

Rejected Design Features: Szencorp Building

During the early stages of the Szencorp Building project several design features were considered, below are the design features that were rejected:

- [Power factor correction](#)
- [Black water harvesting](#)
- [Chilled beams](#)
- [Under floor air conditioning and raised floors](#)
- [Service pods](#)
- [Double skin facade](#)

Rejected: Power Factor Correction

Scope of Works	<p>Early consideration was given to the installation and commissioning of power factor correction (PFC). However as the final load profile (kVAr) was not able to be accurately calculated, the decision was made not to estimate the effect and size of the appropriate unit until all building systems had been commissioned and under normal load for a minimum of 3 months.</p> <p>However adequate provisioning has been made in the main switchboard for the maximum estimated size of any power factor correction.</p> <p>Both the M&V system and the BMS are monitoring kVA, with the M&V system monitoring kVAr at the main board. This data will be checked at the end of the nominated period to ascertain whether PFC is to be installed.</p>
NABERS Energy Impact	N/A. A power factor approaching unity, or 1.0, will result in a reduction in peak demand, therefore reducing the load on the distribution system. There are no energy savings, as in kWh.
Green Star	N/A
Other Considerations	<p>Due care will be taken if PFC is to be installed to ensure the unit selected has the appropriate RF filtering to prevent harmonics affecting various building systems (IT, BMS, M&V etc).</p> <p>Also it should be noted that the PFC unit should be regularly checked and maintained to ensure correct operation, especially the capacitive networks which are integral to the correct operation of the unit.</p>
Cost to Implement	N/A
Savings	N/A
Simple Payback	N/A

Rejected: Black Water Harvesting

Scope of Works	Collection and harvesting of black water from all toilets and urinals. This initiative did not proceed due to limited space availability, and maintenance/ licensing issues.
ABGR Impact	<p>If this initiative proceeded then pumping, filtering, and monitoring would have been required.</p> <p>This would have resulted in additional electrical consumption, however since the initiative was not implemented the Impact on ABGR is N/A.</p>
Green Star	EMI-6 Reduced Flow To Sewer. Possible credits 4, credits achieved 2. Had 40A adopted black water collection and treatment, further credits would have been available.
Other Considerations	Black water collection, treatment and re-use poses a number of problems, some of which are easier to address on a green fields project, such as:

	<ul style="list-style-type: none"> • Space and separation from tenant amenities. • Maintenance and odour issues. <p>Some 'social' aspects need to be considered when planning black water harvesting and re-use. There is a stigma associated with this initiative, particularly with the issues of proximity, odour and on-going maintenance. These issues can be overcome with a green field's site and adequate space.</p> <p>These systems require stringent monitoring and maintenance, and are subject to EPA licensing, leading to substantial recurring costs for the building owner. Failures with the proposed system resulting in spills and odours will cause high levels of anxiety with the building tenants, neighbours and regulatory bodies associated, with repeated failures likely to result in additional costs/ penalties, with the final solution being an order to close the plant down, resulting in substantial losses on the initial investment.</p>
Cost to Implement	N/A
Savings	N/A
Simple Payback	N/A

Rejected: Chilled Beams

Scope of Works	<p>Early in the design process consideration was given to utilising chilled beams through out 40 Albert Road. Extra weight was given to this technology when the option of raised flooring was being considered.</p> <p>However the team discounted this option due to the following:</p> <ul style="list-style-type: none"> • The ratio of floor to ceiling being unsuitable for a displacement system such as chilled beams. With air delivered from the raised floor vents, there was not suitable space between the floor and the ceiling for the correct mixing of the two air streams, this would result in 'hot/ cold' pockets through out the tenancies, with very noticeable problems in offices/ meeting rooms. • The second consideration was the mixed mode of operation, both natural and mechanical. Whilst South Melbourne does not have a humid climate, there are enough heating and cooling days per annum where the natural ventilation louvers may have been open to take advantage of the outside conditions. This may result in condensation forming on the chilled beams resulting in water damage, and tenant discomfort.
NABERS Energy Impact	Minor reduction in energy consumption, and CO2 emissions.
Green Star	ENE-1, Energy. Green Star conditional compliance. ENE-2, Energy Improvement. Possible credits 15, credits achieved 11.
Other Considerations	Whilst this is an innovative technology the team deemed the air displacement inadequate, and the risks of condensation did not warrant the uptake of this technology. This technology seems to suit an application where the floor to ceiling ratios are adequate, the building is not mixed mode, and has better than average humidity control.
Cost to Implement	N/A
Savings	N/A
Simple Payback	N/A

Rejected: Under floor air conditioning and raised floors

Scope of Works	<p>Early in the design process consideration was given to a raised floor throughout, with fan coils/ air distribution via floor grilles, manually controlled by the tenants. This represented a number of issues for the design team and the building. It was considered due to the principles of air delivery (warm air rises, less fan power), tenant control (manual control of air flows giving greater control to each of the tenants), the under floor space could be used for telephone and data services (improving accessibility to services, and reducing the in-ceiling installation). The design team also recognized that the raised floor option would substantially reduce churn costs, should the tenancies vary in shape or population density, due to the accessibility to telephone and data services, and the modular nature of the air supply system, and controls.</p> <p>However this plan was rejected due to the existing building configuration. Primarily the reason for not proceeding was access from the stairwells and lifts openings on each floor. Either the lift and stair thresholds were to be raised to match the 200mm increase in floor height, or substantial ramping would be required to achieve the transition from the lift/ stairwell threshold to the raised floor.</p> <ul style="list-style-type: none"> • The option to raise the height of the stair/ lift thresholds was discounted due to construction costs, estimated at \$25k per floor, total \$100k. • Ramping from the stair/ lift to the raised floor was discounted as it required all lift/ stair lobbies to be increased in size, reducing NLA on all floors. The option of steps, in lieu of ramps, was not considered due to disability access requirements.
NABERS Energy Impact	Minor reduction in energy consumption, and CO2 emissions.
Green Star	ENE-1, Energy. Green Star conditional compliance. ENE-2, Energy Improvement. Possible credits 15, credits achieved 11.
Other Considerations	This option represented an opportunity for re-cycling as the raised flooring was re-cycled from a fit-out in another building in Melbourne, this would have contributed to the environment, but is not recognized under the Green Star – Office Design.
Cost to Implement	N/A
Savings	N/A
Simple Payback	N/A

Rejected: Service Pods

Scope of Works	<p>When reviewing the options for energy efficiency, waste minimisation, and overall building improvements, consideration was given to relocating the following services to demountable pods to be installed over the rear of 40 Albert Road:</p> <ul style="list-style-type: none"> • HVAC plant (if electric VRV). • IT/ Telecoms servers, switches and patch panels. • Lighting controls interfaces, security panels. • Kitchen. • Toilets and showers. • Rainwater storage <p>It was envisaged that the pods would be assembled off site and then craned into position, interlocking with each other. By removing these services to the pods a substantial floor area would have been released for use as office space and provided</p>
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	<p>a larger atrium area. After many reviews the concept was not considered economically viable for the following reasons:</p> <ul style="list-style-type: none"> • The layout of the rear of the building would have required substantial civil and structural engineering work to form the footing for the mounting of the pods. • The units would have had to be largely constructed on site due to the lack of access to the rear of the building. The service lane to the rear of the building is too narrow to enable a crane to be within its working reach of the building.
NABERS Energy Impact	N/A
Green Star	N/A
Other Considerations	N/A
Cost to Implement	N/A
Savings	Increase floor area available for letting, approximately 10 of the floor plate, 32 square metres, @\$380 per square metre. Over four floors, \$48k per annum.
Simple Payback	N/A

Rejected: Double Skin Façade

Scope of Works	Early in the design process, consideration was given to the use of a traditional double skin façade to facilitate opening windows, to provide noise control and to reduce wind impact. Whilst the concept was endorsed, the cost was prohibitive in a retrofit situation. A single skin double glazed façade was chosen to reduce costs whilst providing increased thermal envelope performance. The front screen was retained as an architectural reminder of the double skin façade concept and to provide reduced glare and heat gain on the front façade.
NABERS Energy Impact	Minor reduction in energy consumption and CO2 emissions through reduced glare and heat load on the front face of the building.
Green Star	Minor impact on ENE-1, and ENE-2
Other Considerations	N/A
Cost to Implement	N/A
Savings	N/A
Simple Payback	N/A