

Hand Dryer Sound Level Study

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Request

Request made by the Accessibility Committee.

To review the sound/decibel level of existing hand dryers and the suitability of “whisper quite” dryers to lessen the sound level impact. As suggested by the Committee, this would be in consideration of individuals who may experience a sound level of sensitivity.

Background

Humans can hear decibel levels starting from 0 dB and 120-140 dB is the sound threshold of pain. For perspective, mid-range of 70 dB approximates the sound level of a regular washing machine. Comparably this mid-range is equivalent to the noise level in an office environment or inside a car driving at 60 mph. In a work setting, the Occupational Health and Safety Act (OHSA) identifies noise levels above 85db for an 8-hour workday as unacceptable if protection is not provided.

The comparison chart below, prepared by the World Health Organization (WHO), compares the noise experienced by children every day.

Children and noise

CHILDREN AND NOISE: SETTINGS	
Noise at home	50-80 dBA
Home appliances	78-102 dBA
Noise in incubators	60 - 75 dBA, peak sounds 120 dBA
Noise in hospitals	>70 dBA
Day-care institutions	75-81 dBA
Noise from toys peak sounds	79-140 dBA
Background noise in schools	46.5—77.3dBA

In consideration of this specific request from the Accessibility Committee staff researched and have found that the Autism Society of Canada as well as the AODA have no specific noise level or recommendations for average or acceptable noise decibels.

As part of reducing its carbon footprint the Town provides hand dryers in several recreation and administrative facilities across its inventory. Hand dryers serve the dual purpose of reducing the reliance on paper towels as well as expediting washroom traffic in high use facilities such as the Arena locations and the Gellert Community Centre. As reported by the manufacturer, these units produce sound levels

ranging from 61 dB to 74db, which is slightly above an average level of noise. For consideration, these sound levels fall within the range a child would experience in a school setting and are not considered harmful. Hand dryers operate using a combination of heat and/or air. The movement of air by a fan is what produces much of the noise from these units. More air means more noise but usually less drying power. Less air usually means less noise but, unfortunately, less drying power.

Product Options & Financial Impact

As noted, existing hand dryers at Town facilities range in sound level from 61db to 74db. Staff research has found that this is about average for the products available. Many staff would be familiar with the high speed hand dryers that are becoming more common in commercial and public facilities, these products dry hands in a very short time frame, are very effective but have decibel levels upwards of 81dB. In fact, Operations staff have considered these types of units to increase the speed with which patrons move through the washroom facilities but considering the increased cost of these units have not yet made a change. There are industry options for lower decibel hand dryers that produce sound levels in the range of 56dB to 76dB, but consideration needs to be made to the decreased efficiency of these units.

There are currently over 40 hand dryers within Town facilities. If a new, lower sound level unit is considered at approximately \$800 per unit this would result in a cost of ~\$32,000 for replacement of all.

Recommendations

Facilities that typically have a lower ambient sound level, libraries for example, do not have hand dryers. These locations still use paper towels as the only hand drying option. For these quiet facilities (libraries and cultural centre) the recommendation is for them to remain the same by leaving in only paper towel. For the louder facilities (Arenas, Gellert Community Centre), we recommend no change as our current hand dryers are within the safe dB levels for children.

Staff experience, and has been noted, is that the reduction in decibel level will result in the efficiency of the hand drying being diminished. Staff also acknowledge that ambient sounds in higher use facilities are equivalent to or can likely drown out any noise from existing hand dryers.

For these facilities.

Recommendation: No replacement of existing for a lower-level decibel dryer in consideration of effectiveness, cost and negligible impact of sound reduction

For facilities with lower ambient sound levels such as Town Hall, that have hand dryers.

Recommendation: No change currently as our current hand dryers are within the safe dB levels for children.