)
Kentucky Society of Healthcare Engineers, Owensboro, KY

Certified Indoor Environmental Consultant (April 2007)
American Indoor Air Quality Council, Glendale, AZ

PROFESSIONAL EXPERIENCE

October 1994 - Present — DIRECTOR OF INDUSTRIAL HYGIENE
Air Source Technology, Inc.

Responsible for a comprehensive environmental health and safety service program Specific duties include administration; developing and documenting measurement methods and procedures; market research; proposal development; initial project assignment and coordination; quality assurance\;, project management; and health & safety training. Conducts employee exposure assessments, develops IH monitoring & compliance plans, performs hospital compliance audits, medical gas piping & purity verification, isolation room testing, checks and certifies biosafety cabinet & chemical fume hood performance, conducts infection control risk assessments prior to hospital renovation activities, and evaluates heat stress in workplace environments. Also develops health & safety plans, environmental hazard management & compliance plans, mold remediation specifications, hazardous material abatement specifications (asbestos, lead-base paint, PCB light ballasts, PCB transformer oil, mercury, etc.), lead risk assessments, and radon mitigation specifications

1989 - 1994 — DIRECTOR OF INDUSTRIAL HYGIENE
Analytical Management, Inc. (AMI)

Supervised an industrial hygiene service program and related personnel involving indoor air quality investigations; stack emissions testing; OSHA compliance audits; OSHA written programs and training; employee exposure monitoring; radio frequency and electromagnetic radiation studies; medical monitoring; Industrial hygiene engineering; and expert testimony.

1986 - 1989 SENIOR PROJECT MANAGER,
Technical Services Division, AMI

Primarily responsible for asbestos building surveys, asbestos management planning, abatement project design, asbestos & OSHA training, and project management. Other duties included testing of ventilation parameters, radon, pesticides, polychlorinated biphenols, formaldehyde, and other indoor air irritants.

1985 - 1986 ASBESTOS TECHNICIAN
AMI

Collected various types of air samples using electric and battery operated vacuum pumps. Kept a running log of events. Performed project inspection and reporting. Analyzed air samples using phase contrast microscopy (NIOSH Method 7400). Maintained a satellite lab on projects. Channeled paperwork to the lab, architect, contractor, and company owner. Acted as a liaison with clients. Collected bulk samples. Evaluated and organized all necessary data for project reports.

1984 RESPIRATORY THERAPIST
Central Baptist Hospital
Good Samaritan Hospitals

Responsible for routine and emergency medical care of patients. Duties included various breathing treatments, arterial blood collection, analysis of blood gases, ventilator hook-up and maintenance, hook-up and maintenance of various oxygen devices, frappage and postural drainage.

1981-1984 RESPIRATORY THERAPIST
Kentucky National Guard 475th Combat
Support Hospital

Responsible for routine and emergency assessment and respiratory treatment for military personnel. Duties were same as above.

1978 - 1981 MEDICAL SPECIALIST
US Army

Responsible for routine and emergency assessment and medical treatment for military personnel. Front line combat medic.

PROFESSIONAL DEVELOPMENT

American Industrial Hygiene Association (AIHA)
Association of Professional Industrial Hygienists
American Association of Radon Scientists and Technologists (AARST)
American Society of Safety Engineers (ASSE)
Indoor Air Quality Association, Inc. (IAQA)
American Indoor Air Quality Council
Kentucky Society of Healthcare Engineers Certified Healthcare Contractor
KY EPA Accredited AHERA Inspector, Management Planner, Project Designer
Building Science Institute Thermographer

Christopher K. Adkins
Senior Industrial Hygienist

SUMMARY

Professional knowledge of theoretical and applied environmental science as it relates to occupational and public health. Responsible for industrial hygiene, environmental safety, and air quality services. Experienced professional trainer in a diversity of subjects including indoor air quality, OSHA safety compliance and industrial hygiene.

EDUCATION

M.S., Industrial Hygiene
University of Cincinnati

B.S., Environmental Health Science
Eastern Kentucky University

REGISTRATIONS

Accredited AHERA Asbestos Inspector/Management Planner

OCCUPATIONAL TRAINING

AHERA Accreditation for Inspectors and Management Planners
Orr Safety, Louisville, Kentucky
November 2005

PROFESSIONAL EXPERIENCE

June 2005 - Present — INDUSTRIAL HYGIENIST
Air Source Technology, Inc.

Responsible supervising and conducting industrial hygiene service programs including: indoor air quality investigations; exposure monitoring; medical monitoring; Industrial hygiene engineering; asbestos building surveys; asbestos management planning; and training.

Dan R. Violette
Industrial Hygienist

SUMMARY

An experienced environmental, health and safety compliance professional with numerous industrial safety qualifications and demonstrated leadership and problem-solving skills.

EDUCATION

Florida Atlantic University, BA

CERTIFICATION

EPA AHERA Asbestos Management Planner
Certified Environmental Health & Safety Mgmt. Specialist, National Assoc. Safety Professionals
Certified Safety Administrator, National Assoc. Safety Professionals
Certified Safety Training Specialist, National Assoc., Safety Professionals
Applied Ergonomics & Risk Assessment, Georgia Institute of Technology
OSHA Industrial Safety, OSHA Training Institute

PROFESSIONAL EXPERIENCE

2004 - Present — INDUSTRIAL HYGIENIST
Air Source Technology, Inc.

Responsible for environmental, health, and safety training programs, including development and delivery. Duties include onsite consultation, industrial hygiene sampling, and documentation preparation, as well as client education.

2001 - 2004 — SAFETY COORDINATOR / HR ASSOCIATE
Universal Fasteners

Responsible for safety and industrial hygiene, including reducing workplace injuries through new programs. Developed instructional safety training programs in areas of hazardous chemical risks, confined spaces and accident prevention. Conducted ergonomic and job hazards assessments and implemented changes to reduce workplace risks. Trained employees on OSHA, ISO 14001 compliance. Member ISO audit team.

2000 - 2001 — SENIOR HR SPECIALIST
Finish Line Co.

Responsible for employee-labor relations for an organization with 10,000 employees. Duties included counseling managers and supervisors on disciplinary and attendance issues, and HR policy infractions. Handled all EEO, harassment, racial harassment and wrongful terminations. Trained managers and supervisors on successful disciplinary procedures and employee labor relations.

1998 - 1999 — SAFETY & HR MANAGER
Roper Pump Company

Directed safety and risk management operations and workers comp administration. Developed a training program on labor relations and safety. Assessed workstation and worker movements for ergonomic-related stressors and lifting risks. Resonsible for changes to reduce hazardous conditions and practices in automation, assembly, material handling and packaging. Recruited employees for technical and professional positions.

1996 - 1998 — SAFETY, ENVIROMNENTAL & HR MANAGER
Smorfit-Stone Container

Managed safety and environmental compliance programs at an industrial plant, including performing site and risks assessments. Assessed workplace ergonomic-related risks assessments and implemented changes to reduce injuries. Closed several open workers comp cases that involved long-term indemnity benefits. Responsible for environmental compliance programs, including tanks, storm-water run-off and air emissions compliance.

Dan R. Violette
Industrial Hygienist

PROFESSIONAL EXPERIENCE

1994 -1996 — ENVIRONMENTAL AND SAFETY CONSULTANT
Rindt-McDuff Engineers

Conducted on-site industrial safety and environmental safety programs. Assessed industrial and manufacturing companies and laboratories for potential risks and hazards exposures. Provided emergency responder training for chemical spills. Conducted environmental assessments of industrial and commercial facilities for environmental contamination, asbestos and lead-based paint.

1989 - 1994 — ENVIRONMENTAL & ASBESTOS PROFESSIONAL
Law Engineering & Environmental

Conducted industrial contamination surveys for airborne contaminated, asbestos, lead paint and recommended remedial actions. Assessed industrial companies for environmental contamination, hazardous conditions and processes. Conducted both Phase I and Phase II Environmental Site Assessment reports. Project manager for large contracts covering multi-state property assessments.

1983 - 1989 — ENGINEERING TECHNICIAN & PLANNER
Keith & Schnars, Engineers & Planners

Completed development plans for commercial and industrial sites including engineering drawings for pre-cast and concrete buildings, piers and foundations, as well as pre-stressed concrete drawings for monorail and light-rail projects.

ABIH®

american board of industrial hygiene®

organized to improve the practice of industrial hygiene
proclaims that

Bruce N. Fergusson

having met all requirements of
education, experience and examination,
is hereby certified in the

COMPREHENSIVE PRACTICE
of
INDUSTRIAL HYGIENE

and has the right to use the designations

CERTIFIED INDUSTRIAL HYGIENIST

CIH

Certificate Number	**10354 CP**
Awarded:	**May 28, 2013**
Expiration Date:	**December 1, 2018**

Mark B. Fenn
Chair ABIH

Lynn C. O'Donnell
Executive Director ABIH

American Council for Accredited Certification

hereby certifies that

Bruce Fergusson

has met all the specific standards and qualifications of the re-certification process, including continued professional development, and is hereby re-certified as a

CIEC

Council-certified
Indoor Environmental Consultant

This certificate expires on June 30, 2014.

Charles F. Wiles, Executive Director

0806027

Certificate Number

American Council for Accredited Certification

hereby certifies that

Michael B. McGonigle

has met all the specific standards and qualifications of the re-certification process, including continued professional development, and is hereby re-certified as a

CIEC

Council-certified
Indoor Environmental Consultant

This certificate expires on April 30, 2015.

Charles F. Wiles, Executive Director

0704034

Certificate Number

Kentucky Department for Public Health

Division of Public Health Protection and Safety

This is to certify that

Air Source Technology, Inc

Having satisified the requirements of the Kentucky Lead-Hazard Detection and Abatement Act is hereby certified on 9/17/2013 as a

Lead-Hazard Company

To perform lead-hazard detection and abatement activities for the Commonwealth of Kentucky

Certification Number: 46-013 **Expiration Date: 9/17/2015**

Certification Type: Renewal

This certificate is subject to revocation, suspension, modification or amendment by the Department for causes including evidence of noncompliance for reasons listed in KRS 211.9063(4); or for any misrepresentation made in the application.

Jennifer Burt
Public Safety Branch Manager

Kathy Fowler
Director, Public Health Protection and Safety

Kentucky Department for Public Health

Division of Public Health Protection and Safety

This is to certify that

Michael McGonigle

Having satisified the requirements of the Kentucky Lead-Hazard Detection and Abatement Act is hereby certified on 8/15/2013 as a

Lead-Hazard Risk Assessor

To perform lead-hazard detection and abatement activities for the Commonwealth of Kentucky

Certification Number: 41-009 **Expiration Date: 8/15/2015**

Certification Type: Renewal

This certificate is subject to revocation, suspension, modification or amendment by the Department for causes including evidence of noncompliance for reasons listed in KRS 211.9063(4); or for any misrepresentation made in the application.

Jennifer Burt
Public Safety Branch Manager

Kathy Fowler
Director, Public Health Protection and Safety

Lead Consortium
5830 Salem Road
Cincinnati, OH 45230
Phone (513) 232-2806
www.leadconsortium.org

Class Location:
415 S. Cooper Avenue
Cincinnati, OH 45215

Ohio Provider Number: 0121
APPROVED Lead-Safe Renovation COURSE
Georgia Rules of Lead-Based Paint Hazard Management, Chapter 391-3-24

Certificate of Attendance and Successful Completion

Renovator Initial – English
Per 40 CFR Part 745.225

Daniel Violette

1937 Alexandria Drive
Lexington, Kentucky 40504

Certificate Number: R-I-1219-12-00025

Course date: 05/09/2012
Exam/Issuance date: 05/09/2012
Georgia Expiration Date: 05/09/2015
EPA Expiration Date: 05/09/2017

Program Manager/Principal Instructor
Date 05/14/2012

THE ENVIRONMENTAL Training Center

415 S. Cooper Avenue • Cincinnati, Ohio 45215 • 513-821-7772

CERTIFIES THAT

Dan Violette

SSN 005-60-8008

has successfully completed
The EPA-APPROVED AHERA ANNUAL REFRESHER COURSE for
BUILDING INSPECTOR
and has passed the required examination in that discipline

This course is EPA-Approved under Section 206 of the Toxic Substances Control Act (TSCA)

Course date	02/11/2014
No. of hours	4
Exam date	02/11/2014
Certificate No.	CR021114-09
Expires	02/11/2015

Authorized Signature

Training Location: 2143 N. Broadway
Lexington, KY 40505

THE ENVIRONMENTAL Training Center

415 S. Cooper Avenue • Cincinnati, Ohio 45215 • 513-821-7772

CERTIFIES THAT

Dan Violette

SSN 005-60-8008

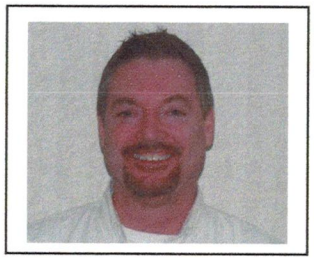
has successfully completed
The EPA-APPROVED AHERA ANNUAL REFRESHER COURSE for
MANAGEMENT PLANNER
and has passed the required examination in that discipline

This course is EPA-Approved under Section 206 of the Toxic Substances Control Act (TSCA)

Course date	02/11/2014
No. of hours	4
Exam date	02/11/2014
Certificate No.	CR021114-10
Expires	02/11/2015

Authorized Signature

Training Location: 2143 N. Broadway
Lexington, KY 40505



THE ENVIRONMENTAL Training Center

415 S. Cooper Avenue • Cincinnati, Ohio 45215 • 513-821-7772

CERTIFIES THAT

Michael McGonigle

SSN 400-92-1713

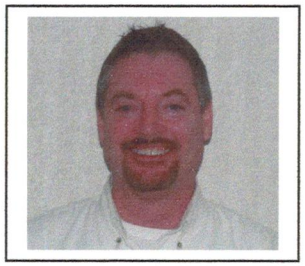
has successfully completed
The EPA-APPROVED AHERA ANNUAL REFRESHER COURSE for
BUILDING INSPECTOR
and has passed the required examination in that discipline

This course is EPA-Approved under Section 206 of the Toxic Substances Control Act (TSCA)

Course date	02/11/2014
No. of hours	4
Exam date	02/11/2014
Certificate No.	CR021114-01
Expires	02/11/2015

Authorized Signature

Training Location: 2143 N. Broadway
Lexington, KY 40505



THE ENVIRONMENTAL Training Center

415 S. Cooper Avenue • Cincinnati, Ohio 45215 • 513-821-7772

CERTIFIES THAT

Michael McGonigle

SSN 400-92-1713

has successfully completed
The EPA-APPROVED AHERA ANNUAL REFRESHER COURSE for
MANAGEMENT PLANNER
and has passed the required examination in that discipline

This course is EPA-Approved under Section 206 of the Toxic Substances Control Act (TSCA)

Course date	02/11/2014
No. of hours	4
Exam date	02/11/2014
Certificate No.	CR021114-02
Expires	02/11/2015

Authorized Signature

Training Location: 2143 N. Broadway
Lexington, KY 40505

THE ENVIRONMENTAL Training Center

415 S. Cooper Avenue • Cincinnati, Ohio 45215 • 513-821-7772
www.environmentaltraining.com

CERTIFIES THAT

Michael McGonigle

SSN 400-92-1713

has successfully completed
The EPA-APPROVED AHERA ANNUAL REFRESHER COURSE for
PROJECT DESIGNER
and has passed the required examination in that discipline

This course is EPA-Approved under Section 206 of the
Toxic Substances Control Act (TSCA)

Course date	08/02/2013
No. of hours	8
Exam date	08/02/2013
Certificate No.	CR080213-04
Expires	08/02/2014

Authorized Signature

Training Location: 415 S. Cooper Avenue
Cincinnati, Ohio 45215

The EI Group, Inc.

This certifies that

Christopher K. Adkins

Student Address: 11010 Broad Run Road, Louisville, KY 40299

Has attended and satisfactorily passed an examination covering the contents of an EPA/AHERA approved course entitled

Asbestos Inspector Refresher (4-Hour) Training Course

7213060002
Certificate Number

3581
Social Security Number

June 21, 2013
Course Dates

June 21, 2013
Exam Date

June 21, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

The EI Group, Inc.

This certifies that

Christopher K. Adkins

Student Address: 11010 Broad Run Road, Louisville, KY 40299

Has attended and satisfactorily passed an examination covering
the contents of an EPA/AHERA approved course entitled

Asbestos Management Planner Refresher (4-Hour) Training Course

7213060009
Certificate Number

3581
Social Security Number

June 21, 2013
Course Dates

June 21, 2013
Exam Date

June 21, 2014
Expiration Date

3240 Office Point Place, Suite 200
Louisville, KY 40220
888-372-5859

Approved by:
Indiana Department of Environmental Management

Louisville,, KY
Location

Barry Maxwell, Training Manager

Kerri Boddy, Principal Instructor

Kerri Boddy, Exam Administrator

Appendix F

LFUCG ASBESTOS RESPONSIBILITIES

ASBESTOS CONSULTING SERVICES

LFUCG Asbestos Responsibilities

Under the OSHA regulations “The building and/or facility owner must notify contractors and tenants of the presence of asbestos-containing materials (ACM) or presumed asbestos-containing materials (PACM), even though the employees at risk are not the owner's direct employees. OSHA has the authority to require building owners who are "statutory employers" to take necessary action such as notifying other employers, and to protect employees other than their own. They also have the responsibility to identify and label ACM and PACM when required.

Specifically OSHA regulation 29 CFR 1926.1101 requires the following:
Communication of hazards: Employers and building owners must treat TSI and spray-applied or troweled surfacing materials as ACM unless they show that they are not. Asphalt or vinyl tile installed before 1980 must be treated as ACM unless shown otherwise. PACM must be called ACM in communications to employees.

(1) Duties of facility and building owners
- (i) Identify ACM or PACM
- (ii) Notify personally or in writing
  - (A) Bidders for work with potential exposure
  - (B) Employees in or adjacent to ACM, PACM areas
  - (C) Other employers on multi-employer sites
  - (D) Tenants

(2) Duties of employers whose people perform work in areas
- (i) Identify presence location and quantity of ACM or PACM
- (ii) Inform the following of precautions to be taken
  - (A) Building owners
  - (B) Workers
- (iii) Within 10 days notify owner of remaining ACM or PACM and any monitoring results

(3) Notify owner of any additional ACM found within 24 hours

(4) Criteria to rebut presumption of ACM
- (i) May demonstrate at any time that it is not ACM
- (ii) Demonstrate by
  - (A) AHERA type inspection or
  - (B) Performing tests with 3 bulk samples in each homogenous area by accredited inspector or CIH, analyzed by accredited laboratory

(5) Post signs at entrance to ACM mechanical rooms

(6) Signs at regulated areas

(7) Labels on products, or as feasible on installed products

(8) Employee information and training

(i) For all employees in Class I - IV work

(ii) Initially and annually

(iii) Class I & II: EPA AHERA worker training, except single category Class II need only specific 8 hour training.

(iv) Class III: EPA 16 hour O&M course

(v) Class IV: EPA 2 hour awareness training

(vi) Training program contents

(9) Access to training materials

(i) Written materials for employees

(ii) To OSHA and NIOSH on request

(iii) Make smoking cessation material available

Appendix G
LFUCG LEAD RESPONSIBILITIES

LEAD CONSULTING SERVICES

LFUCG RESPONSIBILITIES PERTAINING TO EPA'S RRP RULE

1. EPA's 2008 Lead-Based Paint Renovation, Repair and Painting (RRP) Rule (as amended in 2010 and 2011), aims to protect the public from lead-based paint hazards associated with renovation, repair and painting activities (primarily in structures built prior to 1978). These activities can create hazardous lead dust when surfaces with lead paint, even from many decades ago, are disturbed. The rule requires workers to be certified and trained in the use of lead-safe work practices, to follow certain lead-safe work practice standards and requires renovation, repair, and painting firms to be EPA-certified. These requirements became fully effective April 22, 2010.
2. EPA is gave advance notice of the Agency's intention to regulate the renovation, repair, and painting of public and commercial buildings under section 402(c)(3) of the Toxic Substances Control Act (TSCA). The notice announced the commencement of proceedings to propose lead-safe work practices and other requirements for renovations on the exteriors of public and commercial buildings and to determine whether lead-based paint hazards are created by interior renovation, repair, and painting projects in public and commercial buildings. For those renovations in the interiors of public and commercial buildings that create lead-based paint hazards, EPA will propose regulations to address these hazards.
3. Under EPA's RRP rule, beginning April 22, 2010, firms performing renovation, repair and painting projects that disturb lead-based paint in homes, child care facilities, and kindergartens built before 1978 must be EPA- or state-certified and must use certified renovators who follow specific work practices to prevent lead contamination. This includes in-house maintenance staff and many types of outside contractors. In order to become certified renovators, individuals must take training from an EPA-accredited training provider. In order for a firm to be certified, an application must be submitted to EPA.

Appendix H

LFUCG MOLD RESPONSIBILITIES

MOLD CONSULTING SERVICES

LFUCG RESPONSIBILITIES PERTAINING TO MOLD

Although many of the highest profile cases have involved residences, commercial buildings have also been the subject of toxic mold contamination and resulting litigation. The legal issues associated with toxic mold are complicated primarily by the natural presence of molds in indoor environments and scientific uncertainty concerning toxic molds and their causal connection to adverse health impacts.

From a regulatory perspective toxic mold has received mixed attention from federal and state regulators. There are no "official regulatory standards" for fungal or bacterial bioaerosols or combinations of both. A general regulatory standard or recommended guideline for bioaerosols is not scientifically supportable because: a) culturable microorganisms and countable biological particles do not comprise a single entity (they are complex mixtures); b) human responses to bioaerosols range from innocuous effects to serious depending on the specific agent and the occupants susceptibility to it; c) it is not possible to collect and evaluate all bioaerosol components using a single method; and d) at present, information relating culturable or countable bioaerosol concentrations to health effects is generally insufficient to describe exposure-response relationships. Generally speaking however, if visible microbial growth can be seen it should be addressed and corrected. Given the increased attention to mold, owners and tenants of commercial buildings and their attorneys are starting to address mold prevention and remediation directly. Considering the regulatory uncertainty and current lack of scientific knowledge, the focus should be on risk assessment and prevention of mold problems.

For our perspective on mold testing during an initial survey, below is an excerpt from a recent report:

For our perspective on mold testing, consider that the conditions conducive to mold growth of species that are not considered "dangerous" by some "authorities" are also conditions that would support the growth of known pathogenic species. Consequently, observing suspect visible growth in areas with conditions that also indicate inadequate water/moisture control is sufficient reason to recommend correcting the water problem without incurring the expense of mold testing. Mold testing by an independent third party testing authority should occur following remediation to confirm satisfactory action and to prevent the appearance of a conflict of interest. This is the common sense approach (echoed by NIOSH and the CA Dept. of Health) preferred by ASTI unless legal and health circumstances warrant more rigorous methods for documentation and diagnostic purposes.

We test when it provides the most information or addresses a hypothesis. We understand that different situations (legal, real estate, etc.) may make testing desirable, so while the above policy is our default position; we treat each situation individually. As indicated in the attached Statement of Qualifications, ASTI has been an invited presenter at national indoor air quality conferences for the past several years and heavily involved with hospitals and the unique risks associated with air quality in the patient care environment. So ASTI can provide the well-credentialed support needed for worker’s comp cases and potential litigation scenarios.

Appendix I

FEE SCHEDULE (Separate Document)