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# Arup announces international dataset of whole life carbon emissions for buildings at COP27

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An international dataset capturing total forecast emissions – whole life carbon (WLC) – for buildings in design has been created by Arup, a global sustainable development consultancy. WLC data from almost 1,000 building design projects across 30 nations on 5 continents have been collected and analysed by Arup using its new software platform, Zero.

This work has been driven by Arup's commitment to assess its global building design project portfolio using WLC techniques, announced in 2021 at COP26. Arup's focus on WLC has allowed it to estimate emissions arising from its global building design project portfolio. The 'carbon handprint' for the firm's building design work is estimated to be 350 times greater than its organisational carbon footprint (Scopes 1, 2 and 3).

The scale of carbon emissions associated with the delivery of Arup's building design expertise has reinforced the firm's commitment to collect and analyse WLC data. This data represents a primary metric to drive better decision making by property investors, building owners, designers, construction firms, and regulators. It allows carbon emission reduction options across building subsystems and lifespans to be identified and compared. Initial insights from Zero data have offered new, industry-relevant detail about the embodied carbon profile across building sub-systems. Arup is also developing a whole life carbon-based approach for the decarbonisation of infrastructure projects.

At COP27, Arup has announced its ambition to use WLC to accelerate decarbonisation of its building design work and to pursue achievement of the goals of the UN High Level Climate Champions' 2030 Breakthrough

Outcome for the Built Environment. The Breakthrough Outcome calls for all new and refurbished buildings to be net zero in operation and to achieve at least a 40% reduction in embodied carbon by 2030. Arup is calling on other actors across the global property, construction and building design sectors to work together to establish open and comparable WLC datasets.

By joining forces to create large, comparable, and open datasets, the global property sector and its value chain can begin to scale net zero buildings. Early analysis of Zero data indicates an urgent need for accurate carbon benchmarks to guide low carbon design, particularly for the earliest 'brief' stage of the building design cycle. However, such benchmarks will be established much more quickly if more WLC data is collected and shared in comparable and open formats.

The development of WLC data as a primary metric driving the decarbonisation of buildings is an urgent requirement and has the potential to play a crucial role in the global property sector's ability to achieve its net zero commitments. The global built environment is the source of more than a third of total greenhouse gas emissions, which are driving dangerous destabilisation of the Earth's climate system.

Nigel Topping, UN High Level Climate Champion for COP26, said: "The need to decarbonise buildings' operational and embodied carbon is an urgent one if the global built environment sector is to contribute this decade to progress. We support Arup in its call for all non-state actors in the global property value chain to use whole life carbon data to drive rapid decarbonisation of buildings. The High-Level Champions are calling for all new and refurbished buildings to be net zero in operation and to achieve at least 40% reduction in embodied carbon by 2030 at the very latest."