

Guidance: Part 4

Physical/Engineering Controls

These are always the first means of control that should be considered, after **elimination** of the hazard or **substitution** for something less hazardous, as they are considered to be the most effective controls and don't rely on users. They give priority to measures that protect the whole area and all that use it rather than the individual, by measures such as enclosure of a process rather than providing personal protective equipment.

Some examples of these measures are:

For reduction of exposure to substances; containment, general exhaust ventilation, local exhaust ventilation (LEV) such as fume cupboards and ventilated benches, sticky mats, antistatic measures (including water spray or mist). Also, exposure can be reduced by using the minimum amounts or lowest concentrations of materials, and, in the case of radiations, by using time, distance and shielding to reduce dose.

To protect against physical hazards, interlocks and captive keys on access points to safety enclosures and fixed, moveable or interlocked guards and barriers on or around machinery, etc., to avoid injury from entanglement and rotating, nipping or crushing components, or ejection of debris.

When working at height, fall protection such as guard rails and fall arrest measures (safety harnesses, lifelines, safety nets) should be used.

Noise protection can be achieved by use of quieter tools, vibration isolation or dampers on machinery, acoustic tiles, disrupting the noise path by using barriers or sound insulation around the equipment, and noise havens.

The risk of workplace **violence** can be reduced through physical design of the workplace, access controls or by cameras.

If engineering controls are used, they should comply with appropriate standards and be appropriately checked and maintained.