

AIRCRAFT NOISE CONTROL AND LAND USE IN CANADA

PRESENTATION SYNOPSIS

GENERAL

Aviation , in Canada is regulated through the authority of the federal government. The Aeronautics Act gives the Minister of Transport the power to enact regulations affecting noise from aircraft and airports.

REGULATION OF AIRCRAFT NOISE

There are three principal regulations that deal with aircraft noise in Canada. More specifically, these deal with 1) the use of noise sensitive runways, 2) noise operating restrictions at airports and 3) dealing with noise at source, the aircraft. In addition, there are a number of other regulations that govern various aspects of flight in Canada that, when enforced, have a noise benefit (for example, low flying prohibitions).

The regulation that deals with noise sensitive runways serves to prohibit operations of very noisy aircraft on specific runways. The regulation identifies specific runways at named airports where takeoffs of noisy aircraft are not permitted There are 27 runways at 9 airports listed in the regulation.

The noise operating restrictions regulation lists ten types of procedures or restrictions that can be applied at an airport. The regulation goes on to specify that restrictions and procedures listed in the national flight publication are enforceable under federal law. If a procedure or restriction of the type listed in the regulation, appears on the entry or approach plate for a specific airport, then it is in effect and will be enforced under federal law. In Canada there are 3 main international airports that have some type of night restriction in effect. These restrictions are empowered by this regulation. Violation of these restrictions will result in prosecution of an offender. Noise based procedures are also enforceable under the regulation.

We have adopted the noise emission standards contained in Volume I of ICAO Annex 16. A regulated phase out of Chapter II aircraft is in progress in Canada and the schedule is in line with resolution A28-3 passed at the Extraordinary Session of ICAO in the early 1990's. Chapter II aircraft will be barred from operation in Canada as of April 1, 2002. The latest jet aircraft fleet calculations show that in excess of 90% of jet aircraft weighing over 34,000 Kg. comply with the Chapter III standard.

ENFORCEMENT OF NOISE REGULATIONS

The Aeronautics Act amendment of 1985 incorporated a concept called the Canadian Aviation Tribunal. This was done to establish a Tribunal for aviation and remove a number of cases from

the Civil Courts where we were having to educate the judges on aviation matters each time we went to court. With this Tribunal, we now have a legal mechanism that is knowledgeable on aviation matters and items coming to the tribunal are processed expeditiously. Penalties can be imposed for violations and can result in fines and, in extreme cases, removal of the privilege of flying. Maximum fine levels are \$25,000 for a company and/or \$5,000 for an individual. Air operators freely avail themselves of the appeal avenues contained in the Tribunal's procedures.

Fines are levied in a progressive manner, usually starting at a low level for first time or minor offenses and progressing to higher levels for repeat or more severe offenses. (SEE TORONTO EXAMPLE) A recent policy decision has the names of offenders published on the internet.

Noise abatement restriction and procedure violations are enforced under the Tribunal system. Maximum fines for these violations are \$25,00 and \$5,000 as specified above.

COMPATIBLE LAND USE IN CANADA

The separation of powers in Constitution of Canada places the responsibility for control of land at the provincial level. Provinces, in turn, delegate that power down to cities and towns that must exercise this authority within a set of provincially mandated principles.

Transport Canada provides a noise contouring system, the Noise Exposure Forecast System, that has been designed to predict annoyance from aircraft noise. It is used for long term land use planning. It is based on the ICAO recommended model and is used at airports throughout Canada. The NEF model is supported by a document that contains land use guidance which is designed to achieve compatible land use around airports.

Some Provinces have incorporated our guidance into their land planning acts and development around certain airports must now be done in compliance with the adopted federal guidelines. Of course, some other provinces have not formally adopted this guidance but still use it as a basis for land planning decisions.

A recent study was undertaken to review the NEF system to determine its validity as a prediction system. The results of the study showed that the Canadian NEF system compared favorably with other prediction models in use throughout the world. For comparison purposes, it was determined that the Canadian NEF System could be equated to the Day-Night Level system contained in the Integrated Noise Model by adding thirty one to the NEF value ($NEF + 31 = DNL$). The Canadian NEF system incorporates a night penalty that equates to 12.2 dB compared to the DNL's use of 10 dB.

Our guidance to cities and towns is contained in a compatible use table which recommends that residential housing construction not be undertaken inside the NEF 30 contour. Canadian housing construction techniques and materials have evolved over the last 15-20 years and this evolution has been targeted at developing better thermal insulation to deal with the cold climate.

In conjunction with this development, a study is in the final stages of completion to examine the acoustic insulation attributes of this change. The laboratory work has been done and we are just documenting the field trials. A multi-media acoustic insulation design system will be produced later this year.

LAND ZONING IN CANADA

The Aeronautics Act contains three provisions for zoning land adjacent to airports in Canada. As mentioned above, land planning control rests at the provincial/municipal level however, aviation requirements are protected. The Act provides for the implementation of zoning regulations that restrict the heights of structures for the protection of airport approach surfaces. These regulations do not exercise control over what can be constructed, only the height of structures. The only exception to this control is the placement of wildlife attractants (landfill projects). Other zoning powers deal with the protection of aids to navigation.

There is a provision that permits the Minister to enact a compatible use zoning regulation where all attempts to convince a city or town not to allow incompatible development have been unsuccessful. The Minister may implement emergency regulations to prevent such use. This power has never been exercised in Canada.

CONTACT:

Tom Lowrey: Tel: (613) 990-3742; Fax: (613) 990-0508; email: **Error! Bookmark not defined.**

Mailing address: Tom Lowrey
 Noise and Land Use
 Aerodrome Safety Branch (AARM)
 Transport Canada
 Ottawa, Ontario
 Canada
 K1A 0N8

Transport Canada Web address is www.tc.gc.ca

The manual Land Use in the Vicinity of Airports (TP 1247) contains our guidance in documentary form and is available on our web site. The Canadian NEF Noise Contouring Model is also available from the website. Contact the above address to obtain a copy of the User's Manual.