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View Abstract

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TITLE: Portuguese admissibility criteria for re-radiated noise from underground metro lines
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ABSTRACT BODY: Abstract (200 words): The improvement of the quality of housing buildings, mainly in terms of their sound insulation, has led to consideration of other aspects than those currently taken into account, such as the effects of low-frequency noise. In urban areas, the effects of vibrations due to rail traffic have been increasing significantly throughout the years. Building occupants can effectively perceive vibrations as mechanical oscillations (for frequencies between 1-80 Hz) or indirectly as re-radiated noise (in the frequency range of 16-250 Hz), causing physical and psychological disturbances. When rail traffic circulates in tunnels, as happens with metro lines, the re-radiated noise can be particularly noticeable in houses with good sound insulation. Currently, there is no consensus on how to assess the human response to indoor vibrations since the methodology used in several countries is rather different, as can be seen from the national standards or published legal requirements. This paper presents the admissibility criteria proposed in Portugal for the assessment of re-radiated noise, its applicability and drawbacks. These aspects are discussed based on vibration measurements inside buildings (in this case, floors) and simulations associated with metro lines in tunnels.
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