

# BUILTECH

SUSTENA'S BI-MONTHLY NEWSLETTER

This month,  
we're looking at

CARBON NEUTRAL FUTURE



## Hydrogen; an alternative Energy source

Climate change is the defining issue of our times. As a global community, we need to make significant reductions in greenhouse gas emissions to avoid the catastrophic impact of climate change.

One of the most important ways to do this is by reducing our dependence on fossil fuels. In heating applications, hydrogen can be a viable alternative to natural gas.

Hydrogen technologies offer a sustainable way for cities around the world that currently use natural gas for heating to meet their climate goals.

Hydrogen can be used to heat homes and buildings more sustainably than natural gas. And since it takes time for new infrastructure projects like hydrogen networks to scale up, it's important to start planning now if you want your city or region to be ready when the time comes. Hydrogen can be used in existing gas networks, with the potential to be used to heat buildings and generate electricity. This means that there would be no requirement for major infrastructure upgrades or retrofits to homes, making it a cost-effective option for decarbonising our building stock. Hydrogen offers distinct advantages:

- It can be produced without carbon emissions, depending on the source of the electricity used to power electrolysis.
- It can store renewable energy for later use, enabling an efficient transition to greater levels of renewable electricity generation.
- It can decarbonize hard-to-abate sectors where electrification is challenging, such as industry and heavy transportation.



In the coming years, it will be exciting to see how hydrogen heat technology continues to develop and gain a following. It certainly has a lot of potential. After all, demand for zero emission heating solutions is enormous. And if mass adoption of hydrogen heat goes well, by the start of the next decade, we could finally be seeing another viable form of renewable energy used to power our buildings. It's an exciting time for green energy and the future of sustainable transportation. I hope this report opened your eyes to the many ways that hydrogen currently fuels our world, and not just in the transportation sector.

Further read:

[Western Australia gas distributor initiative](#)  
[Hydrogen heated home, case study in UK](#)

# Carbon reduction in Construction

The construction industry has one of the largest carbon footprints. A new study by the Harvard University shows that incorporated building design considerations for carbon mitigation can reduce embodied carbon levels of a structure by 40% to 60%.

There are two types of carbon emissions to be aware of when it comes to building construction:

- Embodied carbon - the emissions associated with the production of construction materials, including their extraction and manufacture.
- Operational carbon - emissions produced during the operation of a building, such as heating, cooling and power.

The embodied carbon emissions come from four sources: the steel, aluminum, concrete and even the bricks used in constructing the building. Embodied carbon footprint is commonly found in buildings and houses. The conventional way of developing construction projects is to build them without considering their eco-friendly strategies. This has made the process complex and ineffective. That's why it is time to take into account green construction strategy in form of enclosed design considerations.

Operational carbon reduction are going to be a matter of expanding the ways to reduce CO2 emissions such as, using more insulation material, incorporating renewable sources of energy, and implementation of more energy efficient building services.



Although we are quite far away from achieving this in Australia, as building industry professionals we are urged to take steps towards this goal.

The first wave of embodied carbon reduction will be more about adopting ways of building that are more radically efficient; reducing wastage and increasing the quality of materials used in construction. Eventually though, the goal is that we will have the tools and technologies to achieve operational carbon reduction; but in terms of embodied carbon reduction, we have already had a great deal of progress.

Carbon calculators can be used to ascertain the level at which construction can be made eco-friendly. For example, the IES Virtual Environment (IESVE) is a unique simulation software platform for the building and construction industry. It is trusted by over 6,000 users in 80 countries. The IESVE offers a single platform that can be used to assess carbon reduction, energy efficiency and occupant comfort in buildings and communities. Also CIBSE has recently released embodied carbon calculator for building services.

## Latest from SUSTENA

### 10 Things To Remember When Engaging Design Consultants:

You just hired your first design consultant. That's super exciting, but also a bit scary. You may be asking yourself how to choose the right consultant, how to work with them and what actually happens during the design process. There are many things that you can do to make sure that you're working with the right person for your project. In this article, I share ten things I learned from my experience as a design consultant for clients in both small & large companies that will help you get the most out of your time spent with a design consultant.

Read more: [10 Things To Remember When Engaging Design Consultants](#)



SUSTENA Pty Ltd  
[www.SUSTENA.com.au](http://www.SUSTENA.com.au)  
1300 883 685  
[info@sustena.com.au](mailto:info@sustena.com.au)