



The hierarchy of controls is the order you work through when you choose controls: **eliminate, substitute, engineer, administer, then protect**. Start at the top, move down only when a level isn't reasonably practicable, and combine controls where one isn't enough. Use this checklist with the Calgary Safety Consultants Control Selection Worksheet.

THE FIVE LEVELS: MOST EFFECTIVE TO LEAST EFFECTIVE

1. Elimination

Remove the hazard completely.

2. Substitution

Use something less hazardous.

3. Engineering

Isolate people with guards, ventilation, barriers.

4. Administrative

Procedures, permits, training, scheduling.

5. PPE

Protect the worker with equipment.

Define the hazard and rate it first

- ☐ The hazard is a specific statement of what could go wrong, for whom, during which task, such as "solvent vapour from hand-wiping parts in an open tray," not just "chemicals."
- ☐ The energy source is named: gravity, motion, mechanical, electrical, pressure, temperature, radiation, sound, chemical, biological, ergonomic or psychosocial.
- ☐ **Initial risk is rated before any controls** (Likelihood x Severity = Risk).

Work down from the top

- ☐ **Elimination** was considered first: can the task, material or hazard be removed, or the work done another way?
- ☐ **Substitution** was considered, and any substitute's hazards were checked on its safety data sheet before switching.
- ☐ **Engineering controls** were considered: guarding, interlocks, ventilation, barriers, enclosures, guardrails, mechanical aids.
- ☐ **Administrative controls** support the higher controls: written procedures, permits, training, scheduling, supervision. "Be careful" isn't listed as a control.
- ☐ **PPE** is chosen for the hazard and is fitted, trained, maintained and supervised, and it isn't the only control for a serious hazard unless higher levels aren't practicable.
- ☐ The reasons higher-level controls weren't reasonably practicable are written down, and the workers who do the task helped choose the controls.

WORKSHEET RISK BANDS (USE YOUR APPROVED METHOD IF YOU HAVE ONE)

LOW 1 to 4

Maintain controls and monitor.

MODERATE 5 to 9

Improve controls where practicable; supervisor review.

HIGH 10 to 16

Additional controls required before work begins.

EXTREME 17 to 25

Do not proceed until the risk is reduced.

Why the order matters. Elimination, substitution and engineering controls act on the hazard itself and keep working whether or not anyone remembers them. Administrative controls and PPE act on people, so they depend on everyone doing the right thing, every time. Most jobs need controls from more than one level.



Check the result

- ☐ Residual risk is re-rated with the controls in place, and nothing is left high or extreme. If it is, go back up the hierarchy or change the job.
- ☐ New hazards created by the controls are assessed, such as a substitute chemical's hazards, a pinch point, a blocked exit or heat stress under PPE.
- ☐ Each control has a person responsible and a target date.

Verify and keep checking

- ☐ Every control is confirmed in place before work starts, not just written down.
- ☐ Engineering controls are on an inspection and maintenance schedule, with records.
- ☐ Monitoring is done where the hazard can be measured, such as noise levels, air sampling and ventilation flow.
- ☐ Supervisors observe that controls are used as intended, and workers are asked whether the controls get in the way of the work.
- ☐ Critical controls for hazards that could kill or seriously injure someone are checked at the start of each job or shift.
- ☐ Controls are reviewed when the work, equipment, materials or people change, after an incident or near miss, when inspections or monitoring find a problem, and on schedule.

Red flags to avoid

- ☐ Our assessments don't end every hazard with PPE and training.
- ☐ No assessment lists awareness, such as "be careful" or "stay alert," as the control for a serious hazard.
- ☐ Every assessment shows the initial risk as well as the residual risk.
- ☐ Incident corrective actions go beyond "retrain the worker" when a higher control was available.

What's reasonably practicable? Weigh how severe and likely the harm is, what's known about the hazard and its controls, whether a control is available and suitable, and whether the cost is reasonable compared with the risk. Cost counts, but a control is generally expected unless its cost is clearly out of proportion to the risk. The more serious the hazard, the more you're expected to do.

Need help choosing controls? Calgary Safety Consultants helps employers with hazard assessments, JHAs, safe work procedures and audit preparation. Read the full guide at calgarysafetyconsultants.ca/safety-guides/hazard-management/hierarchy-of-controls/ or call 1-888-231-0358.