

Combustible Dust Prevention Procedure

1. PURPOSE

The presence of dust or lint presents a potential explosion and fire hazard. If dust is suspended in air in the right concentration, under certain conditions, it can become explosible. This document establishes requirements and procedures to control combustible dust accumulation through routine housekeeping, preventive maintenance, and special cleaning.

2. SCOPE

This procedure establishes housekeeping, preventive maintenance, and training requirements for University of Notre Dame facilities that produce combustible dust or lint. Appendix A lists these areas.

3. DEFINITIONS

- 3.1. **Combustible dust:** Any combustible solid material that presents a fire or explosion hazard when suspended in air.
- 3.2. **Explosible:** Capable of being exploded.
- 3.3. **Housekeeping:** Routine cleaning and organizing of the workplace.
- 3.4. **Intrinsically Safe:** Equipment and wiring which is incapable of releasing sufficient electrical or thermal energy to cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration.
- 3.5. **Job Hazard Analysis (JHA):** Technique that focuses on job tasks as a way to identify hazards before they occur. It focuses on the relationship between worker, task, tools and work environment. After identification of uncontrolled hazards, steps are taken to eliminate or reduce them to an acceptable risk level.
- 3.6. **Lint:** Short, fine fibers that separate from the surface of cloth or yarn, especially during processing. For this procedure, lint is considered a form of combustible dust.
- 3.7. **Personal Protective Equipment (PPE):** Equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses.
- 3.8. **Preventive maintenance:** Maintenance that is regularly performed on a piece of equipment to lessen the likelihood of it failing.

4. RESPONSIBILITIES

- 4.1. The Risk Management & Safety Department (RMS) shall:
 - 4.1.1. Coordinate necessary sample collection and testing.
 - 4.1.2. Assist departments in developing a housekeeping procedure.
 - 4.1.3. Develop training for affected employees.
 - 4.1.4. Review and, if necessary, revise the Combustible Dust Prevention Procedure once every three years.

- 4.2. Departments with combustible dust shall:

- 4.2.1. Assess facilities to identify and map hazard areas.
- 4.2.2. Develop a plan to alleviate combustible dust accumulation through controls and cleaning measures.
- 4.2.3. Maintain equipment to limit the generation and escape of excess dust.
- 4.2.4. Conduct routine facility inspections to evaluate dust buildup and effectiveness of controls. These inspections can be part of department's quarterly safety inspections.
- 4.2.5. Provide tools and personal protective equipment (PPE) needed to perform cleaning tasks.
- 4.2.6. Ensure all employees complete combustible dust training.

5. REQUIREMENTS

- 5.1. Dust accumulates on horizontal building and equipment surfaces inside facilities. The most effective way of reducing combustible dust hazards is to prevent its buildup.
- 5.2. Departments that have dust shall:
 - 5.2.1. Assess their facilities to identify where hazards are present.
 - 5.2.2. Establish a site-specific schedule based on their equipment and operations.
 - 5.2.3. Train their employees appropriately to perform required cleaning.
 - 5.2.4. Develop a written housekeeping plan to address and eliminate dust buildup (see example in Appendix B). The plan shall:
 - 5.2.4.1. Include a facility diagram to depict hazard areas.
 - 5.2.4.2. Define housekeeping cycles within the facility to ensure that dust accumulation does not exceed 1/32" (approximate thickness of a paperclip).
 - 5.2.4.3. Assign responsibility for cleaning specific areas to employees. This may include sweeping, dusting, and if necessary, mopping, etc. Any cleaning done at heights (using ladders, lifts, etc.) shall only be performed by employees that have completed required safety training.
 - 5.2.5. Ensure that electrical panels, junction boxes and fittings are free of excessive dust.
 - 5.2.6. Adjust the cleaning schedule as necessary to ensure compliance with the dust accumulation limits of 1/32".
 - 5.2.7. Provide proper cleaning tools and ensure they are kept in working condition. In hazardous (classified) locations, all tools (vacuum, powered hand tools) or other equipment (hammers, screwdrivers, wrenches) shall meet area's electrical classification. When worn out, tools shall be replaced immediately.
 - 5.2.8. Conduct a [JHA](#) to identify hazards and controls.
 - 5.2.9. Conduct a [PPE assessment](#) to determine the necessary protective equipment. PPE shall be available and provided to all employees assigned to perform cleaning tasks and to others who may be in the area where accumulated dust is disturbed.
 - 5.2.9.1. At a minimum, employees shall wear safety glasses or goggles.
 - 5.2.9.2. Employees may choose to wear nuisance dust masks. Employees who choose to use nuisance dust masks shall have a signed [Appendix D Voluntary Respirator Use Form](#) on file.

5.2.10. Compressed air shall not be used for cleaning. Compressed air can create a dust cloud thus increasing the risk of a fire/explosion.

6. INSPECTIONS AND EQUIPMENT MAINTENANCE

- 6.1. Develop an inspection schedule. The schedule shall address:
 - 6.1.1. Dust producing equipment.
 - 6.1.2. Dust collecting equipment.
 - 6.1.3. Interior surfaces (exhaust ductwork, vents, etc.) cleaning.
 - 6.1.4. Areas where dust routinely collects (horizontal surfaces, beams, etc).
- 6.2. Maintain dust producing and collecting equipment to limit the generation and escape of dust during operation.
- 6.3. Maintain proper seals on collection screens or containers.

7. TRAINING

- 7.1. All employees exposed to areas with combustible dust shall complete the following training:
 - 7.1.1. Combustible dust. (*RMS - Combustible Dust Training for St. Michael's Laundry*). Complete training initially and then once every three years.
 - 7.1.2. Personal protective equipment (*RMS – Personal Protective Equipment Fundamentals Training*). Complete training annually.
- 7.2. Employees working at heights (ladders, lifts) to clean shall complete the following training initially and every three years thereafter:
 - 7.2.1. Ladder safety (*RMS-Ladder Safety Course-2015*).
 - 7.2.2. Fall protection (*RMS Fall Protection Safety Training*).
 - 7.2.3. Aerial Lift (*schedule hands-on training with RMS*).

8. PROGRAM EVALUATION

- 8.1. RMS shall review the Combustible Dust Prevention and Housekeeping Procedure once every three years and update the document as necessary.

9. RESOURCES

- 9.1. NFPA 654: Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids

Revision Log

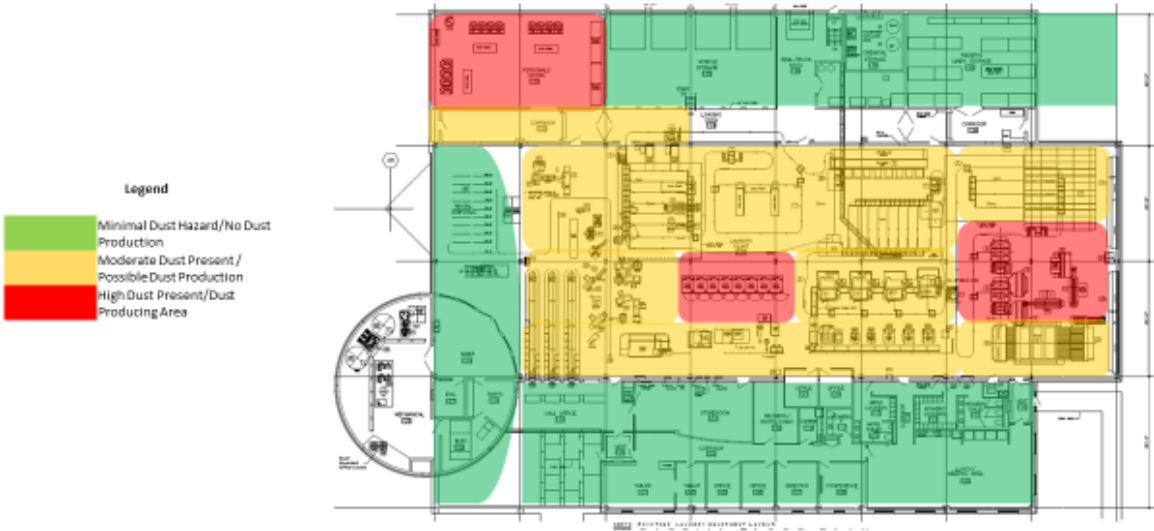
History	Effective Date
Combustible Dust Prevention Procedure developed	January 2021

Appendix A
Hazardous (Classified) Areas

Building	Location	Hazard
St. Michael's Laundry	Production area	Lint

Appendix B
Example Cleaning Plan




Dust Hazard Map





Cleaning Schedule

Dust Control Cleaning Schedule				
Item/Equipment	Location	Equipment Needed	Who Conducts	Comments
Daily Checks				
Floors	Production areas	Push broom, mop	Operators	
Ironers	Production areas	Duster	Operators	
Weekly Checks				
Tops of Dryers	Production areas	N/A	Operators	
Tops of Ironers	Production areas	N/A	Operators	
Laundry Racks	Storage areas	Ladder	Maintenance Techs	
Monthly Checks				
Horizontal Beams	Beams in areas 2 & 3	Manlift w/ harness & lanyard	Maintenance Techs	
Lint scrubber	Above ironing area	Manlift w/ harness & lanyard	Maintenance Techs	
Exhaust vent hoses	All dryers	N/A	Maintenance Techs	
Laundry conveyer rails	Production area	N/A	Maintenance Techs	Visually inspect rails/controls
Quarterly Checks				
Dryer Ducts		Flashlight, screwdriver	Maintenance Techs	
Horizontal Beams	Beams in areas 2 & 3	Manlift w/ harness & lanyard	Maintenance Techs	
Electrical Panels/Outlets	Production areas	N/A	Maintenance Techs	

Equipment Needed:

Item	Picture
Safety Glasses	
Lint Brush	
Bent Telescoping Lint Brush 8' Reach	

Item	Picture
Pipe Brush Duster	
Telescoping Industrial Lint Brush	
Intrinsically Safe Vacuum	