

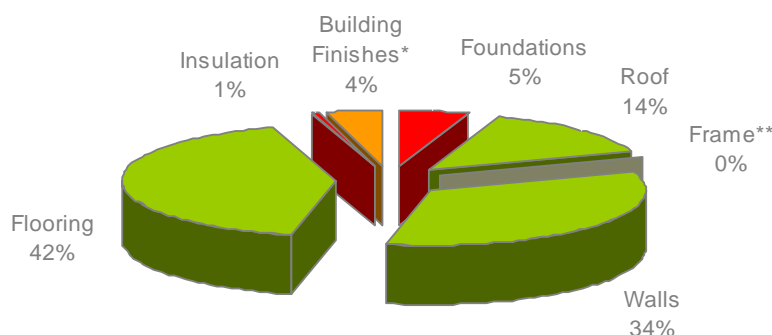
## Building Materials Carbon Indicator Case Study: Re-thinking School



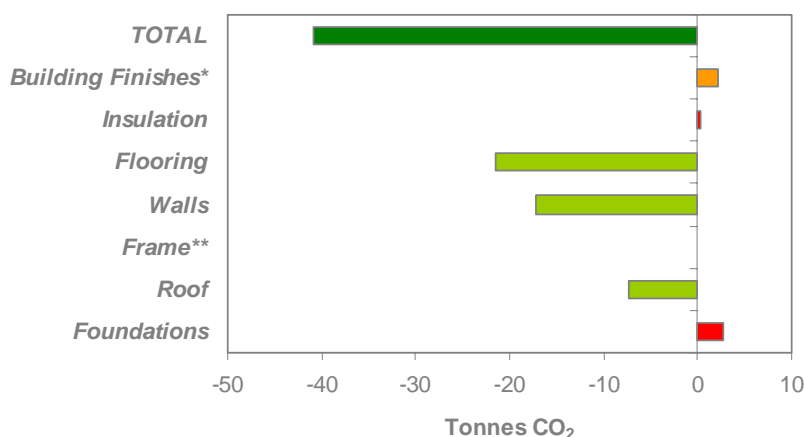
**Background:** The Building Materials Carbon Indicator is a simple tool that enables you to estimate the climate change impacts of the materials used in construction projects. You simply enter the quantities of materials used in the project and the tool will quantify the Greenhouse Gas Emissions associated with each element.

**Re-thinking School:** The Re-thinking School, by White Design, uses solid timber as its primary structure. The Building Material Carbon Indicator has been used to estimate the emissions associated with materials used in the construction of the Re-thinking School.

The emissions associated with the embodied energy of materials used in the Re-thinking School are estimated to be **-40.9 tonnes of CO<sub>2</sub>**. See the graphs below for a breakdown of emissions by building element.



The most significant CO<sub>2</sub> emissions source within the Re-thinking School is the steel in the foundations of the building. Steel is an example of a building material that has a high carbon intensity, as it gives rise to significant, energy and process related CO<sub>2</sub> emissions during its production.



The high content of wood in the Re-thinking School has reduced the carbon intensity of the building by **55.7 tonnes of CO<sub>2</sub>**, and is the reason why total carbon emissions are negative. Wood was used in the building's roof, walls, flooring and finishes (windows, doors and cladding). Selecting materials that have a low, or negative, carbon intensity can significantly reduce the emissions impact of a development. Wood has a negative carbon intensity, meaning that while a tree is growing, CO<sub>2</sub> is taken from the atmosphere, rather than being emitted into it, and carbon is sequestered and stored.<sup>1</sup>

<sup>1</sup> It should be noted that wood only has a negative carbon intensity if the timber is taken from a sustainably managed source (BRE 1999).

\* Includes materials with both a positive and negative carbon intensity.

\*\* The Re-thinking School walls provide structural support so it has no frame.