# Accepted Manuscript

Title: Abatement cost of embodied emissions of a residential building in Sweden

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PII: S0378-7788(17)33315-7

DOI: https://doi.org/10.1016/j.enbuild.2017.10.023

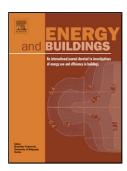
Reference: ENB 8042

To appear in: *ENB* 

Received date: 2-4-2016 Revised date: 9-5-2017 Accepted date: 4-10-2017

Please cite this article as: Martin Andersson, Jonas Barkander, Jun Kono, York Ostermeyer, Abatement cost of embodied emissions of a residential building in Sweden, Energy and Buildings https://doi.org/10.1016/j.enbuild.2017.10.023

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Abatement cost of embodied emissions of a residential building in Sweden Martin Andersson\*, Jonas Barkander\*, Jun Kono, York Ostermeyer

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Keywords: embodied emissions; LCA; optimization; building sector; Sweden; carbon abatement

### Acknowledgements

We want to take this opportunity to thank the people at Skanska. Without you this study wouldn't have been possible. We would especially like to thank Jeanette Sveder Lundin and Sara Thor for their commitment and interest in the topic.

# **Highlights**

- Abatement of embodied emissions was found cost effective in relation to carbon dioxide abatement in other sectors.
- Embodied emissions could be reduced by 15 % using cost neutral or nearly cost neutral measures.
- Acoustic requirements were found to be a limiting factor in abatement of embodied emissions.

#### **Abstract**

In 2010, the world's buildings accounted for approximately 19 % of all greenhouse gas emissions. These emissions stem from both the construction and operation of buildings. In recent years the carbon efficiency of energy sources and energy efficiency of new buildings has been improved in Sweden. Therefore, embodied emissions accounts for an increasing share of the life cycle emissions of new buildings. This study aims to asses the cost effectiveness in abatement of embodied emissions. This was done by assessing the embodied emissions of a case building and several conventional design measures along with the implication on production cost. It was found that many of the measures enabled cost effective carbon abatement. Embodied emissions could be reduced by 15 % using cost neutral or nearly cost neutral measures. Abatements up to 18% were found cost effective in relation to abatement of carbon dioxide emissions in other sectors. Abatements up to 24 % were

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