

Hamilton

Hearing Loop
by
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Hearing Loop

"Hearing Loss is one of the world's most common, but often ignored problems – making it an 'invisible disability'"



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Hearing Loop
Switch hearing aid to T-coil

Hearing Loss

- For Seniors, hearing loss is the most widespread disability, and the third most prevalent chronic condition.
- More than a million adult Canadians have reported that they have a hearing-related disability. That number is more than 50% higher than the number of adults who have vision difficulties.
- There are 19,358 people in Hamilton with a hearing disability - 14,433 being adults 15+ and 4295 being youths aged 0-14.

Sources:

Canadian Hearing Society 2013. Facts and Figures, Prevalence of Hearing loss (<http://www.chs.ca/facts-and-figures>)

Statistics Canada, (2009) Table 3 Aids and assistive devices used by people with a hearing limitation, 2006," (Catalogue no 89-628-X/2009012).

Statistics Canada (2016) "Hearing disabilities among Canadians aged 15 years and older, 2012" Released February 29, 2016. Authors are Christine Bizier, Ricardo Contreras and Alyssa Walpole (Catalogue no 89-654-X2016002).



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Goal

- The goal is to make the City of Hamilton the first municipality to have Hearing Loops installed in publicly- owned buildings. It would make Hamilton the best place to raise a child and age successfully.
- Meeting areas open to the public should be looped, to increase overall accessibility.



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Non-Looped & Looped Environment

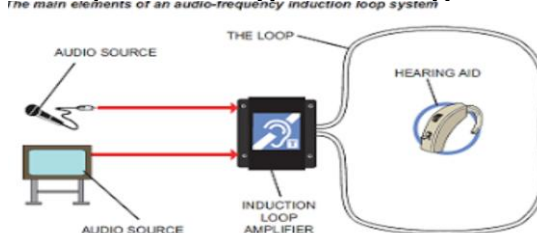
- A 2014 survey asked 866 people to rate the performance of their hearing aids/Cochlear implants using a 10-point scale (*Hear Rev, 2014*). Their response was:
 - A. 4.9/10 in a non-looped setting**
 - B. 8.7/10 in a looped setting.**
- Another 2016 study showed that Hearing Loops greatly improved speech understanding and sound quality. They also reduce listening effort (*Hear Rev, 2016*).



Source: Sterkens, Juliette. "Why Patients Need Hearing Loops." *The Hearing Journal*, 2017: Page 31.

Overview- Hearing Loop

- A Hearing Loop is designed to help people affected by hearing loss. It is a copper wire that circles around a room, with an amplifier that connects to any kind of sound system.
- It provides the clearest, sharpest, most amplified sound to an individual's hearing aid/ Cochlear Implant (CI). It allows them to hear to the fullest extent possible, while completely reducing all background noise.

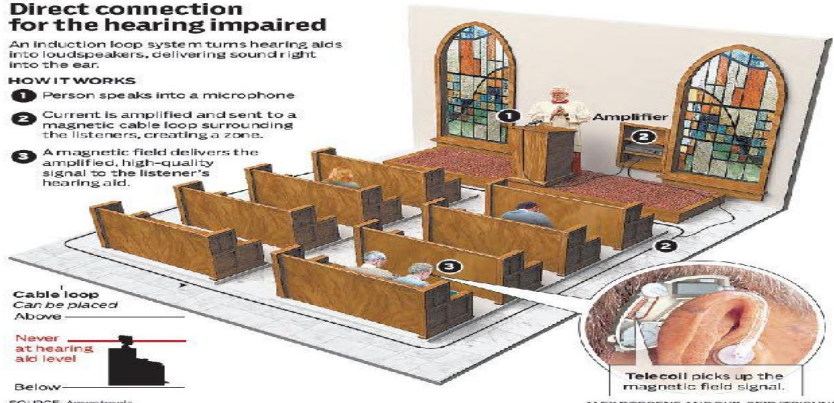


How It Works

Direct connection for the hearing impaired
An induction loop system turns hearing aids into loudspeakers, delivering sound right into the ear.

HOW IT WORKS


- 1 Person speaks into a microphone
- 2 Current is amplified and sent to a magnetic cable loop surrounding the listeners, creating a zone.
- 3 A magnetic field delivers the amplified, high-quality signal to the listener's hearing aid.



Cable loop
Can be placed
Above
Never
at hearing
aid level
Below

SOURCE: Ampeproinc

ALEX BORDENS AND PHIL GEBB/TRIBUNE



- In order to experience the Hearing Loop, a hearing-impaired person's hearing aid or Cochlear implant (CI) must be tele-coil equipped.
- The wires of the loop create an electromagnetic field, which then emits a magnetic signal that is detected by the tele-coil in the hearing aid or CI. Once this signal is found, a connection is made.

Benefits

- The Hearing Loop vastly improves accessibility for those who are otherwise left feeling frustrated by their inability to be included in certain activities. Such isolation can lower an individual's confidence and self-esteem.
- Allows hearing impaired individuals to be more sociable and inclusive.
- It allows facilities to become more accessible, and to include more people who are hearing-impaired, especially seniors.
- For the private sector, the Hearing Loop attracts more clients/customers. The result is increased revenue and a lower per-user cost, for a one-time investment.

Source: Kaufmann, Thomas, Sterkens, Juliette, Woodgate M., John. "Hearing Loops: The Preferred Assistive Listening Technology." *Feature*, Vol. 63 (2015): Page 300.



Cost

The Hearing Loop system is a one-time investment.

- The installation cost for the auditorium in the Meadowlands Fellowship Christian Reformed Church was \$9000-\$10,000, plus \$3000-\$4000 for construction. The Church received a \$9000 grant from the Ontario government.
- An evaluation conducted for “The Fitness Room” at Sackville Hill Seniors Recreation Centre came to \$5,538. There would be no additional construction costs.



Sources:
Meadowlands Fellowship Christian Reformed Church.

Bill Droogendyk, Better Hearing Solutions.

Cost (continued)

- The installation for about 3 to 4 rooms in a home is \$1000-\$1500.
- The cost of the system and installation in Michigan State University’s Breslin Centre arena came to a total of \$150,000.
- For a multiplex movie theatre with an average seating capacity of 225 seat per screen, the cost of installing a hearing loop is approximately \$10,000 US per screen.



Sources:
Myers G., David, Sterkens, Juliette. “In The Loop.” *Sound & Communications*, 2010: Page 1-5.

Kaufmann, Thomas, Sterkens, Juliette, Woodgate M., John. “Hearing Loops: The Preferred Assistive Listening Technology.” *Feature*, Vol. 63 (2015): Page 300.

Where Is It Looped Already?

In Hamilton, the following churches have installed Hearing Loops:

- (1) Meadowlands Fellowship Christian Reformed Church
- (2) Calvin Christian Reformed Church
- (3) Immanuel Christian Reformed Church

The speech-reading classroom at the Hamilton Chapter of the Canadian Hearing Society (CHS) is equipped as well.



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Where Is It Looped Already? (Continued)

The Hearing Loop system is now mandatory in the United Kingdom, and is spreading across the United States. There are thousands of installed Hearing Loops in the U.S., from small areas (New York taxi cabs), to medium-sized worship auditoriums, to large areas, like airports and Michigan State University's basketball arena.

Sources:
Bill Droogendyk, Better Hearing Solutions.

Myers G., David, Sterkens, Juliette. "In The Loop." *Sound & Communications*, 2010: Page 6.



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Installation

- The following design factors determine the type and size of amplifier and the layout of the loop antenna.
- Product safety and proper installation requires test equipment to ensure that the installation meets the requirements of **IEC 60118-4 standard** for audio loops to ensure sound clarity, sound volume and uniformity from one venue to the next.
- This includes measuring the following requirements;

Electro Magnetic Interference (EMI)

Field strength: 400mA/m

Frequency response: 100-5000Hz +/-3dB



Sometimes the loop may need to be slightly adjusted to meet these requirements - this can result in overlapping the loop within the area.



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Source: Myers G., David, Sterkens, Juliette. "In The Loop." *Sound & Communications*, 2010: Page 8.

What's Involved In The Design?

1. New construction or retrofit.
2. Room size- length & width.
3. Room usage - standing or seating area; fixed or moveable seating.
4. Room coverage - the whole room or just a part of it; a whole building to just a part of it.
5. Location of existing sound system - if any.
6. Adjacent rooms - does loop spillover need to be controlled for privacy reasons.



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What's Involved In The Design? (continued)

7. Wall construction - wood or steel studding.
8. Floor construction - wood, concrete, on grade or suspended, amount of reinforcement metal used. Flooring materials - carpet, tile, ceramic.

*This is important because reinforcement metal in the flooring can affect field strength and disrupt the connection made between the loop and one's hearing device.

*Additional construction may need to be done due to flooring materials (e.g. lifting up tiles to be able to place the loop cable on the floor).



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