

John Hunter Health and Innovation Precinct

Tangible environmental outcomes are at the heart of this project. By integrating innovative and responsible environmental practices at every stage—from design and construction through to ongoing hospital operations, Health Infrastructure aims to achieve significant and lasting environmental benefits.

Project phase: In delivery



The \$835 million John Hunter Health and Innovation Precinct (JHHIP) will greatly increase capacity for critical care in the region. The project is being delivered by Hunter New England Local Health District and Health Infrastructure and is scheduled for completion in 2027.

Environmental approach

The design of the project is guided by Health Infrastructure's Environmentally Sustainable Development (ESD) principles. It is also guided by the Hunter New England Local Health District's Sustainability Strategy aim of achieving carbon and waste neutrality by 2030.

Sustainability snapshot

Decarbonising infrastructure



The new Acute Services Building will be one of Australia's first all-electric hospital buildings.

2.4MW of solar energy is produced from 5,300 solar panels.

A total of 18 electric vehicle (EV) charging stations have been installed with an additional 27 charging stations planned.

Waste management



A total of 89,536 tonnes of natural fill material and 1,537 tonnes of other waste materials have been recycled and diverted from landfill.

Climate risk and resilience



A whole of life carbon assessment was completed as part of the project design.

Energy and water management

Upgrades to the HVAC system will save 1,980 MWh coupled with energy efficient measures. The new upgrades will save the hospital \$280,000 annually.



A rainwater reuse system with a capacity of 120,000L will provide supplementary water supply to the ASB cooling towers, irrigation of landscaped areas and end-of-trip facilities.

Water efficient fixtures and equipment have been specified to ensure water consumption is reduced. All taps will be 5-star rated, urinals 5-star rated, toilets 4-star rated and showers.

*HVAC - Heating, ventilation, air conditioning



John Hunter Hospital has the largest number of solar roof tiles in Australia (Photo courtesy of NSW Public Works)

Decarbonising infrastructure

The project has sought to reduce carbon emissions at every stage of the project, from design and construction through to ongoing operations.

Australia's largest single hospital rooftop photovoltaic solar system was installed in December 2021 to reduce dependence on fossil fuels. The system includes over 5,300 solar panels across 12,000 square meters of roof space.

With a total generating capacity of 2.4 MW or 2 MVA (AC), the system supplies approximately 12 percent of the hospital's total energy use. The emissions savings from the system are equivalent to taking 885 cars off the road.

The new Acute Services Building will be one of Australia's first all-electric hospital buildings.

Electrical equipment is being installed to ensure the building can be powered by 100% renewable energy and is not reliant on mechanical and hydraulic plant systems that use gas.

A total of 18 EV charging stations are also being installed, with a further 27 charging stations planned for the future.

Waste management

Focusing on waste management during construction has allowed the project to significantly reduce carbon emissions. Waste generated during construction is separated into streams to enable recycling and onsite reuse.

A total of 4,976 tonnes of concrete, 2 tonnes of fill, 6 tonnes of timber and 3 tonnes of bricks and roof tiles with recycled content has been purchased to date.

A total of 89,536 tonnes of natural fill material and 1,537 tonnes of other waste materials generated by the project, such as concrete, timber, plasterboard has been recycled and diverted from landfill.

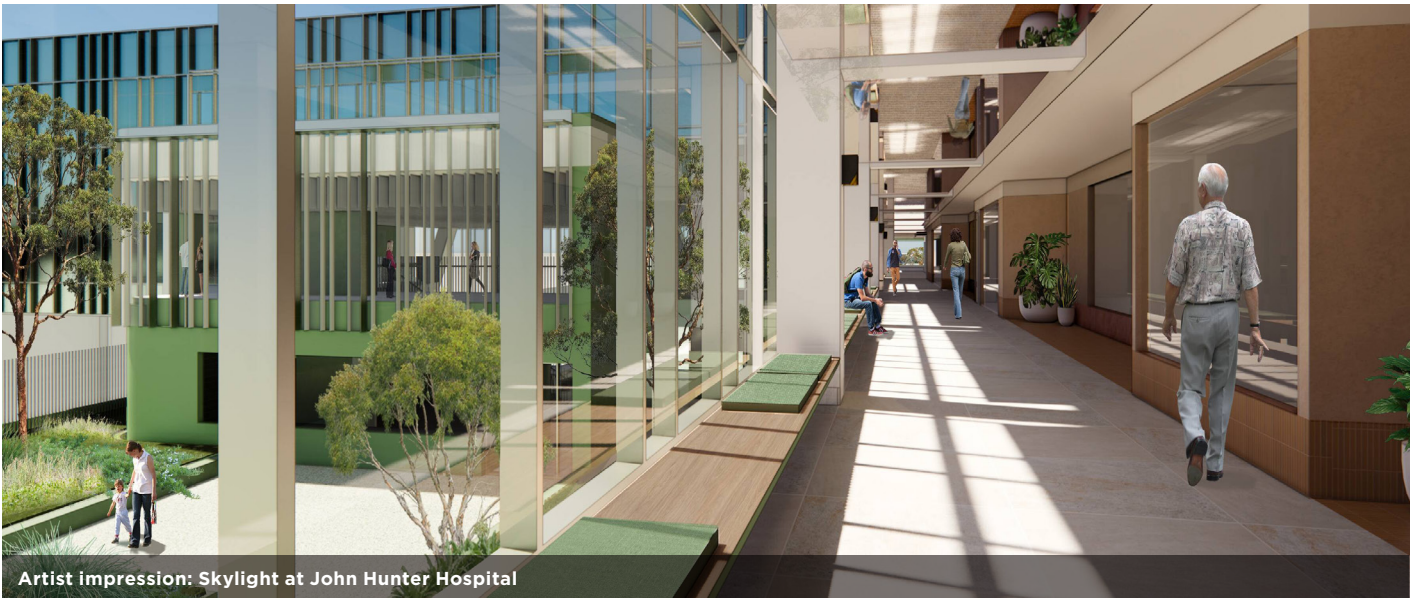
Green ceramic tiles made from recycled staff uniforms and other waste materials are also being trialled on site. This is the result of a pioneering initiative by Novoco Surfaces (previously Kandui) and the UNSW SMaRT Centre.

Work is underway to calculate the required tile area and financial benefits before application with the longer-term goal being to demonstrate success and expand the practice to other government projects.

The hospital is exploring the recycling of plastic waste into new products such as tables and bins. While still in early-stage investigation, the aim is to recycle up to three tonnes of plastic per year.

Climate risk and resilience

The project, which is being constructed at the rear of the original hospital, incorporates resilience to vulnerabilities such as extreme weather and heat island effect, and offsets ecological impact. It uses biodiversity offsets and a landscaping strategy to maximise tree retention and canopy cover and mitigate impacts from urban heat.



Artist impression: Skylight at John Hunter Hospital

Energy and water management

Sustainable management of energy and water consumption is essential for reducing greenhouse gas emissions and building a resilient and low-carbon future.

The project features passive building design to lower operating costs, enhance indoor air quality, and minimise environmental impact. The new buildings are orientated to facilitate high daylight penetration, visual connection to nature and glare management.

The building façade will be optimised to meet energy efficiency requirements (NCC 2019 Section J), enhance cooling in summer and prevent heat loss in winter. The project will reduce energy and water demand to save money, improve indoor air quality and thermal comfort, and protect the environment. Energy and water efficient measures include:

- energy efficient HVAC (heating, ventilation, air conditioning) system and upgraded lights, steam boilers and domestic hot water services.
- automated building management system, LED lighting and energy efficient mechanical system.
- water sensitive urban design to minimise run-off and a 120,000L storage tank to capture rainwater. New stormwater infrastructure and swales that are designed to alleviate strain on local systems.
- high-water efficiency (WELS) rated fixtures and fittings to improve the hospital's water efficiency and reduce potable water consumption.
- landscaping with native plants to reduce irrigation demand.

Indigenous knowledge

Four Local Aboriginal Land Councils participated in a walk before site clearing and advised on the trees and habitats that could be repurposed into artefacts for the hospital.

A Health Infrastructure-Landcare Australia partnership has harvested native vegetation seedlings for replanting in the elevated gardens of the new hospital.



Bahtabah Local Aboriginal Land Council representatives collecting seeds.

For more information

Visit: hneinfra.health.nsw.gov.au

Contact: HI-JHHIP@health.nsw.gov.au