

# Collection of Required Data for Assessing the Emissions of a Demolition Project

Summary of the pilot report 04/2023, the CO2 DataHub project

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<b>Name of the pilot</b>	Collection of Required Data for Assessing the Emissions of a Demolition Project
<b>Project team</b>	Vastuu Group and Sitowise Group Oyj
<b>Participants</b>	City of Raisio

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Finland aims for carbon neutrality by 2035.

The CO2 DataHub research and development project supports this goal by developing methods for the gathering, evaluation and data-based management of carbon dioxide emissions in the supply chains of companies and cities.

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**In the CO2 DataHub project, Sitowise and Vastuu Group executed a pilot project for the following five cities: Espoo, Lohja, Porvoo, Tampere and Raisio. The pilot project of the City of Raisio focused on a demolition site. The aim was to create guidelines for collecting the required data for emissions calculations of future demolition projects. With the help of these guidelines, emissions calculations can be executed during future demolition projects and the contractors can be obliged to deliver the required data for the purposes of these calculations.**

**As for the City of Raisio, its aim was to find the correct working methods which would take emissions into account in demolition projects, and this pilot project was seen as a learning process for this aim. The City of Raisio has not yet set goals regarding carbon use or sustainability for demolition projects, but thanks to the information received from this pilot and the information to be received from future projects as well as the guidelines produced during this pilot project, these types of goals can be set in the future.**

The City of Raisio will demolish an old school building of Vaisaari Junior High School (Vaisaaren koulu) in 2025. The building was built in 1967 and its expansion part in the fall of

1977. The city is interested in assessing the carbon footprint of the demolition project and setting goals for carbon footprint calculations. As the contractor for the project has not yet been chosen, there are still many issues in the demolition that can be impacted.

The emissions of a demolition site will constitute a few percentages of the whole environmental emissions of the building's life cycle, depending on the building type and the construction year. The different sectors of the emissions of the demolition stage are the energy consumption of the demolition site, demolition waste transportation, waste disposal and final disposal of waste. The demolition is the last stage that is included in the stages of a building's life cycle according to the standard EN 15978.

The carbon footprint of a demolition project can be reduced by recycling the demolition waste more efficiently, minimizing the duration of the project and using low-emission or zero-emission energy in the demolition itself and in the waste transportation. One can also affect the emissions already in the planning phase of the demolition project by mapping out the material suitable for reuse and finding them new purposes.

A workshop was organized to map out the available data on the demolition of the Vaisaari Junior High School as well as the data needs of the City of Raisio. As the data available on the demolition project of Vaisaari Junior High School was fairly sparse, the City of Raisio felt that the most important goal of this pilot project would be to receive data and guidelines on what kind of data the city should collect from the contractor so that the carbon footprint could be more accurately assessed while planning the demolition of Vaisaari Junior High School and other demolition projects.

Hence, guidelines for the collection of source data for the purposes of emissions calculations of demolition sites were produced by experts. These guidelines specified what type of data should be collected for the purposes of emissions calculations of a demolition site and how the contractors should be instructed as well as obliged to deliver this data. There were two types of calculation methods specified in the guidelines: 1) accurate calculation, and 2) mean calculation and its required source data. Additionally, the guidelines also introduce the principles for emissions calculations of a demolition site as well as the essential data sources. A table that the city can use to instruct contractors and as the basis for the collection of source data was also attached to these guidelines.

As a result of this pilot, the City of Raisio received information concerning how the contractors of future demolition sites can be instructed and obliged to deliver the data

needed for calculating the emissions. However, these guidelines were not tested in practice during this pilot project.

The goal of creating a data product and piloting it was not achieved as there was no demolition site that would have had enough available data for actually calculating the emissions. These created guidelines can, however, be used for data-based emissions calculations in the future. The delivery process of the data needed for these calculations could also be automated at least partly, but defining the delivery method requires co-operation with the contractors of the future demolition projects.

*The pilot case report was prepared in co-operation by Vastuu Group Oy and Sitowise Oy. In accordance with the principles specified by the project steering group, the full report is only available to the organizations that participated in the research and development project.*

**Further information:**

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