





## FOREWORD

The Workers' Safety and Compensation Commission (WSCC) produced this industry code of practice in accordance with subsections 18(3) and 18(4) of the Northwest Territories and Nunavut *Safety Acts*.

The WSCC gratefully acknowledges the Canadian Centre for Occupational Health and Safety (CCOHS) for information used in the Personal Protective Equipment Hearing Protection Code of Practice.

The Code of Practice applies to all workplaces covered by the Northwest Territories and Nunavut *Safety Acts* and *Occupational Health and Safety Regulations*.

This *Personal Protective Equipment Hearing Protection* code relates to section 4 and 5 of the *Safety Act* and sections 13, 16, 18, 23, 24, 89, 90, 111 to 117 of the *Occupational Health and Safety Regulations*.

This code is in effect as published in the in the Northwest Territories *Gazette* and Nunavut *Gazette*, in accordance with the *Safety Acts and Occupational Health and Safety (OHS) Regulations*.

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Chief Safety Officer, WSCC

### Disclaimer

This publication refers to obligations under the workers' compensation and occupational health and safety legislation as administered by the Workers' Safety and Compensation Commission.

To ensure compliance with legal obligations always refer to the most recent legislation. This publication may refer to legislation that has been amended or repealed.

Check for information on the latest legislation at [wsc.nt.ca](http://wsc.nt.ca) or [wsc.nu.ca](http://wsc.nu.ca), or contact WSCC at 1-800-661-0792.

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# 1 INTRODUCTION

This Hearing Protection code of practice provides basic guidelines to ensure worker safety in the workplace through the use of personal protective equipment (PPE). If workers are at risk for hearing damage in the workplace, the regulations require that adequate measures be taken and workers wear hearing protective equipment to protect them from noise hazards.

Noise is one of the most common workplace hazards. Exposure to excessive noise can damage hearing and impact worker health and safety. The body responds to noise in similar way as to stress, affecting blood pressure, heart rate, hormone levels, and blood cholesterol. Too much noise can make a person feel tired. Hearing loss is permanent. Furthermore, high noise levels interfere with hearing messages and can lead to unsafe situations.

If 20 or more workers' occupational noise exposure exceeds or is believed to exceed 85 dBA Lex, an employer shall, in consultation with the Committee or representative, develop a hearing conservation plan. A hearing conservation program includes noise assessment, hearing protector selection, employee training and education, audiometric testing, maintenance, inspection, record keeping, and program evaluation.

Work-related hearing loss is preventable. PPE worn by workers to minimize exposure to specific occupational hazards such as noise cannot eliminate the hazard, but can reduce the risk of injury.

## Definition

**Personal Protective Equipment (PPE)** – any clothing, device, or other article for workers to use to prevent injury or to facilitate rescue.



**Hearing Protection**



**Protective Footwear**



**Hand Protection**



**High-Visibility Clothing**



**Safety Helmet & Eye Wear**



**Safety Harness**

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PPE USAGE IS SPECIFIC TO EVERY WORK SITE AND JOB HAZARD ASSESSMENT

For more information see the PPE Codes of Practice and the [Hazard Assessment Code of Practice](https://www.wssc.nt.ca) at [wssc.nt.ca](https://www.wssc.nt.ca)

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## 2 NOISE HEALTH EFFECTS

Noise exposure can cause two kinds of health effects. These effects are non-auditory effects and auditory effects. Non-auditory effects include stress, related physiological and behavioural effects, and safety concerns. Auditory effects include hearing impairment resulting from excessive noise exposure. Noise-induced hearing loss (NIHL) is the main concern related to occupational noise exposure. The main auditory effects include:

### **Acoustic trauma:**

- Sudden hearing damage caused by short burst of extremely loud noise such as a gunshot.

### **Tinnitus:**

- Ringing or buzzing in the ear.

### **Temporary hearing loss:**

- Also known as temporary threshold shift (TTS) which occurs immediately after exposure to a high level of noise. There is gradual recovery when the affected person spends time in a quiet place. Complete recovery may take several hours or days (up to 48 hours).

### **Permanent hearing loss:**

- Permanent hearing loss, also known as permanent threshold shift (PTS), usually progresses constantly as noise exposure continues month after month and year after year. Most individuals do not notice the impairment at first. The hearing impairment is noticeable only when it is substantial enough to interfere with routine activities. At this stage, permanent and irreversible hearing damage has occurred. Noise-induced hearing damage cannot be cured by medical treatment and worsens as the noise exposure continues. When the noise exposure stops, the person does not regain the lost hearing sensitivity. As the employee ages, hearing may worsen as "age-related hearing loss" adds to the existing noise-induced hearing loss. Permanent hearing loss can also occur from a single traumatic event.

### **Other causes of hearing loss:**

- Workers in noisy environments who are also exposed to vibration (e.g., from a jack hammer) may experience greater hearing loss than those exposed to the same level of noise but not to vibration.
- Noise-exposed workers who are also exposed to ototoxic chemicals (e.g., toluene, styrene, carbon disulfide, specific types of antibiotics, etc.) may experience more hearing damage than those who exposed to the same noise levels without any exposure to ototoxic chemicals.

Source: *Noise - Auditory Effects*, [www.ccohs.ca/oshanswers/phys\\_agents/noise\\_auditory.html](http://www.ccohs.ca/oshanswers/phys_agents/noise_auditory.html), OSH Answers, Canadian Centre for Occupational Health and Safety (CCOHS), June 21, 2021. Reproduced with the permission of CCOHS, 2022.



### 3 PPE AND NOISE HAZARD CONTROL

Decisions about PPE form part of the hazard assessment process, the standard work site approach to dealing with potential hazards. There are five basic ways to control hazards. These controls form a hierarchy. Elimination is always the first control to consider. After that proceed down the hierarchy until the control of last resort, PPE.

#### THE FIVE BASIC WAYS TO CONTROL HAZARDS AND EXAMPLES:

1. **Elimination** - Remove the hazard from the work site.
2. **Substitution** - Replace noisy equipment or machinery with less noisy machinery.
3. **Engineering** - Modify operations to generate less noise e.g. lubrication, speed dampeners.
4. **Administration** - Modify circumstances of exposure by changing production schedule and set up an effective hearing protection program.
5. **Personal Protective Equipment** - Provide a suitable hearing protection e.g. earmuffs or earplugs.

PPE is not the first hazard control option. The use of PPE does not prevent accidents or eliminate hazards. Make every effort to control all hazards at the source. When reducing noise exposure, preference is given to engineering controls, then administrative controls. If this is not possible, PPE in the form of hearing protectors reduce the amount of noise reaching the ears. PPE cannot achieve its full-protection potential without worker knowledge and cooperation.

**Several controls may have to be put in place.** Certain hazards may require multiple PPE solutions. For example, working near machinery on the road could require a hard hat, hearing protectors, goggles and high-visibility safety apparel.

**Wearing PPE should not add to the hazard or create a new hazard.** Using several types of protection at the same time i.e. hard hat, ear muffs and goggles, should not increase the risk to the worker.

**PPE design criteria cannot cover all eventualities.** Do not use PPE when its usage creates hazards greater than those for which it is designed. Take uncertainties into account when evaluating potential hazards.

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[For more information see the WSCC Hazard Assessment Code of Practice](#)

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## 4 CSA STANDARDS

The Canadian Standards Association (CSA) is an accredited standards development organization and certification body. The standards they develop define requirements for reducing the risk of workplace injuries.

CSA Group test and certify products to Canadian standards and issue the CSA Mark for qualified products. Canadian Safety Standards can be found at <https://www.csagroup.org/store/>



### Identifying Mark of Approved Equipment

**23.** (1) This section applies in respect of equipment and personal protective equipment that is required by these regulations to be approved by an agency.

*[NWT & NU Occupational Health and Safety Regulations, Section 23(1)]*

### CAN/CSA-Z94.2-14 (R2019)

|                   |                                                                                               |
|-------------------|-----------------------------------------------------------------------------------------------|
| <b>CAN/CSA</b>    | Canadian Standards Association                                                                |
| <b>Z94.2</b>      | Standard on <a href="#">Hearing Protection Devices – Performance, Selection, Care and Use</a> |
| <b>14 (R2019)</b> | Published in 2014. Reaffirmed in 2019.                                                        |

This standard should be used in conjunction with CSA Z1007 - Management of Hearing Loss Prevention Programs (HLPP), a new standard that covers all aspects of the creation and management of an organization's HLPP.

### CAN/CSA- Z1007-22

|                |                                                                               |
|----------------|-------------------------------------------------------------------------------|
| <b>CAN/CSA</b> | Canadian Standards Association                                                |
| <b>Z1007</b>   | Standard on <a href="#">Hearing Loss Prevention Program (HLPP) Management</a> |
| <b>22</b>      | Published in 2022.                                                            |

This standard is intended to be used with related occupational standards as follows:

- CSA Z94.2 - Hearing protection devices.
- CSA Z107.56 - Measurement of noise exposure.
- CSA Z107.58 - Noise emission declarations for machinery.
- CSA Z107.6 - Audiometric testing for use in hearing loss prevention programs.
- ISO 5349-1 - Mechanical vibration: Measurement and evaluation of human exposure to hand-transmitted vibration Part 1: General requirements.



- ISO 2631-1/AMD 1 - Mechanical vibration and shock: Evaluation of human exposure to whole-body vibration Part 1: General requirement, Amendment 1.

**CAN/CSA-Z107.56-18**

|                |                                                           |
|----------------|-----------------------------------------------------------|
| <b>CAN/CSA</b> | Canadian Standards Association                            |
| <b>Z107.56</b> | Standard on <a href="#">Measurement of Noise Exposure</a> |
| <b>2018</b>    | Published in 2018.                                        |

**CAN/CSA-Z107.58:15 (R2020)**

|                   |                                                                       |
|-------------------|-----------------------------------------------------------------------|
| <b>CAN/CSA</b>    | Canadian Standards Association                                        |
| <b>Z107.58</b>    | Standard on <a href="#">Noise Emission Declarations for Machinery</a> |
| <b>15 (R2020)</b> | Published in 2016. Reaffirmed in 2020.                                |

**CAN/CSA-Z107.6:16 (R2020)**

|                   |                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------|
| <b>CAN/CSA</b>    | Canadian Standards Association                                                              |
| <b>Z107.6</b>     | Standard on <a href="#">Audiometric Testing for Use in Hearing Loss Prevention Programs</a> |
| <b>16 (R2020)</b> | Published in 2016. Reaffirmed in 2020.                                                      |

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**MAKE SURE YOU USE THE MOST UP-TO-DATE STANDARD**

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## 5 OCCUPATIONAL EXPOSURE LIMITS

"dBA Lex" means the level of a worker's total exposure to noise in dBA, averaged over an entire workday and adjusted to an equivalent eight-hour exposure. (*dBA Lex*)

*[NWT & NU Occupational Health and Safety Regulations, Section 111]*

The employer should conduct a noise assessment at the workplace, according to the CSA Standard Z107.56 *Measurement of Noise Exposure*, if a worker is or is likely to be exposed to noise in excess of 80 dBA, or if there is:

- an alteration, renovation or repair of the workplace,
- new equipment introduced in the workplace, or
- a modification done to a work process, that may result in a significant change in a worker's exposure to noise.

Source: *Noise - Hearing Conservation Program*, [www.ccohs.ca/oshanswers/phys\\_agents/hearing\\_conservation.html](http://www.ccohs.ca/oshanswers/phys_agents/hearing_conservation.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), January 4, 2019. Reproduced with the permission of CCOHS, 2022.

### 5.1 MEASUREMENT OF NOISE LEVELS

In an area where a worker is required or permitted to work and the noise level could frequently exceed 80 dBA, an employer shall ensure that

- The noise level is measured in accordance with an approved method.
- In consultation with the Committee or representative, a competent individual evaluates the sources of the noise and recommends corrective action.
- A record is kept of the measurements, evaluation and recommendations made.
- Make available to a worker the results of any measurements conducted.

*Source: Occupational Health and Safety Regulations of NT & NU, Sections 114(1-4)*

### 5.2 NOISE HAZARD WARNINGS



An employer shall ensure that an area where the measurements taken show noise levels that exceed 80 dBA, is clearly marked by a sign indicating the range of noise levels.

*Source: Occupational Health and Safety Regulations of NT & NU, Sections 114(5)*

If it is not practicable to reduce noise levels to or below the noise exposure limits, the employer should post clearly visible warning signs at every approach to an area in the workplace in which the sound level:

- Exceeds 80 dBA – clearly marked with a sign that states “Warning” and identifies the range of noise levels.
- Exceeds 85 dBA – clearly marked with a sign that states “Warning” and specifies that workers are required to wear single hearing protection device.
- Exceeds 105 dBA – clearly marked with a sign that states “Warning” and specifies that workers are required to wear double hearing protection devices.

Source: *Noise - Hearing Conservation Program*, [www.ccohs.ca/oshanswers/phys\\_agents/hearing\\_conservation.html](http://www.ccohs.ca/oshanswers/phys_agents/hearing_conservation.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), January 4, 2019. Reproduced with the permission of CCOHS, 2022.

### 5.3 DAILY EXPOSURE LIMITS

#### Daily Exposure Between 80 dBA Lex and 85 dBA Lex

- Inform the worker of the hazards of noise exposure.
- On request make available to the worker approved hearing protectors.
- Train the worker in the selection, use and maintenance of the hearing protectors.

#### Daily Exposure Exceeding 85 dBA Lex

- Establish and maintain an occupational health and safety program.
- Inform the worker of the hazards of occupational noise exposure.
- Take all reasonably possible steps to reduce noise levels in areas where the worker could be required or permitted to work.
- Minimize the worker’s noise exposure to the extent that is reasonably possible.
- Keep a record of the steps taken.

If, in the opinion of an employer, it is not reasonably possible to reduce noise levels or minimize a worker’s occupational noise exposure to less than 85 dBA Lex, the employer shall provide written reasons for that opinion to the Committee or representative.

*Source: Occupational Health and Safety Regulations of NT & NU, Sections 116(2)*

**If it is not reasonably possible to reduce a worker’s occupational noise exposure below 85 dBA Lex or the noise level below 90 dBA an employer shall:**

- Provide an approved hearing protector to the worker.
- Train the worker in the use and maintenance of the hearing protector.

- Arrange for the worker to have an audiometric test and appropriate counselling based on the test results.
  - Under the direction of a medical professional or qualified audiologist.
  - Not less than once every 24 months.
  - During the worker’s normal working hours.

*Source: Occupational Health and Safety Regulations of NT & NU, Sections 115 & 116*

## 5.4 IMPACT OF REMOVING PROTECTION

In order to get full benefit, hearing protectors must be worn all the time during noisy work. If hearing protectors are removed only for a short duration, the protection is substantially reduced. The following table gives a maximum protection provided for non-continuous use of an ideally fitted 100% efficient hearing protector. For example, when hearing protection is rated with an attenuation of 25dB, if one takes off his/her hearing protector for 5 minutes in an hour the maximum protection will be reduced to no more than 11dB.

| <b>Impact of Removing Hearing Protection</b> |                                                    |
|----------------------------------------------|----------------------------------------------------|
| <b>Time removed</b>                          | <b>Maximum 25 dB Protection is reduced to (dB)</b> |
| 0 min                                        | no reduction                                       |
| 1 min                                        | 17                                                 |
| 5 min                                        | 11                                                 |
| 10 min                                       | 8                                                  |
| 30 min                                       | 3                                                  |
| 60 min                                       | 0                                                  |

For more information see [Removal of Hearing Protectors Severely Reduces Protection](#), Health and Safety Executive (HSE), Government of United Kingdom.

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**HEARING PROTECTORS MUST BE USED ALL THE TIME TO GET THE FULL BENEFIT**

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Source: *Hearing Protectors*, [https://www.ccohs.ca/oshanswers/prevention/ppe/ear\\_prot.html](https://www.ccohs.ca/oshanswers/prevention/ppe/ear_prot.html), OSH Answers, Canadian Centre for Occupational Health and Safety (CCOHS), January 8, 2021. Reproduced with the permission of CCOHS, 2022.

## 6 HEARING PROTECTORS



The choice of hearing protectors is a very personal one and depends on a number of factors including level of noise, comfort, and the suitability of the hearing protector for both the worker and the environment.

Most importantly, the hearing protector should provide the desired noise reduction. It is best, where hearing protectors must be used, to provide a choice of a number of different types to choose from. Example: If the noise exposure is intermittent, earmuffs are more desirable, since it may be inconvenient to remove and reinsert earplugs.

### 6.1 SELECTION CONSIDERATIONS

The effectiveness of hearing protection is reduced greatly if the hearing protectors do not fit properly or if they are worn only part time during periods of noise exposure. To maintain their effectiveness, they should not be modified. Radio headsets are not substitutes for hearing protectors and should not be worn where hearing protectors are required to protect against exposure to noise.

Select hearing protection that is:

- Correct for the job. Refer to the Canadian Standards Association (CSA) Standard Z94.2-14 (R2019) *Hearing Protection Devices - Performance, Selection, Care and Use*
- Provides adequate protection or noise attenuation. Check the manufacturer's literature.
- Compatible with other required personal protective equipment, or communication devices.
- Comfortable enough to be worn.
- Appropriate for the temperature and humidity in the workplace.
- Able to provide adequate communication and audibility needs (e.g., the ability to hear alarms or warning sounds).

## 6.2 TYPES OF HEARING PROTECTORS

**Earplugs** are inserted in the ear canal. They may be premolded (preformed), moldable, rolldown foam, push-to-fit, or custom molded. Disposable, reusable and custom earplugs are available.

**Semi-insert earplugs** which consist of two earplugs held over the ends of the ear canal by a rigid headband.

**Earmuffs** consist of sound-attenuating material and soft ear cushions that fit around the ear and hard outer cups. They are held together by a head band.

### Advantages and Limitations of Earplugs and Earmuffs

**Earplugs** can be mass-produced or individually molded to fit the ear. They can be reusable or disposable. On the positive side, they are simple to use, less expensive than muffs, and often more comfortable to wear when in hot or damp work areas. Some disadvantages are they provide less noise protection than some muffs, and should not be used in areas exceeding 105 dBA. They are not as visible as muffs, making it more difficult for supervisor to check to see if workers are wearing them. They must be properly inserted and inserted hygienically to provide adequate protection.

**Earmuffs** can vary with respect to the material and depth of the dome, and the force of the headband. The deeper and heavier the dome, the greater the low-frequency attenuation provided by the protector. The headband must fit tightly enough to maintain a proper seal, yet not be too tight for comfort. Some advantages are that earmuffs usually provide greater protection than plugs, although this is not always true. They are easier to fit, generally more durable than plugs, and they have replaceable parts. On the negative side, they are more expensive, and often less comfortable than plugs, especially in hot work areas. In areas where noise levels are very high, muffs and plugs can be worn together to give better protection. The following table summarizes the differences between earplugs and earmuffs.

| Comparison of Hearing Protection                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EarPlugs                                                                                                                                                                                                                                                                                                                                  | EarMuffs                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Small and easily carried.</li> <li>• Convenient to use with other personal protection equipment (can be worn with earmuffs).</li> <li>• More comfortable for long-term wear in hot, humid work areas.</li> <li>• Convenient for use in confined work areas.</li> </ul> | <p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Less attenuation variability among users.</li> <li>• Designed so that one size fits most head sizes.</li> <li>• Easily seen at a distance to assist in the monitoring of their use.</li> <li>• Not easily misplaced or lost.</li> <li>• May be worn with minor ear infections.</li> </ul> |

| EarPlugs                                                                                                                                                                                                                                                                                                                       | EarMuffs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Requires more time to fit.</li> <li>• More difficult to insert and remove.</li> <li>• Require good hygiene practices.</li> <li>• May irritate the ear canal.</li> <li>• Easily misplaced.</li> <li>• More difficult to see and monitor usage.</li> </ul> | <p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Less portable and heavier.</li> <li>• More inconvenient for use with other personal protective equipment.</li> <li>• More uncomfortable in hot, humid work area.</li> <li>• More inconvenient for use in confined work areas.</li> <li>• May interfere with the wearing of safety or prescription glasses: wearing glasses results in breaking the seal between the earmuff and the skin and results in decreased hearing protection.</li> </ul> |

Source: *Hearing Protectors*, [https://www.ccohs.ca/oshanswers/prevention/ppe/ear\\_prot.html](https://www.ccohs.ca/oshanswers/prevention/ppe/ear_prot.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), January 8, 2021. Reproduced with the permission of CCOHS, 2022.



## 7 NOISE REDUCTION RATING (NRR)

Manufacturers provide information about the noise reducing capability of a hearing protector referred to as an NRR (noise reduction rating) value. The NRR ratings are based on laboratory conditions, therefore calculations to de-rate the noise reduction rating should be done to reflect workplace conditions.

The NRR, or other similar systems such as the single number rating (SNR), is a method to more accurately determine the effective exposure of a person when wearing a hearing protector. These rating systems attempt to estimate the actual sound protection provided by hearing protectors when worn in actual working environments (vs. laboratory testing situations). The “real world” results are often different than laboratory tests with the main reasons for this difference being poor fit, and lack of proper training, supervision and enforcement. For these reasons, training on the correct fit, and making sure users have a thorough understanding of hearing loss are important elements of the hearing conservation program.

Detailed calculations of the protection provided by a hearing protector involves using octave band analysis of the workplace noise and the noise attenuation provided by the hearing protector for noise in each octave band. Attenuation is defined by CSA Standard Z94.2-14 (R2019) Hearing protection devices — Performance, selection, care, and use as “the reduction in sound pressure level incident upon the ear due to the application of a hearing protector or, specifically, the change in hearing threshold level that results when a hearing protector is worn.”

### Calculating noise attenuation of hearing protection and de-rating noise reduction values (NRR)

Source: CSA Z94.2-14 (R2019) Hearing protection devices — Performance, selection, care, and use, Table 2

#### Earplugs

Percent of NRR achieved: 50%

For use with dBA:  $L_{eq} - [NRR (0.50 - 3)] = XX \text{ dBA}$

For use with dBC:  $L_{ceq} - NRR (0.5) = XX \text{ dBA}$

#### Earmuffs

Percent of NRR achieved: 70%

For use with dBA:  $L_{eq} - [NRR (0.7 - 3)] = XX \text{ dBA}$

For use with dBC:  $L_{ceq} - NRR (0.7) = XX \text{ dBA}$

#### Dual Protection (use of earplugs and earmuffs)

Percent of NRR achieved: 65%

For use with dBA:  $L_{eq} - [(NRR + 5) (0.65) - 3] = XX \text{ dBA}$

For use with dBC:  $L_{ceq} - (NRR + 5) (0.65) = XX \text{ dBA}$

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.jspa?referer=%252Findex.jspa>

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/>

As an example:

Measured workplace noise time-weighted average (TWA) exposure = 98 dBA

Earplug with NRR = 29 dB

Estimated noise exposure =  $98 - [29(0.5) - 3] = 86.5$  dBA

CSA Standard Z94.2-14 (R2019) provides further guidance on how to apply NRR rating calculations.

Source: *Hearing Protectors*, [https://www.ccohs.ca/oshanswers/prevention/ppe/ear\\_prot.html](https://www.ccohs.ca/oshanswers/prevention/ppe/ear_prot.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), *January 8, 2021*. Reproduced with the permission of CCOHS, 2022.

## 8 MAINTENANCE

- Follow the manufacturer's instructions.
- Check hearing protection regularly for wear and tear.
- Replace ear cushions or plugs that are no longer pliable.
- Replace a unit when head bands are so stretched that they do not keep ear cushions snugly against the head.
- Disassemble earmuffs to clean.
- Wash earmuffs with a mild liquid detergent in warm water, and then rinse in clear warm water. Ensure that the sound-attenuating material inside the ear cushions does not get wet.
- Use a soft brush to remove skin oil and dirt that can harden ear cushions.
- Squeeze excess moisture from the plugs or cushions and then place them on a clean surface to air dry. (Check the manufacturer's recommendations first to find out if the earplugs are washable.)

Source: *Hearing Protectors*, [https://www.ccohs.ca/oshanswers/prevention/ppe/ear\\_prot.html](https://www.ccohs.ca/oshanswers/prevention/ppe/ear_prot.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), *January 8, 2021*. Reproduced with the permission of CCOHS, 2022.

## 9 HEARING CONSERVATION PLAN

If 20 or more workers' occupational noise exposure exceeds or is believed to exceed 85 dBA Lex, an employer shall, in consultation with the Committee or representative, develop a hearing conservation plan.

*Source: Occupational Health and Safety Regulations of NT & NU, Sections 117(1)*

### 9.1 ELEMENTS OF THE HLP PROGRAM

The CSA Standard Z1007 Hearing Loss Prevention Program (HLPP) Management recommends that a hearing conservation program include the following elements:

- Hazard identification and exposure monitoring
- Control methods (using the hierarchy of controls)
- Hearing protection devices (selection, use, and maintenance)
- Audiometric testing
- Hazard communication, education, and training
- Recordkeeping, and
- Continuous monitoring and improvement (program review).

**A hearing conservation plan must be in writing and must include:**

- The methods and procedures to be used in assessing the occupational noise exposure of workers.
- The methods of noise control to be used, including engineering controls and administrative arrangements.
- The selection, use and maintenance of hearing protectors.
- A plan to train workers in the hazards of excessive exposure to noise and the correct use of control measures and hearing protectors.
- The maintenance of exposure records.
- The requirements for audiometric tests.
- A schedule for reviewing the hearing conservation plan and procedures for conducting the review.

*Source: Occupational Health and Safety Regulations of NT & NU, Section 117(3)*

**An employer shall make a copy of the hearing conservation plan readily available to workers.** *Source: Occupational Health and Safety Regulations of NT & NU, Section 117(4)*

## 9.2 AUDIOMETRIC TESTING

Audiometry is an important part of the hearing conservation program. It is the only way to determine if a hearing loss is occurring or being prevented. Although existing hearing loss cannot be cured, the data can be used to:

- Identify persons for follow-up and counselling
- Determine trends
- Make decisions on control measures
- Motivate employees to use protective equipment
- Create education opportunities
- Trigger changes in the program

Generally speaking, audiometric testing is recommended when a worker is exposed to noise levels greater than 85 dBA. Audiometric testing should be conducted according to CSA Standard Z107.6 Audiometric Testing for Use in Hearing Loss Prevention Programs, which outlines specifications for the testing facility, the equipment used, and those in charge of conducting audiometric tests.

The CSA Standard Z1007 Hearing Loss Prevention Program Management recommends that audiometric testing involves:

- an initial hearing test, and
- a hearing test at least once every 12 months after the initial test, or
- a hearing test more frequently should the noise level exceed 105 dBA.

## 9.3 EDUCATION AND TRAINING

Education and training should be provided to workers who are required to wear hearing protection devices. The education and training should cover all elements listed in CSA Z94.2 (i.e., selection, fit, use, care, maintenance, and inspection). The education and training should be repeated, as recommended in the Standards, at regular intervals and at least once every two years.

Education and training may include information about:

- Why use hearing protection
- When should protective equipment be worn, in what work areas, during what work activities
- How should hearing protectors be selected and worn
- Who is responsible for taking care of the protective equipment
- How to take care of the protective equipment (storage, cleaning, etc)
- Company policy requirements for noise control and hearing conservation
- Legislative requirements

## 9.4 RECORDS AND DOCUMENTS

Keeping records of your assessment and any control measures implemented is very important. You may be required to store the records and documents for a specific number of years. Check for local requirements in your jurisdiction.

The level of documentation or record keeping will depend on:

- Level of risk involved.
- Legislated requirements.
- Requirements of any management systems that may be in place.

Your records should show that you:

- Conducted a good hazard review.
- Determined the risks of those hazards.
- Implemented control measures suitable for the risk.
- Reviewed and monitored all hazards in the workplace.

The results of the audiometric test itself may be considered a medical record, and as such, can only be released with the worker's written consent. The audiometric technician or organization may need to keep the results of the hearing test for a period of time as specified in by the jurisdiction.

Source: *Noise - Hearing Conservation Program*, [www.ccohs.ca/oshanswers/phys\\_agents/hearing\\_conservation.html](http://www.ccohs.ca/oshanswers/phys_agents/hearing_conservation.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), January 4, 2019. Reproduced with the permission of CCOHS, 2022.

## 9.5 PROGRAM REVIEW

The program should be reviewed periodically to see if there is a need for changes.

Review and, as necessary, revise the hearing conservation plan **not less than once every three years**. [*NWT & NU Occupational Health and Safety Regulations, Section 117 (1)(b)*]

The program review or evaluation is done by auditing each of the program's steps and seeing how well they are being executed. For example, ask the following questions:

- Are all elements or steps in place?
- Is it necessary to re-test or monitor the noise exposures?
- Are there periodic education and training sessions?
- What are the results from the audiometric tests?
- Have changes in processes or equipment resulted in reduced hearing losses?
- Do existing noise controls appear to be in good working condition and being used?
- Have any modifications been made to controls, possibly reducing their effectiveness?

- Is hearing protection available? Is it stored and maintained properly?
- Are workers wearing their protection? Have they noted any issues?
- Are warning signs posted where they are necessary?
- When new machinery or equipment is being purchased, is “buying quiet” considered in the decision process?
- Are further changes necessary to protect workers?

Source: *Noise - Hearing Conservation Program*, [www.ccohs.ca/oshanswers/phys\\_agents/hearing\\_conservation.html](http://www.ccohs.ca/oshanswers/phys_agents/hearing_conservation.html), *OSH Answers*, Canadian Centre for Occupational Health and Safety (CCOHS), January 4, 2019. Reproduced with the permission of CCOHS, 2022.



## 10 REGULATORY REQUIREMENTS

By law, workers must use personal protective equipment in the workplace when it is required. Employer responsibilities include providing instruction on what PPE is needed, maintenance and cleaning of the equipment, and educating and training workers on proper use of PPE.

### *Occupational Health and Safety Regulations* Northwest Territories and Nunavut

#### **Part 3**

#### **General Duties of Workers**

- 13.** A worker shall, in respect of a work site,
- (a) use safeguards, safety equipment and personal protective equipment required by these regulations; and
  - (b) follow safe work practices and procedures required by or developed under these regulations.

#### **Supervision of Work**

- 16.** (1) An employer shall ensure that, at a work site,
- (b) supervisors have sufficient knowledge of the following:
    - (iii) the need for, and safe use of, personal protective equipment

## PERSONAL PROTECTIVE EQUIPMENT

#### **Suitable and Adequate Equipment**

- 89.** (1) If it is not reasonably possible to protect the health and safety of a worker by design of a plant and work processes, suitable work practices or administrative controls, an employer shall ensure that the worker wears or uses suitable and adequate personal protective equipment.
- (2) If personal protective equipment will not effectively protect a worker, an employer shall, if reasonably possible, provide alternative work arrangements for the worker.

#### **General Responsibilities**

- 90.** (1) An employer who is required by these regulations to provide personal protective equipment to a worker shall
- (a) provide approved personal protective equipment for use by the worker at no cost to the worker;
  - (b) ensure that the personal protective equipment is used by the worker;

- (c) ensure that the personal protective equipment is at the work site before work begins;
  - (ii) maintained and kept in a sanitary condition, and
  - (iii) removed from use or service when damaged.
- (d) ensure that the personal protective equipment is stored in a clean, secure location that is readily accessible to the worker;
- (e) ensure that the worker is
  - (i) aware of the location of the personal protective equipment, and
  - (ii) trained in its use;
- (f) inform the worker of the reasons why the personal protective equipment is required to be used and of the limitations of its protection; and
- (g) ensure that personal protective equipment provided to the worker is
  - (i) suitable and adequate and a proper fit for the worker,
- (2) If an employer requires a worker to clean and maintain personal protective equipment, the employer shall ensure that the worker has adequate time to do so during normal working hours without loss of pay or benefits.
- (3) If reasonably possible, an employer shall make appropriate adjustments to the work procedures and the rate of work to eliminate or reduce any danger or discomfort to the worker that could arise from the worker's use of personal protective equipment.
- (4) A worker who is provided with personal protective equipment by an employer shall
  - (a) use the personal protective equipment; and
  - (b) take reasonable steps to prevent damage to the personal protective equipment.
- (5) If personal protective equipment provided to a worker becomes defective or otherwise fails to provide the protection it is intended for, the worker shall
  - (a) return the personal protective equipment to the employer; and
  - (b) inform the employer of the defect or other reason why the personal protective equipment does not provide the protection that it was intended to provide.
- (6) An employer shall immediately repair or replace any personal protective equipment returned to the employer under paragraph (5)(a).

## PART 8 NOISE CONTROL AND HEARING CONSERVATION

### Interpretation

**111.** In this Part, "dBA Lex" means the level of a worker's total exposure to noise in dBA, averaged over an entire workday and adjusted to an equivalent eight-hour exposure. (*dBA Lex*)

## **Noise Control and Hearing Conservation**

### **General Duty**

- 112.** (1) An employer shall ensure that, if reasonably possible, measures are taken to reduce noise levels in areas where workers may be required or permitted to work.
- (2) The means to reduce noise levels under subsection (1) may include any of the following:
- (a) eliminating or modifying the noise source;
  - (b) substituting quieter equipment or processes;
  - (c) enclosing the noise source;
  - (d) installing acoustical barriers or sound absorbing materials.

### **Noise Reduction Through Design and Construction of Buildings**

- 113.** An employer shall ensure that
- (a) new work sites are designed and constructed so as to achieve the lowest noise level that is reasonably possible;
  - (b) any alteration, renovation or repair to an existing work site is made so as to achieve the lowest noise level that is reasonably possible; and
  - (c) new equipment to be used at a work site is designed and constructed so as to achieve the lowest noise level that is reasonably possible.

### **Measurement of Noise Levels**

- 114.** (1) In an area where a worker is required or permitted to work and the noise level could frequently exceed 80 dBA, an employer shall ensure that
- (a) the noise level is measured in accordance with an approved method;
  - (b) in consultation with the Committee or representative, a competent individual evaluates the sources of the noise and recommends corrective action; and
  - (c) a record is kept of the measurements, evaluation and recommendations made.
- (2) An employer shall measure the noise level in accordance with subsection (1) when any of the following could result in a significant change in noise levels or noise exposure:
- (a) altering, renovating or repairing the work site;
  - (b) introducing new equipment to the work site; or
  - (c) modifying a process at the work site.
- (3) An employer shall keep a record of the results of any noise level measurements conducted at the work site as long as the employer operates in the Northwest Territories or Nunavut.
- (4) On request, an employer shall make available to a worker the results of any measurements conducted under this section in respect of that worker.
- (5) An employer shall ensure that an area where the measurements taken

under subsection (1) show noise levels that exceed 80 dBA, is clearly marked by a sign indicating the range of noise levels.

**Daily Exposure Between 80 dBA Lex and 85 dBA Lex**

**115.** If a worker is exposed at a work site to noise that is between 80 dBA Lex and 85 dBA Lex, an employer shall

- (a) inform the worker of the hazards of noise exposure;
- (b) on the request of the worker, make available to the worker approved hearing protectors; and
- (c) train the worker in the selection, use and maintenance of the hearing protectors.

**Daily Exposure Exceeding 85 dBA Lex**

**116.** (1) If a worker is exposed at a work site to noise that exceeds 85 dBA Lex, an employer shall

- (a) establish and maintain an occupational health and safety program under section 21;
- (b) inform the worker of the hazards of occupational noise exposure;
- (c) take all reasonably possible steps to reduce noise levels in areas where the worker could be required or permitted to work;
- (d) minimize the worker's noise exposure to the extent that is reasonably possible; and
- (e) keep a record of the steps taken under paragraphs (c) and (d).

(2) If, in the opinion of an employer, it is not reasonably possible to reduce noise levels or minimize a worker's occupational noise exposure to less than 85 dBA Lex, the employer shall provide written reasons for that opinion to the Committee or representative.

(3) If it is not reasonably possible to reduce a worker's occupational noise exposure below 85 dBA Lex or the noise level below 90 dBA in any area where a worker could be required or permitted to work, an employer shall

- (a) provide an approved hearing protector to the worker;
- (b) train the worker in the use and maintenance of the hearing protector; and
- (c) arrange for the worker to have, not less than once every 24 months during the worker's normal working hours, an audiometric test and appropriate counselling based on the test results under the direction of a medical professional or qualified audiologist.

(4) If a worker cannot attend an audiometric test referred to in paragraph (3)(c) during the worker's normal working hours, an employer shall credit the worker's attendance at the test as time at work and ensure that the worker does not lose any pay or benefits.

(5) If a worker cannot recover his or her costs of an audiometric test referred to in paragraph (3)(c), an employer shall reimburse the worker for the costs of the test that, in the opinion of the Chief Safety Officer, are reasonable.

### **Hearing Conservation Plan**

117. (1) If 20 or more workers' occupational noise exposure exceeds or is believed to exceed 85 dBA Lex, an employer shall, in consultation with the Committee or representative,

- (a) develop a hearing conservation plan; and
- (b) review and, as necessary, revise the hearing conservation plan not less than once every three years.

(2) An employer shall implement a hearing conservation plan developed under subsection (1).

(3) A hearing conservation plan must be in writing and must include

- (a) the methods and procedures to be used in assessing the occupational noise exposure of workers;
- (b) the methods of noise control to be used, including engineering controls and administrative arrangements;
- (c) the selection, use and maintenance of hearing protectors;
- (d) a plan to train workers in the hazards of excessive exposure to noise and the correct use of control measures and hearing protectors;
- (e) the maintenance of exposure records;
- (f) the requirements for audiometric tests; and
- (g) a schedule for reviewing the hearing conservation plan and procedures for conducting the review.

4) An employer shall make a copy of the hearing conservation plan readily available to workers.

Code of Practice

**PERSONAL PROTECTIVE EQUIPMENT**

# **HEARING PROTECTION**

Workers' Safety & Compensation Commission  
Northwest Territories and Nunavut

WSCC Emergency Reporting  
24-hour Incident Reporting Line

**1 800 661-0792**

**WSCC**



If you would like this Code of Practice in another language, please contact us.