

ICC G2-2010

GUIDELINE FOR ACOUSTICS



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ICC G2 – 2010 Guideline for Acoustics

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Preface

Introduction

The principal purpose of the ICC Guideline series is to provide a state-of-the-art volume of knowledge that will contribute to the public health, safety, and general welfare in the built environment. Guideline projects are established based on market relevancy, demand, and the realization that existing technical information, regulations, or standards, if any, do not adequately address the subject or that such existing technical information needs to be enhanced, clarified and made more user friendly. ICC Guidelines are in-depth, topic specific technical publications that have global relevancy and may be used internationally. They are different from codes or standards in that they will generally use nonmandatory language.

Development

Development of the ICC Guideline series was approved by the ICC Board of Directors in September of 2008. ICC Policy GP

33-08 governs the development of ICC guidelines and can be viewed on the ICC website at www.iccsafe.org. ICC Guidelines are developed with the establishment of a Guideline Development Committee (GDC). The GDC is made up of a diverse stakeholder population and the participants are focused on ensuring high-quality and timely technical information for the built environment's usage. Upon the GDC reaching consensus the final draft is posted for a "Public Comment" period for 30 days. The GDC considers all public comments, revises the public comment draft as appropriate and sends its recommendations to ICC for publication.

Maintenance

ICC Guidelines are not required to be updated on a specific cycle; however, they will be reviewed periodically and may be updated through a GDC-established process as needed based on changing trends, technology or relevant technical information.



About This Guideline

ICC G2-2010 Guideline for Acoustics

Sound isolation in construction systems separating occupied spaces in all types of buildings is a necessity. This guideline calls for "improved acoustical analysis of assemblies, components and installation methods, and a more detailed inspection process beyond the minimum requirements traditionally found in building codes."

ICC G2-2010 provides recommendations to solve issues such as:

- The need to upgrade the current level and approach to sound isolation requirements in the building code. These are currently insufficient to meet occupant needs. This guide provides two grades of acoustical performance: *acceptable* and *preferred* performance levels for airborne and structure-borne noise. Both recommendations exceed the current code minimum.
- As sound-rated assemblies are installed in buildings, flanking paths and sound leaks can degrade their acoustical performance. Specific design and evaluation techniques for managing this potential degradation are provided in this guideline.

About the International Code Council

The International Code Council (ICC), a membership association dedicated to building safety, fire prevention and energy efficiency, develops the codes used to construct residential and commercial buildings, including homes and schools. The mission of ICC is to provide the highest quality codes, standards, products and services for all concerned with the safety and performance of the built environment. Most United States cities, counties and states choose the International Codes, building safety codes developed by the International Code Council.

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Other Guidelines of the Series

ICC G1-2010 Guideline for Replicable Buildings

Guideline for Acoustics Development Committee

The following GDC individuals participated in this ICC G2 – 2010 *Guideline for Acoustics* development process and reached consensus on the guidelines content:

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Introduction

The purpose of this guideline is to recommend suitable sound isolation performance for construction systems that separate occupied spaces in commercial and multiple-family buildings such as offices, hospitals, schools, condominiums, apartments, dormitories, hotels and mixed-use buildings. The recommendations in this guideline call for improved acoustical analysis of assemblies, components and installation methods, and a more detailed inspection process beyond the minimum requirements traditionally found in building codes. The intent is to reflect the findings of extensive acoustical research, to better match expectations for acoustical comfort of the building occupants and to prepare for anticipated code changes regarding sound isolation.¹

The guideline addresses three main issues:

1. The need to upgrade the current level and approach to sound isolation requirements in the building code. These are currently insufficient to meet occupant needs.
2. The technical reference materials that are used as a basis of acoustical design need to describe accurately the sound-rated wall or floor/ceiling assemblies. Ideally, such data should not be more than 20 years old.
3. When sound-rated assemblies are installed in buildings, flanking paths and sound leaks can degrade their acoustical performance. This potential degradation should be evaluated by one or more of the following techniques:

- a. Employ analytical or mathematical models during the design phase based on reference materials and resources.
- b. Verify the as-built acoustical performance of the assembly at the project itself.
- c. Verify the as-built acoustical performance of a mock-up assembly surrounded by its proposed construction elements.

Scope

This guideline addresses the acoustical performance of walls and floor/ceiling assemblies used to separate occupied spaces. This guideline gives recommendations for adequate and preferred levels of performance for both airborne and structure-borne noise. These performance requirements are specified in terms of the appropriate American Society of Testing and Materials (ASTM) test method and/or classification procedure. These recommendations may be applied to all types of assemblies and should be referenced during both the design and commissioning phases of the project.

This guideline recommends that the acoustical performance criteria be considered for use in multiple-family dwellings, and for certain commercial and health care settings such as closed offices, courtrooms and examination rooms for which acoustical privacy is necessary or expected.

¹ References to research that supports these conclusions and recommendations can be found in Appendix B.