

## Noise control along main railway lines in Denmark

**Forty seven kilometres of acoustic screening and soundproofing of 4,000 homes has considerably cut down noise from Denmark's railways during the past 20 years.**

When Banedanmark (Rail Net Denmark) initiated its Noise Project back in 1986, together with the Danish Environmental Protection Agency, the aim was to achieve the greatest possible noise reduction within the available resources. The Project also set out to protect the most severely affected dwellings from noise, since noise has an adverse effect on health.

The project takes in 19,000-20,000 homes along the main railway lines in Denmark, as well as the coastal line between Copenhagen and Elsinore and the railway lines in the Copenhagen Metropolitan area. It is scheduled for completion in 2010, by which time DKK 375m will have been spent.

"Preventive efforts in the planning and execution of the train operations cannot reduce the noise impact of the homes along the existing infrastructure. And that has necessitated an active effort to combat noise and provide noise protection," explains Lisette Mortensen, a noise coordinator from Rail Net Denmark.



Acoustic screening beside tracks helps reduce railway noise.

### Acoustic screens and new windows

Soundproofing is done either by granting subsidies for extra sound insulation of homes or by building acoustic screens. Acoustic insulation is usually provided in the form of new windows.

More than 4,000 homes are protected against noise with acoustic screening, and more than 11,500 have been offered soundproofing grants; just under 4,000 that have taken up the offer. The criteria for receiving a grant are that the level of noise near the dwelling shall be greater than 65 dB and the indoor noise level must be reduced by at least 5 dB.

"At 5 dB the human ear can perceive a substantial change over time. Some people find themselves virtually unable to hear the trains any more," says Lisette Mortensen.

### Contemplating next move

The project is concentrating on those dwellings that are exposed to a noise level in excess of 65 dB. That's 5 dB above the guideline threshold value for

### Want to know more?

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train noise for newbuild homes along existing railways.

"But the actual value is reduced to something approaching 60 dB in keeping with the use of new and considerably quieter rolling stock," says Jens Erik B. Jensen, project manager at COWI, who has been involved as a consultant engineer from the outset.

Rail Net Denmark will be contemplating its next step once the project ends in 2010.

"We need to get the project evaluated, but also consider whether we are going to carry on along other sections; and whether new home owners are to be given the same offer as those owners who passed up the offer," says Lisette Mortensen.

By Gitte Roe Eriksen  
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