

Public Employees Occupational Safety and Health Program

Public Employer's Guide and Model Written Program for The Indoor Air Quality Standard (N.J.A.C. 12:100-13) (2007)



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Public Employer's Guide and Model Written Program for the Indoor Air Quality Standard

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About the Public Employer's Guide and Model Written Indoor Air Quality Program

The Public Employer's Guide and Model Written Indoor Air Quality (IAQ) Program was developed by the New Jersey Department of Health and Senior Services, Public Employees Occupational Safety and Health (PEOSH) Program. Included in the Guide and Model Indoor Air Quality Program are:

- Guidance for Compliance with the IAQ Standard
- A copy of the IAQ Standard (N.J.A.C. 12:100-13)(2007)
- An overview of the major changes that have been made in the IAQ Standard (2007)
- A Model Written IAQ Program
- Sample IAQ checklists
- IAQ fact sheets, and
- IAQ Resources

The Model Written Indoor Air Quality Program is provided to illustrate how to develop a written program. The format and content of the model program must be modified to reflect the specific ventilation system(s) and administrative policies at each building. Although this program is provided in print format, it is recommended that the employer download an electronic copy of the program from the NJDHSS-PEOSH website (www.nj.gov/health/eoh/peoshweb). The electronic copy can be easily modified with word processing software. The model program was designed with common fields which can be amended with the find/replace function of the word processing software in order to simplify modification.

It is important to note that this Guide was developed to assist employers with complying with the IAQ Standard (2007) at the most basic level and is not intended to be a state of the art IAQ program. The employer is encouraged to exceed the basic requirements of the IAQ standard with best practices as they evolve in the developing science and technology in the field of IAQ. The list of additional resources found at the end of this document should be utilized by the employer to enhance their IAQ program as much as their specific situation requires or allows.

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Introduction

The New Jersey Public Employees' Occupational Safety and Health (PEOSH) Act, *N.J.S.A. 34:6A-25 et seq.*, effective January 1984, was enacted to ensure that all public employees are provided with safe and healthful work environments free from recognized hazards. PEOSH is administered by the New Jersey Department of Labor and Workforce Development (NJDLWD) in conjunction with the New Jersey Department of Health and Senior Services (NJDHSS). The PEOSH Advisory Board, which is comprised of selected individuals representing public employer organizations, public employee organizations, and citizen groups, provides guidance to PEOSH in an advisory capacity.

PEOSH first adopted an IAQ Standard on January 21, 1992. This standard was deleted in 1995 when the PEOSH Act was amended. A new standard was adopted March 3, 1997.

In December 2004, the PEOSH Advisory Board was presented with a proposal to amend portions of the Indoor Air Quality (IAQ) Standard (N.J.A.C. 12:100-13)(1997). To that end, the PEOSH Advisory Board established an IAQ Subcommittee, comprised of experts and interested parties, to evaluate the existing standard. The subcommittee met nine times between January and October 2005 to review and discuss all sections of the PEOSH IAQ Standard.

On December 1, 2005, the PEOSH Advisory Board received the recommendations for revisions to the IAQ Standard as proposed by the IAQ Subcommittee. These recommendations were endorsed by the PEOSH Advisory Board and presented to the NJDHSS and NJDLWD for consideration.

On December 18, 2006, proposed revisions to the IAQ Standard were published in the New Jersey Register for public comment. A public hearing was held January 5, 2007 and the revised IAQ Standard was adopted on May 21, 2007.

Executive Summary

The 2007 revisions to the PEOSH Indoor Air Quality (IAQ) Standard (N.J.A.C. 12:100-13)(1997) represent the consensus of stakeholders throughout the state and reflect changes in the field of occupational health and the evolving science of indoor air quality. The revision also clarifies certain terms and concepts that are used throughout the standard. Following is an abbreviated summary of substantive changes included in the PEOSH IAQ Standard:

- Employers are required to ensure that the “Designated Person” has the knowledge necessary to perform the job requirements. The New Jersey Department of Health and Senior Services (NJDHSS) PEOSH Program has prepared the *Designated Persons Indoor Air Quality Training Course* to assist employers in achieving compliance with this additional requirement. For additional information on this free training course, please contact the NJDHSS PEOSH Program at 609-984-1863.
- The employer is required to prepare a written plan describing how they will meet the obligations under the standard. The written program will include language that describes how the employer will achieve compliance with the standard. The Model Written Indoor Air Quality Program, included as part of this document was prepared to assist employers with compliance with this requirement.
- All requirements for the maintenance of indoor designated smoking areas have been deleted because smoking in public buildings is banned by the recently enacted New Jersey Smoke-Free Air Act (P.L. 2005, c. 383, N.J.A.C. 8:6).
- The term “water leak” was replaced with the broader term of “water intrusion including, but not limited to, pipe leaks, condensation, flooding, plumbing backups, roof leaks”. Language was also added to require the cleanup of damp or wet materials within 48 hours. Employers should establish a system that allows quick response to these situations or make provisions to promptly relocate employees whose workspaces are impacted by water intrusion.
- In order to reduce exposure to off-gassing of newly installed building materials, additional language requires employers to clean and air-out the work area prior to re-occupancy.
- The employer is required to evaluate product toxicity data before selection of the product, not just prior to use of the product. The revision also adds the Material Safety Data Sheet (MSDS) to the list of information that the employer is required to evaluate prior to selection of the product.

- Modifications define a formal process of which employees can request compliance information in writing and employers must provide the requested documents within 10 working days of the request. The purpose of the change is to prevent unreasonable delay in providing information to employees and employee representatives.

A copy of the complete promulgated standard is provided in Appendix A. A complete summary of the 2007 revisions to the IAQ Standard is provided in Appendix B of this document. The effective date of the revised IAQ Standard is May 21, 2007.

Public Employer's Guide to Compliance with the Indoor Air Quality Standard (N.J.A.C. 12:100-13)(2007)

Read the IAQ Standard and Inspection Checklist

The most obvious, and often overlooked, first step in complying with the PEOSH Indoor Air Quality (IAQ) Standard is to read the Standard (Appendix A). The IAQ Inspection Checklist is an excellent summary of the standard and should also be read.

Understand Building Management Responsibilities

Public employers throughout the state utilize many facilities. In many of these facilities, the employer may not have direct control of the operation and maintenance of the building. These situations can impede the ability of the employer in providing prompt response to IAQ complaints. Regardless of the contractual hurdles, the public employer remains responsible for compliance with the PEOSH IAQ Standard.

Owned Buildings

For buildings that are owned by the employer, management of IAQ within the building is usually maintained by either in-house staff or by an outside maintenance contractor. If equipment is maintained by an outside Heating, Ventilation, and Air-Conditioning (HVAC) service contractor, the employer should ensure that the compliance with the IAQ Standard (i.e. recordkeeping, maintenance log) is included in the service contract and these records are maintained on-site.

Leased Buildings

Buildings that are leased from a private property manager are often a challenge for employers. Many lease contracts require the building owner to perform maintenance. Public employers may find themselves in a situation where they have little or no control of the HVAC system. In these cases, it is essential to have language included in the lease agreement that requires the property owner or manager to be responsive to IAQ complaints and to provide required recordkeeping documents to the employer's Designated Person.

Select a Designated Person

The IAQ Standard requires that employers identify staff (Designated Person) who will be responsible for compliance with all aspects of the standard. The Designated Person should be in a position of authority and have the ability to effectively communicate with staff, management, and maintenance staff or contractors. Strong interpersonal and problem solving skills are a benefit to this position. The Designated Person should have the ability to understand all aspects of the building's heating, ventilation, and air conditioning system. The Designated Person should also be easily contacted during working hours and have the authority to initiate a corrective action for the HVAC system. The responsibilities of the Designated Person may be delegated to other individuals within the organization; however, the Designated Person will maintain overall responsibility. The Designated Person does not need to be located on-site, or be designated to only one site. There may be a Designated Person for multiple site locations occupied by the employer, however, the Designated Person should be familiar with all locations.

Provide Designated Person Training

The Indoor Air Quality Standard requires that the employer ensure that the Designated Person is familiar with the requirements of this standard. Training for the Designated Person is offered by the NJDHSS-PEOSH Program and will orient the Designated Person to the basics of IAQ and the requirements of the IAQ standard. The training is conducted free of charge by PEOSH staff.

Understand the Responsibilities of the Designated Person

The designated person shall assure that at least the following actions are implemented and documented:

- Establish and follow a preventive maintenance schedule, in accordance with the manufacturer's recommendations or accepted industry practice, for the HVAC system.
- Ensure that damaged or inoperable components are replaced or repaired promptly.
- Conduct periodic visual inspections of the components of the HVAC system.
- Identify potential sources of contamination affecting the fresh air intake.
- Promptly investigate employee complaints about indoor air quality.
- Maintain required records.
- Review and update the written program annually.

Prepare and Implement a Written Program

The IAQ Standard requires that employers prepare and implement a written IAQ compliance program that describes how they will comply with the requirements of the IAQ Standard. The written program must include the following information:

- The identity and responsibilities of the designated person
- Procedures to follow a preventive maintenance schedule
- A description of process to maintain required records
- Location of IAQ compliance documents
- Procedure for investigating employee complaints made to the employer
- Procedure for addressing signed employee complaints to PEOSH
- Procedure to notify employees of work that may introduce air contaminants
- A description of how microbial contamination will be controlled
- Procedures to control air contaminants
- Methods for responding to temperature and/or carbon dioxide concentrations that are outside of the recommended range
- Plans for maintaining air quality during renovations and remodeling
- Methods to obtain permits and perform work as required by the New Jersey Uniform Construction Code, N.J.A.C. 5:23
- Description of how natural ventilation is maintained in buildings without mechanical ventilation, if applicable (i.e. are windows operable?)
- Documentation of annual review and update, including new or modified procedures, tasks, and personnel.

In order to assist employers with compliance with this section, the PEOSH Program has prepared a Model Written Indoor Air Quality Program. A print version of the model program is included with this document. An electronic copy is available on the PEOSH website (<http://www.nj.gov/health/eoh/peoshweb/>) that can be downloaded and edited to customize the program for your specific facility.

Establish a Preventive Maintenance Program

Many of the indoor air quality complaints that are investigated by PEOSH are caused by inadequate routine preventive maintenance. Due to the many types and configurations of HVAC systems, the IAQ standard does not have requirements for maintenance schedules, only that it be performed. The site-specific preventive maintenance program should be established based on the system's recommended maintenance schedule outlined by the manufacturer or HVAC professional. **Regular preventive maintenance not only ensures that the system is operating properly, but also can result in cost savings in operating efficiency as well as increased employee productivity.**

In order to meet the minimum requirements of the standard, the preventive maintenance program should be in written form and include the following minimal items:

- Checking filtration system/changing air filters/cleaning precipitators
- Checking/changing drive belts
- Lubrication of moving parts
- Inspection of motor function
- Ensuring that all equipment is operating within specifications
- Visual inspection of condensate drain pans for improper drainage or standing water or microbial growth

See Appendix D for a sample HVAC inspection checklist.

Maintain a Preventive Maintenance Log

Most modern buildings rely heavily on a mechanical ventilation system to handle heating, cooling, and ventilation needs. If the system is adequately maintained, many IAQ complaints can be avoided. A key intention of the standard is that staff and inspectors can quickly assess the state of the mechanical system and whether it may be the cause of IAQ complaints.

The employer is required to maintain a log of preventive maintenance activities. At a minimum, the log requires the date, activity performed, and the initials of the maintenance person. This log must be maintained on site for a period of 3 years. The log must be available at the time of a compliance inspection.

If the HVAC system is serviced by an outside contractor, arrange for the service technician to update the on-site preventive maintenance log to ensure compliance with the standard. See Appendix E for a copy of a sample preventive maintenance log.

Maintain Acceptable IAQ Indicators

Compliance with the IAQ standard requires that employers evaluate ventilation with two (2) indicator parameters, temperature and carbon dioxide.

Temperature: If the indoor environment is outside of the range of 68°F to 79°F degrees Fahrenheit, the employer is required to ensure that the ventilation system is operating as designed.

The standard does not require employers to modify or upgrade existing systems to achieve this range; however, if the employer finds that the ventilation system is operating as designed and the temperature is still out of the required range, PEOSH recommends that the employer consider utilizing alternative methods to achieve a comfortable temperature range, such as using fans, shades, or reflective film on windows.

Carbon dioxide: Carbon dioxide (CO₂) is a gas that is exhaled by building occupants. Because the gas is generated in an occupied building as a byproduct of normal human respiration, it is a convenient gas to measure as an indicator of the amount

of outside air exchange. If CO₂ concentration exceeds 1,000 parts per million (ppm) the employer is required to ensure that the system is operating as designed. The standard does not require employers to modify or upgrade existing systems to achieve this range.

In many older buildings, ventilation is achieved through a non-mechanical ventilation system such as operable windows or ventilation shafts. If operable windows are present, the employer is obligated to ensure that windows are maintained in an operable condition and vent shafts are not blocked. Employees should be informed that the building was designed for employees to utilize windows to provide fresh outside air as necessary. However, using untempered outside air from windows to achieve adequate ventilation may result in temperature complaints.

Conduct IAQ Complaint Investigations

The IAQ standard requires that employers promptly investigate employee complaints concerning sick building syndrome (SBS), building-related illness (BRI), and complaints made by employees or employee representatives to either the employer or the PEOSH Program. The IAQ standard does not mandate a specific course of action regarding IAQ investigations. IAQ investigations can be simple or very complex and technical to a degree that is beyond this compliance guide. Considering the high variability of building layouts and employee complaints, each investigation has to be customized to each unique situation. Additional resources for conducting IAQ investigations are provided at the end of this document.

Employee complaint investigations should include detailed interviews with some of the affected employees. The investigation should also include a thorough inspection of the building for known irritants and allergens including chemicals/pesticides, mold, pollen-producing plants, rodent, bird, or insect infestation. The HVAC system that handles areas of the building where complaints are made by employees should be thoroughly inspected to ensure that it is clean and operating properly (See IAQ Inspection Checklist, Appendix C).

It is recommended that one individual, such as a school nurse or designated person, keep a log of employee complaints. This is useful in establishing the time and spatial extent of complaints so that patterns can be identified. Also, it is important for the employer to understand which employees are experiencing symptoms so that the employer can arrange for employees to seek medical attention, if needed.

If an employer receives notification from PEOSH of an employee or employee representative complaint, they have several obligations under the IAQ standard. Within 15 working days, the employer must respond to PEOSH in writing describing either how they will investigate and/or remediate the underlying cause of the complaint or a statement that the complaint is unfounded.

Control of Potential Contaminants Sources

Outside air

Make-up air is the term used to describe the outside air that enters a building. The location of the make-up air intake should be in an area that is free of contaminants. Occasionally, intakes are located in areas where they can draw in contaminants such as exhaust vents, cooling towers, vehicle exhaust, cigarette smoke, or mold spores. The employer should identify the location of outside air intakes and identify potential contamination sources such as loading docks or other areas where vehicles idle, nearby exhaust stacks, or vegetation.

If contamination occurs, the standard requires that the employer eliminate the contaminant source or relocate the intake.

Point Source Contaminants

In most buildings, it is common to have sources of contaminants that affect indoor air. Point sources of contaminants can include sources such as large photocopiers and printers, bathrooms, chemical storage cabinets, and art classrooms. The employer should identify point sources and make attempts to capture and exhaust these sources from the building using local exhaust ventilation. For example, exhaust fans can be installed and ducted to chemical storage cabinets and photocopying equipment to draw contaminants directly from the source and exhaust them outside of the building. Existing exhaust fans should be periodically inspected to ensure that they are functioning properly and exhausting to areas located away from outside air intakes.

General Source Contaminants

General sources of contamination are more difficult to capture. These sources can include activities such as routine maintenance activities (i.e. floor stripping and waxing, painting) and off-gassing of building materials and furniture. The effective capture of these contaminants at a point source is usually not feasible. Adequate ventilation is accomplished by general exhaust ventilation, which requires large amounts of air to be exhausted from the building. Potential employee exposures to these contaminants can be reduced by selecting materials that contain minimal amounts of potentially toxic ingredients. Alternatively, the potential exposures can be reduced by conducting routine maintenance work during time of minimal building occupancy or utilizing general exhaust ventilation during use.

Manage Building Construction/Renovation Projects

Building construction and renovation projects are, by nature, a significant disruption to both employers and employees. These projects have the potential to create significant but preventable chemical exposures. Proper planning can help avoid potential problems. Employers should schedule building renovation work during periods when the building is minimally occupied, such as during the evening or holidays.

When construction/renovation work is done, the IAQ standard requires employers to implement the following administrative and engineering controls prior to and during the project:

- Prior to the selection and use of materials that contain potentially hazardous ingredients, such as paints, adhesives, insulation, particle board, or floor coverings, the employer must check product labels and obtain Material Safety Data Sheets. If the use of products that contain potentially hazardous ingredients is planned, the employer must notify employees at least 24 hours in advance.
- During construction/renovation work, the employer must ensure that the construction/renovation work area is physically isolated from occupied portions of the building by using a combination of physical barriers (i.e. temporary walls, plastic sheeting) **and** local exhaust ventilation that maintains a negative pressure in the construction/renovation work area relative to the occupied portions of the building.

It is important to note that in cases even where employers do not have direct control of the project because it is being managed by a third-party general contractor or landlord, **the public employer retains the obligation for compliance with the IAQ Standard.** The employer must maintain direct and constant communication with the landlord, general contractor, and/or sub-contractors in order to meet the requirements of the standard.

A sample Renovation/Construction Project Checklist is provided in Appendix F.

Maintain Records

The recordkeeping provision of the IAQ standard requires that the following items be maintained and available to employees within 10 days of a request, and immediately to PEOSH inspectors during an inspection:

- Written indoor air quality program
- Documentation of designated person training
- Written preventive maintenance program
- 36 months of preventive maintenance log

The employer also should maintain several IAQ compliance documents including:

- As-built construction documents
- HVAC system commissioning reports
- HVAC systems testing, adjusting and balancing reports
- Operations and maintenance manuals
- Water treatment logs
- Operator training materials

Model Written Indoor Air Quality Program

[Employer]

[Location]

[Date]

Policy and Administration

This notice is to inform employees that our agency complies with the Public Employees Occupational Safety and Health (PEOSH) Program, Indoor Air Quality (IAQ) Standard (N.J.A.C. 12:100-13)(2007), which was proposed on December 18, 2006 and adopted on May 21, 2007.

We recognize that good indoor air quality is essential to employee’s health and productivity. We have established the following policies to promote good indoor air quality for employees in our buildings. These policies follow the requirements established by the PEOSH IAQ Standard as it applies to our workplace. This Written Indoor Air Quality Program applies to the following buildings/locations:

_____	_____
_____	_____
_____	_____

Designated Person

As required by the New Jersey PEOSH Indoor Air Quality Standard, a person has been designated as the person responsible for [Employer]’s compliance with the standard. This person is:

_____	_____
<i>Designated Person</i>	<i>Phone #</i>

The designated person is the person who has been trained and given the responsibility by [Employer] to make routine visual inspections, oversee preventive maintenance programs, and maintain required records in order to ensure compliance with the IAQ Standard. The designated person is also assigned to receive employee concerns/complaints about indoor air quality, conduct investigations, facilitate repairs or further investigation as necessary, maintain required records, and update the written program annually.

Preventive Maintenance Schedule

Preventive maintenance schedules that follow manufacturers’ specifications are in place for heating, ventilation and air conditioning systems (HVAC) systems in this workplace. A copy of the preventive maintenance schedule is attached. Damaged and inoperable components will be repaired or replaced as appropriate and a work order to show actions taken will be completed.

Recordkeeping

Documentation of preventive maintenance and repairs to the ventilation system are retained for at least 3 years and include the following information:

- Date that preventive maintenance or repair was performed
- Person or company performing the work
- Documentation of:
 - Checking and/or changing air filters
 - Checking and/or changing belts
 - Lubrication of equipment parts
 - Checking the functioning of motors
 - Confirming that equipment is in operating order
 - Checking for microbial growth in condensate pans or standing water

Documentation of preventive maintenance and work orders for repairs are maintained by [*Designated Person*].

Indoor Air Quality Compliance Documents

Our agency will make reasonable efforts to obtain and maintain copies of IAQ compliance documents. Available IAQ compliance documents will be maintained by the Designated Person and will be available to PEOSH during an inspection. These documents include:

1. As-built construction documents
2. HVAC system commissioning reports
3. HVAC systems testing, adjusting, and balancing reports
4. Operations and maintenance manuals
5. Water treatment logs
6. Operator training materials

Investigating Complaints

If employees begin to experience health symptoms that they believe are related to poor indoor air quality, they should notify the Designated Person so that their concerns can be investigated.

The Designated Person has been trained and given the authority to conduct basic indoor air quality complaint investigations. In many cases IAQ complaints can be resolved by the Designated Person.

Responding to Signed Employee Complaints to PEOSH

If we receive a written notification from PEOSH that a signed employee complaint has been filed with PEOSH, we will conduct an inquiry into the allegations. The findings of the initial inquiry and any planned actions will be provided in a written response to PEOSH within fifteen (15) working days of receipt. Copies of all responses to PEOSH will be maintained by the Designated Person.

Notification of Employees

The Designated Person will notify employees at least 24 hours in advance, or promptly in emergency situations, of work to be performed on a building that may introduce air contaminants into their work area. This notification will be in writing and will identify the planned project and the start date. The notification will also include information on how to access Material Safety Data Sheets (MSDS) or other hazard information. The Designated Person will maintain records of this notification for compliance recordkeeping purposes.

Controlling Microbial Contamination

Uncontrolled water intrusion into buildings (roof leaks, flooding, pipe condensation, plumbing leaks, or sewer backups) has the potential to support microbial growth. All employees should routinely observe their workplace for evidence of water intrusion (i.e. roof leaks, pipe leaks). Employees should notify the Designated Person immediately if they observe evidence of water intrusion so that corrective action can be taken. Ceiling tiles, carpet, and wall boards not dried within 48 hours may be removed as directed by the Designated Person.

Controlling Air Contaminants

Outside air

The Designated Person will identify the location of outside air intakes and identify potential contamination sources nearby, such as loading docks or other areas where vehicles idle, nearby exhaust stacks, or vegetation. Periodic inspections will be conducted to ensure that the intakes remain clear of potential contaminants. If contamination occurs, the Designated Person will eliminate the contaminant source or make arrangements to relocate the intake.

Point Source Contaminants

The Designated Person will identify point sources of contaminants and arrange to capture and exhaust these sources from the building using local exhaust ventilation. Exhaust fans will be periodically inspected to ensure that they are functioning properly and exhausting to areas located away from outside air intakes.

Response to Temperature and Carbon Dioxide

Temperature

Where a mechanical ventilation system capable of regulating temperature is present, facilities personnel strive to maintain office building temperatures within the range of 68 to 79 degrees Fahrenheit. If outside this range, the Designated Person should be contacted. The Designated Person will ascertain whether the HVAC system is operating properly. If not, the system must be repaired. The IAQ Standard does not require the installation of new HVAC equipment to achieve this temperature range.

Carbon Dioxide

If the room is equipped with non-mechanical ventilation systems such as operable windows, stacks, louvers, the Designated Person should ensure that these areas are clear and operable to allow the flow of air. If carbon dioxide (CO₂) concentrations exceed 1,000 parts per million (ppm), and the room is not equipped with operable windows, the Designated Person will conduct an inspection to ensure that the mechanical HVAC system is operating properly.

Maintaining Indoor Air Quality During Renovation and Construction Projects

Renovation work and/or new construction projects that have the potential to result in the diffusion of dust, stone and other small particles, toxic gases or other potentially harmful substances into occupied areas in quantities hazardous to health will be controlled in order to minimize employee exposure. The Designated Person will utilize the following protocol to assure that employees' exposure to potentially harmful substances is minimized:

- Obtain MSDS for all products to be utilized on the project and maintain on-site throughout the duration of the project.
- Choose the least toxic product that is technically and economically feasible.
- Consider performing the renovation/construction project when building is least occupied.
- Consider temporarily relocating employees to an alternate worksite.
- Notify potentially affected employees, in writing, at least 24 hours prior to commencement of chemical use or dust generation.
- Isolate the work area from occupied areas.
- Use mechanical ventilation and local exhaust ventilation to maintain a negative pressure gradient between the work area and occupied areas.

Before selection and use of paints, adhesives, sealants, solvents or installation of insulation, particle board, plywood, floor coverings, carpet backing, textiles, or other materials in the course of renovation or construction, the designated person will check product labels or seek and obtain information from the manufacturer of those products on whether or not they contain volatile organic compounds such as solvents, formaldehyde or isocyanates that could be emitted during regular use. This information should be used to select the least volatile/hazardous products and to determine if additional necessary measures need to be taken to comply with the objectives of this section. The Designated Person will maintain records of this evaluation for compliance recordkeeping purposes.

Management and the Designated Person will consider the feasibility of conducting renovation/construction work using appropriate barriers, during periods when the building is unoccupied, or temporarily relocating potentially affected employees to areas of the building that will not be impacted by the project.

Temporary barriers will be utilized to provide a physical isolation between the construction area and occupied areas of the building.

Mechanical ventilation (i.e. fans, portable blowers, or existing HVAC equipment) will be used to maintain a negative pressure gradient between the work area and occupied areas to ensure the safety of employees. Renovation areas in occupied buildings will be isolated and dust and debris shall be confined to the renovation or construction area.

If work is being performed by an outside contractor, the Designated Person will maintain communication with contractor personnel to ensure they comply with the requirements of the PEOSH IAQ standard.

Employees who have special concerns about potential exposures during or after renovation/construction/repair work should consult with their supervisor. If despite these preventive actions, employees are exposed to air contaminants resulting in health effects, employees will be instructed to report any work-related health symptoms to one person (e.g., the nurse, human resources, designated person) so that they can be accurately assessed and investigated when indicated. All exposures should also be reported to their supervisor and the designated person.

Obtaining Permits and Performing Work in Accordance with the New Jersey Uniform Construction Code (N.J.A.C. 5:23)

Permits for renovation and construction-related work will be obtained as required by the New Jersey Uniform Construction Code (NJUCC), (N.J.A.C. 5:23). All work requiring a permit will be performed in compliance with N.J.A.C. 5:23. Additional information concerning the NJUCC can be obtained from the NJ Department of Community Affairs, Division of Codes and Standards (www.state.nj.us/dca/codes, 609-984-7609)

Maintaining Natural Ventilation in Buildings without Mechanical Ventilation

In buildings not equipped with mechanical ventilation, the Designated Person will identify the location of non-mechanical ventilation systems, such as stacks and operable windows. Periodic inspections will be conducted to ensure that these systems are operable and the surrounding areas remain clear of obstructions and potential contaminants.

Employee Responsibilities

Employees have a role in maintaining good indoor air quality within their workplace. Employees should ensure that they do not introduce unauthorized chemicals (i.e. fragrances, air fresheners, cleaning solvents, ozone generators) into the workplace. In addition, if employees observe situations which may lead to poor indoor air quality (i.e. inoperable windows, water leaks, visible mold) they should notify [DESIGNATED PERSON]_____ at [Phone #]_____ of the situation so that it can be addressed promptly.

Employees are responsible for maintaining mechanical and passive ventilation systems by ensuring that louvers and diffusers remain clear to allow the free flow of air. Intentionally blocking, diverting, or otherwise manipulating components (i.e. thermostat,) of the ventilation system may result in disruption of the ventilation system in the immediate area or other occupied areas of the building.

Periodic Review and Update

The Written Indoor Air Quality Program will be updated at least annually to reflect changes in policies, procedures, responsibilities, and contact information. This plan will be reviewed prior to [Expiration Date].

Certifications:

Reviewed and Approved:

[Name]
[Title]

[Date]

[Name]
Designated Person

[Date]

Appendix A

PEOSH Indoor Air Quality Standard (N.J.A.C. 12:100-13)(2007)

**TITLE 12. DEPARTMENT OF LABOR
CHAPTER 100. SAFETY AND HEALTH STANDARDS FOR PUBLIC
EMPLOYEES
SUBCHAPTER 13. INDOOR AIR QUALITY STANDARD**

N.J.A.C. 12:100-13.1 (2007)

§ 12:100-13.1 Scope

This subchapter shall apply to matters relating to indoor air quality in buildings occupied by public employees during regular work hours.

§ 12:100-13.2 Definitions

The following words and terms, when used in this subchapter, have the following meaning unless the context clearly indicates otherwise.

"Air contaminants" refers to substances contained in the vapors from paint, cleaning chemicals, pesticides, solvents, particulates, outdoor air pollutants and other airborne substances which together may cause material impairment to employees working within the enclosed workplace.

"Building-related illness" describes specific medical conditions of known etiology which can be documented by physical signs and laboratory findings. Such illnesses include sensory irritation when caused by known agents, respiratory allergies, asthma, nosocomial infections, humidifier fever, Legionnaires' disease, and the signs and symptoms characteristic of exposure to chemical or biologic substances such as carbon monoxide, formaldehyde, pesticides, endotoxins, or mycotoxins.

"Building systems" includes the heating, ventilation and air-conditioning (HVAC) system, the energy management system and all other systems in a facility which may impact indoor air quality.

"Department" means the Department of Health and Senior Services.

"Designated person" means a person who has been given the responsibility by the employer to take necessary measures to assure compliance with this subchapter.

"Employee" means the term as defined at *N.J.A.C. 12:100-2.1*.

"Employer" means the term as defined at *N.J.A.C. 12:100-2.1*.

"HVAC system" means the collective components of the heating, ventilation and air-conditioning system including, but not limited to, filters and frames, cooling coil condensate drip pans and drainage piping, outside air dampers and actuators, humidifiers, air distribution ductwork, automatic temperature controls, and cooling towers.

"HVAC System Commissioning Report" means a document normally prepared by an architect or engineer that provides verification that the HVAC system is operating in conformity with the design intent.

"Office building" means a building in which administrative, clerical or educational activities are conducted. Examples of facilities and/or operations, which are not office buildings, include repair shops, garages, print shops and warehouses.

"Renovation and remodeling" means building modification involving activities that include but are not limited to: removal or replacement of walls, roofing, ceilings, floors, carpet, and components such as moldings, cabinets, doors, and windows; painting; decorating; demolition; surface refinishing; and removal or cleaning of ventilation ducts.

"Sick Building Syndrome" describes a situation in which a workplace is characterized by a substantial number of building occupants experiencing health and comfort problems that can be related to working indoors. Additionally the reported symptoms do not fit the pattern of any particular illness, are difficult to trace to any specific source and relief from these symptoms occurs upon leaving the building. It is important to distinguish Sick Building Syndrome from problems of building-related illness. The latter term is reserved for situations in which signs and symptoms of diagnosable illness are identified and can be attributed directly to specific airborne contaminants.

§ 12:100-13.3 Compliance program

(a) The employer shall identify a designated person who is given the responsibility to assure compliance with this section. The employer shall assure that the designated person is familiar with the requirements of this subchapter. The designated person shall assure that at least the following actions are implemented and documented:

1. Establishing and following a preventive maintenance schedule in accordance with the manufacturer's recommendations or with accepted practice for the HVAC system. Scheduled maintenance of the HVAC system shall include checking and/or changing air filters, checking and/or changing belts, lubrication of equipment parts, checking the functioning of motors and confirming that all equipment is in operating order. Damaged or inoperable components shall be replaced or repaired as appropriate. Additionally, any parts of this system with standing water shall be checked visually for microbial growth;

2. Implementing the use of general or local exhaust ventilation where housekeeping and maintenance activities involve use of equipment or products that could reasonably be expected to result in hazardous chemical or particulate exposures, above the applicable Permissible Exposure Limit (PEL), as adopted by reference under *N.J.A.C. 12:100-4.2*, to employees working in other areas of the building or facility;

3. When the carbon dioxide level exceeds 1,000 parts per million (ppm), the employer shall check to make sure the HVAC system is operating as it should. If it is not, the employer shall take necessary steps as outlined in (a)1 above;

4. When temperatures in office buildings are outside of the range of 68 to 79 degrees Fahrenheit, the employer shall check to make sure the HVAC system is in proper operating order. If it is not, the employer shall take necessary steps as outlined in (a)1 above;

5. If contamination of the make-up air supply is identified and documented, then the make-up inlets and/or exhaust air outlets shall be relocated or the source of the contamination eliminated. Sources of make-up air contamination may include contaminants from sources such as, but not limited to, cooling towers, vents, and vehicle exhaust;

6. Assuring that building without mechanical ventilation are maintained so that windows, doors, vents, stacks and other portals designed or used for natural ventilation are in operable condition;

7. Promptly investigating all employee complaints of signs or symptoms that may be associated with building-related illness or sick building syndrome;

8. The employer shall have a written plan describing how it will achieve compliance with this subchapter, which plan shall list the identity and responsibilities of the designated person referred to in (a) above and which shall include procedures which, at a minimum, address the following issues:

i. Following of a preventive maintenance schedule;

ii. Keeping of required records;

iii. Locating of Indoor Air Quality compliance documents;

iv. Investigating of employee complaints;

v. Responding to signed employee complaints that have been submitted to the State alleging violation of the Public Employees' Occupational Safety and Health Act, *N.J.S.A. 34:6A-25 et seq.*;

vi. Notifying employees of work that may introduce air contaminants;

vii. Controlling microbial contamination;

viii. Controlling air contaminants;

ix. Responding to temperature and/or carbon dioxide exceedences;

x. Maintaining air quality during renovations and remodeling;

xi. Obtaining permits and performing work as required by the New Jersey Uniform Construction Code, *N.J.A.C. 5:23*; and

xii. Maintaining natural ventilation in buildings without mechanical ventilation; and

9. The employer shall review and update the written compliance plan referred to in (a)8 above at least annually, and whenever necessary to reflect new or modified tasks and procedures and to reflect new or revised employee positions.

§ 12:100-13.4 Controls of specific contaminant sources

(a) Regarding other indoor air contaminants, when general ventilation is inadequate to control air contaminants emitted from point sources within work spaces to below the applicable PEL, as adopted by reference under *N.J.A.C. 12:100-4.2*, the employer shall implement other control measures such as local source capture exhaust ventilation or substitution.

(b) The employer shall control microbial contamination in the building by promptly repairing water intrusion that can promote growth of biologic agents.

(c) The employer shall remediate damp or wet materials by drying, replacing, removing or cleaning same within 48 hours of discovery and shall continue such remediation until the water intrusion is eliminated.

(d) The employer shall take measures to remove visible microbial contamination in areas such as ductwork, humidifiers, dehumidifiers, condensate drip pans, heat exchange components, other HVAC and building system components, or on building surfaces, such as carpeting and ceiling tiles, when found during regular or emergency maintenance activities or during visual inspection.

§ 12:100-13.5 Air quality during renovation and remodeling

(a) Renovation work and/or new construction that results in the diffusion of dust, stone and other small particles, toxic gases or other harmful substances in quantities hazardous to health shall be safeguarded by means of local ventilation or other protective devices to ensure the safety of employees. Renovation and/or new construction work in occupied buildings shall be isolated and air contaminants, dust and debris shall be confined to the renovation or construction area by use of measures such as, but not limited to, physical barriers, pressure differentials, and/or performing the work during periods of minimal occupancy.

1. Before re-occupancy, work areas shall be cleaned and aired out as necessary.

2. Hazard information shall be used to select products and to determine necessary measures to be taken to comply with (a) above.

(b) Before selection and use of paints, adhesives, sealants, solvents, or installation of insulation, particle board, plywood, floor coverings, carpet, textiles, or other materials in the course of renovation or construction, the employer shall check product labels and Material Safety Data Sheets or seek and obtain information from the manufacturers of those products on whether or not they contain volatile organic compounds such as solvents, formaldehyde or isocyanates that could be emitted during regular use.

(c) The employer shall notify employees at least 24 hours in advance, or promptly in emergency situations, of work to be performed on the building that may introduce air contaminants into their work area.

§ 12:100-13.6 Recordkeeping

a) The maintenance schedule shall be updated to show all maintenance performed on the building systems. The schedule shall include the date that such maintenance was performed and the name of the person or company performing the work.

(b) The records required to be maintained by this section shall be retained for at least three years.

(c) The records required to be maintained by this section shall be available on request to Department representatives for examination and copying.

(d) The records required to be maintained by this section shall be made available to employees and employee representatives for examination and copying upon written request as soon as possible after receipt by the employer of the written request, but no later than 10 working days from the date upon which the employer has received the request.

§ 12:100-13.7 Employer's response to a signed PEOSH complaint

(a) Within 15 working days of receipt by the employer of notification from the Department that a complaint has been filed against the employer under the Public Employees' Occupational Safety and Health Act, *N.J.S.A. 34:6A-25 et seq.*, the employer shall respond in writing to the Department. The response may include any combination of the following:

1. A statement that the complaint is unfounded;
2. A description of any remedial action already taken;
3. An outline of any remedial measures planned but not yet taken with a timetable for completion; and/or
4. A statement that a study of the problem, with a timetable for completion of the study, has been initiated.

(b) Where remedial measures are planned or a study initiated, they shall be completed as soon as feasible. The employer shall submit, to the Department, a written report describing the remedial measures implemented and/or a copy of a study's report within 15 working days of completion.

(c) Permits for remedial work shall be obtained as required by *N.J.A.C. 5:23* (the New Jersey Uniform Construction Code). All work requiring a permit shall be performed in compliance with *N.J.A.C. 5:23*.

§ 12:100-13.8 Indoor air quality (IAQ) compliance documents

(a) In response to an employee complaint to the Department, the employer shall provide any of the following documents, if available, and requested by the Department:

1. As-built construction documents;
2. HVAC system commissioning reports;
3. HVAC systems testing, adjusting and balancing reports;
4. Operations and maintenance manuals;
5. Water treatment logs; and
6. Operator training materials.

Appendix B

Summary of Revisions to 1997 PEOSH Indoor Air Quality Standard

Summary of 2007 Revisions to the 1997 PEOSH Indoor Air Quality Standard

In January 2005, the PEOSH Advisory Board was presented with a proposal to amend portions of the Indoor Air Quality (IAQ) Standard (N.J.A.C. 12:100-13)(1997). To that end, the PEOSH Advisory Board established an IAQ Subcommittee, comprised of experts and interested parties, to evaluate the existing standard. The subcommittee met nine times between January and October 2005 to review and discuss all sections of the PEOSH IAQ Standard. It was the consensus of the IAQ Subcommittee that the suggested changes to the PEOSH IAQ Standard would not result in any increased costs to employers.

On December 1, 2005, the PEOSH Advisory Board received the recommendations for revisions to the IAQ Standard as proposed by the IAQ Subcommittee. These recommendations were presented by the PEOSH Advisory Board to the NJDHSS and NJDLWD for consideration.

A summary of the proposed revisions to N.J.A.C. 12:100-13, Indoor Air Quality Standard, is as follows:

N.J.A.C. 12:100-13.1 This section was modified to provide clarification by the removal of the term “existing” to describe buildings included in the standard. The term “existing” was determined to be redundant and unnecessary in defining the scope of the standard.

N.J.A.C. 12:100-13.2 “Designated Smoking Area” This term was removed from the definition section. The term was referred to in section 13.4(a) of the standard. Section 13.4(a) was removed because it is pre-empted by the recently enacted New Jersey Smoke-Free Air Act (P.L. 2005, c. 383, N.J.A.C. 8:6).

N.J.A.C. 12:100-13.2 “Office Building” This section was modified to include educational facilities and exclude warehouses from the definition of “office building”. Considering the similarity of the educational environment to office buildings and the administrative office work that is done in an educational facility, it was decided to specifically include educational facilities in the standard. Due to the open, industrial environment of warehouses, it was determined that warehouses are not structurally or functionally similar to office buildings, therefore, a specific exclusion was made for warehousing operations.

N.J.A.C. 12:100-13.2 The definition for “Sick Building Syndrome” was added to this section for the purpose of including the commonly-used term to a list of employee complaints for which an employer is required to investigate indoor air quality within the building. The inclusion of this term is consistent with U.S. EPA guidance for health professionals on indoor air quality¹. This term is referred to in section 13.3(a)(7) of the standard.

N.J.A.C. 12:100-13.3(a) This section was modified by adding language requiring employers to ensure that the “Designated Person” has the knowledge necessary to perform the job requirements. A training program is being prepared by the NJDHSS-PEOSH Education and Training Project to assist employers in meeting the additional training

¹ U.S. EPA, *Indoor Air Pollution: An Introduction for Health Professionals*, U.S. Government Printing Office Publication No. 1994-523-217/81322, 1994:17.

requirements of this revision. This Education and Training Program will be conducted in a manner consistent with previous training conducted for other standards that require a written program, including the Bloodborne Pathogens Standard, Respiratory Protection Standard, and the Hazard Communication Standard.

N.J.A.C. 12:100-13.3(a)(1) This section was modified to provide clarification by removing the term “reservoir” in the list of components of the HVAC system that shall be inspected as part of the preventive maintenance program. “Reservoir”, is included in the overall term “parts of this system”, and it was the consensus of the IAQ subcommittee that this term was not needed to convey the intent of this section.

N.J.A.C. 12:100-13.3(a)(5) This section was modified to provide clarification about contaminants in make-up air. The original list was often misinterpreted by the regulated community as a comprehensive list of sources. The modified language clarifies that the list of types of vents are examples, not a comprehensive list. The specific sources listed in the original standard were omitted and general language was added to include all types of vents.

N.J.A.C. 12:100-13.3(a)(7) This section was modified by adding a category of “Sick Building Syndrome” health effects to reasons for an employer to investigate IAQ concerns. The definition of “Sick Building Syndrome” includes a broad list of non-specific building-related symptoms that was not included in the original standard language. It was determined that buildings that meet this definition should be promptly investigated by employers to determine what action, if any, is necessary.

N.J.A.C. 12:100-13.3(a)(8) This section was added to require the employer to prepare a written plan describing how they will meet their obligations under the standard. The written program will include language that describes how the employer will achieve compliance with the standard. A model written program is being prepared by the NJDHSS-PEOSH Education and Training Project to assist employers in meeting the additional requirements of this revision.

N.J.A.C. 12:100-13.4(a) This section and all references thereunto have been deleted because it is pre-empted by the recently enacted New Jersey Smoke-Free Air Act (P.L. 2005, c. 383, N.J.A.C. 8:6).

N.J.A.C. 12:100-13.4(c) This section was modified in three ways:

To provide clarification, the term “water leak” was replaced with the broader term of “water intrusion including, but not limited to, pipe leaks, condensation, flooding, plumbing backups, roof leaks”. It was agreed that the original term was too narrow and failed to include most common types of water intrusion into a building that may lead to microbial growth.

Language was also added to define a time frame for the cleanup of damp or wet materials. It was agreed that the existing language was too vague and did not require remediation within a time period when experts state that microbial growth begins to occur in wet building materials ².

² U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, *Mold Prevention Strategies and Possible Health Effects in the Aftermath of Hurricanes and Major Floods*, Morbidity and Mortality Weekly Report (MMWR), June 9, 2006; 55:3.

To provide clarification, common examples of areas of HVAC systems to be inspected for visible mold as part of HVAC preventive maintenance program were added. The addition of examples helps illustrate the various areas within the HVAC system that require regular inspection.

N.J.A.C. 12:100-13.5(a) This section was modified to reduce exposure to contaminants during construction and renovation activities. The modification includes a description of isolation methods utilized when renovation and remodeling work is being performed in an occupied building. The isolation methods described in the modification provide the employer with examples of options that can be used in combination to control employee exposures, but also does not limit the employer from using alternative means to achieve isolation of the work area. The modification also requires employers to clean and air-out the work area prior to re-occupancy. The purpose of the modification is to attempt to reduce employee exposure to construction dust and volatile organic compounds from the drying and curing of newly installed materials. This modification was requested by the IAQ Subcommittee because of concern that more should be done to ensure that renovated spaces do not present any health hazards. This requirement is similar to requirements, such as the PEOSH Sanitation Standard (29 CFR 1910.141(a)(3)(i) “*All places of employment shall be kept clean to the extent that the nature of the work allows.*”), which are regularly enforced by PEOSH.

N.J.A.C. 12:100-13.5(b) To provide clarification, this section was modified by rearranging the language. The revised language clarifies that information on the chemical content of potentially hazardous products is to be checked before selection of the product, not just prior to use of the product. The revision also adds the Material Safety Data Sheet (MSDS) to the list of information that the employer is required to evaluate prior to selection of the product. The term “carpet backing” was replaced with the term “carpet”.

N.J.A.C. 12:100-13.6(b) This section was modified to establish time frames for which employers are required to must make records available to employees and employee representatives. The revised language also defines a formal process of which employees can request compliance information in writing and employers must provide the requested documents within 10 working days of the request. The purpose of the change is to prevent unreasonable delay in providing information to employees and employee representatives. The process is consistent with similar standards requiring access to medical and exposure data such as 29 CFR 1910.1020 Access to Employee Exposure and Medical Records Standard. The time period was chosen, by consensus of the IAQ Subcommittee, to be reasonable for compliance records which must be maintained and available for inspection as required by the recordkeeping provision of the standard.

N.J.A.C. 12:100-13.7 This section was modified to provide clarification. The revised language specifies that complaints for which an employer must respond to PEOSH is limited to complaints made by employee or employee representatives to PEOSH. (see N.J.S.A. 34:6A-38a).

Appendix C

PEOSH Indoor Air Quality Standard Inspection Checklist

PEOSH Indoor Air Quality Standard Inspection Checklist

Location: _____

Inspection #: _____

Inspector: _____ **Date:** _____

COMPLIANCE PROGRAM - GENERAL REQUIREMENTS		Y	N	N/A
N.J.A.C. 12:100- 13.3(a)	Has a designated person been identified to handle the implementation and documentation of the New Jersey indoor air quality standard? Name/Title/Phone #: _____ _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)	Has the employer ensured that the designated person is familiar with all the requirements of the standard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)1	Is there an established, operating and documented preventive maintenance schedule for the heating, ventilation and air conditioning (HVAC) system in accordance with the manufacturer's recommendations or accepted practice for the HVAC system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)1	Does the HVAC preventive maintenance schedule include: checking and/or changing air filters, checking and/or changing belts, lubrication of equipment parts, checking the functioning of motors and confirming that all equipment is in operating order?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)1	Are damaged or inoperable components of the HVAC system replaced or repaired as appropriate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)1	Are parts of the HVAC system with standing water checked visually for microbial growth?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)2	Is general or local exhaust ventilation used where housekeeping and maintenance activities could reasonably be expected to result in exposure to hazardous substances above applicable exposure limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)3	When the carbon dioxide level exceeds 1,000 parts per million, is the HVAC system checked and repaired as necessary to ensure the system is operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)4	In office buildings/schools, when the temperature is outside of the range of 68 to 79 degrees Fahrenheit, is the HVAC system checked and repaired as necessary to ensure the system is operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)5	When a contaminant is identified in the make-up air supply, is the source of the contaminant eliminated or the make-up inlets and/or exhaust air outlets relocated to avoid entry of the contaminant into the air system?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)6	If buildings do not have mechanical ventilation, are windows, doors, vents, stacks, and other portals used for natural ventilation operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)7	Are complaints promptly investigated that involve signs or symptoms that may be associated with Building-Related Illness or Sick Building Syndrome?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)8	Does the employer have a written plan that meets the requirements of the subchapter?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.3(a)9	Is the written compliance plan reviewed and updated annually to reflect new or updated procedures?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PEOSH Indoor Air Quality Standard Inspection Checklist (cont.)

CONTROLS OF SPECIFIC CONTAMINANTS		Y	N	N/A
13.4(a)	When point sources generate airborne levels of contaminants above applicable limits, is local exhaust ventilation or substitution used to reduce the exposure levels to below the limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.4(b)	Does the employer control microbial contamination by promptly repairing water intrusion that can promote growth of biologic agents?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.4(c)	Does the employer remediate damp or wet materials by drying, replacing, removing, or cleaning same within 48 hours of discovery and continue remediation until water intrusion is eliminated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.4(d)	Are visible microbial contaminants removed from ductwork, humidifiers, dehumidifiers, condensate drip pans, heat exchange components, and other HVAC and building system components, or on building surfaces, such as carpeting and ceiling tiles, when found during regular or emergency maintenance activities or during visual inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RENOVATION/REMODELING		Y	N	N/A
13.5(a)	During renovation work and/or new construction, are local ventilation or other protective devices used to safeguard employees and students from dust, stone and other small particles, toxic gases or other harmful substances in quantities hazardous to health?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.5(a)	Are renovation areas in occupied buildings isolated so that air contaminants, dust, and debris are confined to the renovation or construction area by use of measures such as physical barriers, pressure differentials, and/or performing work during periods of minimal occupancy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.5(a)(1)	Are work areas cleaned and aired out as necessary prior to re-occupancy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.5(a)(2)	Is hazard information used to select products and to determine necessary measures to be taken?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.5(b)	Before selection and use, are product labels and MSDS sheets checked or is information obtained on whether the use of paints, adhesives, sealants, solvents or installation of insulation, particle board, plywood, floor coverings, carpet backing, textiles or other materials contain volatile organic compounds such as solvents, formaldehyde, or Isocyanates that could be emitted during regular use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.5(c)	Are employees notified at least 24 hours in advance, or promptly in emergency situations, of work to be performed on the building that may introduce air contaminants into their work area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

PEOSH Indoor Air Quality Standard Inspection Checklist (cont.)

RECORDKEEPING		Y	N	N/A
13.6(a)	Is the maintenance schedule updated to show all maintenance performed on the building systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.6(a)	Does the maintenance schedule include the dates that the building systems maintenance was performed and the names of the persons or companies performing the work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.6(b)	Are maintenance schedules with the information required by the indoor air quality standard retained for at least three years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.6(b)	Are the records required to be maintained by this section available for inspection by PEOSH?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.6(b)	Are the records required to be maintained by this section available for inspection by employees and employee representatives for examination and copying within 10 working days of request?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EMPLOYER'S RESPONSE TO A SIGNED COMPLAINT		Y	N	N/A
13.7(a)	If the employer receives a complaint notification from the PEOSH Program about an indoor air quality problem, is a written response sent back to PEOSH within 15 working days?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.7(a)	Do the employer's written responses to complaint notifications received from the PEOSH Program about an indoor air quality problem include any combination of the following: 1) A statement that the complaint is unfounded; 2) A description of any remedial action already taken; 3) An outline of any remedial measures planned but not yet taken with a timetable for completion; and/or 4) A statement that a study of the problem, with a timetable for completion of the study, has been initiated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.7(b)	If the employer plans remedial measures or a study initiated in response to a complaint notification received from the PEOSH Program, is a written report describing the remedial measures implemented and/or a copy of a study's report submitted to the PEOSH Program within 15 working days of completion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.7(c)	If remedial work is initiated in response to a complaint notification from the PEOSH Program, are permits obtained and work performed as required by N.J.A.C. 5:23 (the New Jersey Uniform Construction Code)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13.8(a)	If available, are the following documents provided to the PEOSH Program when requested in response to an employee complaint: 1) As-built construction documents; 2) HVAC system commissioning reports; 3) HVAC systems testing, adjusting and balancing reports; 4) Operations and maintenance manuals; 5) Water treatment logs; and 6) Operator training materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix D

Sample HVAC Inspection Checklist

HVAC Inspection Checklist

Employer Name: _____

Facility Name: _____

Air Handling Unit: _____

Area Served: _____

Item Inspected	OK	Needs Attn.	Comment
Fresh Air Intake:			
Area near intake free of contaminant sources (leaves, vehicle exhaust, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	
Bird screen in place and unobstructed	<input type="checkbox"/>	<input type="checkbox"/>	
Outside Air damper setting appropriate	<input type="checkbox"/>	<input type="checkbox"/>	
Fans:			
Motor operating	<input type="checkbox"/>	<input type="checkbox"/>	
Belts in good condition and adjusted	<input type="checkbox"/>	<input type="checkbox"/>	
Coils:			
Coil free of significant corrosion or leaks	<input type="checkbox"/>	<input type="checkbox"/>	
Clean and free of accumulated dust or debris	<input type="checkbox"/>	<input type="checkbox"/>	
Filter:			
Filter in place	<input type="checkbox"/>	<input type="checkbox"/>	
Free of accumulated contaminants	<input type="checkbox"/>	<input type="checkbox"/>	
Condensate Drain Pan:			
Free of significant corrosion	<input type="checkbox"/>	<input type="checkbox"/>	
Draining properly	<input type="checkbox"/>	<input type="checkbox"/>	
Free of visible biofilm	<input type="checkbox"/>	<input type="checkbox"/>	
Biocide used (note requires MSDS sheet)	<input type="checkbox"/>	<input type="checkbox"/>	
Vents/Ducting:			
Visually clean and free of accumulated dust	<input type="checkbox"/>	<input type="checkbox"/>	
Insulation/lining intact	<input type="checkbox"/>	<input type="checkbox"/>	
Free of obstructions	<input type="checkbox"/>	<input type="checkbox"/>	
Other:			
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
Inspection Performed by:			
Name:	Date:		

Appendix E

Sample HVAC Preventive Maintenance Log

Appendix F

Sample Renovation/Construction Project Checklist

Renovation/Construction Project

IAQ Compliance Checklist

Employer Name: _____
 Facility Name: _____
 Project Name: _____
 Estimated Time Period: _____
 Area(s) Affected: _____
 General Contractor Name/Phone #: _____

Pre-Construction/Planning Phase:	Complete	N/A
Notified the Designated Person of the project.	<input type="checkbox"/>	<input type="checkbox"/>
Considered performing work during periods of minimal or non-occupancy and included requirements in bid specification (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>
Reviewed hazard information (labels, MSDS) with contractor(s) and approved selected products.*	<input type="checkbox"/>	<input type="checkbox"/>
In buildings constructed prior to 1981: Reviewed Asbestos Survey. Ensured that all Asbestos-containing materials (ACM)/and Presumed Asbestos-containing materials (PACM) are labeled, Employees and Contractors notified of presence of ACM/PACM.	<input type="checkbox"/>	<input type="checkbox"/>
Notified affected employees at least 24 hours in advance, or promptly in emergency situations, of work to be performed on the building that may introduce air contaminants into their work area.*	<input type="checkbox"/>	<input type="checkbox"/>
Reviewed hazard information (labels, MSDS) to determine necessary measures to be taken.*	<input type="checkbox"/>	<input type="checkbox"/>
Reviewed product labels and MSDS sheets to determine whether the use of paints, adhesives, sealants, solvents or installation of insulation, particle board, plywood, floor coverings, carpet backing, textiles or other materials contain volatile organic compounds that could be emitted during regular use.*	<input type="checkbox"/>	<input type="checkbox"/>
Construction Phase:		
Local ventilation or other protective devices used to safeguard employees and students from dust, stone and other small particles, toxic gases or other harmful substances in quantities hazardous to health are in place.	<input type="checkbox"/>	<input type="checkbox"/>
Renovation/Construction areas in occupied buildings are isolated so that air contaminants, dust, and debris are confined to the renovation or construction area by use of measures such as physical barriers and pressure differentials.	<input type="checkbox"/>	<input type="checkbox"/>
Re-occupancy Phase:		
Inspected that the work areas are cleaned and aired out as necessary prior to re-occupancy.*	<input type="checkbox"/>	<input type="checkbox"/>
Re-occupancy authorized by: (Name/Title) Name: _____ Title: _____ Signature: _____ Date: _____		

** N.J.A.C.12:100-13.5 requires that documentation of this action be maintained in accordance with recordkeeping requirements.*

Appendix G

**Sample Renovation/Construction Project
Employee Notification Form**

NOTICE

Dear Employee:

In accordance with the requirement of the NJ Indoor Air Quality Standard (N.J.A.C. 12:100-13)(2007), you are hereby notified that a construction/renovation project will take place at

_____ from _____ through _____. Materials will be utilized which contain ingredients that may be potentially offensive or harmful. Efforts will be made to minimize employee exposure to these chemicals and other construction-related dusts and odors.

The Material Safety Data Sheets for these materials are attached. If you have any questions please contact _____ at _____.

Additional Resources:

STATE AGENCIES WITH MAJOR INDOOR RESPONSIBILITIES FOR PUBLIC BUILDINGS:

**New Jersey Department of Health and Senior Services
Public Employees Occupational Safety and Health
(PEOSH) Program**

PO Box 360
Trenton, NJ 08625-0360
(609) 984-1863
www.state.nj.us/health/eoh/peoshweb/

Promulgates health standards, facilitates training and consultation and enforces regulations to ensure that workers in the public sector are provided with safe and healthful working conditions.

PEOSH IAQ Publications and Fact Sheets:

- PEOSH Policy on Building Renovations Information Bulletin
- Renovation & Construction in Schools-Controlling Health and Safety Hazards Information Bulletin
- Indoor Air Quality Information Bulletin
- Bioaerosols Information Bulletin
- Mold in The Workplace, Prevention and Control Information Bulletin

**New Jersey Department of Health and Senior Services
Worker and Community Right-to-Know (RTK) Program**

PO Box 368
Trenton, NJ 08625-0368
(609) 984-1863
www.state.nj.us/health/eoh/rtkweb/

Prepares Hazardous Substance Fact Sheets, Enforces Container Labeling Requirements, Maintains Database of Annual Employer RTK Surveys.

**New Jersey Department of Health and Senior Services
Consumer and Environmental Health Services (CEHS)
Indoor Environments Program**

PO Box 369
Trenton, NJ 08625-0369
(609) 631-6749
www.state.nj.us/health/eoh/tsrp/

The mission of the Program is to protect the health of the public by reducing exposures to indoor environmental pollutants and contaminants, asbestos containing materials and

lead-based paint hazards. Additionally, the Project handles issues related to school construction, Brownfields redevelopment and related activities. Administers federal grants including U.S. EPA Tools for Schools Program. Maintains a list of Private Mold Consultants, Laboratories, and Remediation Firms.

**New Jersey Department of Treasury
Office of Lease Compliance**

PO Box 34
Trenton, NJ 08625-0034
(609) 984-6560
<http://www.state.nj.us/treasury/dpmc/>

State agency responsible for managing contracts on state leased buildings, liaison with property owner, coordinates building maintenance issues.

**New Jersey Department of Treasury
Office of Building Management and Operations**

PO Box 38
Trenton, NJ 08625-0038
(609) 777-3256
<http://www.state.nj.us/treasury/dpmc/>

State agency responsible for overall management of state-owned buildings.

**FEDERAL AGENCIES WITH MAJOR INDOOR AIR RESPONSIBILITY FOR
PUBLIC AND COMMERCIAL BUILDINGS:**

US Environmental Protection Agency

Conducts a non-regulatory indoor air quality program that emphasizes research, information dissemination, technical guidance, and training. Issues regulations and carries out other activities that affect indoor air quality under the laws for pesticides, toxic substances, and drinking water.

**US Environmental Protection Agency
Office of Radiation and Indoor Air
Indoor Environments Division**

1200 Pennsylvania Avenue, NW
Mail Code 6609J
Washington, DC 20460
(202) 343-9370
Fax: (202) 343-2394 or (202) 343-2392
www.epa.gov/iaq

EPA Regional Office

Address inquiries to the contacts in the EPA Regional Offices at the following address:

(NJ, NY, PR, VI)

EPA Region 2

290 Broadway

New York, NJ 10007-18668

(212) 637-3660 (Main)

(212) 637-4080 (indoor air, asbestos, NESHAP)

(212) 637-4378 (radon)

<http://www.epa.gov/region02/>

U.S. EPA IAQ PUBLICATIONS AND PROGRAMS:

- **Tools for Schools (TfS) Kit**, (<http://www.epa.gov/iaq/schools/toolkit.html>) The *Indoor Air Quality Tools for Schools (IAQ TfS)* Kit shows schools how to carry out a practical plan of action to improve indoor air problems at little or no cost using straightforward activities and in-house staff. The Kit provides best practices, industry guidelines, sample policies, and a sample IAQ management plan. The voluntary guidance can save schools time and money so that resources can be directed toward educating children. The *IAQ TfS* Kit is co-sponsored by the National Parent Teacher Association, National Education Association, Association of School Business Officials, American Federation of Teachers, and the American Lung Association.
- **Healthy Seat – Health School Environments Assessment Tool**, (www.epa.gov/schools) The Healthy School Environments Assessment Tool is a free software tool to help school systems more effectively manage all of their environmental issues. HealthySEAT is designed to be customized by school systems to conduct and manage self- assessments of their school facilities for a wide range of environmental, health, and safety issues.
- **IAQ Building Education and Assessment Model (I-BEAM)**, (www.epa.gov/iaq/largebldgs/i-beam_html/ibeami.htm) The Indoor Air Quality Building Education and Assessment Model (I-BEAM) is a guidance tool designed for use by building professionals and others interested in indoor air quality in commercial buildings. I-BEAM updates and expands EPA's Building Air Quality guidance and is designed to be a comprehensive state-of-the-art guidance for managing IAQ in commercial buildings. I-BEAM contains text, animation/visual, and interactive/calculation components that can be used to perform a number of diverse tasks. I-BEAM consists of many individual modules which explain different aspects of IAQ including how to manage, operate, and maintain your building for IAQ, and how to insure that your energy efficiency projects are compatible with IAQ. I-BEAM also contains modules that are interactive, allowing you to set up maintenance and housekeeping tasks for IAQ, and to calculate budgetary impacts of IAQ.

- **Building Air Quality: A Guide for Building Owners and Facility Managers (BAQ Guide) and the Building Air Quality Action Plan**, (http://www.epa.gov/iaq/largebldgs/baq_page.htm) The Building Air Quality (BAQ) guide, developed by the EPA and the National Institute for Occupational Safety and Health (NIOSH), provides practical suggestions on preventing, identifying, and resolving indoor air quality (IAQ) problems in public and commercial buildings. This guidance provides information on factors affecting indoor air quality; describes how to develop an IAQ profile of building conditions and create an IAQ management plan; describes investigative strategies to identify causes of IAQ problems; and provides criteria for assessing alternative mitigation strategies, determining whether a problem has been resolved, and deciding whether to consult outside technical specialists.
- **Mold Remediation in Schools and Commercial Buildings** (http://www.epa.gov/mold/mold_remediation.html) This document presents guidelines for the remediation/cleanup of mold and moisture problems in schools and commercial buildings; these guidelines include measures designed to protect the health of building occupants and remediators. It has been designed primarily for building managers, custodians, and others who are responsible for commercial building and school maintenance.

INDUSTRY CONSENSUS STANDARD ORGANIZATIONS:

American Society of Heating Ventilation and Air-Conditioning Engineers (ASHRAE)

1791 Tullie Circle, N.E.

Atlanta, GA 30329

Toll-free for Customer Service: (800) 527-4723 (U.S. and Canada only)

Phone: (404) 636-8400

ashrae@ashrae.org

<http://www.ashrae.org>

The American Society of Heating, Refrigerating and Air-Conditioning Engineers advances the arts and sciences of heating, ventilation, air conditioning and refrigeration. Establishes consensus standards for many aspects of the HVAC industry.

ASHRAE Standards related to the NJ IAQ Standard:

- **Standard 55-2004 Thermal Environmental Conditions for Human Occupancy**
Specifies environmental conditions that will produce acceptable thermal environmental conditions for 80% or more of the occupants.
- **Standard 62.1-2004 Ventilation for Acceptable Indoor Air Quality**
Specifies minimum ventilation rates for indoor air quality that will be acceptable to human occupants and minimize adverse health effects.

HEALTHY SCHOOL FACILITY ENVIRONMENTS WEBSITE.

<http://www.state.nj.us/health/healthyschools/>

A gateway to resources to help address environmental health issues in schools such as indoor air quality, mold contamination, hazardous substances, and construction dust and noise. Features links to the resources of six New Jersey state agencies, federal agencies, and many advocacy groups.

NATIONAL CLEARINGHOUSE FOR EDUCATIONAL FACILITIES AT THE NATIONAL INSTITUTE OF BUILDING SCIENCES

1090 Vermont Ave.
NW Suite 700
Washington, D.C. 20005
888-552-0624
202-289-7800
<http://www.edfacilities.org/>

Information on planning, designing, building, and maintaining safe, healthy, high performance schools. Funded by a grant from the U.S. Department of Education.

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