

Health Concerns: Roofing Projects

Background and Health Hazards of Asphalt

Roofing repairs and re-roofing of University buildings is a necessary part of building preservation. This work is also vital to stop water damage and potential mould growth within buildings.

Roofing asphalt is a petroleum-based product. It is not a single chemical, but a mixture containing many different chemicals. During roofing projects, asphalt is heated in roofing kettles which generate odours from fume and vapour emissions. Due to the low odour threshold of the sulfur compounds in asphalt, odours can, at times, be very strong.

Short-term Effects

Roofing asphalt fumes and vapours can cause headaches, dizziness, nausea and lung irritation. They may also irritate the skin, eyes, nose and throat. These effects are usually mild and temporary. Although building occupants may experience discomfort, the fumes and vapours generally do not pose a health hazard. Symptoms should resolve within hours after exposure to the odour has ended.

Individuals with Medical Conditions

However, some individuals with medical conditions, especially respiratory conditions, may have their conditions aggravated by roofing asphalt fumes. These individuals should avoid inhaling roofing asphalt emissions and review with their supervisor any accommodations required in their work schedule or location.

Hydrogen Sulfide Gas

Hydrogen sulfide is a by-product of the heating process of asphalt. Only levels inside an enclosed roofing kettle may be high enough to pose a serious health threat.

Building Occupant Exposure

While roofing workers may be exposed to asphalt fume and vapour emissions at a significant level, building occupants should not have significant exposures.

In Ontario, the American Conference of Governmental Industrial Hygienists (ACGIH) occupational exposure limit over an 8-hour workday and 40-hour work week has a Threshold Limit Value (TLV) of 0.5 mg/m³ (2008). This is the limit under which workers exposed are not expected to experience adverse health effects. The exposure of building occupants is generally accepted to be significantly below the TLV, even though odours may be strong. Long-term health effects in building occupants are not anticipated. Some studies have shown a higher incidence of certain cancers in asphalt workers, however asphalt fume and vapour emissions are not classified as a human carcinogen.

Methods to Reduce Odours during Roofing Projects:

Procedures are followed by Physical Plant Services to minimize the infiltration of fumes and vapour emissions into buildings.



June 2, 2009

HEALTH AND SAFETY BULLETIN

These include:

- Using roofing kettles with after burners;
- Locating roofing kettles away from and downwind of building air intakes;
- If roofing kettles cannot be moved away from air intakes, air intakes are closed and sealed;
- Adjusting building ventilation systems according to roofing activity; and
- Selecting appropriate roofing materials

Building occupants should be notified prior to the commencement of roofing projects. Occupants with known respiratory conditions should consider relocation during roofing activities and should consult their physician if they experience adverse health effects.

Windows downwind from roofing kettles should be kept closed while roofing work is occurring.

If there are window air conditioners in the building, set the air conditioner to recirculate air. Do not draw outside air into the building, as this will introduce odours into the building.

Addressing Concerns during Roofing Projects:

During a building roofing project, resolution of concerns is facilitated by a Department/Faculty designating a contact person such as an administrative assistant or health and safety officer to receive concerns from building occupants. The contact person then addresses concerns directly with Physical Plant Services.

Information about roofing concerns is forwarded to the appropriate Physical Plant Services Area Manager or Project Manager.

If you have immediate concerns relating to roofing projects including:

- Unusual amounts of fumes/smoke entering building or
- Unsafe conditions such as blocked exits or construction debris.

Notify your Department/Faculty contact person (if designated) or Physical Plant Services (Fix-it Desk) at extension 77301.

If you require further information regarding asphalt materials used in a roofing project, contact the Department of Environmental Health & Safety at safety@queensu.ca or call extension 32999.

If you require accommodation, notify your supervisor.