SOUTH CAROLINA DEPARTMENT OF LABOR, LICENSING, AND REGULATION

DIVISION OF LABOR
110 Centerview Drive
Post Office Box 11329
Columbia, SC 29211-1329
(803) 896-7744

March 30, 2018

Mr. Jeffrey A. Horton
Registered Representative
Spartanburg County Council
711 East Main Street
Spartanburg, SC 29302

Dear Mr. Horton:

In response to your request, Greg Dees (accompanied by Harvey Jessup) conducted an Initial Hazard Survey at your facility on January 30, 2018. This survey was limited in scope.

We are pleased to inform you that no OSHA hazards were identified during the survey. During this visit, courtesy IAQ samples for mold spore levels were obtained. The Indoor Air Quality (IAQ) results and recommendations are contained within this report.

OSHA Voluntary Programs' general response to IAQ situations is to determine if there are any obvious factors, such as, for example, elevated levels of carbon dioxide. OVP does not perform "invasive" IAQ assessment procedures. The information obtained from a non-invasive approach provides information as to whether general air sampling may be helpful. Also the information can be used to determine if there is a need for employers to seek specialized (and perhaps invasive) assistance from private sector IAQ specialist(s).

We encourage you to inform your employees of any actions you taken as a result of this visit. This knowledge will help them to better do their part in maintaining a safe and healthful workplace, and it will let them know about your concern for their protection.

We appreciate your seeking our assistance. If you wish any additional information or if we can help you further, we encourage you to contact us.

Sincerely,

Harvey M. Jessup, Program Manager
Office of OSHA Voluntary Programs

CONSULTATION REPORT

For

Spartanburg County Judicial Center
180 Magnolia Street
PO Box 3483
Spartanburg, SC 29304-3483

Submitted By:

SC
Department of Labor, Licensing, & Regulation
Division of Labor
Office of OSHA Voluntary Programs
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Executive Summary

Introduction

This report provides the results of a Limited Service Health Consultation visit conducted at your facility on January 30, 2018 by Mr. Greg Dees and Mr. Harvey Jessup. The consultants were asked to focus on previous recommendations made during the 2016 on-site assistance visit (OVP Report #507086940). Mr. Horton specified that at this time, he would like an assessment of Spartanburg Judicial Center officials' actions taken referencing the specific recommendations presented in the 2016 visit. When referring to this report, please reference the Visit Number 507098887.

The opening conference was held with Mr. Jeffrey Horton, County Council Chairman, and Katherine O'Neill, County Administrator. The opening conference included a discussion of the scope of the visit, the employer's responsibilities on hazards and abatement dates.

The County's actions regarding OVP recommendations from 2016 were reviewed with Mr. Terry Booker, Risk Manager, Mr. Dallas Gunn, ServPro Production Manager, and Mr. Michael Emory, Director of Administration Services.

The next phase consisted of a walk around of the applicable area. The walk around was conducted with Ms. Hope Blackley, Clerk of Court.

Indoor air measurements and samples were taken on January 30, 2018. The result of this monitoring is contained in the Monitoring Data section of this report.

A telephone closing conference was held with Mr. Horton on March 29, 2018 to discuss the mold spore and other sampling results.

Notice of Obligation

In the event of a SCOSHA 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 are, however, required to furnish any employee exposure data from this report as required by 29 CFR 1910.1020.

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Harvey M. Jessup, Program Manager

Attachment A – Monitoring/Sample Data

AIR MONITORING RESULTS

Mold Spore Sampling

Air monitoring was conducted in conformance with OSHA/NIOSH recommendations and requirements. These results are representative of conditions existing on the day of monitoring. Exposure levels may vary from day to day. The results are as follows:

Location	Mold Spores	Exposure Level
Judge Knie's Office	Basidiospores	310 per m3
	Miscellaneous unidentified	150 per m3
	Cladosporium species	100 per m3
	Ascospores	52 per m3
	Hyphae	52 per m3
	Curvularia species	26 per m3
	Aspergillus/Penicillium-like species	26 per m3
	Total Spores	**720 per m3**
Evidence Room	Aspergillus/Penicillium-like species	180 per m3
	Basidiospores	130 per m3
	Miscellaneous unidentified	52 per m3
	Hyphae	26 per m3
	Total Spores	**390 per m3**
Judge Frayley's Courtroom	Miscellaneous unidentified	52 per m3
	Aspergillus/Penicillium-like species	26 per m3

	Hyphae	26 per m3
	Total Spores	**100 per m3**
Location	**Mold Spores**	**Exposure Level**
Judge Kelley's Chamber	Basidiospores	77 per m3
	Miscellaneous unidentified	26 per m3
	Hyphae	26 per m3
	Total Spores	**130 per m3**

Probate Room 302I	Basidiospores	390 per m3
	Cladosporium species	77 per m3
	Hyphae	52 per m3
	Miscellaneous unidentified	26 per m3
	Ascospores	26 per m3
	Total Spores	**570 per m3**
Probate Room 302B	Basidiospores	260 per m3
	Miscellaneous unidentified	100 per m3
	Hyphae	77 per m3
	Ascospores	26 per m3
	Cladosporium species	26 per m3
	Total Spores	**490 per m3**

Child Enforcement Room	Miscellaneous unidentified	100 per m3
	Cladosporium species	26 per m3
	Aspergillus/Penicillium-like species	26 per m3
	Basidiospores	26 per m3
	Total Spores	**180 per m3**
Judge Hope Black's Courtroom/Office	Miscellaneous unidentified	100 per m3
	Basidiospores	52 per m3
	Hyphae	26 per m3
	Aspergillus/Penicillium-like species	26 per m3
	Total Spores	**200 per m3**
Judge Bridges' Courtroom	Miscellaneous unidentified	52 per m3
	Basidiospores	26 per m3
	Total Spores	**78 per m3**
Judge Sinclair's Courtroom	Miscellaneous unidentified	52 per m3
	Total Spores	**52 per m3**
Sheriff's Office	Basidiospores	210 per m3
	Aspergillus/Penicillium-like species	77 per m3
	Hyphae	52 per m3
	Miscellaneous	52 per m3

	unidentified	
	Polythrincium	26 per m3
	Total Spores	**420 per m3**

Chief Justice Beatty's Office	Basidiospores	130 per m3
	Aspergillus/Penicillium-like species	52 per m3
	Cladosporium species	52 per m3
	Hyphae	26 per m3
	Miscellaneous unidentified	26 per m3
	Total Spores	**290 per m3**
Outdoor Comparison	Basidiospores	1200 per m3
	Miscellaneous unidentified	52 per m3
	Cladosporium	100 per m3
	Hyphae	77 per m3
	Spegazzinia	26
	Ascospores	26
	Aspergillus/Penicillium-like species	26 per m3
	Total Spores	**1800 per m3**

Note: During growing seasons, outdoor fungus spore levels can range from 1000-100,000 cfu/m3 of air.

Interpretation of Mold Spore Air Monitoring Results

1. The presence of "uncommon" molds:
2. The difference in concentrations and types of molds when indoor and outdoor areas are compared:

Refer to Attachment B for a discussion of the results.

Carbon Dioxide, Temperature and Humidity

Location	Carbon Dioxide (ppm)	Humidity (%)	Temperature (F)
Child Support Enforcement	**1350**	35.0	**66.4**
Judge Bridges' Courtroom	907	24.1	**67.4**
Judge Frayley, Jr. (office)	**1140**	26.3	69.5
Leslie's Office	775	22.3	70.6
Judge Sinclair Courtroom	821	21.8	71.4
Family Court Waiting Room	**1080**	22.0	71.5
Family Court Entrance	**1260**	21.6	73.1
Chief Justice Beatty's Office	866	**19.3**	73.2
Judge Knie office	835	**18.9**	73.0
West A Courtroom - Judge Cole	740	**18.9**	73.0
East Courtroom- Judge Knie	597	**16.1**	71.2
Evidence Office	764	**18.1**	72.1
Probate Court	870	**18.9**	72.5
EOC Room	707	23.0	716
Hallway – Building Public Entrance	830	21.5	71.4
Room 114	**1435**	22.9	71.9
Magistrate's Court	**1170**	23.5	73.3

bolded numbers = notable levels for that category
ppm – parts per million

Carbon dioxide measurement is a useful screening technique which is often helpful in determining whether adequate quantities of "fresh air" have been introduced and distributed into the building.

NIOSH Recommendations:

250-350 ppm - normal outdoor ambient concentrations

350- 600 ppm - minimal air quality complaints

600 ppm – 1000 ppm - less clearly interpreted; marginally acceptable levels

over 1000 ppm - indicates inadequate ventilation and complaints such as headaches, fatigue, and eye and throat irritation will be more widespread; 1000 ppm should be used as an upper limit for indoor levels.

These levels are only guidelines. If carbon dioxide levels exceed 1000 ppm it does not necessarily indicate that the building is hazardous and should be evacuated. Rather this level should be used as a guideline that helps maximize comfort for all occupants.

The data shows that the CO2 levels in the some areas exceed an indirect "comfort level". CO2 in IAQ assessment is used as an "indicator" (indirectly) of whether the HVAC system is providing enough fresh air.

- Outside Air: (normally) 300 – 500 parts per million

- Ideally for offices: 600 ppm or less; however experience shows that most offices exist with "marginally acceptable" levels. For modern or recently renovated building, **keeping all areas below 1000 ppm CO2 can be beneficial for IAQ comfort.**

- Humans can be **comfortable** within a wide **range** of humidity depending on the temperature—from 30% to 70%—but ideally between 50% and 60%. Very low **humidity** can create discomfort, respiratory problems, and aggravate allergies in some individuals.

- Temperature control in the range of 68-76F is ideal for indoor environments.

Refer to Attachment B for discussion of the data.

Attachment B – Indoor Air Quality Assessment Findings and Recommendations

Summary of Findings

1. The presence of "uncommon" molds:

   Most indoor molds are "typical" for these samples. Note: Polythrincium was found in the Sheriff's Office indoor samples (at low levels), but not in outdoor samples. Results showing mold indoors that are not in the outdoor sample is typical and usually not a concern unless the level is "high" with respect to the sample overall. Polythrincium at 26 per m3 is not considered a high level. Stachybotrys chartarum was not found in any indoor samples taken during this visit.

2. The difference in concentrations and types of molds when indoor and outdoor areas are compared:

   Total mold spores "outdoor concentration" is well above any of the "total indoor concentrations", for all samples taken. The 720 per m3 count for Judge Knie's office was the highest level in comparison to the 1800 per m3 for the outdoor comparison sample.

3. Carbon Dioxide, Temperature, Humidity

   Carbon Dioxide – Mostly, workplace levels remain in the acceptable range. However, six areas did exceed the "1000 ppm threshold" for worker comfort. Refer to the table above.

   Humidity – The humidity levels in the building became one of the most significant findings during this visit. Sixteen (16) of the seventeen (17) readings were below the ASHRAE Guidelines for humidity range of 30-60% and can be considered at a "very low" level. This, in part, may be affected by the time of the year (winter weather) and the accompanied lower humidity.

   The interesting point regarding low humidity indoors is that it would help lower the likelihood of mold growth (in locations which have the proper conditions for mold growth). It is not known how these humidity readings are affecting the indoor environment.

   The contrasting perspective on low humidity indoors is that very low humidity causes a feeling of dryness in the air, which can adversely affect people. **Low humidity** can cause static electricity, dry skin, lips, hair and eyes, scratchy throats and noses, and itching and chapping of the skin. Based upon ASHRAE guidelines humidity should be elevated above 30% to reduce worker "discomfort".

   Temperature – For the most part, building areas checked were in the acceptable range for indoor settings. However, there were two (2) readings falling below the minimum acceptable level of 68 degrees (F).
   As a general rule, office temperature and humidity are matters of human comfort.

   OSHA has no regulations specifically addressing temperature and humidity in an office setting. However, Section III, Chapter 2, Subsection V of the OSHA Technical Manual, "*Recommendations for the Employer*," provides engineering and administrative guidance to prevent or alleviate indoor air quality problems. Air treatment is defined under the engineering recommendations as, "the removal of

air contaminants and/or the control of room temperature and humidity." Just as ASHRAE does, OSHA recommends temperature control in the range of 68-76° F.

Note: Related to the aspects of **temperature and humidity**, several areas within the courthouse were deemed "stuffy" when compared to other areas. These areas were noted by building officials.

Other Findings

Similar to experiences in 2016 involving chemicals used to treat the inside of air ducts, the employer has reported that workers have reported health effects upon re-entry of remediated areas. For remediation in 2017, a room "fogging" chemical, Sporocidin was used. Upon re-opening the work areas for employee use, some of the occupants reported experiencing health effects.

Upon receiving word of the health effects, Courthouse and County staff began utilizing air scrubbers in the affected areas (under remediation). The air scrubbers began to be used to ventilate the area directly outdoors via building windows. Additionally, the building maintenance staff states that in each case where fogging was performed, that the time-frame for area re-use by employees was maximized to the greatest extent possible.

Requested review of "Recommendations from 2016 Visit" (2018 findings in Bold)

1. Building maintenance (and other designated) personnel should remain pro-active regarding moisture events/leaks, via a "water leak response effort": Prompt clean-up/repair of leaks and removal of all wet material (such as ceiling tiles, wet carpet, etc.) must be provided. Wall repair(s) should be made within a "reasonable" time-frame. Leak Response (program) efforts should continue.

January 2018 Findings – County (courthouse building) officials are utilizing the above recommendations on a continuing basis. Findings include the following:

- **7a.m. daily building walkthroughs are occurring for the purpose of looking for visual signs of building water intrusion.**
- **Building walkthroughs occur after "every rain event" for the purpose of looking for visual signs of building water intrusion.**
- **A computer-based system called "Sys-Aid" is being utilized to document each case of worker concern of building water intrusion.**
- **All windows in the building have been re-caulked. This was completed in 2017.**
- **An "extra step" towards preventing window leaks was taken for the third floor: Cornices were placed atop each window. These "cover" the window thereby assisting with attempting to prevent window leaks.**
- **Have begun inquiring into techniques to allow for greater fresh air intake into building HVAC systems.**
- **Drip Pans are checked routinely as part of the overall HVAC maintenance program.**
- **Any building materials that are deemed "wet" are removed or addressed promptly. These are included as a Sys-aid computer "entry".**
- **The building maintains annual contracts with respective local HVAC specialists.**

2. Determine whether additional mold clean-up efforts are needed in the Magistrate's Court (due to the mold findings (above). Note: As this report was being generated, OVP learned that there was not an ongoing remediation being done at the building.

   - **Magistrate's court remediation was completed by the end of 2016. It continues to be monitored for any type of factor that can be attributed to "Indoor Air Quality".**
     Note: The entire building remains under contract for "90+ mold spore air samples performed" that are (at the time of this visit) scheduled for every six months.

3. The Security Office comes up twice in OVP findings: 1) Under comparison of indoor vs. outdoor molds, and 2) CO2 levels exceeding 1000 ppm. The recommendation is to determine whether additional mold clean-up efforts are needed for this small room.

   Note: As this report was being generated, OVP learned that additional mold remediation had occurred in the Security Office (since OVP was at the site), and that mold remediation efforts overall had ended at the building.

   Additionally, it is recommended that the ventilation system for this office should be checked for proper air flow, return air, outside fresh air, etc. (flow rates per ASHRAE guidelines is recommended).

   - **The space that was used as the Security Office is no longer used as a security office. The employer states that personnel currently do not continuously occupy this area. Note: The entire building remains under contracts for "90+ mold spore air samples performed" that are (at the time of this visit) scheduled for every six months. Additionally, the HVAC system is checked under the HVAC contract.**

4. Chemical sampling resulted in "trace" or "non-detectable" levels. Additional sampling may be necessary (and is generally recommended) if symptoms re-occur for building occupants.

   - **This item specifically addressed the use of duct coating chemicals at the courthouse. The decision was made to discontinue spraying of a "duct coating" after the 2016 OVP visit. Also, the decision was made to transition to HVAC duct removal and replacement only.**

5. Communication between County officials and building contractors (of all types) must be clearly and precisely detailed at all times. Defined policies and procedures for contractor work at the buildings should be a priority for the future.

   - **A Policy has been in place for improving communication: Each and every type of action taken, either by in-house facilities maintenance personnel or any type of outside contractor, e-mails are sent to the Clerk of Court, Administration, County Attorney, Risk Manager, and the Facilities Maintenance Team. The "e-mail policy" addresses each and every occurrence of remediation or air testing related to the on-going efforts regarding Indoor Air Quality at the courthouse.**

Summary Overview

Based upon sampling data, Indoor Air Quality appears to be, with regards to mold spore counts, improving overall at the Spartanburg County Courthouse. Indoor spore counts remain well below the outdoors counts. The average number of spores detected in 2018 is lower than that of 2016. This could be a seasonal effect. Additionally, the specific mold Stachybotris, was not detected in any sample taken by OVP in 2018.

Building officials are addressing building factors related to Indoor Air Quality with attempts at overall control and alleviation of worker discomforts. However, building occupants continue to experience diverse and broad ranging health effects normally associated with indoor air quality complaints.

2018 Recommendations

1. Building maintenance (and other designated) personnel should remain pro-active regarding moisture events/leaks, via a "water leak response effort": Prompt clean-up/repair of leaks and removal of all wet material (such as ceiling tiles, wet carpet, etc.) must be provided. Wall repair(s) should be made within a "reasonable" time-frame. Leak Response (program) efforts should continue.

2. Determine and implement methods for humidity level improvement, such that no areas are determined to fall below 30 % relative humidity. This may impact the HVAC system components and operation.

3. Determine and implement methods for temperature level control, such that no areas are determined to fall below the 68 degree ASHRAE guideline. This may impact HVAC system balance and air distribution complexities.

4. Review the overall air distribution (flow rates, balance, and fresh air intake) for problematic areas deemed "stuffy", i.e. building areas which were noticeably "warmer or cooler" than adjacent/nearby areas (such as rooms across the hall from each other). Note: These actions should also assist with lowering the Carbon Dioxide levels below the 1000 ppm threshold.

5. Maintain the current schedule for Indoor Air Mold Spore sampling to track any changes within the building.

6. Develop a protocol for re-entry of remediated areas to include proper duration of ventilation of the space and air sampling if necessary.

Attachment C – General Information on Indoor Air Quality

Causal Factors

Modern buildings are generally considered safe and healthful working environments. However, energy conservation measures instituted during the early 1970's have minimized the infiltration of outside air and contributed to the build-up of indoor air contaminants.

Investigations of indoor air quality (IAQ) often fail to identify any harmful levels of specific toxic substances. Often employee complaints result from "comfort" items such as cigarette smoke, odors, low level contaminants, poor air circulation, thermal gradients, humidity, job pressures, lighting, work station design, or noise.

Incidence

The range of investigations of indoor air quality problems encompasses complaints from one or two employees to episodes where entire facilities are shut down and evacuated until the events are investigated and problems corrected.

Complaints are often of a subjective, non-specific nature and are associated with periods of occupancy. These symptoms often disappear when the employee leaves the workplace. They include headache, dizziness, nausea, tiredness, lack of concentration, and eye, nose and throat irritation.

In approximately 500 indoor air quality investigations in the last decade, the National Institute for Occupational Safety and Health (NIOSH) found that the primary sources of indoor air quality problems are:

Inadequate ventilation	52%
Contamination from inside the building	16%
Contamination from outside building	10%
Microbial contamination	5%
Contamination from building fabric	4%
Unknown sources	13%.

Recommended Ventilation Rates

The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) established recommended ventilation rates for indoor environments in 1973.

ASHRAE amended this standard in 1975 to specify the minimum value of 5 cubic feet per minute (CFM) of outdoor air per person be used in building design. This standard has been incorporated into the building codes of many cities and states.

The 62-1999 standard recommends a minimum of 15 to 20 CFM of outdoor air per person for offices and reception areas. Sixty cubic feet per minute per person is recommended for smoking lounges with local mechanical exhaust ventilation and no air recirculation.

Types of Building Problems.

Employee complaints can be due to two types of building problems: sick or tight building syndrome and building related illnesses.

Sick building syndrome is a condition associated with complaints of discomfort including headache; nausea; dizziness; dermatitis; eye, nose, throat, and respiratory irritation; coughing; difficulty concentrating; sensitivity to odors; muscle pain; and fatigue. The specific causes of the symptoms are often not known but sometimes are attributed to the effects of a combination of substances or individual susceptibility to low concentrations of contaminants. The symptoms are associated with periods of occupancy and often disappear after the worker leaves the worksite.

Building related illnesses are those for which there is a clinically defined illness of known etiology and include infections such as legionellosis and allergic reactions such as hypersensitivity diseases and are often documented by physical signs and laboratory findings. A more thorough description of these illnesses can be found in the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines on evaluating bio-aerosols.

Tobacco smoke is a major contributor to indoor air quality problems. Tobacco smoke contains several hundred toxic substances including carbon monoxide, nitrogen dioxide, hydrogen sulfide, formaldehyde, ammonia, benzene, benzo(a)pyrene, tars, and nicotine. Most indoor air particulates are due to tobacco smoke and are in the respirable range.

Recommendations for Maintenance of Acceptable Indoor Air Quality

The following are general recommendations, which, where relevant, should be standard procedure. If followed, they will help prevent or alleviate many indoor air quality problems:

Engineering recommendations

Includes the use of natural, dilution, local exhaust, or increased ventilation efficiency).

1. The most effective engineering control for prevention of indoor air quality problems is assuring an adequate supply of fresh outdoor air through natural or mechanical ventilation.

2. *ASHRAE in its 62-1999 standard recommends 15 to 20 cubic feet per minute (CFM) of outdoor air per occupant for offices. For smoking lounges, up to 60 CFM of outdoor air per occupant should be provided.*

3. When possible, use local exhaust ventilation and enclosure to capture and remove contaminants generated by specific processes. Room air in which contaminants are generated should be discharged directly outdoors rather than re-circulated.

4. Efficiency. Ventilation efficiency can be improved by:

    a. Ensuring that outdoor air supply dampers and room air vents are open

    b. Removing or modifying partitions or obstructions which block fresh air flow

    c. Balancing the system to prevent inflow or outflow of contaminated air due to pressure differentials between rooms

    d. Preventing poor distribution of make-up air by proper placement of air inlets and exhausts

    e. Using room fans to improve mixing and dilution of pollutants.

    f. Outside air intakes should not be located in close proximity to potential, roadways). sources of contamination (automobile garages, cooling towers, building exhausts

Air treatment (the removal of air contaminants and/or the control of room temperature and humidity).

1. The use of filtration, electronic cleaners, chemical treatment with activated charcoal or other sorbets

2. Humidity control in range of *20-60%*

3. Temperature control in the range of *68-76F*

4. Source controls include substitution, removal, encapsulation, local exhaust ventilation, and use of physical barriers.

Preventive maintenance (P.M.)

A. P.M. plans for humidifiers, water spray and other HVAC system components should include:

1. Checking damper positions and functioning belts, baffles, ductwork, and system balance.

2. Measuring airflow and performing necessary adjustment if necessary to meet ASHRAE recommendations.

3. Replacing filters on air handling units at regular intervals.

4. Cleaning air distribution ducts and dampers

a. Replacing damaged insulation.

B. Microbial contamination. Eliminate or control all known and potential sources of microbial contaminants by prompt cleanup and repair of all areas where water collection and leakage has occurred including floors, roofs, HVAC cooling coils, drain pans, humidifiers containing reservoirs of stagnant water, air washers, fan coil units, and filters.

1. Remove and discard porous organic materials that are contaminated (e.g., damp insulation in ventilation system, moldy ceiling tiles, and mildewed carpets).

2. Clean and disinfect non-porous surfaces where microbial growth has occurred with detergents, chlorine-generating slimicides, or other biocides and insuring that these cleaners have been removed before air handling units are turned on.

3. Maintain indoor air relative humidity below 60% (50% where cold surfaces are in contact with room air).

4. Adjust intake of outdoor air to avoid contamination from nearby soil, vegetable debris, cooling towers, or sanitary stacks unless air is adequately conditioned.

C. Adjust combustion sources such as furnaces or water heaters to assure proper burning and exhaust to an area where re-entrainment will not occur.

1. Minimize exposure by limiting occupancy of contaminated airspace, limiting use of offending sources to specific areas or times, or evacuating contaminated areas until they can be ventilated adequately.

D. Isolate, if feasible, areas of renovation, painting, carpet laying, pesticide application, etc., from occupied areas that are not under construction.

E. If possible, perform this work during evenings and weekends. If ventilation is turned off during weekends or other periods, ensure that system is on so that contaminant concentrations are sufficiently diluted prior to occupancy.

F. Supply adequate ventilation during and after completion of work to assist in diluting the contaminant levels.

G. Personnel affected with hypersensitivity should be thoroughly evaluated and the problem identified and corrected before returning them to the workplace. If, after the remedial action, the illness persists in the workplace, the affected personnel should be considered for permanent reassignment to another area.

Eliminate or reduce contamination of the air supply with cigarette smoke by banning smoking or restricting smoking to designated areas which have their air discharged directly to the outdoor rather than re-circulated.

REFERENCES

American Society for Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). 1973. ASHRAE Standard 62-73: Standards for Natural and Mechanical Ventilation. New York: ASHRAE.

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