

3.2.7 FUME DISCHARGE

3.2.7.1 GENERAL. The desirable objective is to ensure that a minimum amount of pollutants is discharged to the atmosphere. Pollutants should be collected for safe disposal rather than be dispersed into the atmosphere. Health risk and environmental impact shall be minimized by appropriate fume discharge arrangements which incorporate the recommendations and requirements of Clauses 3.2.7.2 to 3.2.7.8.

3.2.7.2 REDUCTION OF DISCHARGE OF FUME. All operations within a fume cupboard shall be designed and carried out to minimize emission of fume at source by controlling the types, quantities and release rates of materials used in the fume cupboard.

3.2.7.3 DISCHARGE OF CONTAMINANTS. Exhaust fumes discharged shall not contain contaminants in excess of levels specified by the appropriate regulatory authority.

3.2.7.4 OCCUPATIONAL EXPOSURE. Persons shall not be exposed to contaminants from fumes re-entering the building of origin or entering nearby buildings or occupied sites in concentrations exceeding the air quality requirements appropriate for those occupied areas.

NOTES:

1. National guidelines on controlling the emission of air pollutants are available from the National Health and Medical Research Council (NH & MRC)* and Exposure Standards from atmospheric contaminants in the occupational environment are available from WORKSAFE AUSTRALIA. Air quality goals for the environment are being developed by the NH & MRC. Specialist advice may be necessary in the interpretation of the above.
2. Lower levels of exposure to contaminants may apply to members of the public residing in nearby houses or flats, where permissible concentrations are reduced by a factor of 50 for 168 hours per week occupancy. Still lower concentration may apply to hospitals where patients are in a compromised state of health.

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL. National guidelines for control of emission of air pollutants from new stationary sources.

Recommended methods for monitoring air pollutants in the environment,

Canberra: Australian Government Publishing Service 1986.

WORKSAFE AUSTRALIA. Exposure standards for atmospheric contaminants in the occupational environment, Canberra: Australian Government Publishing Service, May 1990.

3.2.7.5 DISCHARGE VELOCITY. The fume discharge should be at a minimum velocity of 10 m/s to minimize downwash on the leeward side of the stack for wind velocities below 5 m/s.

NOTE:

The regulatory authorities may require that specific stack discharge velocities are met.

3.2.7.6 HEIGHT AND LOCATION OF DISCHARGE POINT. The point of discharge should be above the aerodynamic wake of the building and shall be vertically upward, located as remote from air intakes as possible and in accordance with AS 1668.2.

1. The simple provision of an exhaust stack of 3 m height, without other measures of fume treatment, and the use of tracer gas or modelling studies may not ensure that the exhaust is discharged in a satisfactory manner.
2. The aerodynamic wake typically extends to at least 125% of the building height above the ground.

3.2.7.7 AIR CLEANING DEVICES. the use of air cleaning devices is recommended where a single or a narrow range of contaminants is envisaged. Where incompatible contaminants may be released, the possibility of reactions between contaminants within the air cleaning device and the exhaust system should be taken into account and possible changes in the efficiency of such devices should be assessed.

3.2.7.8 Trapped Contaminants. Trapped contaminants in a fume disposal system shall be disposed safely.