

Operating Guideline # 219

Hearing Protection

September 29, 2019



PURPOSE:

The purpose of this Operating Guideline (OG) is to establish guidelines for hearing protection for personnel while performing their duties.

ISSUE/RATIONALE:

Noise induced hearing loss is almost always permanent and firefighters are inherently required to work in environments that are noisy. Hearing conservation efforts should start immediately upon entry into the fire service and continue throughout a firefighter's career. The department provides hearing protection that can reduce or eliminate noise induced hearing loss and therefore all staff has a responsibility to protect themselves from this type of injury by wearing the protective equipment provided (Hearing Protective Devices - ear plugs and or/ear muff type protection).

GUIDELINE:

1. Hearing protection should be used by any firefighter whenever operation of power tools or operating or riding on fire apparatus where they are likely to be exposed to noise equal to or in the excess of the limits listed below.

Sound Level in dba

85

Duration in hours per 24 day

8

2. Personnel involved in activities such as the operation of tools and equipment that generate noise may be exposed to noise levels that could impact their long-term hearing health. The following equipment may generate significant noise levels and therefore all personnel operating or in close proximity to this equipment shall use supplied hearing protection devices in the form of ear muffs and/or plugs at all times when the equipment is operating:

- a. All fire pumps (apparatus fixed, portable, Wajax etc.)
- b. All power tools
- c. Rescue saw/ TS400 Quick cut saw
- d. Air chisel
- e. All generators
- f. Hydraulic power plants for extrication tools
- g. Compressor/Cascade Air Station at Station 1
- h. Positive & Negative Pressure Fans (battery or electric)
- i. When testing or maintaining SCBA alarms
- j. When conducting hose testing

3. Emergency warning devices (sirens) on apparatus can also be sources of elevated noise and therefore windows on apparatus shall be kept closed while vehicles are responding with sirens to reduce noise inside the cab.

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4. It should be noted that hearing protection devices must not interfere with emergency operations and the ability of firefighters to hear and understand verbal orders or radio transmissions that may affect their safety (i.e. – radio transmissions to evacuate an unsafe atmosphere or building).
5. Good ear hygiene and health is important to protect workers from noise induced hearing loss and to encourage the use of hearing protective devices such as ear plugs.
6. Signs warning of the existence of a noise hazard should be installed inside buildings where fixed machinery/hazards exist (i.e. – breathing air compressor/fill station).
7. The following are the actual test results for typical fire department equipment:

Measurement Location	Leq (dBA)	Max (dBA)	Peak (dB)	Comments
FIRE DEPARTMENT				
Air Compressor	85.0	89.0	103.8	
SCBA Alarm	97.1	110.8	114.2	
Positive Pressure Fan - Battery	98.0	100.4	113.9	
Positive Pressure Fan - Gas	103.9	106.4	123.3	
Air Chisel	108.0	112.1	127.1	
Quick Cut	105.3	106.8	123.3	
Portable Pump	95.9	98.9	115.4	
Unit # 7 Portable Pump	103.7	105.9	124.3	
Unit # 7 Back up Alarm	90.0	99.8	104.7	
Air chisel	98.5	99.5	111.8	
Generator - outside	96.0	97.7	114.7	
Wajax Pump	110.0	116.4	129.5	
Hose Testing	85.0	91.0	102.8	
Fire Truck - pumps	93.6	95.8	113.0	
Fire Truck – power unit	92.0	93.9	112.8	Back of truck
Fire Truck - generator	91.0	93.4	112.7	Side of Truck

Acceptable unprotected exposure time limits are illustrated in the following Appendix A.

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APPENDIX 1

8-HOUR EQUIVALENT NOISE EXPOSURE CHART

COLUMN 1 Sound Level 8hr TWA (dBA)	COLUMN 2 Exposure Time per 24 Hour Day
82	16hrs
83	12hrs
85	8hrs
88	4hrs
91	2hrs
94	1hr
97	30min
100	15min
103	7.5min
106	3.75min
109	Less than 2min
112	Less than 1min
115	Less than 30sec

As the new regulations incorporate a TWA measurement, it will automatically take into account any impact sounds that occur within the measurement period. However, as a general guideline with respect to impact/impulse noise exposure, it is recommended that there be a maximum of:

- 10,000 impulses/day at 120dB
- 1,000 impulses/day at 130dB
- 100 impulses/day at 140dB
- 0 impulses/day at >140dB

RESPONSIBILITY:

It is the responsibility of all Emergency Operations Division staff to comply with the provisions of this Operating Guideline.

REFERENCES:

- O. Reg 381/15
- Section 21 Firefighter Guidance Note 4-10