



Dan Black Hall Safe Work Practices

HVAC/Fume Hood System

Introduction

One hundred thirty fume hoods in Dan Black Hall (DBH) interconnect with sixteen exhaust fans to remove airborne contaminants from the labs. The airstream leads into nine plenums on the roof, then through the roof stack, and into the atmosphere at sufficient velocity (1,700 linear feet per minute) so that the contaminants do not affect the roof or the campus buildings. The system includes HEPA and carbon filters to remove particulates and organic vapor contaminants before they are released to the atmosphere. An alarm rings at Central Plant for each exhaust fan failure and rings locally for each hood failure. Failure of these systems could expose lab and building occupants to the hazardous materials used there.

Working on the roof does not involve any special work precautions, but working on the exhaust system and exposure to the exhaust airflow does. Failure of the various exhaust systems triggers certain procedures to ensure the safety of building occupants and staff maintaining the system. The possible presence of toxic and/or corrosive material from the research and teaching fume hoods requires the following procedures to ensure protection of staff working in DBH or on the exhaust system and entering the plenums.

General Procedures

EHIS recommends that Plant workers and contractors take the following precautions to prevent exposure to general contaminants during the course of their workday:

1. Leave work clothing, work uniform, and safety shoes at work or have them laundered professionally so that contaminants are not taken home at the end of the work day.
2. Absent a uniform/laundry policy, wear disposable coveralls, shoe coverings, and gloves during routine tasks to prevent exposure and transport of contaminants home.
3. Wash general contaminants from the hands, hair, and body to prevent exposure and transport of contaminants home.

Procedures for Exposure to Exhaust Airflow

Chemical use at the fume hoods leading to the ducts varies, so a well defined hazard does not exist. Staff working on the exhaust system or exposed to air leaks in an exhaust duct should avoid exposure to the exhaust airstream and ensure that hoods are inactivated during maintenance operations where exposure may occur. Use the following procedures:

1. Use the general precautions listed above to prevent contact with contaminants.

2. Wear full face-piece respirators with disposable cartridge filters (acid gas, organic vapor, and HEPA filter) to prevent inhalation of contaminants and eye exposure.
3. Contact EHIS for approval of work procedures before entering DBH exhaust plenums.

Entry to DBH Fume Hood Exhaust Plenums

1. Contact EHIS (x7233) for approval and preliminary air monitoring or a safety assessment prior to each entry of the exhaust plenums.
2. Hold a pre-entry meeting with EHIS staff and entry personnel to define the activity and the amount of time spent in the plenums. When conditions change, discuss entry procedure modifications with EHIS staff and entry personnel.
3. EHIS staff has the keys to the plenum padlocks and must escort staff to these areas.
4. Treat the plenums as permit required confined spaces; use a buddy system to enter the plenums; and maintain communication with staff stationed outside of plenum.
5. At minimum, wear Tyvek suits, gloves, and full face-piece respirator with multi-gas cartridges covering organic vapors/acid gases, and fine particulates (HEPA).
6. Use flashlights or lighting since no lights are present in the plenums.
7. The plenum door must be closed after entry and during occupancy of the plenum to maintain exhaust. The exhaust fans are not turned off during the entry.
8. Lock the plenum doors with the padlocks after the work is completed and notify EHIS that the job is complete.

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