

Calculator: Carbon Calculator

<http://www.environment-agency.gov.uk/business/sectors/136252.aspx>

Summary

The Carbon Calculator was developed by the UK Environment Agency for measuring the direct and indirect carbon emissions during infrastructure construction, based on construction materials and personnel transport.

Developers: Environment Agency

Applicable sectors							Themes		
All Infrastructure	Buildings	Roads	Water	Energy	Transport	Construction	Materials	Ecology	Wastewater
							Potable Water	Carbon/GHG	Other
Countries	UK					Access	Free to download		
Compatibility with other tools	No specific tool					Guidance for users	The Excel-based calculator contains some guidance information for its use. Furthermore, the Environment Agency website contains case study examples of how the Carbon Calculator can practically be applied.		
Inputs & outputs	<p>For construction inputs the user selects:</p> <ul style="list-style-type: none"> - construction materials and their quantities from a series of options (incl. quarried material, timber, metals, plastics, mortars, cements, miscellaneous and others); - Mode of transport (rail, water, road); - Distance from source to site in km; - Mode of transport and distance related to waste removal from site. <p>For personnel travel input, the user includes either:</p> <ul style="list-style-type: none"> - Project duration and size (where distance and vehicles used are both unknown); - Distance travelled per mode of transport. <p>More detailed analysis of staff travel is also possible.</p> <p>Using the above information, the calculator outputs the total carbon footprint (in tonnes of CO₂) of the construction, and a material and transport breakdown of the total emissions graphically and in a table.</p>						Methodology	<p>The calculator calculates carbon emissions during construction by considering construction materials and personnel transport.</p> <p>Emissions from construction materials are calculated by considering, material types, quantities, the embodied tCO₂ per tonne of material, distance between source of supply and site and mode of transport.</p> <p>Three different methods are offered for calculating emissions due to personnel travel depending on whether the distance to be travelled by staff and the vehicles used are known or not, and whether a rough calculation or more detailed one is required.</p> <p>An 'optioneering' function allows for comparison of the base option (termed the 'optioneering baseline') against two alternative scenarios by varying the material components which comprise >5% of the total emissions.</p>	
Database library	<p>The calculator contains inbuilt databases with information including:</p> <ul style="list-style-type: none"> - Material densities and embodied carbon per tonne of material (tCO₂/t) for a range of construction materials; - Carbon emissions per km travelled for different passenger and material transport modes; - Recycling benefits charts. 					Data intensity & flexibility		<p>Data flexibility is high as users are given the option of using default recommended values from the calculator's in-built databases or inserting their own.</p> <p>Data intensity is significantly minimised through the use of inbuilt database values.</p>	

Note: "Free to download" does not necessarily imply that it is free for commercial use.