

Background

The Main Interior Building has been going through a phased modernization effort to improve the infrastructure to include heating, ventilation, air-conditioning (HVAC) systems, plumbing, electrical and most importantly to improve life safety conditions for all of our employees and visitors. With an abundance of concern for all DOI employee safety and health and our visitors here, DOI contacted National Institute for Occupational Health and Safety (NIOSH) in June 2006 to conduct a health hazard evaluation of the Main Interior Building. They completed that evaluation in August 2006 and made recommendations for improvements. DOI has worked with GSA and their contractor to implement these recommendations over the last nine months. On May 24, 2007, the Department received the NIOSH final report of findings which articulates the recommendations made in August.

Changes Made to Address NIOSH Recommendations

Key Findings:

- 1. Negative Pressurization which is a tool that is intended to maintain a pressure difference between the occupied spaces and the construction areas to prevent contaminants from blowing into the occupied spaces.**

Response

- Creating better barriers helps keep any contaminants within the construction zone. Increased barrier protection was implemented in Phase III of the modernization project (the project's current phase).
- The wing under construction is separated into east & west construction zones due to use of the main corridor by building occupants. Exit and entry into the construction zones is limited to the 1st and 7th floors to limit exposure to construction impacts.
- Maintaining a greater flow out than in keeps the air from the construction zone from blowing into occupied spaces. Grunley, the general contractor, installed large exhaust fans at the far ends of the each floor. The intake at the 1st & 7th floors (each side) is 5,000 CFM with 4,000 CFM intake on the floors in between (each side). The exhaust fans can move 9,000 CFM, far beyond the 10% differential required (5,500 CFM).
- Grunley monitors the pressure of both the construction areas and occupied spaces. The zones are measured with magnahelic gauges to ensure the zones are under negative pressure. Gauges are checked periodically to ensure negative pressure is maintained. Grunley has been directed to commence daily checks of the magnahelic gauges and log the results in their daily reports to GSA.
- The construction zones are routinely checked with smoke testing at the entrances on the 1st and 7th floors to ensure the entrances between the occupied and construction spaces are under negative pressure.
- Negative air pressure is one component in a system to prevent dust and odor migration from the construction zone to occupied space. The improved construction barriers, exhausting air from construction spaces and revised work practices to minimize airborne dust within the

NIOSH Final Report Dated May 24, 2007

construction spaces act as a system to prevent dust and odor migration to the maximum extent possible.

2. Implementation of SMACNA Guidelines (Sheet Metal and Air Conditioning Contractors National Association)

Response

- Grunley has incorporated the SMACNA guidelines into their project management plan.
- Weekly Indoor Air Quality (IAQ) meetings are held between DOI Modernization Office & GSA Project Management.
- SMACNA guidelines are used during all inspections of construction zones.

3. Designated Persons

Response

- GSA has a full-time industrial hygiene firm to provide on-site daily air sampling of both the work areas and the occupied areas adjacent to areas where work is being performed. All samples collected in the occupied areas, with the exception of one in November 2002, have yielded results below the Occupational Safety and Health Administration (OSHA) permissible exposure limits.
 - GSA measures TVOC's (Total Volatile Organic Compounds) and particulates in occupied areas outside of the construction barriers.
 - GSA performs smoke tests at the construction zone entrances to ensure negative pressurization of each zone.
 - GSA provides testing results to DOI Modernization Office for posting, corrective measures to Grunley Construction for action.
- Grunley Construction safety department performs weekly safety audits, which are also periodically performed as joint audits with Jacobs Facilities and GSA.
- Grunley's field supervision holds weekly meetings and training opportunities with all subcontractor foremen to address safety and IAQ issues.
- GSA controls the use of low VOC products through the submittal process. All new products requiring submittals are checked for TVOC content as part of the review process to ensure the proper products are being used.
- GSA performs routine checks of products to ensure they meet low VOC requirements as part of the standard inspection process. When improper materials are found, Grunley removes them from the project and replaces them with proper materials.

4. Communication

Response

- DOI redesigned its Modernization Website to provide more extensive information to employees. The website at <http://www.doi.gov/modernization/> includes:
 - Modernization Newsletter
 - Tenant User Group Meeting Announcements and Minutes
 - Monthly air sampling reports

- A Federal Occupational Health Physician toured the site within the last month, and also interviewed several employees who have expressed concerns. She did not identify any critical issues, but did provide some preliminary recommendations verbally, primarily about communications to building occupants. DOI is now working to implement her recommendations.

5. Construction Walls and Barricades

Response

- Major improvements were made to the construction barrier plan for Wing 4 from previous wings.
 - Construction of the barriers themselves were revised to maximize the air seal between the occupied and construction areas.
 - The barrier walls are made with a combination of drywall, insulation and interior sealant to maximize the seal.
 - The seams of the layers of drywall are offset so there is not a path of migration.
 - The interior side of the barriers is sealed at the seams and edges to maximize the seal.

- The number of entrances between the construction and occupied areas was reduced to minimize dust and odor migration. In previous wings there were entrances on every floor to the construction spaces. Entrances are consistently maintained at the 1st & 7th floors only.

- The NIOSH investigation identified communicating doors and duct vents as areas that needed improvement. Both of these issues were addressed while NIOSH was still on-site in August 2006.

- Grunley Construction has a designated individual responsible for daily checks of the plastic seals over air ducts and to immediately correct any deficiencies found.

6. Housekeeping

Response

- Grunley Construction has implemented the use of dust coagulants for routine cleaning inside the construction zones.
- Grunley increased the level of cleaning outside of the entrances between the occupied and construction areas.
- Workers mop construction entrance areas every day and sometimes multiple times per day.
- Floor entrance mats are vacuumed using HEPA cleaners.
- Construction employees have been trained on housekeeping responsibilities to maintain construction areas.

7. Traffic in and out of Construction Areas

Response

- Increased the level of cleaning of the walk-off mats located outside of construction areas.
 - Grunley retained a special cleaning service to change out walk-out mats daily
 - Workers perform HEPA vacuuming of the mats, and mop areas around the mats daily.
 - The mats are replaced on a routine basis when they appear to need a higher level of cleaning.
- Where possible, the orientation of the mats has been revised to maximize dust capture. In areas where the orientation of the mat has not been changed it is due to safety concerns regarding possible tripping hazards to occupants.
- Additional barriers eliminate direct access points to construction areas.
- Construction workers have been trained on appropriate egress and housekeeping duties.

8. Rubbish Removal From the Construction Area

Response

- Bulk demolition has shifted from day operations to night and weekend operations to minimize impacts of dust and odor generation during occupant working hours.
- Rubbish from most floors of the construction zones is removed using enclosed trash chutes that feed directly into dumpsters on each side. Removal of debris on the floors below grade level is accomplished by taking debris in carts down a freight elevator to the garage and then transported up the exit ramps to the construction dumpsters.

NIOSH Final Report Dated May 24, 2007

- Transport of hazardous materials through occupied areas is not allowed, except in limited areas and after hours. All transport activities must follow strict safety precautions identified in the Contract Documents.
- Tarping of rubbish containers is being addressed by GSA with Grunley Construction.

9. Heating, ventilating and air conditioning (HVAC) systems

Response

- GSA performs daily inspections of sealed and blocked duct work.
- Grunley construction employees are trained on the need to ensure sealed areas remain in good serviceable condition and report loose or peeling polyurethane, and to immediately report and remediate problem areas.

10. Risk Communications

Response

- Meetings to discuss Indoor Air Quality (IAQ) are held bi-weekly in the Modernization Conference Room (Mondays).
- All employees are invited to Tenant User Group (TUG) meetings that are held bi-monthly (4th Thursday). Modernization is discussed at each meeting.
- A comprehensive Modernization Website for employees is located at <http://www.doi.gov/modernization/> to provide test results and other information
- DOI Modernization Office has a Federal Occupational Health Physician on retainer to conduct interviews with concerned employees and conduct walk-throughs of Modernization Spaces.

NIOSH Report