

Sustainability Note Rev A

Renaissance Hotel, Deansgate, Manchester

‘Embodied carbon’ is the greenhouse gas (GHG) emissions caused by the extraction, manufacture/processing, transportation and assembly of each construction product and material in a building. It is estimated that embodied carbon can contribute up to 70%¹ of a building’s total lifetime carbon, therefore potentially contributing to climate change significantly more than operational carbon.

As such, the refurbishment of the Renaissance Hotel is an inherently sustainable and resource-efficient approach which will significantly reduce carbon emissions relative to a new build development.

Demolition of the existing hotel structure, and rebuild of a new hotel of this size may be expected to emit approximately 9,500tCO₂e². By retaining the existing structure and therefore minimising waste to landfill and production of new materials, approximately 3,740tCO₂e³ of this carbon can be saved. This saving is approximately equivalent to:

- The annual carbon footprint of 462 homes in the UK⁴.
- 58,848 km flown by a laden Boeing 737⁵.
- 19,539,209 km driven in an SUV⁴.
- Carbon sequestration over 50 years from 12 hectares of native woodland⁶.

The existing building services systems within the hotel are inefficient and carbon intensive, and therefore they will be replaced with highly efficient systems to reduce operational carbon including the replacement of all lighting with energy saving bulbs and controls. The hotel’s windows will also be replaced to improve the fabric efficiency of the building, and therefore reducing heating and cooling demand.

The refurbishment is targeting a BREEAM ‘Very Good’ rating, with particular focus on Transport, Materials, Waste, and Land Use and Ecology sections. Noteworthy credits targeted include:

- Mat 01 Environmental Impact of Materials – the use of a life cycle assessment tool to measure the environmental impacts of refurbishment materials and reduce these impacts where possible;
- Mat 03 Responsible Sourcing of Materials – ensuring materials are procured from a certified supply chain to promote economically, socially and environmentally responsible practices across the construction sector;

¹ UK Green Building Council: Tackling Embodied Carbon in Buildings (February 2015)

² WSP: Embodied Carbon, Retaining Existing Hotel Superstructure

³ BG&E Sustainability in Construction – Renaissance Hotel Manchester

⁴ Committee on Climate Change: The Fifth Carbon Budget (2016)

⁵ UK Department for Business, Energy and Industrial Strategy Conversion Factors 2020: Full set

⁶ Forestry Commission England

- Wst 01 Construction Waste Efficiency and Diversion of Waste from Landfill – to reduce the amount of waste taken off site to landfill, and therefore limiting environmental impacts; and,
- LE04 Enhancement of Site Ecology – protecting ecology present on site and providing enhancement to increase the number of species on site.

With these measures, the refurbishment of the Renaissance hotel addresses the climate emergency, and will actively support Manchester City Council's ambitious target to become a carbon neutral city by 2038.

Contact

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