

# Initial Calculation on the Carbon Footprint Caused by Tenant Alteration Work

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

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<b>Name of the pilot</b>	Initial Calculation on the Carbon Footprint Caused by Tenant Alteration Work
<b>Project team</b>	Vastuu Group Oy, Platform of Trust, Sitowise Group Oyj
<b>Participants</b>	LähiTapiola

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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 on the collection and utilization of emissions data for five different cities and for the insurance company LähiTapiola. As for the LähiTapiola's pilot project, the chosen topic was the initial calculation of the carbon footprint caused by tenant alteration work. The pilot examined how the data transmission process regarding the source data of alteration work project and its emission factor data could be automated.**

**This automation process was piloted with a prototype where the typical bill of quantities of building materials used in the alteration works was combined with their emission factor data found on the national emission database. Then, the project-specific emission data was brought to Sitowise's Louhi system's Power BI platform, where it was visualized and grouped.**

LähiTapiola's aim is to create future business premises using high quality materials so that the emissions caused by the building process would be as low as possible. As a landlord, LähiTapiola wishes to make material and device choices with as low a carbon footprint as possible both acquisition and life cycle wise. This also strengthens the visibility and progression of the company's environmental goals.

The tenant alteration work has usually not been planned when renting a facility, but LähiTapiola hopes that the tenant could be given an assessment on the carbon footprint of different alteration works and execution choices when renting out the space. As a result of this pilot project, LähiTapiola hopes to get standard carbon footprint data that could easily be utilized in different projects and project types in the future.

In the pilot project for LähiTapiola, an initial calculation of a carbon footprint caused by tenant alteration works was executed. The significance of emissions is always dependent on the scope and scale of the alteration works and the materials used. The emissions calculation was limited to the emissions caused in the production stage of the building materials, i.e. the stages A1 to A3 of the project's life cycle stages. There were two workshops organized within the project group. In addition to the project group itself, the representatives of a company working on another example renovation project attended the second workshop.

The available data was used in the prototype and calculated and visualized with the help of a typical bill of quantities of building materials needed for the alteration works. This data was combined with equivalent emission factors found on the national emissions database. To ensure the transparency of the calculation process, the prototype also presents where the quantity data and emission factor data have been acquired from and how the calculation process has been executed.

During the pilot project, it was noticed that calculating the emissions of the stages A1 to A3 of the alteration works based on the bill of quantities and national emission database is relatively easy for as long as the units used in the quantitative data can be changed into the units used in the emission database. This requires some manual work, so, in the future, it would be necessary to receive the material-specific conversion factor via the Platform of Trust platform. Not all of the materials had an emission factor in the CO2data.fi database, so they had to be retrieved from the background documents and then added manually. The rest of the required material data needs to be retrieved from other databases for the purposes of future projects. In the future, the units of emission results can also be edited as desired. As for the future, LähiTapiola may end up introducing rent increases for alteration work choices causing large emissions. It is also possible to include assessments on the reuse of the material received from the emissions database to the calculations.

As a result of this pilot project, LähiTapiola received information on what source data is necessary for the purposes of the emission calculations of alteration works and in what format it is possible and necessary to present the results of these calculations. Additionally,

the pilot helped to map out the required format of the source data and the most essential parameter for the sake of results. This pilot also facilitated the planning of additional components of emission calculations. LähiTapiola hopes that they could utilize carbon footprint data in the construction of new buildings so that the goal of achieving net zero emissions of managed investment assets by 2050 and resetting the energy consumption of the buildings managed by the company and the construction emissions by 2030 would be achieved.

*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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