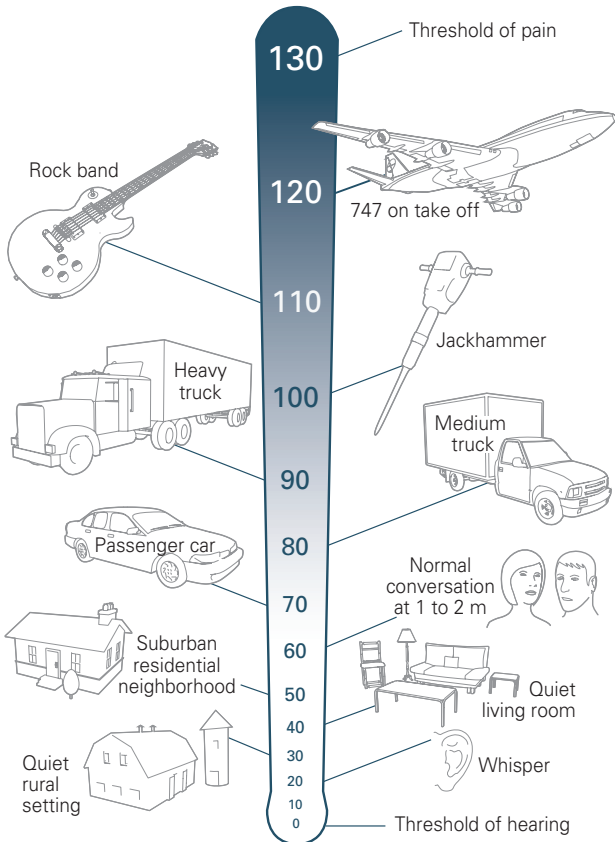




SOUND AND NOISE

DECIBEL SCALE (dBA)



Decibel scale: sound levels typically created by sources of noise in the home and community

What is sound?

Our ears are sensitive to tiny fluctuations in air pressure that are created by vibrating objects (loudspeakers or rolling tires), moving liquids (splashing water) or exploding gases (engine exhaust). The fluctuations and the sensations they produce in our ears are called sound.

Sound travels in waves, spreading out from its source like ripples on a pond. The stronger the motion of the source, the louder the sound. The faster the source vibrates, the higher the frequency or pitch.

How is sound measured?

Sound is measured on a decibel scale and expressed in dBA, which is a logarithmic scale, similar to the way the magnitude of an earthquake is measured on the Richter Scale. The range for normal hearing is generally between 0 and 130 decibels (dBA). It should be noted that on a decibel scale, each 10 dBA increase in the level of a given noise produces roughly a doubling in our perception of its loudness. For example, a noise at 40 dBA is not twice as loud as the same noise at 20 dBA, rather it would be four times (doubled and doubled again) as loud.

When does sound become noise?

Noise is unwanted sound. The level at which sound becomes noise is a personal judgment which depends on your sensitivity, attitude and past experiences. Music to one person's ears (e.g., a Wagner opera or a Harley Davidson at full throttle) may be noise to another's.

According to the Workers' Compensation Board of British Columbia, significant hearing damage will result from daily exposures to sustained noise levels of 80 to 85 dBA or from progressively shorter exposures to higher noise levels.



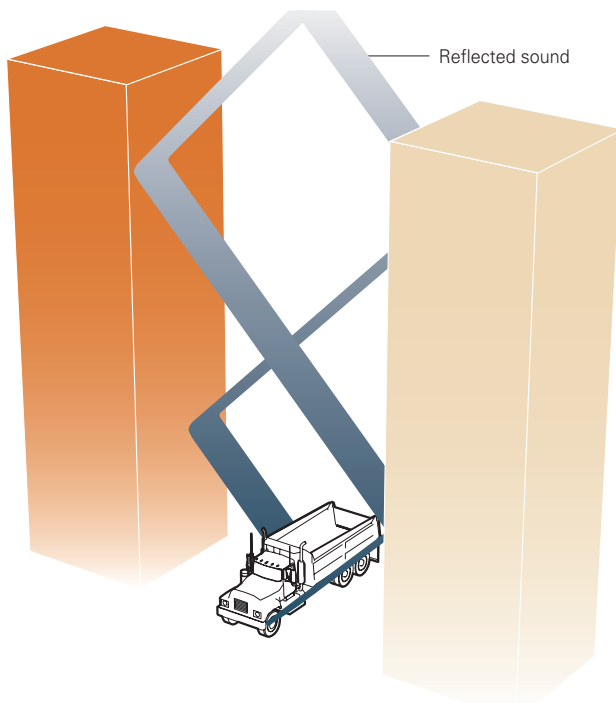
How much noise are we exposed to in the city?

Living in the heart of a city will inevitably be a much noisier experience than living in the country. As one moves closer to the city core, noise levels will increase, with the highest levels being in densely populated or high traffic areas.

Downtown is particularly vibrant which leads to increased noise levels. Buildings are closer to the roadway, which means there is less available soft porous ground to soak up noise. Street noise from the greater number of cars, buses and trucks in the downtown core is amplified where sound bounces back and forth between all the hard, reflective surfaces of the tall buildings. Residents are directly exposed to this noise while on the balconies of their highrise buildings and within adjacent indoor spaces.

This table shows the different noise levels found in various residential areas within a 24-hour period.

Residential environment	24-hour average noise levels (dBA)	Subjective loudness
Urban residential on major arterial or highway	65 – 75	Outdoor spaces generally not usable, potential indoor speech interference, sleep disturbance
Urban residential on arterial road or minor highway	60 – 65	Speech interference outdoors, increasing potential for sleep disturbance
Urban residential near arterial road	55 – 60	Possible speech and sleep interference
Urban residential away from arterial/main streets	50 – 55	Still generally quiet
Quiet suburban	45 – 50	Quiet
Rural residential	40 – 45	Very quiet
Undeveloped rural	35 – 40	Extremely quiet



Canyon effect: sound reflection between highrise buildings



Noise is part of a vibrant and healthy community.



AUDIBLE PEDESTRIAN SIGNAL AT INTERSECTION

Visually impaired pedestrians depend on these sound devices to cross the street safely, allowing basic mobility that we all take for granted.



SOUND MYTH: Noise is a modern day phenomenon.

SOUND TRUTH: Noise and city living are two things that have gone hand in hand for as long as cities have existed. In Roman times, rulers had to pass a bill that prohibited chariot driving on cobblestone streets at night.