

SECTION 15061

AIRBORNE CONTAMINANTS CONTROL

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. IUPUI airborne contaminants control policy and procedures.

1.2 POLICY

A. Contractor shall limit dissemination of airborne contaminants produced by construction-related activities in order to provide protection of personnel, operations and equipment from possible undesirable effects of exposure to such contaminants.

1. The use of hazardous or irritating materials must be properly controlled where it may affect individuals. Measures shall be taken to ensure that dusts, mists, fumes, gases and vapors of these materials are eliminated, isolated, or captured.
2. If access into the ceiling in occupied areas is required, approved procedures must be followed.

1.3 DEFINITIONS

A. Contaminant-producing activities include, but are not limited to:

1. Demolition and removal of walls, floors, carpeting, ceilings and other building finish material.
2. Demolition of plumbing, mechanical and electrical systems and equipment.
3. Finish operations such as sanding, painting, and application of special surface coatings.
4. All routine construction activities that can generate dust or fumes.
5. Site operations.

- B. Containment Areas: As determined by IUPUI Environmental Health and Safety and as shown on drawings. Includes area of construction, adjacent staging and storage areas, and passage areas for contractors, suppliers and waste.
- C. Protection areas: As determined by IUPUI Environmental Health and Safety and as shown on drawings as Protection Areas. Includes areas adjacent to Containment Area, either occupied or used for passage, as well as areas connected to construction area by mechanical system air intake, exhaust and ductwork.
- D. “Minor” ceiling access is defined as visual observation or minor adjustments or other activity that does not disturb dust. Acoustical panels shall be replaced or access panel shall be closed immediately when the construction worker leaves the work site.
- E. “Major” ceiling access describes any other access not defined as “minor”.
- F. “Thorough” cleaning of surfaces which become exposed to dust shall be accomplished by use of either a HEPA-filtered vacuum cleaner or a wet mop.
- F. Negative Air Machine: Portable mechanical units to provide negative air pressure in the containment area as specified in this section.

1.4 PROTECTION

- A. Exercise caution when handling fluids, particularly heating water, in an interstitial space. When working with fluids provide a water-tight barrier beneath the work area to catch and retain all spillage before it reaches the ceiling below.
- B. Notify the Owner’s Representative at least three(3) working days prior to commencement of work in ceilings or interstitial spaces above occupied areas in order to allow for the relocation or protection of occupants.

1.5 SUBMITTALS

- A. Schedules: Submit work areas and procedure schedules for containment of airborne contaminants.
- B. Work Plan: Drawings and details of construction of necessary temporary

barriers, and description of procedures to be used to achieve and maintain control of construction-related airborne contaminants.

- C. Work plan must be approved by IUPUI Environmental Health and Safety prior to commencement of work.
- D. Provide IUPUI Environmental Health and Safety copies of Material Safety Data Sheets for all products being used.

1.6 GENERAL CEILING ACCESS DIRECTIVES

- A. Contractor shall notify IUPUI Environmental Health and Safety of work requiring access to the ceiling outside the containment area a minimum of three(3) working days prior to commencement of work.
- B. Spray top of ceiling panels to be removed, and surrounding affected panels with fine detergent/water mist to settle dust prior to removal.
- C. Owner's representative shall be contacted for all ceiling access problems.

1.7 QUALITY CONTROL

- A. Pre-Construction Meeting: Before commencement of construction the contractor shall attend an orientation session held by IUPUI Environmental Health and Safety for instructions on required precautions.
- B. Notification: Three(3) working days notification to owner's representative of construction activity causing potential airborne contaminants in a Protection Area.

1.8 TESTING

- A. IUPUI Environmental Health and Safety may conduct periodic air sampling of Protection Areas during construction to monitor the effectiveness of containment procedures.
- B. Air Pressure: Contractor shall verify the maintenance of negative air pressure in the Containment Area relative to the Protection Area on a continuous basis utilizing differential pressure monitors.

1.9 PERFORMANCE REQUIREMENTS

- A. Contractor's Responsibilities shall include but not be limited to:

1. Compliance with IUPUI requirements and use of installation procedures and methods which satisfy applicable code requirements and referenced controls and procedures.
2. Formulation of specific means and methods of achieving and maintaining control of airborne contaminants during construction.
3. Proposal of work plan and procedures for control of airborne contaminants as noted in the contract documents.
4. Submission of proposed work plan to IUPUI Environmental Health and Safety for review prior to the performance of construction activities.
5. The contractor shall provide all required labor and material to install and maintain the approved plan.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Abatement Technologies HEPA-AIRE Portable Air Scrubbers or equal.
 1. Units shall include pre-filters, final filters, HEPA filters and filter static pressure gauges.
 2. HEPA filter shall be 99.9% efficient at .3 micron particle size.
- B. Carpet or Mats: Provide carpet or mats at enclosure entrances vacuumed or changed as often as necessary to prevent accumulation of dust. At contractor's option, provide adhesive-faced contamination control mats with disposable sheets in lieu of vacuumed mats. All vacuuming outside areas not under negative pressure shall be performed with a certified HEPA-filtered vacuum.
- C. Polyethylene shall be fire retardant type listed by Fire Underwriter's Laboratories affixed with fire retardant tape.
- D. Air Pressure Monitors shall be differential switch/gauge equal to Dwyer Model 3000-0 with a range of 0 to .25 inches of water gauge and high-low adjustable set points.

PART 3 EXECUTION

3.1 FUNCTIONAL REQUIREMENTS

- A. Dust control: The contractor shall take appropriate steps throughout the course of the project to prevent airborne dust due to his/her work. Water shall be applied whenever practical to settle and hold dust, particularly during demolition and removal of materials. Care shall be exercised to prevent the accumulation of standing water or the saturation of any materials. No chemical palliative shall be utilized without the written consent of Indiana University.
- a. Isolation of construction areas in occupied buildings: Accomplished by using plastic sheeting materials or dry wall.
 - b. Ventilation of construction areas to create negative pressure: The use of fans and negative pressure machines can contain airborne materials to the construction zone. Exhaust of airborne materials to the outside of the building must be done carefully so that it doesn't affect individuals in the same building or in adjacent buildings. The contained area shall be kept under negative pressure relative to the surrounding areas. A minimum of -.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the work area as evidenced by manometer measurements provided by the contractor on a continuous basis.
 - c. Air Quality Assurance: Employ local exhaust when dust, hazardous vapors, fumes, or gases are generated. If local exhaust is not feasible, portable air cleaning devices (such as the use of HEPA-filtration) may be used. Minimize dust generation by using wet methods for cutting or sanding.
 - d. Scheduling the use of hazardous and irritating materials: Work planning must include the scheduling of material use that creates hazardous or irritating conditions to times when buildings are less occupied (evening, nights, holidays, and weekends). This includes the spraying of external building materials, such as sealants.
 - e. Notification for use of solvent-based materials: Notification must be made prior to the use of solvent-based paints, (including electrostatic painting) cleaning materials, and other solvent-based products. A permit for the use of solvent-based materials must be approved by the Department of Environmental Health and Safety prior to the use of these materials.

- f. Use safer, low-emitting materials: Many paints and other building materials are available with safer or non-solvent formulations.
- B. Exterior Work: Direct exhaust from equipment away from building air intakes.
- a. Use or application of chemical/odorous materials shall be located at least 25 feet away from all outside air intakes (if feasible).
 - b. When work including chemical/odorous materials must be done at or near air intakes, outside air intake should be minimized or the task should be performed when the building is not occupied (such as evenings or weekends).
 - c. Locate dumpsters for debris away from operating HVAC outdoor air intakes and exterior doors to occupied areas where possible
 - d. For long-term projects that use chemicals or produce combustion exhaust near air intakes, install charcoal filters in the air handling units serving the occupied space of the building.
- C. Provide a thorough cleaning of any surfaces that become exposed to dust.
- D. Removal of water-saturated construction materials: promptly remove and dispose of material saturated with water as a result of construction activity or leakage within the project area. Failure to comply will result in the contractor being held liable by Indiana University for any required mold abatement.

3.2 ENFORCEMENT

- A. In the event that the contractor fails, in the owner's opinion, to comply with this specification, the owner shall have the right to stop work on the project and correct any and all deficiencies at the expense of the contractor.