



COLLABORATION FOR CHANGE

Case Study: 500 Bourke Street

Embodied CO2e reduction
(tCO2e)

57,155

CATEGORY

PRODUCT	SYSTEM	PROJECT	CONCEPT
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SUPPLY CHAIN

MANUFACTURING	PROCESSING	TRANSPORTATION	CONSTRUCTION
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REGION

WA	NT	SA	QLD
NSW	ACT	VIC	TAS

Profile

Organisation: Aurecon

Website:

<https://www.aurecongroup.com/>

About: Aurecon is an engineering, design, and advisory company, voted by AFR as Australasia's most innovative company.



Section 1: Opportunity

Aurecon was engaged by ISPT to undertake the refurbishment of the landmark 40 storey building at 500 Bourke Street. ISPT's desire was to retain and refurbish 500 Bourke Street, rather than construct a new concrete and steel structure, thereby avoiding the carbon generated through the demolition and development of a new building. Among other environmental benefits, these manufacturing and construction processes are highly carbon intensive, so the decision to refurbish rather than build resulted in avoiding carbon emissions. As the building also had high aspirations in relation to indoor environment, this decision had to also consider the impact on service design, of retaining the existing façade.

Section 2: Solution

To allow the structure to be retained and the building's indoor environment aspirations to be achieved, the building's mechanical and hydraulic strategy needed to carefully consider the performance of the existing façade, as this was to be retained. An all-electric system, sourcing offsite renewables was selected to allow the building to also deliver sustainable, zero carbon operation.



Section 3: Lessons

The design process showed that it was possible to deliver a modern, healthy, and comfortable internal environment, operating with all-electric services, powered by renewable energy, within an existing building. We have learnt and demonstrated that this space can be heated at a high efficiency without the use of fossil fuels, and demonstrated that when assessing the true sustainability of a project it is vital to consider emissions at all stages of the project lifecycle.

Section 4 : Impact measurement

The preliminary lifecycle assessment of 500 Bourke Street showed that the decision made to retain and upgrade the existing building resulted in the avoidance of approximately over 57,000 tonnes of CO₂e with 40,000 from the structure alone. This is equivalent to taking approximately 8,900 cars off the road for a year, or alternatively the annual emissions of 2,400 typical Australian households.

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