



*Division of Occupational Safety and Health
Occupational Safety and Health Statistics
Occupational Health Clinics*

February 26, 2013

Mr. Luigi Marcone
Director of Facilities, Operations & EHS Programs
State of Connecticut, Western Connecticut State University
181 White Street
Danbury, CT 06810

RE: Visit #: 505968594
Westside Campus, Westside Classroom Building
5 University Boulevard
Danbury, CT 06810

Dear Mr. Marcone:

Thank you for participating in our on-site consultation program on November 28, 2012.

This consultation reflects the conditions of your facility at the time of Savita Trivedi's visit. The consultant's recommendations are contained in the attached report. All imminent danger and serious violations shall be abated as listed.

Future compliance inspections may show conditions other than those listed by the CONN-OSHA consultant as needing correction.

Enclosed for your convenience, is Attachment B - Employer Report of Action Taken, which may be used by your firm to respond to all violations for which an abatement date was agreed upon. Use of the form is encouraged and could eliminate the possibility of a follow-up visit.

Please contact this office should you have any questions about this visit or have need of additional consultation services.

Very truly yours,

A handwritten signature in black ink, appearing to read "Ken Tucker III". The signature is written in a cursive, flowing style.

Kenneth C. Tucker III
CONN-OSHA Director

kct/cfj

enc.



CONSULTATION REPORT

for

**State of Connecticut
Western Connecticut State University
181 White Street
Danbury, CT 06810**

SITE VISITED

**Westside Classroom Building
Westside Campus
5 University Boulevard
Danbury, CT 06810**

Submitted By:

**Savita Trivedi, MS, CIH
Occupational Hygienist
State of Connecticut, Department of Labor
Division of Occupational Safety and Health
38 Wolcott Hill Road
Wethersfield, CT 06109**

Phone: (860) 263-6928

Fax: (860) 263-6940

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SUMMARY

PURPOSE

An initial, specific industrial hygiene consultation visit was made in response to a request from Mr. Luigi Marcone, Director of Facilities Operations and EHS Programs, to evaluate employee exposure to the possible presence of chemical contaminants in the second and third floor corridors of the Westside Classroom Building.

An opening conference was held with Mr. Marcone to discuss the scope of the survey and to reiterate the employer's rights and responsibilities, especially to correct imminent danger or serious hazards.

Following the opening conference, this consultant met with Mr. Pano Koukopoulos, Associate Director for Environmental & Facilities Services, who then accompanied the consultant on a walk-through of the areas included in the consultation. Staff had expressed concerns regarding exposure to chemical contaminants resulting from a corridor renovation project.

CONCLUSIONS

Monitoring Data

Monitoring of several substances commonly evaluated to assess indoor air quality was conducted. The sampling strategy utilized included carbon dioxide, carbon monoxide, temperature and relative humidity measurements. None of the substances evaluated resulted in concentrations exceeding limits found in the State of Connecticut Department of Labor, Division of Occupational Safety and Health (CONN-OSHA) regulations. Carbon dioxide levels in the areas sampled were found to be below 1000 parts per million parts of air (ppm), the level below which the National Institute for Occupational Safety and Health (NIOSH) recommended comfort level is likely to be satisfied. Temperatures and relative humidity measured in the facility were found to be within the general recommended ranges for thermal comfort. The results are detailed in Table I in the Monitoring Report section.

Monitoring was also conducted for formaldehyde. Area samples were set up at five locations in the corridors between the second and third floors, areas where renovation activities had occurred. The CONN-OSHA Formaldehyde Standard, 1910.1048, establishes a permissible exposure limit for formaldehyde at 0.75 ppm as an 8-hour time-weighted average and an action level at 0.5 ppm as an 8-hour time-weighted average. On the day of the visit, airborne formaldehyde concentrations were found to be well below both the permissible exposure limit and the action level in all five locations sampled. The results are detailed in Table II in the Monitoring Report section.

In addition, monitoring was conducted in the same five locations for various solvents. Analysis was conducted for n-butyl alcohol, naphtha (coal tar), decamethylcyclopentasiloxane, ethyl alcohol, isopropyl alcohol, perchloroethylene, petroleum distillates, propyl alcohol, toluene, and xylenes. The airborne concentrations of the above noted substances were found to be well below the respective permissible exposure limits established for those substances. The results are detailed in Table III in the Monitoring Report section.

Hazards Identified During Consultation

During this consultation, one hazard related to CONN-OSHA regulations was identified. The hazard identified was classified as *Serious*. This hazard was discussed with Mr. Marcone and is detailed in the Report of Hazards Found section. Please return a response (B - Employer Report of Action Taken) by March 25, 2013 indicating corrective actions that have been taken to protect employees and correct the hazardous condition.

RECOMMENDATIONS

Recommendations proposed to management to reduce employee symptoms and complaints regarding the air quality and renovation related issues include the following:

- For future renovations, provide staff with advance notice and information regarding the upcoming activities. Identify areas of the building which may be affected by the project and notify potentially affected employees of the activities to be performed. Provide periodic updates regarding the project to keep staff informed.
- In order to avoid any health complaints resulting from the renovation project, try to isolate staff from any dust, vapor, or other contaminant generated during renovation activities. Consider the use of plastic sheeting, portable fans, local exhaust, and/or mechanical ventilation isolation to prevent potential dust/vapors from reaching staff through hallways, doors, or the ventilation system. Schedule dust and chemical-producing activities for unoccupied periods (e.g. weekends or vacation periods) when possible and allow time for odors to dissipate before employees return.
- Keep dust to a minimum during renovations with good housekeeping. Increased housekeeping practices may be necessary, not only in areas of renovation but throughout the facility, during the renovation project. Also, air filters in the ventilation system may need to be inspected on a more frequent basis than conducted under normal conditions.
- Ensure that material safety data sheets are obtained and reviewed for chemical products to be used and that safety precautions outlined by product manufacturers are followed.
- The presence of a musty odor on the first floor, outside of Rooms 104 and 107, suggests a potential source of fungi in this area. An evaluation of this area should be conducted to locate the source of the odor. It should be noted that the odor was not detected in the renovated offices which were checked in this area.
- Visible fungal growth was observed on a ceiling tile in Room 384. The noted ceiling tile must be removed and discarded. The area above the suspended ceiling should be inspected to identify the cause for this condition and to correct it as soon as possible. The surrounding areas should also be evaluated for water damage and/or visible fungal growth. Remove and discard any other porous organic materials that may be contaminated.
- There was a problem of occasional water leaks in the library (Room 433), teaching space (Room 432), and adjoining storage room (Room 409) during periods of heavy rain. The condition causing these leaks should be corrected as soon as possible to prevent damage to building and library materials and to prevent potential amplification of fungi. Remove and discard any porous organic materials that have been subjected to water damage and/or fungal growth. Non-porous surfaces that have or may have been affected by microbial growth should be thoroughly cleaned using a vacuum cleaner equipped with a high efficiency particulate air (HEPA) filter and/or by damp wiping with water and a mild detergent and allowing to dry.
- A few missing ceiling tiles were observed in the corridors. Replace the missing ceiling tiles.

DISCUSSION - Facility Walk-through

Onsite industrial hygiene consultation visits were made on November 28 and December 14, 2012 in response to a request from Mr. Luigi Marcone, Director of Facilities Operations and EHS Programs, to evaluate employee exposure to the possible presence of chemical contaminants in the second and third floor corridors of the Westside Classroom Building.

The Westside Classroom Building was located in Western Connecticut State University's Westside Campus, which was approximately three miles from the main campus in Danbury, CT. The building was built in 1981 and renovated in 1999. It was a five level building constructed of concrete and brick.

Upon arriving on site, this consultant met with Mr. Marcone to obtain information regarding the air quality and employee concerns. Mr. Marcone stated that there has been a history of indoor air quality concerns in the building. However, the request for consultation was made in response to concerns regarding a recent corridor renovation project. In early August 2012, renovations were conducted in the second and third floor corridors of the building. Renovation activities included the replacement of ceiling tiles with new ceiling tiles, replacement of carpeting in the corridors with a laminate floor (rolled vinyl product), replacement of lighting fixtures with new fixtures, and the painting of walls and trims in the corridors. These activities were conducted during working hours. Complaints of dust were reportedly made when ceiling tiles were being replaced. Complaints were also made following painting in the corridors, specifically when painters began using spray equipment. Symptoms reported by employees included breathing difficulties, headaches, cough, and nausea. One employee was taken to the hospital. All work reportedly ceased at that point. The building was ventilated with 100% outdoor air. Monitoring was then conducted for total volatile organic compounds, airborne bioaerosols, and fibers by a private sector company. This consultant was informed that although the air quality was found to be satisfactory, a few employees continued to experience adverse symptoms.

Material safety data sheets (MSDSs) for the products used in the corridor renovation project were provided to this consultant. The paints used were "ProMar 200 Zero VOC Interior Latex Low Sheen, Extra White," "Pro Industrial Pre-Catalyzed Waterbased Semi-Gloss Epoxy, Extra White," and "Waterborne Acrylic Dry Fall, Flat Brilliant White," all manufactured by the Sherwin-Williams Company. According to the MSDS, the "ProMar 200" paint (Product Number B24W2651) contained 23% calcium carbonate and 14% titanium dioxide. The "Pro Industrial Pre-Catalyzed Waterbased Semi-Gloss Epoxy" (Product Number K46W151) contained 2% 2-(2-methoxyethoxy)-ethanol, 1-(2-butoxymethylethoxy)-propanol, 0.1% cristobalite, and 22% titanium dioxide. The "Waterborne Acrylic Dry Fall, Flat Brilliant White" paint (Product Number B42W1) contained 2% ethanol, 0.1% quartz, 30% calcium carbonate, and 6% titanium dioxide. The vinyl wall covering adhesive used outside the library was "Roman HD Clear Strippable Wallcovering Adhesive (Pro-870)," manufactured by Roman Decorating Products. According to the MSDS, this product did not contain hazardous ingredients.

Following the opening conference, a walkthrough of the building was conducted. The Westside Classroom Building consisted of a computer center, student lounge, departmental offices, lecture halls, classrooms, and a library. Offices were located along the perimeters of the building while the classrooms were on the interior side. The building consisted of five floors with ramps between the floors. Flooring in the corridors consisted of carpeting and vinyl sheet flooring (renovated areas). The ceilings were composed of suspended ceiling tiles and the walls were constructed of concrete block.

On December 14, 2012, this consultant met with Mr. Mark Hennessey to obtain information regarding the ventilation system. The facility was reportedly served by nine air handling units. The units were supplemented with fan coil units. Outdoor air was provided to the individual fan coil units via Air Handling Unit 1 (AHU-1). The air intake grilles for this unit were located at ground level (third floor) in the back of the building. Pleated air filters were used in the air handling units. On the day of the visit, the filters on a couple of the air handlers and a few of the Variable Air Volume (VAV) boxes were inspected. A build-up of dust was observed on the pleated air filters in AHU-4 which reportedly served a few rooms on the first floor. The filters in this unit needed to be changed. The filters on this unit were last changed in July 2012. The same was found with AHU-2. The filters on this unit had also last been changed in July 2012. The filter in the VAV box in Room 105W was inspected and found to be relatively clean. The filter in the VAV box in Room 384 was inspected and also found to be relatively clean. It was, however, found to be slightly bent. There were reportedly three fan coil units which served the corridors of the building. The air filter in the unit located in the corridor outside of Room 372 was inspected and found to have a slight dust build-up.

On the days of the consultation visit, a few ceiling tiles were found missing in the corridors. A slight odor was detected in some of the corridors. The odor may have been from the bulletin boards which had just been put up. A musty odor was detected on the first floor of the building, outside of Rooms 104 and 107. Visible mold was observed on a ceiling tile in Room 384. Aside from concerns regarding the corridor renovation project, a couple of employees expressed concerns regarding occasional water leaks in the library (Room 433), teaching space (Room 432), and adjoining storage room (Room 409) during periods of heavy rain.

At the closing conference, the Recommendations, Hazard Descriptions, and Monitoring Data sections of this report were discussed with Mr. Marcone. The abatement date for the alleged hazard was discussed and agreed upon.

NOTICE OF OBLIGATION

As you know, we are required to notify the State of Connecticut, Department of Labor, Division of Occupational Safety and Health (enforcement branch of CONN-OSHA) if serious hazards are not corrected within the agreed-upon time. Extensions may be granted if you encounter difficulties completing correction within these time frames, but we must receive your request for an extension in writing before the correction due date.

The following information is required when an extension is requested:

1. The item number(s) for which an extension is desired.
2. Identify all steps taken to achieve compliance during the agreed upon abatement period, including the date(s) of these steps.
3. The additional abatement time necessary in order to achieve compliance.
4. The reasons why an extension is necessary (unavailability of material, equipment, help, etc.).
5. Identify all available interim or temporary measures being taken to safeguard employees from the hazards.
6. Any additional information you believe may be helpful to this office in considering your request for an extension.

(A Request for Extension form has been enclosed for your convenience.)

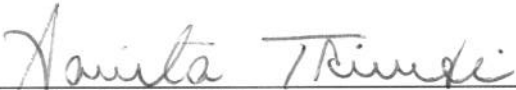
Although we are not required to notify CONN-OSHA enforcement branch if other-than-serious hazards are not corrected, these hazards could result in injury to your employees. Moreover, your company would be subject to citations for them in the event of a CONN-OSHA enforcement inspection.

Please inform this office of the corrective steps you have taken and of their dates, together with adequate supporting documentation, e.g., drawings or photographs of corrected conditions, purchase/work orders related to abatement actions, air sampling results, etc.

It is imperative that the appropriate corrective actions are taken to eliminate employee exposure to safety and/or health hazards and that this office receive the above required information.

Please mail or FAX attachment B - Employer Report of Action Taken, completed to show corrective actions taken, along with the requested documentation. Our FAX number is: (860) 263-6940.

In the event of a CONN-OSHA enforcement inspection, it is important to remember that the Compliance Officer is not legally bound by the consultant's advice or by the consultant's failure to point out a specific hazard. You may, but are not required to, furnish a copy of this report to the Compliance Officer, who may use it to determine your good faith efforts toward safety and health and reduce any proposed penalties. You are, however, required to furnish any employee exposure data from this report as required by 31-372-101- 1910.1020.



Savita Trivedi, MS, CIH
Occupational Hygienist

Attachments

A - Report of Hazards Found

SAFETY AND HEALTH HAZARDS FOUND

Each hazard identified during this consultation is categorized and described, and recommendations are given for its correction. Hazards are in order of standard number within categories, not necessarily in order of importance.

Hazards could be in any of the following categories:

IMMINENT DANGERS are hazards that can reasonably be expected to cause death or serious physical harm immediately or before this written report is received. Any such hazards would have been corrected immediately, and no correction dates or space for correction method would appear in A - Report of Hazards Found.

SERIOUS HAZARDS can cause an accident or health hazard exposure resulting in death or serious physical harm. Each such hazard has been assigned a mutually agreed-upon date by which correction is to be completed.

OTHER-THAN-SERIOUS HAZARDS lack the potential for causing serious physical harm, but could have a direct impact on employee safety and health. We encourage you to correct these hazards and notify us of the action taken.

REGULATORY HAZARDS reflect violations of CONN-OSHA posting requirements, recordkeeping requirements, and reporting requirements as found in 29 CFR 1903 and 1904 and adopted by the State of Connecticut. No abatement dates have been set, but we request notification of their correction.

Item Number	1	Instance	A	Hazards Type	Serious
Standard	1910.141(a)(3)(i)			Correction Due Date	March 25, 2013
<p>Condition: The facility was not kept clean to the extent that the nature of the work allowed. Visible mold was observed on a ceiling tile in Room 384.</p> <p>Location: Room 384</p> <p>Potential Effects: Degradation of building materials from fungi has the potential to create adverse health effects, including but not limited to, respiratory irritation and allergic-type reactions.</p> <p>Standard: 1910.141(a)(3)(i)</p> <p>Recommended Action: The affected ceiling tile must be removed. The surrounding areas should be evaluated for water damage and/or visible fungal growth. Remove and discard any other porous organic materials that may be contaminated. Non-porous surfaces that have or may have been affected by microbial growth should be thoroughly cleaned using a vacuum cleaner equipped with a high efficiency particulate air (HEPA) filter and/or by damp wiping with water and a mild detergent and allowing to dry. Ensure that the condition causing fungal growth in this area is corrected or the problem may recur.</p>					

B - Employer Report of Action Taken

From: **State of Connecticut, Western Connecticut State University** Consultant: Savita Trivedi
Westside Classroom Building
5 University Boulevard
Danbury, CT 06810

Visit Number: **505968594**

Date of Survey: November 28 & December 14, 2012

Item Number	1	Hazard Type	Serious	Standard	1910.141(a)(3)(i)
Instance	A	Correction Due Date	March 25, 2013	Date Corrected	
Describe Corrective Action Taken					
Action Taken to Prevent Recurrence					

C - Safety and Health Program Management

The following are the basic elements of an effective employee safety and health program.

- **MANAGEMENT LEADERSHIP AND EMPLOYEE INVOLVEMENT** assigns safety and health responsibility and authority to supervisors and employees and hold them accountable. It includes policy formulation; program review; and encouragement of employee involvement.
- **WORKSITE ANALYSIS** identifies current and potential hazards. It includes a thorough baseline survey, to review work processes and individual potential hazards; management of change (to deal with facilities; equipment; and the physical, economic and regulatory environment); job hazard analysis (written safe operating procedures for major tasks); a self-inspection program, using checklists to determine whether facilities and equipment are hazardous, and pairing inspectors to facilitate employee training and participation and to increase the possibility that new observers will find overlooked conditions; a system for reporting hazards; accident and incident investigation; and analysis of injuries and illnesses.
- **HAZARD PREVENTION AND CONTROL.** Prevention consists of regular maintenance and housekeeping; emergency planning and preparation; first aid; ready access to emergency care; when required, medical surveillance; and, at the employer's option preventive healthcare (e.g., group health insurance, smoking cessation, and wellness programs). Control includes guards, enclosures, locks, protective equipment, safe work procedures (the result of job hazard analysis), and administrative placement of personnel so as to minimize hazards.
- **TRAINING** of all personnel, from managers through supervisors to employees, about the hazards they may be exposed to, and their identification, prevention, and control. Managers and supervisors also need training in program management (e.g., enforcing rules, conducting drills). Training can demonstrate management leadership and facilitate employee involvement.

In assessing program effectiveness, a consultant looks first at written materials (e.g., statement of purpose, goals and objectives, emergency plan) for clarity, completeness, and currency, then for evidence that the written materials have been effectively implemented.

Safety and Health Program Management, with Employee Involvement

A safe and healthful workplace depends on effective management, to involve line workers, supervisors and managers in ensuring that hazards are identified and that effective physical and administrative protections are established and maintained.

The following observations page may help you avoid the recurrence of the hazards and other findings noted during the survey, and prevent the occurrence of other hazards.

Management Leadership and Employee Involvement

Employer and employee interviews suggested that management is committed to employee safety and health. Lines of communication for safety and health concerns have been established and authority and responsibility for such concerns are defined. Management does appear to set an example for safe and healthful behavior.

Worksite Analysis

Problems with hazard identification could be alleviated by training employees, conducting routine inspections and periodic surveys of the work area. Sources of further assistance include insurance companies, employer associations and the State of Connecticut Department of Labor-Occupational Safety and Health Division Consultation Program.

Hazard Prevention and Control

Work remains to be completed in this category. The employer must address the item as referenced in the Report of Hazards Found Section of this report. Procedures for correcting newly identified hazards and a system for health and safety rule enforcement and discipline should be established.

Training

Employee training should be conducted routinely to insure employees remain aware of health and safety priorities and consistently utilize the best practices for specific tasks. Western Connecticut State University is encouraged to use training materials that are tailored to the needs of its employees.

D - Training Provided by Consultant

During the visit, the guideline developed by the American Society of Heating, Refrigerating, Air-Conditioning Engineers, Inc. (ASHRAE) entitled "Ventilation for Acceptable Indoor Air Quality" and the guideline produced by the National Institute for Occupational Safety and Health (NIOSH) entitled "Guidance for Indoor Air Quality Investigations" were discussed. The guidelines discuss methods used to evaluate general ventilation in the workplace, detail the recommended quantity of fresh air which should be supplied to various facilities, and identify potential air contaminants which could be found in indoor environments. This consultant also discussed the CONN-OSHA Air Contaminants Standard, 1910.1000.

E - Monitoring Report

On November 28, 2012, carbon dioxide readings were taken in the second and third floor corridors and in the library to evaluate whether adequate quantities of fresh outdoor air were being introduced into these areas. A "TSI Q-Trak IAQ Monitor, Model 8551" was used to evaluate temperature, relative humidity, carbon monoxide (CO), and carbon dioxide (CO₂) levels in these areas. The "CO₂/CO Analyzer" was calibrated before and after use with 1000 parts per million (ppm) CO₂ and 50 ppm CO span gases respectively. The results are summarized in Table I.

Table I. Carbon Dioxide, Carbon Monoxide, Temperature, & Relative Humidity Air Sampling Results Approximately 3 Feet Above Floor Level					
Location of Reading	Time	Carbon Dioxide (ppm) ⁽¹⁾	Carbon Monoxide (ppm)	Temperature (°F)	Relative Humidity (%)
Outdoor Ambient	11:10 am	474	0.9	36.5	39.9
	3:55 pm	471	0	38.1	36.2
Corridor Outside Room 385	10:40 am	598	0	74.7	22.9
	3:15 pm	752	0	74.5	22.3
Corridor Outside Room 353	10:50 am	580	0.1	73.0	22.6
	3:20 pm	706	0	73.0	22.4
Corridor Outside Room 304	10:55 am	570	0	72.0	22.9
	3:25 pm	714	0	72.0	22.8
Corridor Outside Room 251	11:00 am	545	0	71.4	23.2
	3:35 pm	622	0.1	71.2	22.1
Corridor Outside Room 237	11:05 am	679	0	73.0	23.0
	3:40 pm	675	0	73.6	22.7
Robert Young Library	3:10 pm	920	0	75.9	22.5
(1) = Parts Per Million Parts of Air					

The carbon monoxide and carbon dioxide results indicated in Table I are below the respective permissible exposure limits of 35 ppm and 10,000 ppm as 8-hour time weighted averages established in CONN-OSHA Standard 1910.1000, Table Z-1.

The following rationale explains why carbon dioxide gas concentrations were monitored to help evaluate indoor air quality. It is excerpted from Guidelines for Indoor Air Quality, published by the National Institute for Occupational Safety and Health (NIOSH):

Carbon dioxide (CO₂) is a normal constituent of exhaled breath and, if monitored, can be used as a screening technique to evaluate whether adequate quantities of fresh outdoor air are being introduced

into a building or work area. The outdoor, ambient concentration of CO₂ is normally 250-350 ppm. Usually the CO₂ level is higher inside than outside, even in buildings with few complaints about indoor air quality. However, if indoor CO₂ concentrations are more than 1,000 ppm (3 to 4 times the outside level), there is probably a problem of inadequate ventilation and complaints such as headaches, fatigue, and eye and throat irritation are frequently found to be prevalent. The CO₂ concentration itself is not responsible for the complaints. However, a high concentration of CO₂ may indicate that other contaminants in the building may also be increased and could be responsible for occupant complaints.

On the day of the consultation visit, carbon dioxide levels in the areas sampled were below 1000 ppm, the level below which the comfort criteria is likely to be satisfied. The highest concentration measured, 920 ppm, was in the library with an occupancy of seven.

CONN-OSHA does not have standards that regulate temperature or humidity in a work area; however, the OSHA Technical Manual provides engineering and administrative guidance to prevent or alleviate indoor air quality problems. Recommendations for air treatment include humidity control in the range of 20%-60% and temperature control in the range of 68-76 degrees Fahrenheit. Another source of guidance is the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE). The ASHRAE Standard, entitled "Thermal Environmental Conditions for Human Occupancy," recommends that indoor temperature ranges be based on a number of factors including, but not limited to, clothing insulation and activity levels. In workplaces where activity levels and clothing worn are similar to most office environments, and the outdoor environment is cool, ASHRAE recommends a temperature range of approximately 68 to 78 degrees Fahrenheit. Under similar conditions when the outdoor environment is warm, ASHRAE recommends a temperature range of approximately 75 to 82 degrees Fahrenheit. These temperature ranges are based on relative humidity levels within recommended ranges.

Temperatures and relative humidity measured in the facility were found to be within the general recommended ranges noted above. Temperatures ranged from 71.2 - 75.9 degrees Fahrenheit and the relative humidity ranged from 22.1 - 23.2%.

On November 28, 2012, air samples were collected from the second and third floor corridors to evaluate airborne formaldehyde concentrations in these areas. Samples were collected on XAD-2 tubes coated with 2-hydroxymethyl-piperidine attached to "Ametek Alpha 2" pumps calibrated to flow rates of approximately 100 cubic centimeters per minute. The pumps were calibrated before and after their use employing a "BIOS DryCal DC-Lite Flow Calibrator." The samples were sent to the Wisconsin Occupational Health Laboratory in Madison, Wisconsin for analysis. The samples were desorbed with toluene containing 0.005% dimethyl formamide and then analyzed by gas chromatography using a nitrogen selective detector. The results are summarized in Table II.

Table II. Air Monitoring Results for Formaldehyde Sampling Period Time-Weighted Average		
Sampling Location	Sampling Time (minutes)	Formaldehyde (ppm) ⁽¹⁾
Corridor Outside Room 385	400	<0.036
Corridor Outside Room 353	410	<0.036
Corridor Outside Room 250	414	<0.035
Corridor Outside Room 237	418	<0.036
Corridor Outside Room 304	400	<0.039
Permissible Exposure Limit ⁽²⁾		0.75
(1) Parts Per Million Parts of Air (2) CONN-OSHA Formaldehyde Standard, 1910.1048 <: Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used. The actual amount is less than the reported value.		

CONN-OSHA Standard 1910.1048 establishes a permissible exposure limit for formaldehyde at 0.75 ppm as an 8-hour time-weighted average and an action level at 0.5 ppm as an 8-hour time-weighted average. On the day of the visit, airborne formaldehyde concentrations were found to be well below both the permissible exposure limit and the action level in all areas sampled.

On November 28, 2012, air samples were collected from the second and third floor corridors to evaluate the presence of potential solvents in the corridors. Samples were collected on small charcoal tubes attached to "Ametek Alpha 2" pumps calibrated to flow rates of approximately 200 cubic centimeters per minute. The pumps were calibrated before and after their use employing a "BIOS DryCal DC-Lite Flow Calibrator." The samples were sent to the Wisconsin Occupational Health Laboratory in Madison, Wisconsin for analysis. Front and back section of the tubes were separately desorbed in carbon disulfide for 30 minutes prior to analysis. The samples were analyzed using a dual column gas chromatograph equipped with primary and confirmation capillary columns and flame ionization detectors. Select samples may also have been confirmed on a gas chromatograph equipped with a mass-selective detector containing a capillary column. The results are summarized in Table III.

Table III. Air Monitoring Results for Solvents
Sampling Period Time-Weighted Average

Sampling Location	Sampling Time (minutes)	Butyl Alcohol (n-) (ppm) ⁽¹⁾	Decamethylcyclopentasiloxane (ppm)	Ethyl Alcohol (ppm)	Isopropyl Alcohol (ppm)	Naphtha (Coal Tar) (ppm)	Perchloroethylene (ppm)	Petroleum Distillates (ppm)	Propyl Alcohol (ppm)	Toluene (ppm)	Xylenes (ppm)
Corridor by Room 385	400	<0.051	<0.012	<0.16	<0.061	<0.018	0.062	<0.022	<0.063	<0.022	<0.019
Corridor by Room 353	410	<0.046	<0.011	<0.14	<0.055	<0.016	0.056	<0.016	<0.057	<0.019	<0.017
Corridor by Room 250	414	<0.048	<0.011	<0.15	<0.057	<0.017	<0.021	<0.017	<0.059	<0.020	<0.018
Corridor by Room 237	418	<0.047	<0.011	<0.15	<0.056	<0.016	0.056	<0.016	<0.058	<0.020	<0.017
Corridor by Room 304	400	<0.048	<0.011	<0.15	<0.057	<0.016	0.059	<0.016	<0.059	<0.020	<0.017
CONN-OSHA PEL ⁽²⁾	—	50 ⁽³⁾	NE ⁽⁴⁾	1000	400	100	25	400	200	100	100

(1) Parts Per Million Parts of Air

(2) CONN-OSHA Air Contaminants Standard, 1910.1000

(3) Ceiling Limit

(3) None Established

<: Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used. The actual amount is less than the reported value.

On the day of the consultation visit, airborne concentrations of the above noted substances were found to be well below the respective permissible exposure limits established for those substances. It should be noted that there are no established limits for decamethylcyclopentasiloxane.

B - Employer Report of Action Taken

From: State of Connecticut, Western Connecticut State University Consultant: Savita Trivedi
 Westside Classroom Building
 5 University Boulevard
 Danbury, CT 06810

Visit Number: 505968594

Date of Survey: November 28 & December 14, 2012

Item Number	1	Hazard Type	Serious	Standard	1910.141(a)(3)(i)
Instance	A	Correction Due Date	March 25, 2013	Date Corrected	12-20-2012
Describe Corrective Action Taken					
<p>Damaged ceiling tile was removed and disposed of. It was determined that damage was sustained due to improperly insulated pipe above ceiling. Area in question was repaired and returned to service.</p>					
Action Taken to Prevent Recurrence					
<p>Pipe insulation was corrected to avoid a recurrence.</p>					