

How to Deal with Rail Vibration

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This presentation discusses rail vibration with respect to limits, available mitigation technologies (focusing on under-ballast mats and floating slab track) and implementation considerations for rail vibration mitigation.

Environmental vibration impacts of railway operations generate concerns for both structural damage and perceptible vibration. A variety of standards and guidelines are available which define appropriate vibration limits for rail. A discussion on US, Canadian and International standards and guidelines, and their associated vibration limits will be presented.

There are a variety of mitigation technologies available to address rail vibration impact. The appropriate selection and implementation of rail mitigation depends on the vibration limits of concern, the amount of vibration generated and practical implementation on the site. A variety of rail vibration mitigation types will be presented, with emphasis on under-ballast mat and floating slab track technologies.

Practical implementation of under-ballast mat and floating slab track systems will be discussed. This includes constraints which affect performance (e.g. soil properties, loading scenarios), and those that affect the operational or maintenance performance (e.g. stray current, drainage and freeze/thaw). Project examples will be presented to highlight these challenges for both under-ballast mat and floating slab track installations.
