

Company /Entrant Description:

Cox Architects is a long established multi award winning architectural company with a proven reputation for design excellence.

The company has completed a wide portfolio of architectural work both within Australia and overseas. Interwoven with this experience is a continuing commitment to research, development, innovation, and implementation of the same in the projects undertaken.

This research, both local and international, has been carried out in parallel with general practice but is an integral part of the philosophy of the practice. Research and development is simply part of the architectural practice.

Contact Details:

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Project Description:

This display Fire Station is the result of a research project, called “Xanthorrhoea 1”, undertaken by Cox Architects to examine and develop primarily new construction systems suitable for building in bush fire prone areas. This project culminated in the construction of this full size prototype building.

The theoretical aspects of the study which commenced in 2005, confirmed that it was not sustainable to continue to build in standard construction techniques in these areas because the buildings constantly failed.

There was a vast waste of resources and a potential series threat to life to continue to do so. It was also found there was not construction system available which could withstand the full effects of bushfires. To overcome this problem, this new construction system was developed.

The system of constructing the building envelope was patented prior to the Victorian Bush Fires of February, 2009. This construction works was completed by then. This research anticipated Australia’s vulnerability to such an event occurring.

The building is designed for the most hazardous category of bush fire attack. It has been independently assessed to meet this standard and has the potential to exceed the same. The construction system offers improvements in overcoming other broader effects of global warming by providing a high resistance to cyclones and floods. Other benefits include very low maintenance, high thermal insulation, high durability, high security and suitable for remote areas. The combined effect reduces energy consumption.

A unique feature of the system is the integration of the roof and walls. Rather than fixing the insulation under the roof, this system forms a structural fire insulating shell over the building which is integral with the walls. This makes the roof far stronger than standard. The protective layer is like icing on a wedding cake in that it covers

and protects the whole cake. The image of the cross section through the sustainable and edible cake model describes the same.

The windows are protected by patented fire resisting awnings which are part of the construction system. They offer a range of other benefits including reducing energy consumption. The house is solar powered and requires minimal energy consumption. The services are independent as necessary in remote rural locations. The construction system demonstrates that it is suitable for a range of different small building types such as Fire Stations, Police Stations, schools and other civic buildings. In rural areas especially, these community buildings play a very important role by providing shelter and acting as communication centres in times of crisis.

By 'Raising the bar' in regards the durability and performance of our buildings, they will last longer, require far less maintenance, and provide better shelter against the increasingly unpredictable effects of climate change. In doing so, they will be more sustainable than current standard construction methods. This project tries to achieve this and to lead the industry towards building assets in the future, not liabilities. It also proves that you can build responsibly in bush fire prone areas.