

Sustainable management of construction waste, recycling of fire-rated Products

The building sector is very important for Sweden and the Swedish economy. The climate impact of the building sector in Sweden is close to 10 million ton CO2-equiv. per year. Further the sector corresponds to approximately 40% of Sweden's total energy use and creates a significant portion of the total material flows in and waste produced by Swedish society. There is a clear and pressing need to reduce the amount of waste, but focus should be placed on reducing the primary production of waste and increasing the portion of material and products that are re-used as opposed to other end-of-life options.

Objectives and goals

This objective of this product is to conduct a preparatory investigation in support of re-use of building products. The goals are, more specifically, to:

Map which products and material (with fire safety requirements) are suitable for re-use on a large scale in Sweden
Investigate the state-of-the-art in knowledge concerning re-use (with a focus on construction and demolition waste) of such material and products

• Map potential opportunities and barriers in the building regulations to re-use of such material and products.

Methods

The project has been conducted in two parts using the following methodology:

Part 1 – Literature study and mapping of products used in typical building types

Part 2 - Analysis of building regulations

Results

The literature study has shown that while there is literature available concerning the reuse of certain building material and products, very little published work has investigated the impact of fire safety requirements on the potential for product or material reuse. The overview of material use shows that a large part of the climate impact of buildings is associated with the building structure. Intelligent selection of construction material and reuse of products such as concrete elements have the potential to significantly reduce the climate impact of a building. The overview of building regulations shows that large scale reuse of material and products is possible under the present regulatory framework, even for products with fire safety regulation associated with them, but that this requires a solid working knowledge of the building regulations and early inclusion of reuse as a building objective. There are, however, still numerous questions connected to reuse of material and products (both those with and without associated fire safety requirements), e.g. insurance of such products, quality assurance, aging, product and material approval etc. It is the project group's intention that the results will argue eloquently for the need for continued studies centered around specific building projects.

RESEARCH TEAM



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www.brandforsk.se - info@brandforsk.se

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