

HARNESSING THE POWER OF STRATEGIC DESIGN

By **Geordie Little**

Changing the way we care for our planet begins with education. With this in mind, architecture firm Hayball have turned their attention to the public education sector, creating a school which lives and breathes sustainability - inside the classroom and out.



Canberra's newest public school, the Margaret Hendry School, will be the first carbon neutral public school in the Australian Capital Territory.

Late last year, the ACT hit headlines with a bold target of 100 per cent renewable electricity by 2020.

The Margaret Hendry School, which opened its doors this year, sources all of its energy requirements from electricity - meaning that by 2020, the school will produce zero emissions in its operation.

Sustainability was an important feature of the school's design.

Look to the rooves of the classrooms and you'll see 100 kilowatt solar panels helping to ease the demand on the electricity grid.

Inside, LED lights are fitted with automated motion sensors to prevent unnecessary power use.

Strategically planted trees and double-glazed windows help to keep classrooms at the right temperature, minimising the need for heating and cooling systems.

The ACT Minister for Climate Change and Sustainability, Shane Rattenbury, praised the initiative taken by the school.

"As a response to climate change, we're aiming to make the ACT completely carbon neutral by 2045, and a critical part of this is transitioning away from fossil fuels," Rattenbury says.

"This means we need to stop using natural gas, and instead use electricity from renewable sources. Margaret Hendry School shows that buildings that use only electricity are perfectly feasible - as well as comfortable and economical - even in large and complex environments such as a school.

"Replacing natural gas with electrification makes sense in the ACT as we will have 100 per cent renewable electricity by 2020. Margaret Hendry School is an example of the type of public facility we will see much more of in Canberra."

The school was designed by architecture firm Hayball.

"The generation that is going to be affected by climate change is the generation that we're educating at the moment, and I think the big issue is that schools really aren't necessarily taking up the charge on that initiative," Hayball director Richard Leonard says.

"It's not happening I think from both an individual school's point of view but also from the government systems. It's slow on the take up. It's something that we should be promoting from an ethical, moral and educational point of view."

Margaret Hendry principal Kate Woods says the school's unique design is already providing learning opportunities for students.

"Being newly established and having only been ▶



open for 10 weeks with children here, a lot of it to date has just been educating the children on some of the things that they can see, that are visible in the environment,” Woods says.

“So the solar panels obviously are something that they can see, and [they] understand that there are large water tanks around the school.”

Other sustainability initiatives at the school are less obvious.

“The way that the school was positioned, using the aspects that we have from the sun, [maximises] the inputs onto our solar panels. The functionality that the [Building Management System] has allows the panels to open up in the evening and suck in cool night air and flush out the warm air, so that there’s less need for powered heating and cooling systems – although we do have them, they only kick in as needed, so it’s very much operating by itself to keep the children cool and warm,” Woods says.

“And the underground water system, there’s a 140 litre water tank which is underground, which means that they’ve still got the grounds and play space available to them. But they understand the bigger impact of having that water tank there and what it means and that all the gardens are irrigated and different things can be done to save the environment.

“All of the windows are double-glazed and they



All renderings provided by Hayball

have reflective coatings, they’ve planted lots of mature trees which have been quite considered and targeted in the placement of the trees to provide shading for the buildings.

“So [there was] very much a consideration in the development of the school, not only of what the pedagogy in practice would look like within the build, but how it could be carbon neutral.”

The school is also integrating sustainability in the classroom.

Students were recently tasked with finding a way to reduce waste in the school’s sandpit.

“When it’s full, a lot of that sand blows off and ▶



goes off into the garden and so rather than forking out lots of money and having an environmental impact and just refilling it at the end of each term, [the building services officer] spoke with the children about what was a different solution or a different way that we could potentially clean the sand and get it back in the sand pit," Woods says.

"They came up with a device that's similar to a filtering system, where you throw the sand through the net, all the good sand goes back into the pit and the debris is then thrown back into the garden.

"So it's those sorts of things that are allowing children to take the ownership and initiative and have the power of having that impact and change in our environment longer term."

Woods hopes that projects like this will have a lasting impact on the students.

"So much of it is about building that awareness in the children and linking it to authentic reasoning as to why we need to ... take the action that we do," she says.

"I think once they have that knowledge and they are empowered, then they're more likely to walk into a building and see that the light's on and flick it off or to go into the bathroom and see that the tap's running.

"It's with some of these things that you're trying to build that moral imperative in a child to look after and sustain the earth, and once they have that, they carry it throughout life."

ACT Minister for Education and Early Childhood Development, Yvette Berry, hopes that future school builds will follow Margaret Hendry School's lead.

"As parents and teachers know, children show great enthusiasm when it comes to sustainability and it is great to see this in action at Canberra's newest public school," she says.

"The Margaret Hendry School provides high quality and environmentally sustainable educational facilities and is an example of what all new schools can achieve.

"The ACT's public education sector provides a great example of the pursuit of sustainable development in new and existing schools.

"These approaches explore the roles that technology, infrastructure and behaviour play in reducing carbon emissions." ●