



OPEN CITIES

Australian Building Codes Board (ABCB)
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Dear Board,

RE: NCC 2019: UPDATING BUILDING CODES – SOLAR ROOFS

Open Cities www.opencities.net.au is a peak association representing infrastructure and service providers, and urban design advocates who are working together to transition Australian communities to a more sustainable, resilient and affordable energy, water, digital and mobility future.

We are collaborating with government and industry to modernise and rethink policy, legislation, regulation and price settings to enable next generation local utility and mobility services and solutions. Our purpose is to accelerate the take-up of sustainable utility and mobility innovation and services including local renewable energy generation and storage, recycled water and Integrated Water Cycle Management (IWCM), shared mobility and data networks, and waste reuse.

Rooftop Solar Building Code barriers

Open Cities is concerned with regulatory barriers that prevent local energy generation. One considerable barrier to large-scale solar take up is minimum roof standards which cannot support efficient solar arrays. While ‘slender’ roofs meet normal engineering requirements they do not have the structural capability to hold the weight of solar installations.

Slender roofs are built to minimum 100-year rain event standards and as a result are unable to withstand the additional 10 – 15 kg/m² static load a solar panel array will exert on a roof. The result of this outdated roof building standard means currently about 70 per cent of Western Sydney industrial park roofs, including Erskine Park, are unable to take optimum solar loads.

Open Cities estimates solar arrays generate financial returns of a minimum of \$40 per square meter on average. To achieve this return on investment roofs, need to be strengthened at construction adding an extra \$19 for every square metre. If they are not strengthened at construction they need to be retrofitted with larger purlins and rafters, which is not financially viable and sometimes impossible. Retrofitting in extra solar capacity is often impossible even if a building owner has the appetite to do so.

Large cost-optimised commercial buildings are, as a result, choosing to save relatively small sums of money at the expense of not future-proofing roofs. Or they will build extra capacity in only a portion of their rooftops. The current low cost of solar makes the decision not to future proof much worse because many of these roofs throughout their life have the capacity for significant energy generation —this can mean hundreds of thousands of dollars lost to building owners.

Recommendation

Many roofs continue to be being built to minimum 100-year rain event standards. As a result, they are unable to withstand the additional 10-15 kilos per square meter that solar panel installation would typically require. Amendments to building codes need to cater for additional solar panel weight. Retrofitting is prohibitively expensive, and a lack of appropriate regulation means vast areas of roof space are not being future proofed.

1. Update building codes to improve roof designs for increased solar load

Preparing for the future

As the utilities market transitions to next generation solutions, people require the ability to generate their own energy (and water/data/mobility). Localised sustainable energy infrastructure solutions and services are growing from within communities, creating a new class of consumer – the prosumer. These self-sufficient communities, where customers are more than consumers but also producers, are embracing innovation and are driving downward pressure on energy utility bills. Based on overseas experiences as well as emerging opportunities in the local market, Australia needs to enable people and businesses to become prosumers: harvesting free energy from the sun to meet and even exceed their daily needs in a sustainable way.

Regulation needs to enable people and businesses to buy and trade energy from local rooftops to homes and businesses up the road. Buildings and homes need to be future-proofed so solar can be installed as it continued to become more affordable. The market needs to ensure developers are not just thinking of the build cost, but the near and long-term benefits to the buyer and tenant.

The ABCB needs to look to the future and ask: *what do we need to succeed?* Not look to the past and say: how do we replicate it?

Open Cities welcomes the opportunity to discuss this issue with the Board and provide more information if needed.

Yours sincerely,



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