

# CANADIAN STANDARDS ASSOCIATION ACTIVITY IN ACOUSTICS

## 2000 UPDATE

**Tim Kelsall**

Hatch Associates, 2800 Speakman Drive, Mississauga, Ontario L5K 2R7  
tkelsall@hatch.ca

### ABSTRACT

This article gives an update of Canadian Standards activities in Canada, especially those of the Canadian Standards Association. They currently have 10 Acoustics Standards and two more with significant acoustics content. Two committees and a variety of subcommittees involving many Canadian acousticians and industry representatives write and review these standards for the Acoustics community. An overview is given of the main activities and future directions of these groups

### RÉSUMÉ

Cet article présente une mise à jour des activités de normalisation au Canada, tout particulièrement celles de l'Association canadienne de normalisation. L'association a présentement 10 normes acoustiques et deux autres comportant des normes acoustiques détaillées. Deux comités et divers sous-comités comprenant plusieurs acousticiens canadiens et représentants de l'industrie rédigent et passent en revue ces normes pour la communauté acoustique. Une vue d'ensemble de leurs activités premières ainsi que la direction future de ces groupes y est présenté.

## 1.0 Introduction

This article is intended to give an update for 2000 of acoustics standards activity in Canada, concentrating on the CSA acoustical standards activities. The Standards Council of Canada oversees all Canadian standards bodies, including CGSB, CSA and the Technical Advisory Groups formulating Canada's input to ISO and IEC international standards. There have been CSA standards in Acoustics for over 25 years and the Z107 Committee on Acoustics and Noise Control is still active in many areas. The Canadian Standards Association is the largest standards writing body in Canada and one of the largest in the world.

Standards are not regulations. They are developed by groups which are intended to represent diverse interests, not by regulators. In some cases, such as the Electrical Code, provincial or federal regulations may refer to standards, effectively giving them the force of law. In other cases, such as the playground safety standard, it is up to the users to decide whether they want their playground to meet the requirements of the standard.

Several Acoustics standards are referred to by regulations, notably Z107.56, Procedures for Measurement of Occupational Noise Exposure. It is referred to in the Federal and BC regulations and the proposed Alberta regulation. In most other provinces its use is voluntary but measurements taken using it are accepted as valid by most regulators. The hearing protector standard Z94.2, is also widely cited.

Others, such as Z107.21 and Z107.25 for motorboats and motorcycles, were intended for use in regulations, but the regulations were not written and these standards have been withdrawn.

## 2.0 Committee Activities

There are two CSA Technical Committees in Acoustics. Z94 is responsible for the Hearing Protection Standard Z94.2 which defines Type A, B, and C type hearing protectors and is widely referred to in occupational noise regulations. They are currently undertaking a major review of this standard in light of changes to the US hearing protector standards and procedures. This should mean the introduction of the user fit hearing protector measurements, similar to those used by ANSI and now recognized as being more representative of how hearing protectors are used in industry than the old technician fitted testing methods.

Z107, the Acoustics and Noise Control Technical Committee, is responsible for all other Acoustics standards. Several members belong to both committees and provide liaison between them.

Z107 is divided into 9 subcommittees. These include: Hearing Measurement, Vibration, Powered Machines Industrial Noise, Transportation Noise, Editorial (which reviews all proposed standards), Building Acoustics, Instrumentation Calibration and liaison with the Canadian

Steering Committee for ISO TC43 and TC43(1). Each subcommittee is responsible for the standard or standards within its area.

As global harmonisation becomes more important, CSA has started to adopt and endorse international standards where possible rather than writing their own. In areas where standards apply to goods coming from or going to other countries, use of international standards makes considerable sense.

Adopting a standard, which means republishing it, with changes or additions if necessary, costs less than half the cost of writing a new standard. Endorsing, which means that the standard has been reviewed and found suitable for Canadian use is the least expensive option, but less useful because the standard is not so readily available. Given our location, adopting or endorsing international or US acoustical standards has been common practice for years.

Table 1 shows all the Canadian Standards currently in force and also lists two standards whose Acoustics sections were written with the assistance of the Z107 committee. This table will also soon be found at the CAA website and will be kept up to date there. Meanwhile the list can be found at <http://www.csa-intl.org/onlinestore/GetCatalogDrillDown.asp?Parent=6>

### 3.0 Current Activities

Some current highlights include:

#### 3.1 Transportation

The newest standard to be published is Z107.9, Highway Noise Barriers. It came out in early 2000 and sold out its first printing of 100 within months. This standard is an adaptation of the Ontario MTO Highway Noise Barrier specification. It is intended to provide municipalities, developers, road and highway departments, railways and industry with a standard specification which can be used to define the construction of barriers intended for long term use in Canadian conditions.

Specific manufacturers' barrier designs are certified as complying with the standard in such areas as: materials used, weathering and corrosion resistance testing, STC, NRC, etc. Each barrier installation is reviewed and certified for compliance with such items as footings design, material sample testing, welding, caulking, backfilling, etc.

As can be seen, this is much more than simply an acoustics standard, but it fills an important need in the industry and drafts have been used by several municipalities in recent years. Essentially it allows regulators, consultants or engineers to specify a barrier's construction and associated

longevity simply by referring to one standard.

The US Highway Barrier Design Manual is already harmonised with the CSA standard, as is the Ontario OPS. ANSI is also looking at adopting the standard or harmonising with it. This ultimately could mean that a certified barrier would be qualified to be used anywhere in North America.

#### 3.2 Industry

The Industrial Noise Subcommittee is the most varied and active subcommittee.

Ongoing activities include:

- A working group looking at adopting the ISO 1996 rating systems for community noise (for tonality and impulse corrections among others) with an informative annex describing their use in the Canadian context, discussed below,
- A writing group preparing Guidelines For The Declaration Of Machinery Noise Emission Levels, discussed below.
- An ad-hoc writing group preparing an acoustics chapter for a new version of the CSA Office Ergonomics standard, discussed below
- A group looking at adopting or endorsing ISO 9613 (2) on propagation of industrial noise and either integrating it with or replacing the current CSA standard.

##### 3.2.1 Guidelines For The Declaration Of Machinery Noise Emission Levels

One of the initiatives underway under the auspices of the Industrial Noise subcommittee is a writing group preparing Guidelines For The Declaration Of Machinery Noise Emission Levels which would be a voluntary guide for noise labelling of machinery for use in Canada and compatible with the European regulations to allow machinery to be sold into that market.

Labels in this context refer to a statement of sound levels produced by the equipment which would be included with the instruction or maintenance manual. Measurements are made according to ISO standards and include estimates of the likely variability of the measurements.

This initiative may ultimately make it much easier for Canadian industry to buy quiet machinery with confidence and for Canadian manufacturers to sell into the European market.

### 3.2.2 Office Acoustics

Another of the initiatives listed above is a working group formed by the Industrial Noise Subcommittee to assist the Office Ergonomics committee with a major revision to their standard. A similar group assisted them at the last minute with an Acoustics chapter to the existing standard when it was published 10 years ago. This section has now been completely rewritten, expanded and brought up to date. It is also being aimed specifically at non-acoustical users to give them an idea of the issues involved and the resources available to them to provide good acoustical conditions in offices.

### 3.2.3 Adoption of ISO1996

A working group chaired by Chris Krajewski and including several Ontario consultants is examining using ISO 1996 as a way of updating the way tonal and impulse sounds are handled in community noise. They are currently running round robin tests of the procedures with various sample sounds.

### 3.3 Building Acoustics

The Building Acoustics subcommittee is currently trying to influence the rewriting of ASTM 336 so that it can be endorsed or adopted and be compatible with our National Building Code. The alternative would be to adopt and modify it or to write a Canadian Standard.

### 3.4 Instrumentation and Calibration

The Instrumentation and Calibration subcommittee have no standards of their own; instead they have endorsed or adopted IEC instrumentation standards and ANSI standards which can then be referred to in Canadian regulations and other standards. Every five years or more frequently the standards are reviewed automatically to ensure that the latest standards are being endorsed and that they are still suitable for use in Canada. In addition, the chairman, George Wong, is actively involved with the ISO and IEC working groups.

### 3.5 Editorial

The Editorial subcommittee also has no standard of their own. They have endorsed the ANSI Standard for Acoustics Terminology and have had input into it. This standard is updated regularly by ANSI and is reviewed by this subcommittee each time it is revised. The Editorial subcommittee main job is to review every standard written by a Z107. subcommittee, both as a final technical review and to ensure it meets the CSA editorial requirements. They are currently reviewing the labeling standard.

### 3.6 Main Z107.9 Committee

The committee meets twice a year, once during the Canadian Acoustics Week and once in the spring. They review progress by each subcommittee and vote on any new work proposals. The main committee is the last technical hurdle for a standard. The CSA will then have their editors put it into final form. The steering committee, to which the main committee reports, approves work and reviews completed standards, however they cannot make technical changes.

One other initiative that the main committee has been trying to propose for some years is a Guideline to provide a standard which summarises the major Canadian and International Standards for Canadian industry users. This is intended to make Acoustical Standard more accessible to Canadian users. Recently they were given authorization to proceed with this project.

New members are encouraged and anyone interested may contact Cameron Sherry, the Chairman, or the author, the vice chair. This article is the first in a series which will provide more information on the activities underway in all areas of Acoustics Standards in Canada.

**Table 1- CSA Acoustics Standards**

#### **CAN3-Z107.4-M86**

Pure Tone Air Conduction Audiometers for Hearing Conservation and for Screening

Audiomètres tonals à conduction aérienne pour la préservation de l'ouïe et pour le dépistage

#### **CAN/CSA-Z107.6-M90**

Pure Tone Air Conduction Threshold Audiometry for Hearing Conservation

#### **Z107.51-M1980 (R1994)**

Procedure for In-Situ Measurement of Noise from Industrial Equipment

#### **Z107.52-M1983 (R1994)**

Recommended Practice for the Prediction of Sound Pressure Levels in Large Rooms Containing Sound Sources

#### **Z107.53-M1982 (R1994)**

Procedure for Performing a Survey of Sound Due to Industrial, Institutional, or Commercial Activities

#### **CAN3-Z107.54-M85 (R1993)**

Procedure for Measurement of Sound and Vibration Due to

Blasting Operations

Méthode de mesure du niveau sonore et des vibrations émanant des opérations de dynamitage

**CAN/CSA-Z107.55-M86**

Recommended Practice for the Prediction of Sound Levels Received at a Distance from an Industrial Plant

Pratique recommandée pour la prévision des niveaux sonores reçus à une distance donnée d'une usine

**Z107.56-94**

Procedures for the Measurement of Occupational Noise Exposure

Méthode de mesure de l'exposition au bruit en milieux de travail

**Z94.2-94 • CAN/CSA-Z94.3-92**

Hearing Protectors

Protecteurs auditifs

Standards with Acoustics Component:

**Z62.1-95** Chain Saws

**CAN/CSA-Z412-M89** Office Ergonomics

L'ergonomie au bureau

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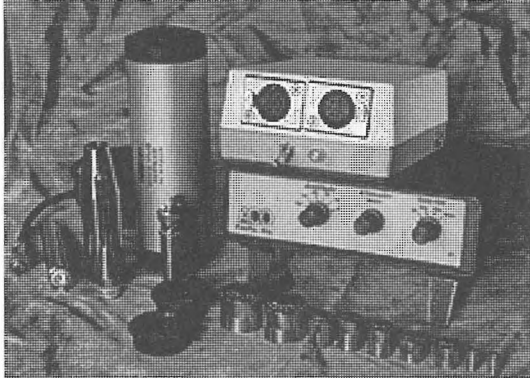
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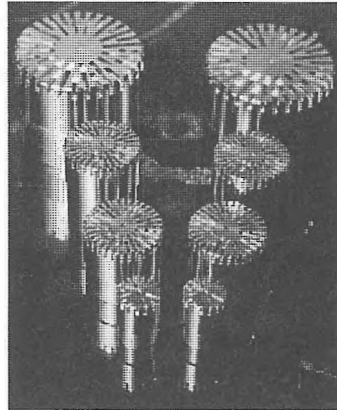
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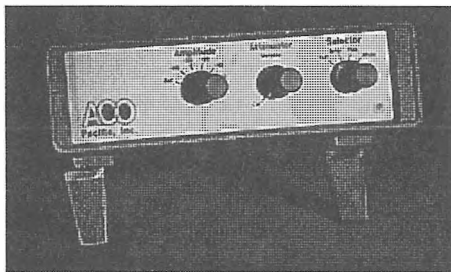
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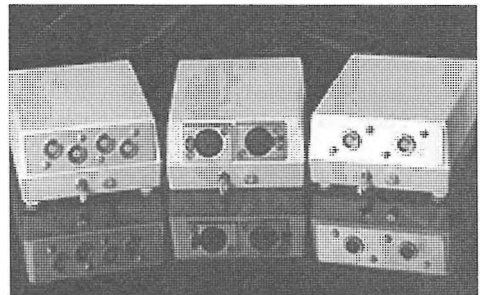
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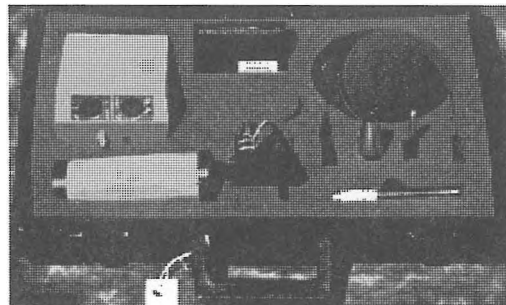
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