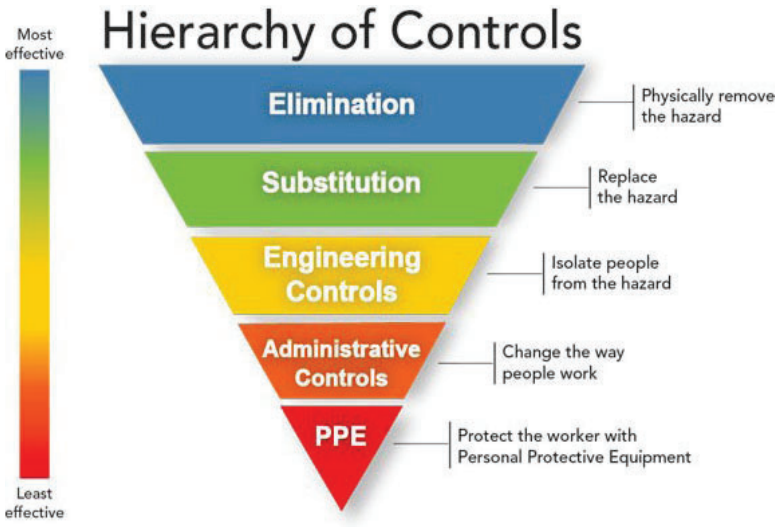
Identifying Hazard Control Options: The Hierarchy of Controls

What Is the Hierarchy of Controls?

The hierarchy of controls is a method of identifying and ranking safeguards to protect workers from hazards. They are arranged from the most to least effective and include elimination, substitution, engineering controls, administrative controls and personal protective equipment.

Often, you'll need to combine control methods to best protect workers. For example, a local exhaust system (an engineering control) requires training, periodic inspections, and preventive maintenance (administrative controls). You will also need to consider feasibility. (See "What Are Feasible Controls?" on page 2.)



Source: NIOSH.

Elimination

Elimination makes sure the hazard **no longer exists**. Examples:

- Ending the use of a hazardous material
- Doing work at ground level rather than at heights
- Stopping the use of noisy processes

Substitution

Substitution means changing out a **material** or **process** to reduce the hazard. Examples:

- Switching to a less hazardous material
- Switching to a process that uses less force, speed, temperature, or electrical current

Engineering Controls

Engineering controls reduce exposure by **preventing hazards from coming into contact with workers.** They still allow workers to do their jobs, though. Examples:

- Noise enclosures
- Local exhaust ventilation
- Guardrail system
- Machine guards
- Interlocks
- Lift equipment

Administrative Controls

Administrative controls change the way work is done or **give workers more information by providing workers** with relevant procedures, training, or warnings. They're often used together with higher-level controls. They include:

- **Procedures**, such as equipment inspections, planned preventive maintenance, checklists, lockout/tagout/tryout, infection prevention and control practices, changing work schedules, pre- and post-task reviews, and rotation of workers
- **Training** on topics such as hazard communication, permit-required confined space entry, lockout/tagout/tryout, and safe work procedures
- **Warnings,** such as signs, backup alarms, smoke detectors, computer messages, mirrors, horns, labels, and instructions

Personal Protective Equipment

Personal protective equipment (PPE) includes clothing and devices to protect workers. PPE needs constant effort and attention (including proper use and training) from workers. Higher-level controls aren't always feasible, and PPE might be needed in conjunction with other control measures. Examples:

- Safety glasses
- Personal Fall Protection Systems and related equipment
- Hardhats
- Respirators
- Hearing protection
- Protective clothing

What Are Feasible Controls?

To decide if a control is feasible, you need to know how well it can protect workers and whether it can be implemented successfully. Consider whether it is:

- Right for the hazard
- Appropriate, given how likely injuries/illnesses are
- Consistent with employer policies, laws, and regulations
- Not too burdensome to workers
- Recognized as an appropriate practice in the industry
- Effective, reliable, and durable
- Readily available
- Cost-effective, short- and long-term

How Can You Use the Hierarchy of Controls?

First you will need to identify the hazard(s) you are trying to control with workers and their representatives' participation.

Then, think about how you can block the path between the worker and the hazard. Brainstorm ways the hazard can be eliminated, substituted, engineered out, administratively controlled, or what PPE can be used with other controls. Ask yourself:

- What are the pros and cons of each method?
- Are the controls feasible in our workplace? Why or why not?
- Where do the feasible controls fall in the hierarchy?