AS 2021:2015

Acoustics—Aircraft noise intrusion—Building siting and construction

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- Airservices Australia
- Aircraft Noise Ombudsman
- Australian Acoustical Society
- Australian Airports Association
- Australian Association of Acoustical Consultants
- Australian Helicopter Industry Association
- Australian Local Government Association
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- Master Builders Australia
- National Acoustic Laboratories
- Northern Territory Planning Commission
- Planning Institute Australia
- Property Council of Australia
- University of New South Wales
- Urban Development Institute of Australia

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Australian Standard®

Acoustics—Aircraft noise intrusion—Building siting and construction

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PREFACE

This Standard was prepared by the Standards Australia Committee EV-011, Aircraft and Helicopter Noise, to supersede AS 2021—2000.

This Standard provides guidance on the siting and construction of buildings in the vicinity of airports to minimize aircraft noise intrusion. The assessment of potential aircraft noise exposure at a given site is based on the Australian Noise Exposure Forecast (ANEF) system (for processes and details of this system refer to Appendices A and B).

This edition provides expanded aircraft noise tables and incorporates various associated amendments to the text. A new Appendix has been added to describe the process that should be followed in producing an Australian Noise Exposure Forecast (ANEF) chart for use in applying this Standard.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

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FOREWORD

Aircraft noise intrusion within a building depends substantially on—

(a) the location, orientation and elevation of the site relative to the aircraft flight paths;

(b) the types and frequency of aircraft operating from the aerodrome;

(c) meteorological conditions;

(d) the types of activity (including sleep) to be, or being, accommodated in the building;

(e) the type of layout, construction and ventilation used; and

(f) the internal acoustic environment.

The data contained in the aircraft Noise Level Tables (Tables 3.4 to 3.58) are based on modelling, which in turn is based on actual measurements and are estimates of the noise levels emitted by the aircraft currently operating. These data will be amended as new aircraft are commissioned and as otherwise necessary.

Exposure prediction below 25 ANEF may be significantly inaccurate, and therefore caution should be exercised in the evaluation of locations outside the 25 ANEF contour. In addition, the extent of noise reduction required for a building may depend in part on the amount of noise from sources other than aircraft. Because of these factors and of the special acoustic requirements of certain types of building, it will sometimes be necessary to undertake supplementary noise measurements so that a sufficiently representative prediction of the noise exposure at the site under evaluation can be obtained. This is also true for aerodromes at which a significant number of training circuits occur. Such measurements should be performed only by personnel appropriately qualified in acoustics.

Human reaction to aircraft noise is known to depend not only on the amount of noise, but also on psychosocial factors such as personal sensitivity to noise, fear of aircraft crashing and attitudes towards aviation. Thus some individuals will be seriously disturbed by aircraft noise even when the building is sited and constructed according to this Standard.

This Standard has been developed to assist in building construction and land use planning in the vicinity of airports. It is not intended as a guide to the presentation of information about aircraft noise to the general public. A Handbook that is in preparation at the time of releasing this Standard will be developed by Standards Australia describing ways in which such information should be provided.

Some experience has shown that communities that are newly-exposed to aircraft noise (e.g. as a result of the construction of new runways, or the redesign of flight paths near an aerodrome) tend to be more sensitive to such noise than communities that are accustomed to it. Land use planning must by necessity use a long-term horizon, and the building siting acceptability recommendations in this Standard are based on the reactions of noise-accustomed communities. Regulatory authorities are cautioned that a transient heightened reaction could result from substantial new noise exposure.

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