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Acoustics — Acoustic quality of open office spaces

Acoustique — Qualité acoustique des espaces de bureaux ouverts

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Foreword

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This document was prepared by Technical Committee ISO/TC *43*, *Acoustics*, Subcommittee SC 1, *Noise*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Open-plan offices are increasingly common. They can cause apprehension from users due to noise and the difficulty of performing two theoretically contradictory activities in terms of acoustics: oral communication and focused individual work. In this type of space, disturbance caused by speech can result in tension between people who want to concentrate and people who are required to talk to perform their activity.

This document is concerned with the acoustics of open-plan spaces and, more specifically, cognitive effects of noise, i.e. acoustic comfort and noise disturbance linked to the obligations of the activity.

It is intended for stakeholders working in the planning, design, construction or layout of open-plan offices. Its aim is to help them provide users with a good level of acoustic comfort. It is meant as a basis for discussion and dialogue between the stakeholders involved in creating office spaces. In particular, it is intended for project owners to fine-tune the drafting of the acoustic specifications and help project management companies decide upon their objectives and the resources linked to the architecture and layout of open-plan offices.

The aim of this document is to offer principles, descriptors and measurement methods to characterise acoustics, which are easy to use and correspond to the perception of the acoustical environment by the occupants of the spaces.

Studies[3] to [5] have shown that noises that are uncontrollable, intelligible and with no link to the activity of an individual are the most disturbing and shall be minimised. They most often come from adjacent workstations, recreational areas, shared areas or neighbouring offices. For this reason, this document is focused on containing speech propagation.

The approach chosen for open-plan spaces is to limit disturbance between adjacent workstations but also to optimize comfort for short-distance conversations. The underlying idea is that a high level of intelligibility in the area of communication (near to the workstation) results in less disturbance at more distant workstations. This document addresses the issues of noise comfort, in particular via the concepts of "discretion" and "distraction reduction".

This document provides an opportunity to reflect further, by including an analysis of activities that involve more or less collaboration on the one hand, and by addressing everything that constitutes an open-plan space on the other, in particular in terms of surface treatments and additional office layout such as furniture, acoustic screens or low dividers, etc.

This document establishes a link between acoustic quality and the acoustic performance to be achieved in an open office. The principles and descriptors apply to usual situations in terms of acoustic disturbance, privacy and discretion. They also include the working practices inherent to these spaces and the expectations of the organisations that use them regarding productivity and the well-being of employees.

This document reflects the technological and economic context of office construction in relation to both operations in unfurnished offices and resulting layout practices. In addition, this document reflects the expectations of the end users, based on the experience from the members of the commission and publications available at the date the text was drafted.

