

Personal Protective Equipment

Respirator - Respirator Fit Testing

On this page

[What is respirator fit testing?](#)

[Which respirators require fit testing?](#)

[Who can conduct fit testing?](#)

[What needs to be confirmed before fit-testing?](#)

[What is qualitative fit testing?](#)

[What is quantitative fit testing?](#)

[What information should be included on a fit test record?](#)

[How often is fit testing required?](#)

[What are the risks of wearing a mask or respirator that does not fit properly?](#)

[What legislation applies to respirator user screening and medical assessment?](#)

What is respirator fit testing?

Respirator fit testing ensures that the respirator seals effectively against the user's face and that the respirator provides the expected level of protection. Fit testing verifies that the respirator's make, model, and size are providing the user with appropriate protection. Workers should be fit tested before using a respirator at work.

Which respirators require fit testing?

All [respirators](#) that rely on a seal to perform the specified capabilities, which are usually tight-fitting, require a fit test. These respirators can include, but are not limited to:

- Disposable respirator (e.g., N95)
- Half-face respirator
- Full-face respirator
- Self-contained breathing apparatus

Who can conduct fit testing?

Canadian Standards Association Standard Z94.4-18 (R2023) *Selection, Use, and Care of Respirators* requires workers using a respirator to be fit tested. A fit tester must be competent in the applicable fit test method, whether that is qualitative or quantitative fit testing and be able to verify the user's ability to obtain an effective seal. The fit tester must be able to confirm the user's eligibility for wearing a mask, conduct sensitivity screening, interpret screening results, and document findings. For quantitative fit testing, the fit tester must also be able to calibrate the machine and recognize when the machine needs to be calibrated.

Fit test training programs are available; however, there is no specific formal training for fit testing required in occupational health and safety legislation in Canada. Fit testers must be competent, meaning they have the knowledge, training, and experience to conduct fit testing. The manufacturer of fit testing equipment may have guidelines and manufacturer training on the use of their equipment.

The fit tester shall be competent in the applicable fit test methods and be able to verify a user's ability to obtain an effective respirator seal, comfort, and fit for a tight-fitting respirator. The fit tester shall also manage the overall fit testing process, including the transition between sensitivity screening and fit testing where applicable, interpret test results, and document user, respirator, and instrument performance.

What needs to be confirmed before fit-testing?

Before conducting fit testing:

- Medical surveillance must be completed before using a respirator, ensuring the user is physically capable of wearing a respirator safely and performing job functions without risk to their health. Check your jurisdiction's requirements for medical surveillance.
- Workers must be clean-shaven and free from hair that may interfere with the seal of the respirator to the skin of the face or neck. CSA Standard Z94.4-18 (R2023) *Selection, Use, and Care of Respirators* recommends shaving 12 to 24 hours before wearing respirators. Hair growth rate varies greatly from one individual to another.
- The worker should [wear a respirator](#) under the conditions for which a fit test was obtained.
 - For example, if the worker plans to wear dentures while wearing a respirator, the dentures should be worn during the fit test.

What is qualitative fit testing?

A qualitative fit test (QLFT) verifies if the respirator fits the user's face correctly by using a fit testing agent. The user is asked to determine if they can taste or smell the test agent.

Pros:

- Inexpensive test to conduct
- No specialized equipment is required
- Tests can be conducted anywhere

Cons:

- It is a subjective test as it relies on the user's senses
- Cannot be used to test full-face respirators

The testing agent may be accompanied by a [safety data sheet \(SDS\)](#). The SDS will inform users about the product's hazards, safe handling, and emergency measures, as well as advise on the product's recommended use and restrictions. It is important to read and understand the SDS before using the product.

What is quantitative fit testing?

A quantitative fit test (QNFT) uses a machine to measure the efficacy of a respirator's seal to the user's face. The machine measures the particles that leak through the mask as the user performs different activities, such as moving their head and reading out loud.

Pros:

- Accurate and objective test
- Can be used for any tight-fitting respirator, including full-face respirators
- Does not rely on the individual's sense of smell or taste

Cons:

- Requires specialized equipment and the test administrator to be trained on the equipment
 - Test is more expensive
 - The test usually requires a controlled setting
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What information should be included on a fit test record?

It is a good practice for employers to keep a record of the fit testing they have conducted. Workers should also keep a record of their fit testing. A common practice is for the individual being fit tested to be provided with a fit test card. Fit test records should include:

- The date of the fit test
 - The name of the person being fit tested
 - Name of the person conducting the fit test
 - The specific make, model and size of the respirator used during the testing
 - The type of fit test conducted: qualitative or quantitative
 - If qualitative, record the fit testing agent used
 - If quantitative, the technology used to conduct the test
 - Pass or fail criteria
 - List of additional personal protective equipment (PPE) worn during the fit test
 - Restrictions as they relate to facial features, facial hair, facial jewelry, dentures, eyewear or cosmetics
 - Fitting difficulties
 - Workers' competency in inspecting respirators, putting on a respirator and performing a seal check
 - Unsuccessful fit tests, including the cause for failure
 - Fit test machine make, model, maintenance and calibration
 - Result of comfort assessment
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How often is fit testing required?

Fit testing should be repeated every two years. Some circumstances would require a fit test to be repeated sooner, such as:

- Any alteration to the face shape
 - Significant fluctuation in weight
 - Dental work which will affect facial structure
 - Facial surgery
 - Switching to a different size or make of respirator
 - If the use of a respirator causes significant discomfort
 - Change in personal protective equipment (PPE) use, which can affect the respirator
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What are the risks of wearing a mask or respirator that does not fit properly?

If a mask does not fit properly, the seal is not performing to its intended filtration capabilities. The wearer may be exposed to products that can be hazardous.

What legislation applies to respirator user screening and medical assessment?

Below is a table for guidance purposes, listing legislation and a general summary of respirator user screening and medical assessments. NOTE that other requirements may be listed in other sections, regulations, Codes, or Acts that are not listed in this table. For more details, consult the legislation directly.

Always consult the legislation that applies in your situation and with [your jurisdiction](#) for complete information.

Jurisdiction	Legislation	General Summary
Federal	<p>Canada Occupational Health and Safety Regulations (SOR/86-304)</p> <p>PART XII Protection Equipment and Other Preventive Measures</p> <p>Protection Equipment and Procedures</p> <p>Respiratory Protection 12.13 (1) (b)</p>	<p>Respirator selection to meet requirements set out in CSA Standard Z94.4, <i>Selection, Use, and Care of Respirators</i></p>
Alberta	<p>Occupational Health and Safety Code</p> <p>Part 18 Personal Protective Equipment</p> <p>Selection of equipment, Section 247</p>	<p>Respiratory protective equipment used at a work site is selected according to CSA Standard Z94.4-02, <i>Selection, Use, and Care of Respirators</i></p>
British Columbia	<p>Occupational Health and Safety Regulation</p> <p>Part 8: Personal Protective Clothing and Equipment</p> <p>8.3 Selection, use and maintenance</p> <p>8.42 Medical assessment</p>	<p>Respirators must be selected and used according to recognized standards.</p> <p>If a worker is required to use a respirator and there is doubt about the worker's ability to use a respirator for medical reasons, the worker must be examined by a physician, and the examining physician must be provided with sufficient information to allow the physician to advise the employer of the ability of the worker to wear a respirator.</p>
Manitoba	<p>Manitoba Workplace Safety and Health Act and Regulation 2022</p> <p>Respiratory protective equipment</p> <p>Medical examinations and health surveillance S. 50(1)</p>	<p>Respiratory protective equipment used at a work site is selected in accordance with CSA Standard Z94.4-02, <i>Selection, Use, and Care of Respirators</i>.</p>

	Examinations during working hours S. 50(2)	The chief occupational medical officer may carry out, or may arrange for another physician or other qualified person to carry out, any medical examinations or health surveillance of workers or former workers as he or she considers desirable for the purpose of administering this Act and the regulations. But no medical examination of a worker may be carried out without the worker's consent.
New Brunswick	General Regulations 91-191 Exposure to air contaminant other than in standard work week Respiratory Protective Equipment S. 45(1) (2)	In reference to exposure to air contaminants other than in the standard work week An employer shall comply with CSA standard Z94.4-93, <i>Selection, Use, and Care of Respirators</i> in developing a code of practice.
Newfoundland and Labrador	Occupational Health and Safety Regulations, 2012 Section 83 Respiratory protection program	Respiratory protective equipment used at a work site is selected in accordance with CSA Standard Z94.4-02, <i>Selection, Use, and Care of Respirators</i> .
Northwest Territories	Occupational Health and Safety Regulations R-039-2015 Section 91(1) (2) Respiratory Protective Devices	Assessed according to an approved standard as being capable of wearing a respiratory protective device.
Nova Scotia	Occupational Safety General Regulations Section 13 (1) (2) (3) Respiratory hazard	Respiratory protective equipment used at a work site is selected in accordance with CSA Standard Z94.4-02, <i>Selection, Use, and Care of Respirators</i> . Compressed breathing air used in a respirator complies with or exceeds the latest version of CSA standard CAN3-Z180.1, "Compressed Breathing Air and Systems"

Nunavut	<p>Occupational Health and Safety Regulations S C.R.Nu. R-003-2016</p> <p>Part 7 Section 91(1) (2) Personal Protective Equipment</p> <p>Respiratory Protective Devices</p>	<p>If a respiratory protective device is provided to a worker, they are assessed according to an approved standard as being capable of wearing a respiratory protective device.</p>
Ontario	<p>Occupational Health and Safety Act, R.S.O. 1990, c. O.1</p> <p>Section 26 (1) (h) Additional duties of employers</p>	<p>Employers have the duty to establish a medical surveillance program for the benefit of workers as prescribed.</p> <p>...</p> <p>Duties of workers</p> <p>Consent to medical surveillance</p> <p>28(3) A worker is not required to participate in a prescribed medical surveillance program unless the worker consents to do so.</p>
Prince Edward Island	<p>General Regulations EC180/87</p> <p>Part 45 Personal Protective Equipment</p> <p>Section 45.18 (1)</p>	<p>The employer shall ensure that the selection, use and care of respirators meet the applicable standards and specifications set out and referred to in the CSA Standard Z94.4-18 , <i>Selection, Use, and Care of Respirators</i>.</p>
Quebec	<p>Regulation respecting occupational health and safety</p> <p>Division VI Section 45.1</p> <p>Respirator</p>	<p>When providing respirators, the employer must draft and apply a respiratory protection program in compliance with CAN/CSA Standard Z94.4-11, Selection, Use and Care of Respirators, as published in September 2016.</p>
Saskatchewan	<p>Occupational Health and Safety Regulations, 2020</p> <p>Section 7-3 Respiratory protective devices</p>	<p>If a respiratory protective device is required, it is assessed according to an approved standard as being capable of being worn a respiratory protective device</p>

Yukon	Workers' Safety and Compensation Board Section Ss. 1.26 and 1.27 Protective Equipment and Clothing - Respiratory	Respiratory equipment shall be selected in accordance with the CSA Standard Z94.4-02, <i>Selection, Use and Care of Respirators</i> or other similar standard acceptable to the board.
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Note: Certain CSA Group standards are available for online viewing. To access these, you must first create an account with "CSA Communities". Go to:

<https://community.csagroup.org/login.jspx?referer=%252Findex.jspx>

Once you are logged in, click on the text below the "OHS Standards / View Access" graphic. Click on the jurisdiction of your choice to see the CSA Standards as referenced in that legislation. Standards may also be purchased from CSA Group: <https://store.csagroup.org/>

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