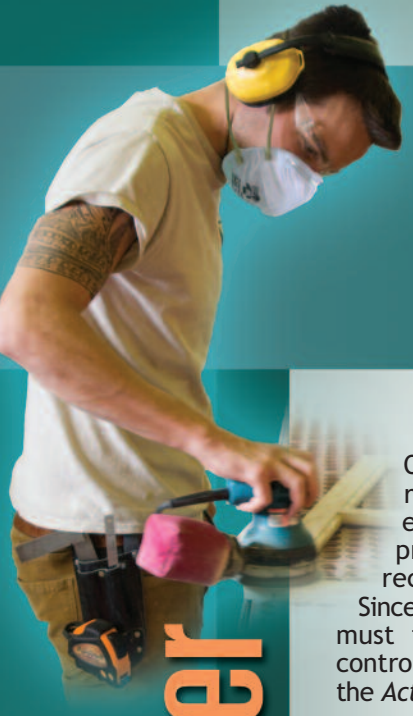

Risks of exposure to HAND-ARM SYSTEM *vibrations*

checklist • Employer

Quebec occupational health and safety regulations do not set standards for vibration exposure. However, the European guidelines provide best practices in the field and these recommendations are derived from them. Since vibrations represent a health risk, employers must take measures to identify, correct and control the risks, in compliance with section 51 of the *Act respecting occupational health and safety.*

Here are a few points to consider when identifying potential hazards in the workplace. The risk to the health of your workers will increase with exposure to vibrations (equipment operating time) and in situations with aggravating factors.

IF YOUR WORKERS USE VIBRATING OR PERCUSSIVE TOOLS, INCLUDING

- ☐ Chain or gang saw
- ☐ Brush cutter
- ☐ Grinder, sander
- ☐ Nail gun, riveter
- ☐ Router
- ☐ Jackhammer (concrete breaker)
- ☐ Perforator
- ☐ Scraper
- ☐ Plate compactor (vibrator-compactor)
- ☐ Percussive tools (e.g.: drill, impact wrench)

IF CRITICAL OPERATING TIMES ARE REACHED

This time varies, depending on the type of tool and its features.
Some indications of daily operating times are listed below.

- ☐ Jackhammer: 15 minutes
- ☐ Orbital sander: 1 hour
- ☐ Chain saw: 1 h 30
- ☐ Angle grinder: 1 h 30
- ☐ Straight grinder: 2 h 30
- ☐ Brush cutter: 3 h 30

IF THE FOLLOWING AGGRAVATING FACTORS ARE PRESENT

- ☐ Presence of cold and humidity
- ☐ Need to apply force to the tool
- ☐ Use of tools at arm's length
- ☐ Use of the tool for any purpose other than that intended by the manufacturer
- ☐ Daily use of vibrating tools

THE SAFETY THRESHOLD FOR VIBRATING TOOLS MAY HAVE BEEN EXCEEDED!

Pour des milieux de travail en santé
Réseau de santé publique en santé au travail

WHAT ARE THE MOST WELL KNOWN HEALTH EFFECTS?

Vibratory syndrome includes three types of hand injuries, which can occur alone or together:

- Nerve: numbness and tingling, clumsiness of small movements
- Musculoskeletal: pain, stiffness, weakness
- Circulatory: white hand disease or Raynaud's phenomenon, ulcers on the fingertips

RECOMMENDATIONS TO ELIMINATE OR REDUCE RISK

ELIMINATE EXPOSURE

- ☐ Consider a different work method without vibrating tools.
- ☐ Devise anti-vibration supports or mounts to isolate workers from vibration sources.

REDUCE EXPOSURE

Purchasing equipment

- ☐ Change tools that show excessive wear.
- ☐ Be informed of vibration levels generated under the intended conditions of use and choose equipment with the lowest possible vibration in its category.
- ☐ Test tools prior to purchase.
- ☐ Select machines or tools according to intended work.
- ☐ Avoid purchasing tools with hand-directed exaust.
- ☐ Choose accessories (e.g.: abrasives, buffer discs) carefully. They must be suitable for the tool and of high quality.
- ☐ Consider the following when purchasing vibratory equipment: weight, shape, ease of use, availability of a restraint system and swivel connection.
- ☐ Pay particular attention to handle design:
  - Choose anti-vibration, sheathed or insulated handles (to prevent hands from coming into direct contact with the metal part of the tool);
  - Consider the shape (e.g.: natural grip of the hand);
  - Consider comfort (e.g.: diameter of the handle).

Caution! Purchasing anti-vibration gloves is not always the right solution. Gloves rarely reduce exposure to vibration and may even increase it.

Workstation layout

- ☐ Design workstations to minimize hand fatigue and the need for gripping efforts to hold, pull or push vibrating equipment.
- ☐ Ensure workers have an ergonomic work environment to avoid awkward postures (e.g.: height-adjustable tables).
- ☐ Install a counterbalance system (balancer) or suspend tools to support part of their weight.
- ☐ Use quality hoses (flexible and durable) and feed them from the top.

Maintenance

- ☐ Avoid covering vibrating handles with rubber or other elastic material.
- ☐ Ensure that sharp tools are sharpened as recommended by the manufacturer.
- ☐ Lubricate tools as recommended by the manufacturer. A filter/regulator/lubricator (FRL) may also be used.
- ☐ Replace worn parts and adjust engines.
- ☐ Use air tools at recommended air pressure. Follow manufacturer recommendations for hose diameters and lengths, and inspect hose and fittings for wear.
- ☐ Check and correct the balance of the rotating parts.
- ☐ Change accessories (e.g.: grinding wheel, chisel) when they become less efficient.
- ☐ Regularly check anti-vibration devices and replace them if necessary.
- ☐ Reinstall any mufflers removed from the tools.
- ☐ Use tools as purchased, without modifications.

Administrative measures

- ☐ Develop a vibration management action plan.
- ☐ Limit the use of high-vibration tools where possible.
- ☐ When certain equipment requires frequent or continuous use, limit exposure to vibration (e.g.: job rotation).
- ☐ Train workers in the inspection, maintenance and use of vibrating work tools and accessories.
- ☐ Implement a policy for purchasing low vibration tools for replacing equipment and tools.

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For more information, contact your occupational health team:

www.santeautravail.qc.ca