Lilyfield Housing Redevelopment

THU 21 JAN, 2010 GREEN BUILDING CASE STUDIES

The Lilyfield Housing Redevelopment in Sydney is the first social housing scheme in Australia to be awarded a Green Star certification. Achieving a **5 Star Green Star - Multi Unit Residential PILOT rating**, the Lilyfield Housing Redevelopment is also the first project of its kind to achieve a Green Star residential rating on the East Coast of Australia.

Representing 'Australian Excellence' in environmentally sustainable design, this project by HBO+EMTB for Housing NSW sets a new standard for public housing developments in Australia, and demonstrates that highly sustainable public housing outcomes are both realistic and achievable in terms of building function and use, project demographics and importantly, housing affordability.

HBO+EMTB Director, Gustavo Thiermann says, "The formal rating of this [housing] scheme by the GBCA and its 5 Star Green Star outcome reflects Housing NSW's willingness to embrace innovation therefore providing the design team sufficient freedom to apply sustainable design principles and achieve benchmark outcomes for public housing."

The new frontier

The Lilyfield Housing Redevelopment received an Innovation point (INN-1) for being the first social housing development in Australia to participate in a Green Star PILOT rating tool scheme.

Upon completion, the Lilyfield Housing Redevelopment will result in a fully integrated residential project consisting of 24 one-bedroom units, 58 two-bedroom units and six three-bedroom units. While the approved design significantly increases the number of units on the site, jumping from the existing 40 to 88 apartments, the development will have minimal impact on the amenity of surrounding properties and will merge with the existing character of the neighbourhood.

The site's location relative to public transport allowed HBO+EMTB to steer away from typical large-scale basement car-parking for the building. "Because the project has good public transport connections, is close to the inner west light rail and there is abundant on- street parking, a compelling town planning case was put to Council that there was no need for off-street parking, which was accepted," Thiermann explains. "This has presented a significant cost saving for the project when compared to a typical medium density residential project."

Let there be night

Efficient outdoor lighting systems offer substantial savings for both energy-use and expenditure costs. Of all the electricity produced in Australia, approximately 2.5 per cent is used for outdoor lighting. However, as most of these lighting systems are poorly-designed, it is estimated 30 per cent of light generated for outdoor use is wasted because it is directed into the night sky. This wasted light totals around 1,000,000,000kWhrs in electricity and costs at least $80,000,000 each year.

To combat this major environmental problem and keep costs down for residents, HBO+EMTB tailored a lighting design that ensures no external luminaire has an upward light output ratio that exceeds 5 per cent. This lighting strategy complies with AS4282 "Control of the Obtrusive Effects of Outdoor Lighting", and contributes to significant cuts in light pollution emitted within the Project.

Thiermann says of the initiative, "By ensuring that all lighting is directed towards the lighting subject (and not the sky), developers can reduce the impact of light pollution. Furthermore, by keeping lighting to a safe minimum, developers can also reduce the amount of electricity consumed during the development's lifetime."

Fostering community

The Lilyfield Housing Redevelopment not only incorporates environmentally sustainable design features to improve the building's energy and water efficiency, but also includes green initiatives to foster community and healthy living among residents. The building design features a large central courtyard, providing tenants with a secure and private open space for socialising, relaxation and play.

The communal garden facilities within the project will enhance the residents' sense of community, as well as providing them with the opportunity to grow their own vegetables and produce and to enjoy nature. It is hoped that this type of initiative will be taken up within all multi-unit residential developments thereby reducing the carbon mileage accumulated through the mass transportation of fresh produce.

ESD initiatives featured in the project:

Indoor Environment Quality

- All 88 apartments are naturally ventilated and there is no air conditioning in the development

Energy

- Roof elements over stair wells have been designed to support and orientate solar hot water and photovoltaic (PV) panels, which provide on-site energy
- All roofs to north facing units are tilted in order to maximise solar access to those units during winter (low sun angle) and to avoid direct excess solar radiation to those units in summer (high solar angle)
- The lighting design has utilised energy efficient bulbs throughout
- A common area interior lighting occupant movement and daylight sensor
- Solid floors exposed to the northern sun for thermal mass
- Low-E glass in all east and west faÃ§ades

Water

- Water efficient fixtures throughout apartments and common area

Innovation

- Exceeding the benchmarks of TRA-1 by providing significantly less car parking than the minimum - there is no on-site car parking in the development