

Melbourne Park Redevelopment Sustainability Case Study

CENTREPIECE







Stage Three of the Victorian Government's Melbourne Park Redevelopment centred around the construction of a new Function and Media Centre.

The project was delivered by Development Victoria for Sport and Recreation Victoria and project partners Melbourne & Olympic Parks and Tennis Australia. The build was delivered by construction partner Lendlease and architect NH Architecture. Construction of the project known as CENTREPIECE at Melbourne Park began in February 2019 with the demolition of the existing Function Centre, and was completed in August 2021.

The project was designed and constructed with user enjoyment and comfort at the forefront of thinking, however this did not come at the expense of creating a sustainable and environmentally considered building.

The name CENTREPIECE is a nod to the building being the epicentre of the world-renowned sports and entertainment precinct that is Melbourne Park.

With the precinct being a hub for everything that is quintessentially Melbourne, it was important for the project team to incorporate the use of local materials and suppliers in the design and construction wherever this was possible – highlighted by the fact that at least 90% of all materials used (by cost) were locally sourced, allowing the project to pay homage to the city it represents.

Sustainability initiatives

A number of sustainability initiatives have been incorporated into the design and day-to-day function of the CENTREPIECE building. The venue is on track to achieve the LEED (Leadership in Energy and Environmental Design) Gold V4 Rating – the most widely recognised green building rating system in the world.

Some of the key sustainability features of the project are:

Indoor environmental quality

All major spaces have been designed to have exposure to direct daylight, improving the physical connection to the outdoors, as well as reducing the demand for artificial lighting.

Energy and atmosphere

The electricity demand of the building has been offset by roof-mounted photovoltaic cells. The 370 solar panels that have been installed are expected to provide 160,000kWh of energy per year.

Demand for energy has been reduced by 28% through the implementation of an energy efficient building envelope and building services design.

Water efficiency

Indoor potable water demand has been reduced by 75% through WELS (Water Efficient Labelling and Standard) rated fixtures and the use of captured rainwater throughout Melbourne & Olympic Parks.

Outdoor potable water demand has been reduced by 100% through the drought tolerant landscaping and the use of harvested water for irrigation throughout the Melbourne Park precinct.

Location and transportation

Melbourne Park is accessible through multiple modes of public transport, and also provides patrons and staff with 114 bicycle parking spaces and dedicated electric car charging stations.

Sustainable sites

Throughout construction, rumble grids, silt traps and geofabric were used to mitigate pollution of local waterways by limiting sedimentation contamination and protecting nearby water discharge points.

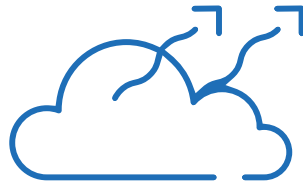
Materials and resource

88% of all construction waste was diverted from landfill through reuse and recycling of materials removed from site.

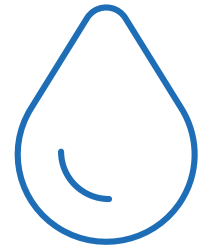
Through the use of materials that have proven and transparent sustainability supply chains, the construction has reduced global warming potential by 10%, stratospheric ozone depletion by 16%, and acidification of land and water by 10%.



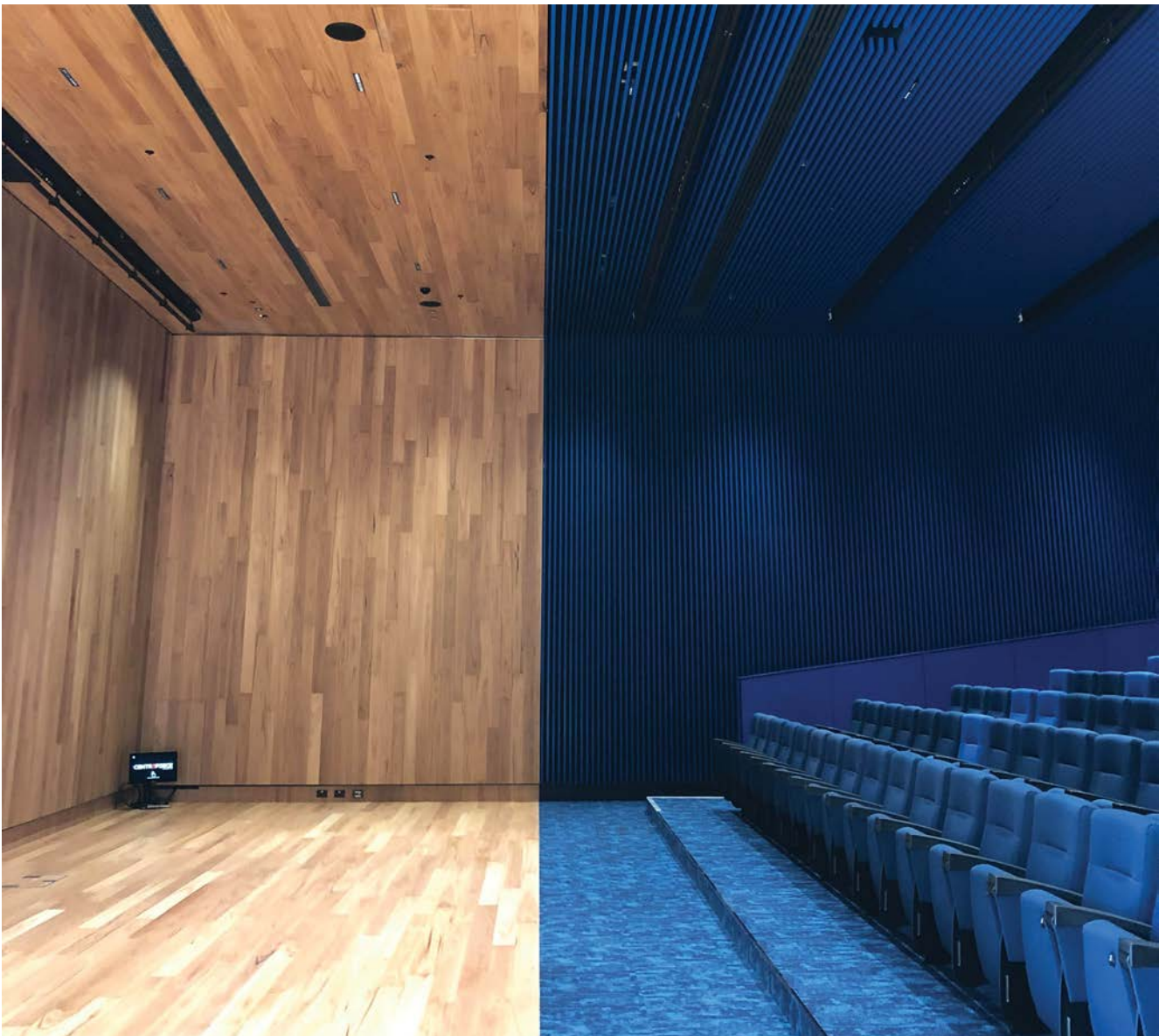
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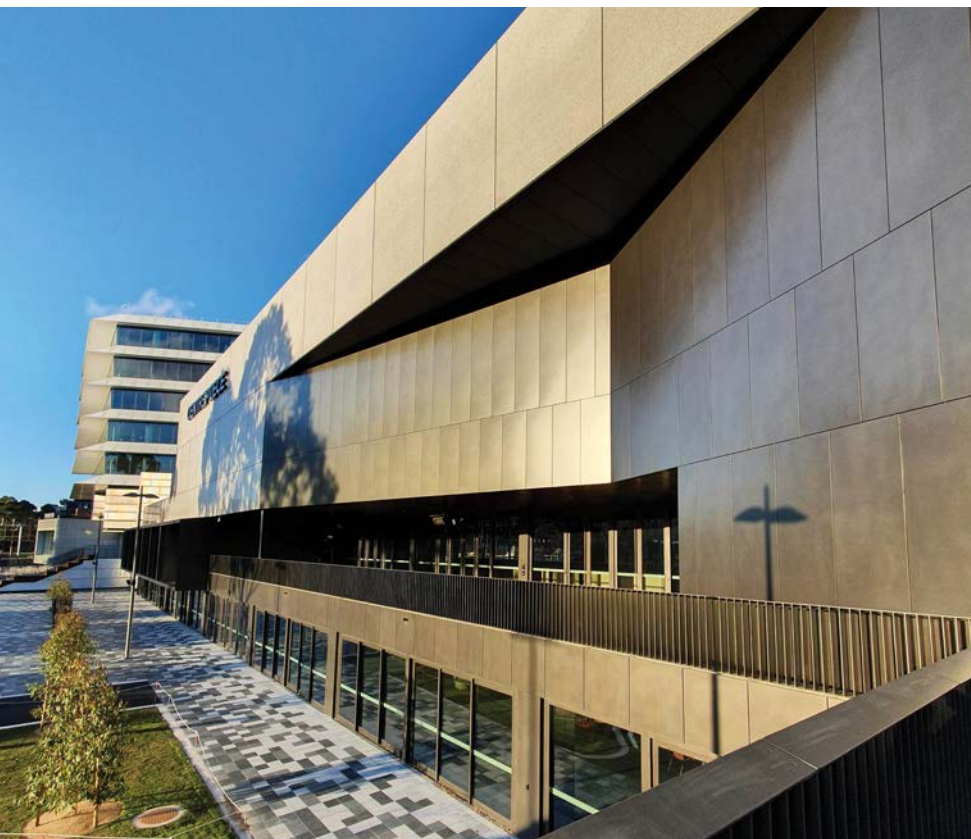


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The structure

A key example of gaining sustainability outcomes via the structure is the substitution of a large portion of traditional post-tensioned slab to a pre-stressed hollowcore slab that made up the suspended structure of the CENTREPIECE building. The slab substitution allowed for longer spans and shallower units, resulting in a reduction in concrete material being used as well as allowing better use of space within the building.



The roof

The approximate 5,100 square metres of roof space was created through the intricate assembly of bespoke Ortech roof panels, which were prefabricated into bays before being craned into their final location within the roof structure.



The Ortech system consists of a proprietary product called Durra Panel, which is manufactured 100% locally in Victoria using reclaimed wheat straw. The raw materials are 100% biodegradable and contain no added chemical binders.

As well as being low in embodied energy, the Durra Panels have fantastic thermal and acoustic properties. The thermal resistance provided by the system allows for improved building fabric energy efficiency, while also minimising heating and cooling energy consumption.

This contributes to the nearly 30% reduction in demand for energy in standard building operations.

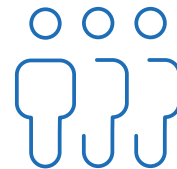
Sitting atop the 5,100 square metres of roofing are 370 photovoltaic cells, which convert light to energy and provide the building with an expected 160,000kWh of energy per year.

Transport

There are several transport links to and from the Melbourne Park precinct, with access publicly from trains and trams, as well as bicycle and pedestrian routes integrated through the precinct and surrounding transport links.

Multiple access points from the north, west and south of the precinct allow and encourage pedestrian movement throughout the precinct. Tanderrum Bridge seamlessly connects the Melbourne Park precinct to the heart of the city with access to Flinders Street Station and Federation Square less than a ten-minute walk away.

The new integrated precinct carpark contains 114 dedicated bicycle parking facilities to promote the use of clean energy in getting to and from the venue. This notion is enhanced by the provision of electric car charging stations in prime locations throughout the carpark.



Landscaping

Native, drought tolerant vegetation has been planted throughout the precinct in the newly landscaped zones. The selective choices in vegetation, along with the harvested water being used for irrigation has resulted in a 100% reduction of outdoor potable water demand.



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