Carbon Emission Calculation Tool for General Construction Projects

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Abstract:

The global construction industry accounts for approximately 37% of carbon dioxide emissions. In pursuit of the goal of zero emissions, the construction industry faces even more significant challenges. The construction industry is a traditional industry, and related practitioners have little understanding of carbon emissions. To allow relevant personnel to understand the carbon emissions of construction projects quickly, this project establishes a quick and easy calculation tool to obtain basic carbon emission information for construction projects. This tool covers the sources of greenhouse gas emissions that may be generated in construction projects, from manufacturing raw materials to transportation and construction. It compiles the carbon footprint coefficients of relevant material products officially announced by Taiwan, including data on construction materials such as concrete, bricks, and steel, as well as transportation vehicles and construction machinery. EXCEL tools allow users to easily calculate the greenhouse gas emissions of a construction project. This tool simplifies complex life cycle inventory, making it more convenient for users to operate. The total greenhouse gas emissions of a project can be obtained in the preliminary design stage of the project only through the materials and work item data of the project. This tool can also be used to compare the carbon emissions of different options during the initial design and to identify the primary carbon emission sources of the project. In this tool, users input the relevant information about the designed building, such as building area, concrete quantity, types and numbers of working machines. The tool uses the