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Asthma in the workplace: Carpentry and joinery: Prevention fact sheet

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ASTHMA IN THE WORKPLACE

CARPENTRY AND JOINERY
PREVENTION FACT SHEET
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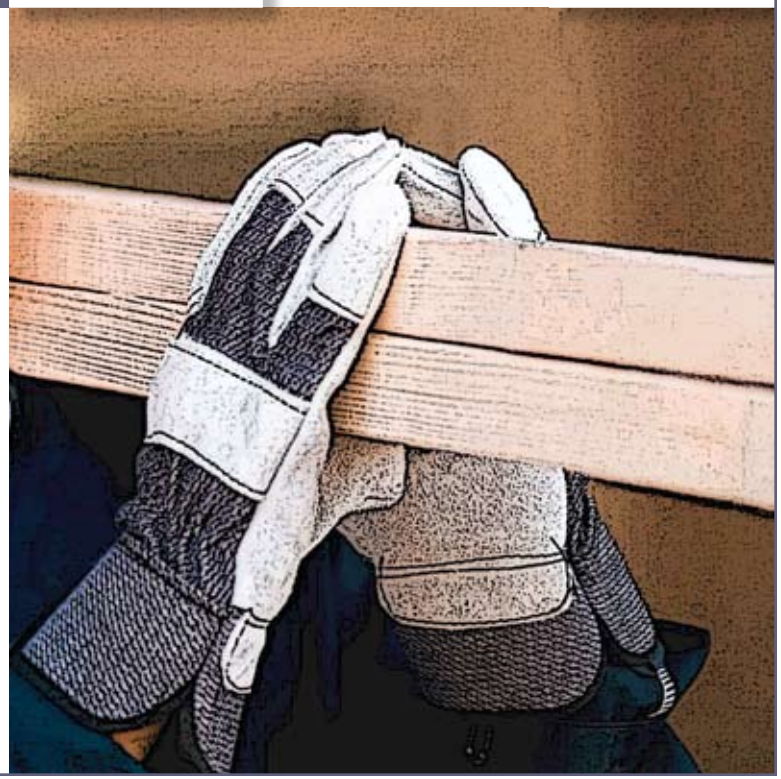

GET THE FACTS

AND WORK SMARTER

If you're in the carpentry or joinery profession, there are health risks you should know about. Getting the facts will help you work smarter and avoid certain practices that could lead to occupational asthma and rhinitis.

Sawdust and vapors from chemical compounds, for instance, are among the main risk factors that can cause or aggravate these respiratory diseases.

READ THE SAFETY DATA-SHEETS FOR THE PRODUCTS YOU USE. MAKE SURE YOU UNDERSTAND WHAT'S IN THEM.

FIND OUT

ABOUT ASTHMA

Asthma is a chronic respiratory disease that makes breathing—especially exhaling—difficult.

Asthma usually results from allergies to certain substances in your environment. Its main symptoms are coughing, shortness of breath, wheezing and tightness in the chest. Asthma can also be accompanied by symptoms of rhinitis and conjunctivitis.

Asthma in the workplace can be:

- Caused by exposure to allergenic or irritant substances found in the learning or work environment; or
- Aggravated in somebody who is already asthmatic by these irritant substances or physical factors (e.g., extreme ambient temperatures).

In both cases, the symptoms get worse when the person performs training or work-related tasks that carry a risk of exposure. They decrease or disappear outside the learning or work environment.

ABOUT RHINITIS

Rhinitis is a respiratory disease that causes inflammation of the mucous membranes in the nose, stuffy nose, runny nose and eyes, and sneezing.

UNDERSTAND

THE RISK FACTORS

As a carpentry or joinery student, you perform very similar tasks to those performed on a construction site. The commercial products and raw materials you use could cause or aggravate asthma.

Wood, among other materials, is present at almost every stage of a job. It is the main source of dust that irritates or sensitizes the respiratory tract. You could also be exposed to a chemical substance through skin contact.

Products such as glues, stains and solvents release vapors and can lead to a health risk.

IT IS IMPORTANT TO UNDERSTAND WHICH ARE THE HAZARDOUS TASKS AND POTENTIALLY-HARMFUL SUBSTANCES, AND HOW TO CONTROL EXPOSURE.

	Sawing, sanding and machining of wood	Gluing of wood and laminates, application of stain and varnish	Sealing of doors and windows	Installation of gypsum board and sanding of joint compound	Application of polyurethane varnish
					
CHEMICAL HAZARD					
Inhalation of irritant or sensitizing dust	●			●	
Inhalation of irritant or sensitizing vapors		●	●	●	●
Skin contact with irritant or sensitizing substances		●	●	●	●
EXAMPLE OF PRODUCTS					
Exotic wood, structural timber, engineered wood and particleboard	●				
Contact glue		●			
Alkyd stain		●			
All purpose varnish		●			
Silicone sealant			●		
Polyurethane sealant			●		
All purpose sealant			●		
Joint compound (pre-mixed)				●	
Varnish (polyurethane resin)					●
EXAMPLE OF SUBSTANCES					
Wood dust (red cedar, oak, spruce)	●				
Volatile organic compounds (VOCs) (toluene, aliphatic naphtha, hexane and isomers, acetone)		●	●		●
Calcium carbonate				●	
Crystalline silica (quartz)				●	
Isocyanates (TDI, MDI)			●		●
MEANS OF CONTROL					
Substitution		●	●	●	
Capture at source	●	●		●	●
General ventilation	●	●	●	●	●
Respiratory protection	●	●	●	●	●
Skin protection		●	●	●	●

Informing and training students, apprentices and employees on the risks of exposure to substances in their learning or work environment, the sources of emission, the most hazardous tasks, methods of control (including work practices and methods) and personal protective equipment are key to controlling exposure.

PROTECT
YOURSELF RESPONSIBLY

Protecting your respiratory tract

Use a respirator if you cannot control exposure any other way.

The N95 filtering half-facepiece respirator is recommended to protect against dust. You could also use other respirators, depending on the intensity of exposure, the nature of the task and the degree of effort. For example, wearing a half-facepiece with organic vapor filter cartridges would be appropriate for sporadic exposure to isocyanates, without spraying. If the exposure is continual or involves spraying, a supplied-air respirator is necessary to provide greater protection.

All respirators have a protection factor (PF) that indicates how effective they are and that reflects the theoretical concentration of the contaminant in the environment compared to that inside the mask. So, a factor of 10 indicates that the concentration inside the respirator is 10 times less than that in the learning or work environment.

For a respirator to offer appropriate protection against a particular substance, you have to look at the permissible exposure value (PEV) for that substance, as stated in the Regulation on occupational health and safety (ROHS).

The teaching institution must also set up a training program so that apprentices know how to use a respirator, its limitations and maintenance, and arrange for a personal fitting to adjust the respirator in accordance with the regulations in Quebec.[1]

A surgical mask is not a respirator

Unlike the N95 filtering half-facepiece respirator, a surgical mask is not designed to filter dust. It is not effective or airtight enough to meet regulations.

Choosing a respirator to suit the intensity of dust and vapor you are exposed to*

Stressor	Intensity	Types of respirators*	PF
Dust	Under 10 times the PEV	N95 filtering half-facepiece Half-facepiece with N95, P95 or P100 filter cartridges	10
	Over 10 times the PEV	Full-facepiece with N95, P95 or P100 filter cartridges Powered air-purifying respirator (PAPR) with HEPA filter cartridges	100
Volatile organic compounds (organic solvents, contact glues, stains)	Under 10 times the PEV	Half-facepiece with organic vapor filter cartridges Full-facepiece with organic vapor filter cartridges	10
	Over 10 times the PEV	Powered air-purifying respirator (PAPR) with organic vapor filter cartridges	100
Isocyanates	Sporadic exposure, no spraying	Half-facepiece with organic vapour filter cartridges	10
	Continual exposure or exposure to spraying	Full-facepiece with supplied air	100

* These recommendations do not apply to all work situations. You must check the respirator's efficiency with the manufacturer or with the person responsible for the respiratory health program.

Protecting your skin

As you go about your training or professional work in carpentry or joinery, irritant or sensitizing substances (such as hexane, acetone, toluene, isocyanates, etc.) may contact your skin. Wearing nitrile gloves will reduce this type of risk. However, they are only appropriate for some mixes. So, it is important to check how effective your choice of protection is with the manufacturer before adopting it.

[1] www.irsst.qc.ca/fr/_publicationirsst_862.html

CONTROL

THE RISK TO YOUR HEALTH

Substitute products

First, consider replacing a potentially harmful product with one that reduces or eliminates the risk.

Some examples are:

- Replace a glue or a sealant containing a high concentration of volatile organic compounds with products that have a low concentration;
- Use woods that contain non-allergenic acids.

Work practices

Good work practices and habits can prevent exposure or help to reduce the duration and intensity of exposure. Some examples are:

- Never use an air jet to clean surfaces;
- Stay away from the source of the contaminant and its trajectory.

On a construction site, workers are exposed to carbon monoxide (CO) from motorized equipment, lift trucks or propane heating systems. Refer to the CSST brochure "Il y a un danger dans l'air : contrôlez le CO !" (2006).

Capture at source

This reduces exposure to the sawdust generated by equipment. It protects you and the people near your workstation.

Choose small tools equipped with an exhaust system for sawing and machining wood. Use a hand-sanding and pole-sanding vacuum control system to sand joint compound. Perform intensive and prolonged tasks involving a high solvent-containing adhesive under an exhaust hood.

Ventilation

General, natural or mechanical ventilation reduces the ambient level of substances and so reduces direct and secondary exposure to allergenic substances associated with hazardous tasks.

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BE INFORMED—BE CAREFUL

Other health and safety risks related to the carpentry or joinery profession*

Category	Risk	Methods of control	Information
Ergonomics	Back loading	Modify the task or work station Warm up muscles before work Adapt physical conditioning to the task Adopt a suitable work posture Use a hook with handle to transport panels (plywood, gypsum board)	CSST IRSST ASP Construction
Safety	Work on an elevated scaffold or catwalk, a roof or in a boom lift Use of machines	Install safety barriers, platforms Wear a harness, guard and/or protective device Perform lockout procedures	ASP-Construction CSST IRSST
Physical	Noise Electricity	Wear ear-plugs and ear muffs Adopt a procedure for working near power lines. Install a device on the equipment	ASP-Construction CSST
Chemical	Chemical asbestos (demolition) Lead (demolition)	Adopt a procedure for working in the presence of asbestos, respiratory protection Adopt a procedure for working in the presence of lead, respiratory protection	ASP-Construction CSST

* This list is not exhaustive and does not apply to all workplaces.

TO LEARN MORE

Guide d'utilisation d'une fiche signalétique, CSST
http://www.csst.qc.ca/portail/fr/publications/DC_200_338_5.htm
Asthme CSST
http://www.asthme.csst.qc.ca/
IRSST
http://www.irsst.qc.ca
REPTOX
http://www.reptox.csst.qc.ca/
ASP-Construction
www.inrs.fr/htm/tc87.pdf
Québec Lung Association
http://www.pq.lung.ca
Center for Asthma in the Workplace
http://asthma-workplace.com/en

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Verma D. K. et al. *Current Chemical Exposure Among Ontario Construction Workers.* Applied Occupational Environmental Hygiene, 2003, 18:1031-1047.
Lara, J. and Vennes, M. *Guide pratique de protection respiratoire,* IRSST, R-319, 2002, 56 pages. http://www.irsst.qc.ca/fr/_publicationirsst_862.html

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