BDAV News

Vol 15. Edition 3, April 09

Print Post Approved PP 328866/00083

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Cover Story : Laptop Pro

EME Group won the award for *Residential Design – Alterations & Additions $200K-$500K construction cost* in the BDAV 2008 Building Design Awards competition for their Laptop Pro project. The brief was to create a functional, light, contemporary residence, whilst respecting the existing heritage building.

"South Melbourne is characterised by an eclectic range of developments," said Luke Middleton of EME Group. "There are many single storey Victorian and Edwardian cottages located on narrow blocks in the area. Many have single or double storey extensions. This tradition of appropriate densification is followed in the alterations and additions of 'Laptop Pro'. A contemporary design has been achieved that respects the existing character, whilst enhancing the amenity of the modest existing dwelling. The design elements used, such as the sensitive massing and orientation, incorporation of a central courtyard (for solar access and cross ventilation), the elevated living area for solar access, and the contextual references, ensure this is an appropriate building improvement."

"The increase from a single storey building to a double storey respects the heritage value and streetscape of Albert Road. There is also no overshadowing impact on the adjoining properties, putting the extension well within ResCode requirements."

"The design layout and massing of this extension provides an alternative model to the standard boundary setback response. It is successful in this context because it is a unique single fronted corner terrace surrounded by properties that are at maximum height and density. Using the full width solution and the cut-in courtyard, this design ensures that solar access will be efficiently maintained and maximised, despite the difficult surroundings."

The jury considered this project an outstanding entry. "The existing building was a small period residence on a prominent street corner in South Melbourne, sited within a heritage overlay, surrounded by large scale buildings. The resolution of the small site and this difficult context, by the manipulation of building form, through a series of multi level courtyards creating "pods" was skilfully and convincingly executed," said the Judges. "The detailing of a contemporary facade assembled from non traditional materials linking two heritage building, provided the project with an innovative edge. The internal planning and passive solar considerations were well considered and integrated into the overall design. The assemble of the project into a coherent whole providing diverse and extensive accommodation, environmental management and contribution to the streetscape through its innovative facade detailing made this project a clear a winner in its category."

Project Background

The site is located in a Residential Zone 1, (R1Z), and has a diverse mix of dwelling types and styles. It is also in a Heritage Zone (HO3). The subject site is unique in that it stands alone on the corner as an isolated single fronted terrace. It is hemmed in on two sides by a three-storey apartment block to the west and two double storey terraces to the north.

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The zinc western facade floats over the timber slated wall/gate

The surrounding area is characterised by an eclectic mix of historical buildings and contemporary additions. There are many double storey terrace buildings (dwellings and shop fronts) and also many detached Victorian dwellings. In many cases the dwellings are built to the boundary. A number of these dwellings have double storey extensions that are adjacent to single storey terrace houses.

Vegetation and Urban Landscaping

The subject site is paved in the front and rear yards and is devoid of any vegetation (zero percent permeable).

Neighbouring rear yards are small and characterised by additional sheds, extensions, small gardens and patio areas.

Generally, the surrounding streets are wide and tree-lined. There is a wide nature-strip immediately in front of the subject site where full-grown deciduous trees are located. Across Albert Road is Albert Park Lake, which has a vast array of vegetation and parkland.

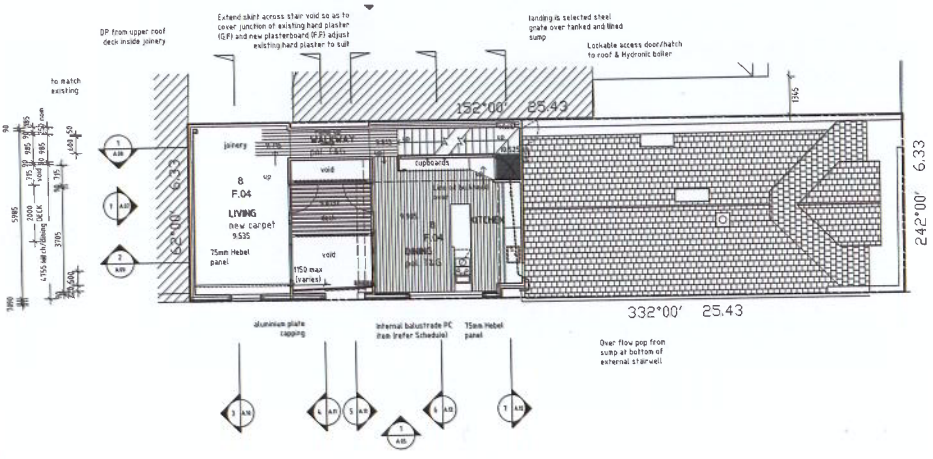
Most nearby buildings have pedestrian entrances, which are located at the left or right of the front fence.

Response

The main entrance remains on Albert Road. A second entry was moved from the northern boundary corner, along Clarendon Street, to a courtyard entrance. The location of the courtyard was determined to provide solar access to living spaces outside of summer months.

On Clarendon Street, the new infill building volumes carry the line of the adjoining double storey terraces and step down in height to the existing single fronted terrace. This strategy minimises the visual impact of the proposed building from Albert Street and creates a logical transition from the larger buildings in Clarendon Street down to the corner.

The timber screen to Clarendon Street follows a precedent of openings cut out of the adjoining terraces to the north. This screen



is a recessive element that will highlight the volumes above it.

The design is thoughtful of solar conditions. Given the large buildings surrounding the site to the north and east, a deliberate strategy of incorporating a central courtyard was adopted. The major living spaces are located upstairs and overlook this courtyard and have a visual connection to the roof deck P.O.S. The location of this courtyard was determined by careful analysis of the existing overshadowing from surrounding buildings.

Through this strategic orientation, energy efficiency is maximised by incorporating thermal mass and solar storage into the design. Most of the glazing is located in this part of the building – the living areas that benefit most from passive solar heating. The bedroom below has fewer openings, but enjoys borrowed ambient light from the courtyard.

"By building to the boundaries we are able to reduce the building perimeter/area ratio and reduce building bulk," said Luke. "This means we can achieve better control of solar access and enhance the energy efficiency of existing dwellings on adjoining lots."

"The courtyard also provided the opportunity for cross ventilation to the main living space. By locating a water pond in the courtyard, the courtyard cools the building in summer through evaporative cooling. Ventilation opportunities have been identified through a study of the site's micro-climate. By controlling and or manipulating the flow of natural breezes, the building is cooled and heated with a minimum use of mechanical ventilation."

"All these strategies allow a greater degree of natural light to enter the home, thereby reducing the need for artificial lighting."

"Materials chosen for the design have been assessed for their consumption of energy in the manufacturing process and for their ability to be recycled in the future."

Open space

The project incorporates a courtyard that both of the living spaces overlook. This space is 23.3 sqm.

There are also two roof decks located above the living areas on the 2nd floor. The rear deck is 18.12 sqm and the front deck is 20.28 sqm. Both of these decks have a strong visual connection with the living

spaces below, enhancing their liveability and practicality. This area is the main P.O.S. and is slightly more than 20% of the total lot area. All of this space benefits from direct north orientation, making it highly effective all year. Distant views across to Albert Park can be enjoyed from these roof decks.

Sustainability

This renovation vastly improves the performance of the heritage building. The building has been lifted from zero star energy rating to 4.5 star. In addition stormwater collection and reticulation has been integrated and provisions for grey water included for all grey water applicable fittings.

Sustainability/energy efficiency features include:

- 5 star hydronic heating system;
- No cooling system other than natural cross ventilation;
- 5 star instantaneous hot water system;
- Low energy fluoro fittings with electronic ballast;
- Water efficiency fittings and fixtures:
  - Shower heads 9 litres per minute AAA
  - WCs – Dual flush 6/3
  - Hand basins – 4 litre/ minute
- Inclusion of rainwater tank connected to toilet;
- Water efficient garden;
- All greywater applicable appliances have been plumbed separately (ie black water fixtures remain independent) and provision under the floor (including large trap door access) has been made for future installation of a grey water storage and treatment system.

The interior of the light courtyard with a geometric Trompe L'oeil creates a three-dimensional effect on the southern wall of the floating pod.

Acknowledgements

Designer.....EME Group
www.emegroup.com.au

Structural Engineer.....
Keith Long & Associates P/L

Building Surveyor.....
Anthony Middling & Associates P/L

Land Surveyor.....
Nacha Moore Land Surveyors P/L

Geotechnical Engineer.....
Southern Geotechnical P/L

Builder..... Larner Matthews Builders

Documentation ... Rationale Designs P/L

Acoustical Engineer.....
Marshall Day Acoustics P/L

Photographer ..... Scott Haskin

Major Products/Suppliers

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Lighting .....
Mondo Luce Contemporary Lighting P/L

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Goran Industries P/L

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Chadstone Fences & Gates P/L

Reclaimed timber.....
Nullarbor Forest Timber Industries P/L

Glass transition element.....
FeatureGglass P/L

Water tank .....Atlantis P/L