

# 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> | Guiding the Confirmatory Carbon Footprint Calculation of a House Construction Project |
| <b>Project team</b>      | Vastuu Group and Sitowise Group Oyj   |
| <b>Participants</b>      | City of Espoo   |

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Finland aims for carbon neutrality by 2035.

The CO<sub>2</sub> 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. As for the City of Espoo's pilot project, the focus was on the Tähystäjä Daycare (Tähystäjän päiväkoti) and its construction project's confirmatory carbon footprint calculation guidance.**

**The aim of this pilot project was to produce instructions for the collection of the required data for an emission calculation for the contractors of the building project of Tähystäjä Daycare as well as for other future projects. These instructions would facilitate achieving the goals related to energy consumption and, at the same time, the initial carbon footprint calculation could become more accurate.**

**The goal for the City of Espoo is to find the most suitable working methods so that emissions could be taken into account in construction projects. It was hoped that the instructions produced in this pilot project could be used to manage the size of the building project's carbon footprint, if there was a defined level for it.**

A daycare building for 14 daycare groups will be built at the address Tähystäjänkatu 2, 02320 Espoo, by the City of Espoo. The daycare will have both Finnish and Swedish

speaking groups in the same building. The city had already hired a consult to execute an initial carbon footprint calculation. The City of Espoo is interested in defining the actual carbon footprint of the building project and setting a goal for the size of the carbon footprint for future projects.

The emissions of a construction site of a new building consist of the emissions caused by the different stages of producing different products (A1–3), transportation (A4), the operations taking place at the construction site and waste (A5), repairs (B4), energy consumption (B6) and the end-of-life stages of the building's life cycle (C1–4). The largest emissions are caused by the production of different products. When building a new building, the carbon footprint caused by it can be decreased, for example, by using materials that have low emission intensity or forms of energy that cause zero emissions in the different operations of the site as well as transportation and by using energy efficiently (green energy) and by minimizing the need for reparations by planning maintenance actions accordingly.

In general, the City of Espoo has data available regarding quantities and materials of new buildings, but there is variance when it comes to the extent of this data. There is emission factor data available from different emission factor databases (for example, the CO2-data.fi database) and the data models of designers also include data on the actual building components, such as walls, doors and windows.

The target of this pilot case, Tähystäjä Daycare, was in the planning/building permit phase during the CO2 DataHub project. In order for the City of Espoo to assess the actual carbon footprint after the daycare building has been built, data concerning the used building materials and their quantities will be needed from the contractor. For the purposes of this, instructions for collecting the source material for the purposes of the emissions calculation of new buildings was produced by experts for the City of Espoo. These guidelines specified what type of material data should be collected for the emissions calculations and how the contractors should be instructed and obliged to deliver this data.

As a result of this pilot, the City of Espoo received information concerning how the contractors of future new building sites can be instructed and obliged to deliver the data needed for calculating the emissions and, thus, also manage the size of the project's carbon footprint. However, we did not receive information on how the instructions work in reality.

In this pilot project, the goal of creating a data product and piloting it was not achieved as it was noticed that the primary need for the City of Espoo was to instruct the contractors so that the calculation of the actual carbon footprint could be executed accurately. The

importance of the instructions for contractors as well as the discussion and co-operation with them was found to be essential in other CO2 DataHub projects in other cities and with other companies too. Thanks to the systematic and consistent collection of data by the contractors, the preparative tasks needed in order to get the data flowing are needed less, and this also makes it possible to steer building projects towards a more low-carbon direction with the means of reliable data.

*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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