waste and energy reduction measures as well as social programs for their operations and improved staff skills with Green Star accreditation. This suggests clear business positioning in the sustainability market for *Built*.

Long-term viability of the company and climate change

We are facing a number of climate change issues, such as global warming, varying levels of access to fresh water, a potential rise in sea levels, etc. As a consequence in Australia the following issues are becoming more apparent: water and peak electricity demand (related to inadequate infrastructure to service demand from increased use of air-conditioning etc). This could leave buildings temporarily without power or sufficient potable water.

Developing sustainable buildings will improve the ability of the building owner, project developer and other stakeholders to prepare for future climate change issues, and will reduce the impact of future increases in (utility) costs (such as energy, water, building resources and waste (disposal)) and potential taxes (such as carbon taxes). Sustainable buildings with renewable energy generation technology can benefit from possible carbon trading or renewable energy target schemes or from increased returns on their energy supply in the future. Buildings such as the Double Bay building that are water and/ or energy self-sufficient provide some resource security for the owners and occupants, as well as a buffer against rising utility costs (including carbon costs). Normally such a building would be worth more and cost less to run because of the lower contribution to greenhouse gas emissions and the increased efficiency in resource usage (McCartney, 2007).

Relationships

Multi disciplinary teams were brought together for the Double Bay project, a wide range of experts were engaged to help move the project from concept to reality, around obstacles particularly with convincing local council and authorities, NSW Health Department, and utilities; Sydney Water and Energy Australia. Expertise and learning within the team was shared at meetings and on the job and knowledge was developed specific to the project. An integrated approach to systems development was attempted. Challenges lay in bringing technology into a suburban commercial building context and providing a speculative building and creating a building that was flexible enough to be both sustainable or conventional in its use. New skills were developed for the project and continuous professional learning has stimulated extended business relationships within the team and they have continued to work together on projects since.

External stakeholders and media relationships have grown as a result of the project. It has been a project that has attracted much acclaim raising the profile of the developers and experts involved. Relationships with media and environmental

spokespeople have continued to advocate the benefits to the community of sustainable building, in turn encouraging the market and a consciousness shift.

New project management

Sustainable developments require a different management approach compared to traditional developments - they require a more whole-of-supply-chain approach. This approach considers the design and development aspects, as well as the use phase, including facility management and operational practices that need to be put in place to ensure that the building functions as intended throughout its operating life. Sustainable project management involves an integrated design process where the client, architects, engineers, builder, contractors, managers and tenants are engaged in every step of the process, to ensure that their needs and requirements are factored in and that environmental, social and financial outcomes are achieved. Included in this approach is an early engagement with authorities, utilities and other important stakeholders (McCartney, 2007).

Within the Double Bay project *EelesTrelease* had the role of project manager and Michael Mobbs from *Sustainable Projects and Design* was later brought in to perform the role of sustainability consultant. Several project participants suggested these roles should probably have been more clearly defined. Michael Mobbs contributed sustainability goals to the project, dealt with external authorities and pushed the envelope on sustainability generally and the water recycling concept more broadly. *EelesTrelease* fulfilled what is considered to be the traditional project management role.

Users and the real estate agent were not fully included in the development process and particularly not with the sustainability factors. This can be challenging, especially in a speculative building but encouraging market research to identify suitable potential tenants can assist. At the time of the development, the real estate agent's professional opinion of the leasing market was that the sustainable elements of the proposal would not attract a rental premium and in fact if *Fivex* insisted on green leases that it would be very likely that prospective tenants would lose interest in leasing space in the building.

Green fit-outs were encouraged; however, the tenants were not prohibited from carrying out their fit-outs even if the proposed fit-out would be contrary to the objectives of the project team. *Fivex* really wanted to encourage *ANZ* to put in place a fully sustainable fit-out, but the difficulty was that as a relatively small landlord, they simply did not have access to the decision-makers who were deciding what sort of a fit-out was to occur. Unfortunately, the real estate agent, *Colliers*, was also dealing with relatively junior staff members of *ANZ* and their tenant representative, so the only choice they had was to reject the deal on the basis of *ANZ*'s proposed fit-out (which would have meant significant financial loss) or to allow them to carry out their fit-out

largely as they wished and have a viable tenant who was willing to pay a market rent for the space.

Fivex also had some issues with the hairdressing salon's fit-out. In their case they were willing to connect to the rainwater tank, however, Woollahra Council would have significantly delayed the approval of the project's DA, because the Council would have insisted on a very expensive water study to demonstrate the building would have sufficient water capacity for their heavy water usage. The hairdressing salon decided they simply could not afford the delay in commencing trade given they are a small business.

Further with authorities, utilities and other stakeholders were not involved at the beginning of the project. According to one participant in the team it would have been advisable for this project to gain ownership and understanding from these stakeholders by inclusion from the start. In their experience this creates a better relationship and forum for shared solutions.

Other aspects not sufficiently included in the project, which would have been advisable from a sustainable management perspective, are:

- There was not a complete understanding of appropriate financial and funding models at the inception and of whole of life costings.
- There were limited or no sustainability criteria in selecting team members, contractors and suppliers for the project. For instance the selection criteria for the builder were price, time line and being able to deliver on the broad design requirements.
- Components and their assembly were not sourced and delivered in sustainable ways, including delivery methods and packaging. Sourcing was mostly based on specifications and price.
- Maintenance, especially on the more innovative sustainable aspects as the water recycling system, was not costed appropriately up front.
- Education of tenants and future tenants on the sustainability aspects of the building and general awareness.
- Measurement and monitoring of sustainability performance were not included, with the exception of the hydraulic system.
- Hydraulic monitoring and management is recorded in five minute increments but these results are not used for educational purposes with the tenants.

Other Case Studies

Historic railway institute building in Surry Hills, Sydney

Three years ago, the Australian operations of *InterfaceFLOR*, manufacturer of modular commercial flooring, looked and found a building for its head office: the historic railway institute building, 101 Chalmers Street, Surry Hills. The building is a fine example of Federation Anglo-Dutch style of architecture with a balanced design and decorative halls.

Figure 12: View of the building from Chalmers Street to the rails from Central and view from the side showing nice Federation Anglo-Dutch style details.

They wanted to transform the building into a highly functional and sustainable workspace. To achieve this they had to discuss/ convince the owner, *W Property*, on:

- Is 'green' going to do it in the market place?
- Specifics of the building refurbishment required to meet their criteria
- How much will it cost?

For a five-year lease contract the owner agreed on reducing the buildings' footprint for the base build of the refurbishment. The costs were $120,000, a 20% increase of what would have been the 'normal' costs. This was equivalent to a 4.5 Green Star base build level, though they have not applied for the accreditation because the $80,000 quoted for consulting fees was considered far too high.

Michael Williams from *W Property*, the owner responsible of the rebuild of the heritage building of *InterfaceFLOR*, estimates that at least 5% can be added for extra consultant costs specific to sustainable buildings. He said that the need to have them involved from the beginning makes it even more costly.

InterfaceFLOR pursued a 5/6 Green Star fit-out accreditation and received it. Sustainability issues they addresses included indoor air quality, accessibility to public transport (it is right next to Central, Sydney terminal), reduction of car parks, lighting and energy measures. Water proved to be too difficult to tackle in the heritage building. At a later stage they will measure social indicators, such as reduction in sick leave and productivity.

Within the development process there were weekly meeting with all parties in the supply chain to ensure sustainability outcomes were achieved and for *InterfaceFLOR* to explain issues regarding the Green Star process.

Figure 13: Inside view of the showroom with Edward Warcaba, Sustainability Manager InterfaceFLOR and Irmine van der Geest, TEC and a meeting space and a separate build section with a kitchen and a meeting room.

Reflections on the project and the Green Star standard

Michael Williams does not think Green Star is a good tool. It is far too expensive, a ticking of boxes exercise and it isn't well translated for the Australian market. In his view it isn't a clear standard and BASIX and NABERS act as competitors 'which isn't helpful at all'. The Green Star system does not looking well at life cycle or embodied energy in buildings/ products. All focus is on new development and not at all at existing buildings, demolition and maintenance issues.

On the other hand, Edward Warcaba, *InterfaceFLOR* and member of the Green

Building Council board, thinks Green Star is a real driver of the market, particularly the top end; and should be adopted by the Government as the standard. Michael Williams does think the project was worth it because *InterfaceFLOR* is a good tenant and additionally is a good thing to do. But without a driving client, people are not willing to pay extra for sustainability. The green market is just a very small end of the market. Sustainability in the property sector works for large projects and big tenants who can force the issue. It is all about scale.

Valhalla in Glebe

Michael Williams from *W Property* is also responsible for the former art house cinema, 'Valhalla' conversion in Glebe, Sydney NSW. The cinema has been converted into 38 workspaces and 4 shops. Existing fabric and other classic cinema details have kept a movie theatre atmosphere. Common areas include bathrooms with showers, meeting room and north facing deck.

Figure 14: The Valhalla building from the outside and the central gallery of the building.

He has tried to keep the refurbishment simple, affordable and low maintenance for small business. After researching the market he recognised a need within the creative small business sector to stimulating environments where interactions and sharing can take place. This explains why communal areas such as meeting rooms, bike facilities, a rooftop deck, and the café downstairs and transparent offices were chosen. Even within the current economic climate he managed to sell 60% of the offices and rent out the rest (except two) for high-end prices.

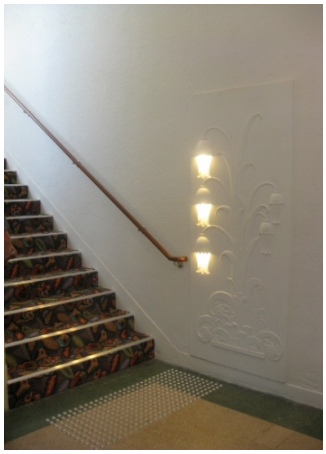


Figure 15: One of the offices, a communal meeting room and some of the neo art deco details and the original carpet.

Michael doesn't think people are willing to pay extra for sustainability. That's why he chose low cost options such as increased natural light, no air conditioning, water saving for toilets, refurbishing heritage lifts, etc. Although for this project each office has individual air conditioning which they can choose to use, they can also open the windows ("retail leasing agents always push for air conditioning").

Workplace6 in Pyrmont

Workplace6 is a new development opposite *Star City Casino* on the waterfront at Pyrmont developed by *Citta Property Group* and the *GPT Group*. It provides approximately 18,000 m² of office space over six storeys.

The project aim is to get a six Green Star Design and As Built certification rating. This would mean a first for any New South Wales commercial building.

Figure 16: Workplace6 just finished in April 2009

Internet Company, *Google* has leased three levels and management consulting company *Accenture* two, both for a twelve year term. Both companies are known for their commitment to footprint reduction and optimising employee comfort, health and wellbeing.

Some of the project's sustainability credentials are (Our Voice, 2008):

- 60% of the steel in the structure is recycled.
- Use of PVC reduced by 60%
- A central staircase enhances daylight and reduces energy for lighting and it also encourages tenants to walk rather than use the lifts
- Alternative energy sources, including its own gas-fired tri-generation system to generate 25% of its base-load electricity, and a solar hot water system
- Only low VOC paints, carpets adhesives and sealants used.
- Cooled using energy-efficient chilled beams that provide a more consistent temperature within the building. Instead of cooling towers the mechanical system uses harbour heat rejection

- Irrigation to be supplied to neighbouring parks. The system has the capacity to produce 40 000 litres of fresh water every day. If the building is not producing enough wastewater, the system will draw on the public sewer and convert this waste into usable water
- Mould prevention system in the ductwork to provide a healthy work environment for tenants

The company *Built* has also worked on the Workplace6 project and has contributed to support the farming sector by providing big lunches on site every Wednesday. A local café specializes in buying local produce direct from farmers. As a result 30% more people turned up on Wednesdays. *Built* has also been giving Travel 10 passes to its workers to stimulate public transport use. They also recycle all waste on site including food waste.

Conclusions

Conclusions external environment

Global trends of sustainability are becoming more apparent in the building sector due to:

- increasing resource and energy costs
- push for corporate responsibility from investors through large property portfolios
- long term viability of building stock in the market place

The change in the market can be described as:

- Increased voluntary and mandatory regulation shifting the property market into more sustainable solutions
- Increased sourcing of building materials from overseas increasing the need for information on products and materials

At a national level building projects are becoming more complex due to:

- Increased regulation
- Diverse expert professionals required to meet project development requirements
- Increased costs associated with development approval time
- Lack of independently verified product information on new technologies
- Government at (local and state levels) are not well equipped to support knowledge transfer and innovation, lacking systems to deal with new technology, financially viable testing and sharing of information

Conclusions - Double Bay case study

- The Double Bay project clearly benefited from a developer who wanted to create a project in a particular way and achieve certain standards. *Fivex* should be commended for their efforts on a pioneering project; as a small developer they have been bold in aspiring for sustainable outcomes.
- Time and associated costs moving through a building's approval process are significant and different per council, particularly with reference to developer contributions. For instance the City of Sydney has no problem if there aren't any parking places with a development, but Woollahra Council expects extensive contributions ($1.3 million for the Double Bay building). As well the same costs apply to small as for large developments, making it challenging for smaller developers to meet extensive holding costs. Innovative and sustainable building technologies/concepts seem to lengthen the approval process.
- The Double Bay building has some considerable sustainable features such as the rainwater/grey water recycling system, passive ventilation systems and other energy saving solutions, low VOC paints, high recyclable carpet tiles, staircase use stimulation, real time monitoring and a roof top garden plan to be built in the future. The project would be equivalent to a six star Green Star rated building.
- The Double Bay project team successfully worked together. Most problems were tackled in a satisfactory way. In hindsight participants regard the project, the co-operation and processes predominantly positively. Many of the participants are now working on another project.
- According to some participants improvements could have been made with an earlier engagement with authorities/ utilities, better role definition of the sustainability consultant and exchange of vital information on the sewage system.
- The design team was not briefed by the sustainability consultant beforehand, because he was commissioned later for the project. His role has been unclear and not well enough defined which has contributed to problems in the project execution and final sustainability results.
- The main challenges and barriers of the project were caused because several sustainability characteristics deviated from existing norms and systems within authorities and utilities; costs of sustainability features proved to be higher than expected; and education and communication hadn't been sufficiently covered.
- Government at (local and state levels) are not well equipped with knowledge to support innovation, lacking systems to deal with new technology, financial viability testing and sharing of information.

- Prerequisite to achieving sustainable outcomes is a project team that stands behind sustainability principles and project objectives, including the real estate agent.
- The selection of suppliers was mainly based on trust in their products and labels. There wasn't any or very limited knowledge of the company behind the product including information on manufacturing process in the country where the product was made, workers conditions, environmental standards, etc.
- At the end of the project a variety of project components turned out to be different to what was planned or anticipated. These were - tenant's fit outs, water system, passive solar light, natural cross ventilation, stair case usage, roof top garden, bike racks and showers, maintenance and low embodied-energy transport.
- Building use and maintainability of the sustainability factors were not included in the development process. Understanding user knowledge and behaviour are prerequisites to achieving sustainable outcomes that are designed and planned. For instance the new and unsustainable tenant fit-outs could have been prevented if there would have been earlier engagement.
- The building could have been more successful in reaching sustainable outcomes if sustainability had been a more integrated part of the project. Especially in the areas of making sustainability principles core from the beginning and including maintenance and sustainability using considerations within the design stage of the project. In this case the decision to pursue sustainability features occurred three months into the design process.
- Building user training was limited to a fit-out user guide, which proved to be very ineffective. The importance of education and awareness around buildings and their use was underdeveloped and opportunities were lost.
- Sustainability has not been part of the market research.
- While encouraging innovative technologies the project realised that skills and knowledge transfer is critical but this was not achieved. As a result, the behavioural implications of costly maintenance and careless user behaviour, was not fully understood.
- Lifecycle costing and accounting processes have not been included in this project, also not identifying the real value of the asset in environmental, social and financial terms.
- The building and its awards have contributed to raise *Fivex*'s, other project participants' and probably tenants' profile in the market. *Fivex* is not seen as just another property developer, but as a responsible and innovative company.
- Developing sustainable buildings will improve the ability of the building owner, project developer and other stakeholders to prepare for future climate change issues, and will reduce the impact of future increases in (utility) costs (such as energy, water, building resources and waste (disposal)) and potential taxes (such as carbon taxes).
- Engagement with authorities, utilities and other stakeholders did not occur from the beginning of the project. It would have been beneficial to the project to encourage increased buy-in and understanding from these stakeholders through greater inclusion from the start. Later experiences by this developer have shown that even with early engagement, local councils are culturally still not equipped to encourage sustainable development.

- The Double Bay building proved not to have a business case and the project developer doubts that other projects for smaller commercial buildings with a significant sustainability features can be commercially successful in Australia.
- Grants and incentives are challenging for SME's to both apply for, verify and document; they are administratively time consuming and could be made more easily accessible.
- Most project participants noted a need for independently verified product information on new technologies.
- Linking sustainability performance indicators for the project team to payment on meeting sustainability objectives would have encouraged clear delivery of jointly understood sustainability outcomes.
- Learning and experience developed during the project, led to a number of stronger business relationships within the team.

Conclusions other case studies

- Reaching sustainable outcomes within building projects works for large projects and big tenants who can drive the business case. *InterfaceFLOR* and the Workplace6 project are testament to this. Large organisations such as *InterfaceFLOR*, *Google* and *Accenture* are fostering a public image of innovation and sustainability, which helps with their market positioning.
- Investigating and translating user needs into a building product increases the success level of a project such as occurred with the Valhalla in Glebe.
- Sustainability features add considerable costs to a building project.
- The social side of sustainability is still not well developed and measured, but can have huge impacts on peoples' wellbeing and work ethics. This is shown by the 30% turn-up increase at Wednesday's lunches at the Workplace6 building site.

Recommendations

This chapter contains an overview of recommendations, based on the conclusions of this research project. They should be of interest to project developers, government at federal, state or local levels, investors and others within the building supply chain.

Balancing cultural, organisational and technical aspects

Crucial to sustainable outcomes are design and more sustainable products, but also cultural and organisational embedding. It is important to have an integrated appreciation of technology practices. How can maintenance be better organised? What are the ideas and attitudes towards sustainable features, such as recycled water? For instance within the Double Bay building a staff member of the ANZ bank never used water from the tap because he thought it was very dirty as it was being recycled. When and how should people be educated? Are they aware of the benefits that can be achieved, product quality and how and why certain things need to be treated differently than previously?

In order to include social and cultural aspects next to technical aspects you need to know about the target audience from the beginning. What audience would be interested and in which sustainability concepts/ innovative approaches? How can they be reached and included in the project? Is there a possibility to attract tenants before the building is finished? What kind of marketing would be appropriate to attract them? Avoid demolition of whole sustainable fit-outs being replaced with unsustainable fit-outs. How can users' input be used effectively so they understand and even become advocates of the building? Use an education plan and marketing program from the start of the project that will deal with the whole life of the building. Maintenance of sustainable features of the building must be managed over a building's life. For instance you don't want situations to occur where people are pouring chemical substances in the toilet, as tenants change. Within the project itself it is important to discuss and share all relevant information within everyone in the team especially regarding maintenance and usage issues. It is far less costly to change an approach early that could prove much more challenging later on.

Verified central library

There is a need in the market for publicly available information and references which are independently tested/ verified. A majority of the participants in this project pointed out that there is a significant shortage of product information and sustainability credentials. Designers, surveyors, engineers and builders want to make responsible choices and be able to trust the information. How is the product made and what organisation is behind it? What is the embedded energy of building products and the likely CO2 emissions resulting from transportation of these products from various parts of the world? What are the environmental and social considerations per product group?

Best practice case studies and problem identification would be very helpful as well. It is also valuable to read about other people's experiences with a certain product.

To help convince everyone in (and outside) a team, comparisons with conventional buildings and their costs would contribute to developing the business case. In that respect fact sheets building life-cycle cost calculations to show the bottom line translation would be helpful as well.

Special consideration should be taken as to keep such a library up to date and relevant and how people can use and update it. It could be advisable to connect it to professional development and universities.

One Government supported rating scheme

There should be one government supported rating scheme, free and accessible to everyone, that encourages baseline performance. At this moment the different schemes (NABERS, Green Star, BASIX, etc.) are complicating matters for industry particularly SMEs. Green Star is far too expensive for most developments and has its focus on the design phase; when upgrading the existing building stock and looking at the occupation phase can contribute the most to sustainable outcomes. User-friendliness of the scheme should be high to avoid it to be regarded as an administrative burden.

One software modelling package which is a government approved package; credible and simple to work with is desirable.

The rating system should be a web based, low cost and a simple (tick of the box) exercise. It should also include embodied energy and life cycle impacts.

Government incentives to raise the bar

All levels of government need to develop a cohesive system to raise the bar of the property industry on sustainable outcomes. It is important that developers have a business case to justify including sustainability features in new or refurbishment projects. At this moment it (mostly) only occurs if large projects with benefits of scale and leading global companies behind it as tenant/ owner have a clear broader reputational benefit.

The system should be a combination of a stick and carrot approach. A baseline can move the whole industry to a minimum level such as mandating low cost, low maintenance baseline requirements such as energy efficiency measures, rainwater for toilet flushing etc. An accessible flexible system with a clear process of incentives and grants should encourage better performance. At this moment there are no real incentives for owner/ developers (R&D concessions are not available for Trusts) and it is

far from clear which grants could be suitable. It would be beneficial if there was a financial benefit for the developer which would help maintain the building and educate tenants, etc.

Special attention should be given to making the system flexible enough to allow innovations to occur. Important is that requirements are not too stringent because then they could become blockers instead of enablers. Disincentives should also be avoided at all costs – such as asking for the full price of a water / sewage connection for an emergency overflow. Things should be made easier instead of more difficult.

It would also be useful if regulations/ requirements for sustainable systems are developed and improved. Challenges such as with the potable water system in the Double Bay building could have been avoided if there had been such requirements.

Government could provide incentives/rebates on:

- grey water systems
- solar systems
- rainwater tanks
- revision of Section 94 contributions
- cheaper council rates
- guaranteed turn around times for Developers Applications of 2-3 months (for instance it would be helpful if from the birth of a project the Development Application ticks most of the sustainability criteria provided by the Federal Government so it could be given faster approval or deemed approval)
- land tax concessions
- additional floor space – real floor space not contrived
- make green products competitive

Create consistency with sustainability criteria councils, government(s) departments and utilities

Align the different systems and variations in all levels of government, but also between departments. The same applies to the differences in requirements between councils. There should not be a conflict of interest where sustainable outcomes are concerned (like Section 94 contributions being an important income stream). There should be clear criteria and incentives if innovative/ sustainable developments are proposed that benefit public good. Leading councils could set a best practice bench mark and work with government to deliver a showcase of minimum requirements for sustainable development.

Utilities should also have clear requirements/ working processes if sustainable solutions are chosen. It is not acceptable that if a development has a reduced energy demand to then require a substation. The same is relevant for water utilities – asking for the full

price of a water / sewage connection for an emergency overflow does not seem encouraging other – more sustainable solutions. Requirements need to be updated.

Engage early on with the broader supply chain

Sustainable developments require a different management approach compared to traditional developments; they require a more whole-of-supply-chain approach. This means that early engagement with authorities, utilities, potential users and other important stakeholders is needed. To create enthusiasm, ownership and understanding it is advisable to try to engage and build a relationship with these stakeholders from the beginning of the project. This will create a better relationship and forum for shared solutions. There will also be space for learning from each other's viewpoints from an early stage. Education should be part of the early stages of the building process to maximise the building's sustainability potential while occupied.

Sustainable project management involves an integrated design process where the client, architects, engineers, builder, contractors, managers and tenants are engaged in every step of the process, to ensure that their needs and requirements are factored in and that environmental, social and financial outcomes are achieved.

Understanding and commitment project sustainability objectives

The business case for sustainable features of the building should be well developed and driven by the developer/ client and project team. It should be clear to everyone and translated into project objectives. Inclusion of well researched costs of life cycle should be included while building the risk assessment and business case. Sustainability objectives need to be an integral component of the project and there should be understanding, individual accountability and commitment from the whole project team. This means that all members of the team should stand behind those objectives, share knowledge and concerns and work to find solutions. In the Double Bay project those objectives were not sufficiently defined and the sustainability consultant had not been assigned a management role.

Sustainability objectives also need to be SMART defined (Specific, Measurable, Agreed upon, Realistic and Time based) so they can be properly accounted for when making decisions and not easily dismissed if budgets are reviewed. This would be a way to embed sustainability performance into projects.

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Interviews

List of interviewees

Company/ discipline	Name	Website
Fivex – Owner/ project developer	Lesli Berger	www.fivex.com.au
Eeles Trelease - Architects	Kathy Trelease	www.eelestrelease.com
Colliers – Real Estate agent	Stephen Bowrey	http://www.colliers.com.au/site/page.cfm
BDA CONSULTANTS - Quantity Surveyors & Building Economists	Bruce Davies	www.bdapl.com.au
Built - Builder	Mitchell Futcher	www.built.com.au
Michael Mobbs - Sustainable projects	Michael Mobbs	www.sustainablehouse.com.au
Oliver Higgins Waste Water - Sewerage	Kim Higgins	www.ohw.com.au
Freedman Rembel - Interiors Design	George Freedman	http://www.freedmanrembel.com
Mechanical & Hydraulic - Wallis & Spratt	Colin Field John Colyer Andrew Short	www.wallisandspratt.com.au
Jones Lang le Salle - Real Estate agent	Suzie Gillies	http://www.joneslanglasalle.com.au
Bridge Centre - tenant	Paul Marsden	www.australianbridge.com/grandslam
Anz Private Bank - tenant	Brendan Kelly Frank	www.anz.com
Cue - tenant	Amelia	www.cue.cc
W Property – Owner/ project developer	Michael Williams	http://www.wproperty.com.au/wproperty/
Independant Building Advice – Project manager	Roger Hovermann	
InterfaceFLOR - Tenant	Edward Warcaba	www.interfaceflor.com.au
Department of Environment & Climate Change NSW - NABERS	Matthew Clark	www.environment.nse.gov.au

Appendices

Appendix A: General product sustainability questions

This document covers general questions focusing on the different phases within the supply chain in order to create consistency across the other sectors through common themes and an overlaying framework

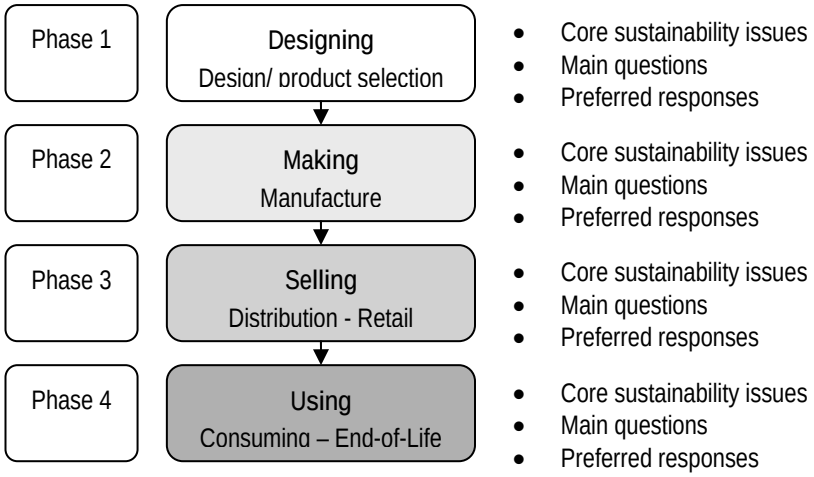
Objectives

To engage with the different chains in a supply chain in order to obtain an overview on:

- Current perceptions of sustainability
- Social & environmental issues
- Cultural insights
- Barriers and opportunities

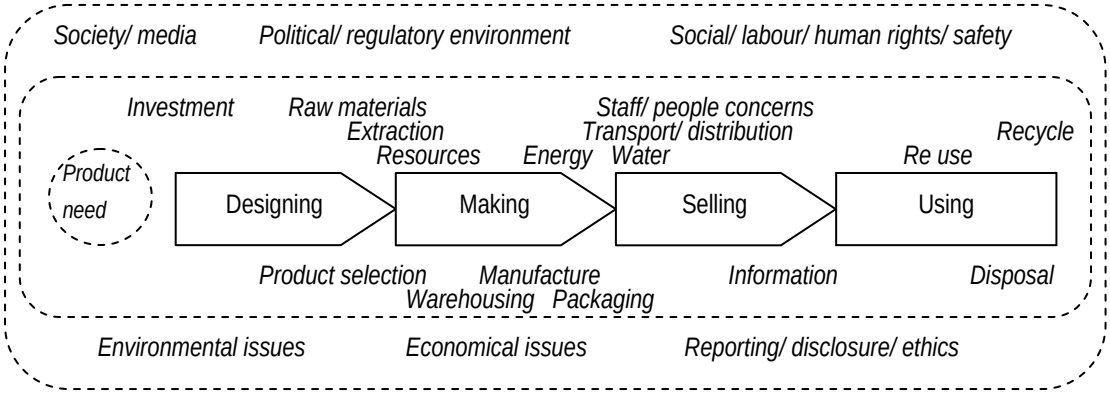
Format

The general product sustainability questions are subdivided in four main groups referring to their place in the supply chain; designing, making, selling and using. Each phase begins with a section describing the core sustainability issues, then states the main questions and ends with areas ideally covered. We've chosen open questions to be used in in-depth interviews to get rich responses that allow cultural insights. The questions still need to be tailored to the specific industry section to allow industry specifics to be added.



Tool

A visual of a roadmap/ supply chain can be used as a clarifying tool during the interviews. We suggest something as follows:



General Questions

- Would you be interested in working with other organisations in your sector to collaboratively promote sustainability/ Responsible Business Practice?
- Would you be interested in participating in multi-stakeholder initiatives (e.g. government, business, trade unions, NGO's, industry associations) to promote sustainability/ Responsible Business Practice?
- We will make recommendations to the Federal Government on how best to support SME's uphold and promote sustainability/ Responsible Business Practice. What are your three key ideas/ recommendations as to what is required to assist you?
  What kind of tools would be helpful for you (e.g. fact sheet, report, personal stories, etc.) and on what medium (on-line, dvd, etc.)?

In Detail

Phase 1	Designing Design/ product selection

Sustainability issues

- Access to information is often limited on:
  - current impacts of similar products (through the whole life cycle)
  - material extraction
  - human rights issues in 'production countries'
- If external design/ engineering companies are used tendering processes are mostly based on price and companies are often SME's with limited resources.
- Life cycle analysis is not part of 'a normal' design process
- Lack of focus on end of life impacts and on design for remanufacture, reuse or recycle

Questions

- What business are you in?
- What does sustainability mean to you and your business?
- What do you think are the biggest sustainability impacts/ issues of this product?
- What are you doing to identify/ understand impacts of your organisation/ product? (life cycle analysis, talking to peers, looking at leading companies?, etc)
  If not, why?
- What information/ resources do you use? (industry associations, government sources, internationally, etc)
  - Where do you look for leadership in your sector?
- What are the opportunities for this product/ your business? – And within the sustainability area?
- What challenges do you see for this product/ your business?
- How is/will/ can sustainability benefit this product/ your business?
  - What design tools/ standards are helping with this?
- What groups of people are impacted (positively/ negatively) by this product and are relevant for the design process? (who are your stakeholders?)
- Who are normally your clients?
  - What do you ask of your clients (any examples)? Is sustainability impacting this in any way? If yes how?
- Do you know exactly what future users of the product are looking for? Is sustainability a factor? In what way?
- Do you undertake any design/ product selection/ manufacturing/ component purchase offshore?
  If so:
  - Where and what influenced you decision to go offshore?
  - Do you liaise directly with you suppliers (on/off shore) or via an intermediary? (agent, trading house, importer). If so please explain.
  - How many suppliers do you have? (both on and offshore)? How many are first tier?
  - How long have you worked with the offshore/onshore supplier?
  - How critical is each supplier to you business? (one key or one of many?)
  - How do you ensure decent working conditions among you suppliers (hours, wages, access to entitlements, freedom of association, discrimination, gender equity)? – any monitoring?
  - If you became aware of an environmental, human rights or labour rights issue among you suppliers how would you address this?
- Do you know the whole supply chain? – Have you mapped it? (i.e. do you know where all parts of you product are sourced/ produced?)
  - What role is sustainability playing in the way you design/ choose products?
  - How are you interacting with your supply chain? Is there any collaboration in the design trajectory? (if so in what way?)
  - What happens when you are finished? Will you be in contact again with your client about the product?
- Have you identified the potential human rights and/ or labour rights concerns in your supply chain? If so, what are they?

- What are your plans for the business for the coming years?
- Are you incorporating "use" and "end of life" impacts in your design considerations?
- Are there any subsidies, incentives, tax breaks that are available to assist you to become more sustainable?

Preferred responses should cover:

- Sustainability - planet/ people survival (Current impacts socially/ environmentally, lifecycle information/ research, sustainability trends, stakeholders/ supply chain identified)
- Market (opportunities)/ future business survival (risk, brand/ identity, reputation, growth, innovation, market trends, political trends, regulation)
- Product (low impact materials (renewability), energy efficiency (production techniques, transport, usage phase), quality and durability, design for reuse and recycling, life-cycle assessment, sustainable design standards

Impacts/ barriers/ opportunities/

- Specific cultural factors should be teased out – personal experiences/ stories – looking for the unwritten rules – ie 'can you tell us how you dealt with suppliers about making this product more sustainable?' What happens – are there barriers? How do you think things should work for more sustainable outcomes? How did this change occur? What were the improvements?
  Current information sources/ processes – how is the profession developing sustainability thinking? Professional development, sector specific advocacy, easily available training

Phase 2

Making
Manufacture

Sustainability issues

- Access to information is often limited on:
  - end of product life impacts
  - life cycle analysis
  - energy (and other resources) use and its impacts on climate change
  - human right issues
  - more sustainable, efficient production processes
- Local community and other stakeholder concerns
- Working conditions
- Safety and health
- Environmental impacts of manufacturing processes, including the effect on climate change
- Packaging
- Transport/ distribution
- Stock and storage
- The ability to change and adapt can be difficult due to infrastructural investments made – risks can be high

- What does sustainability mean to you and your business?
- What do you think are the biggest sustainability impacts/ issues of this product/ within your sector?
- What are you doing to identify/ understand impacts of your organisation/ product? (life cycle analysis, talking to peers, looking at leading companies?, technologies? Training? etc)
  If not, why?
- What do you do to reduce impacts (socially (labour rights, health, stakeholder engagement, etc), environmentally (energy, water, waste and resources generally)) If nothing why not?
- What information/ resources do you use? (industry associations, government sources, internationally, etc)
- Where do you look for leadership in your sector?
- What are the opportunities for this product/ your business? – And within the sustainability area?
- What challenges do you see for this product/ your business?
- How is/will/ can sustainability benefit this product/ your business?
- What groups of people are impacted (positively/ negatively) by this product and are relevant for the manufacturing process? (who are your stakeholders?)
- Do you undertake any manufacturing/ component purchase offshore?
  If so, where and what influenced you decision to go offshore?
- Do you know exactly what future users of the product are looking for? Is sustainability a factor? In what way?
- Do you know the whole supply chain? – Have you mapped it? (i.e. do you know where all parts of you product are sourced/ produced?)
    - How many suppliers do you have? (both on and offshore)? How many are first tier?
    - How are you interacting with you supply chain (upstream and down stream)?
      Do you liaise directly with you suppliers (on/off shore) or via an intermediary? (agent, trading house, importer). If so please explain.
    - How long have you worked with the offshore/onshore supplier?
    - How critical is each supplier to you business? (one key or one of many?)
    - How do you ensure decent working conditions among you suppliers (hours, wages, access to entitlements, freedom of association, discrimination, gender equity)?
    - Do you undertake monitoring/ auditing among all you suppliers? If so who do you use? What are the benefits/ disadvantages? If not why not?

Preferred responses should cover:

- Sustainability - planet/ people survival (current impacts socially/ environmentally, lifecycle information/ research, sustainability trends, stakeholders/ supply chain identified)
- Market (opportunities)/ future business survival (risk, brand/ identity, reputation, growth, innovation, trends, political changes, regulation)
- Product (low impact materials (renewability), energy efficiency (production techniques, transport, usage phase), quality and durability, design for reuse and recycling, life-cycle assessment, sustainable design standards

Impacts/ barriers/ opportunities/

- Specific cultural factors should be teased out– personal experiences/ stories – looking for the unwritten rules – ie 'can you tell us how you dealt with suppliers about making this product more sustainable?' What happens – are there barriers? How do you think things should work for more sustainable outcomes? How did this change occur? What were the improvements?
  Current information sources/ processes – how is the profession developing sustainability thinking? Professional development, sector specific advocacy, easily available training

Phase 3

Selling
Distribution - Retail

Sustainability issues

- Vehicle choice and utilization
- Pollution – climate change
- Reverse logistics
- Product selection
- Stock and storage
- Labelling
- Working conditions
- Waste management (packaging, waste, carrier bags)
- Access to information is often limited on:
  - end of product life impacts
  - life cycle analysis
  - energy (and other resources) use and impacts on climate change
  - human right issues
  - market information on consumer preferences on sustainability

Questions

- What business are you in?
- What does sustainability mean to you and your business?

- What do you think are the biggest sustainability impacts/ issues of this product/ within your sector?
- What are you doing to identify/ understand impacts of your organisation/ product (product selection)? (life cycle analysis, talking to peers, looking at leading companies?, etc)
  If not, why?
- What information/ resources do you use? (industry associations, government sources, internationally, etc)
- Where do you look for leadership in your sector?
- What are the opportunities for this product/ your business? – And within the sustainability area?
- What challenges do you see for this product/ your business?
- How is/will/ can sustainability benefit this product/ your business?
- What is your opinion on sustainability labels? And environmental footprint information on products?
- Do you undertake any component purchase offshore?
  If so, where and what influenced you decision to go offshore?
- What groups of people are impacted (positively/ negatively) by this product and are relevant for the transport and/or retailing phase? (who are your stakeholders?)
- Can you tell us more about the whole supply chain of this product? – Have you mapped it? (i.e. do you know where all parts of you product are sourced/ produced?)
    - How many suppliers do you have? (both on and offshore)? How many are first tier?
    - Do you liaise directly with you suppliers (on/off shore) or via an intermediary? (agent, trading house, importer). If so please explain.
    - How long have you worked with the offshore/onshore supplier?
    - How critical is each supplier to you business? (one key or one of many?)
    - What do you ask of your suppliers? Is sustainability impacting this in any way? If yes how?
    - Have you identified the potential human rights and/ or labour rights concerns in your supply chain (among suppliers offshore/ onshore)? If so, what are they?
    - How do you ensure decent working conditions among you suppliers (hours, wages, access to entitlements, freedom of association, discrimination, gender equity)?
    - Do you undertake monitoring/ auditing among all you suppliers? If so who do you use? What are the benefits/ disadvantages? If not why not?
    - If you became aware of an environmental, human rights or labour rights issue among you suppliers how would you address this?

Preferred responses should cover:

- Sustainability - planet/ people survival (current impacts socially/ environmentally, lifecycle information/ research, sustainability trends, stakeholders/ supply chain identified)
- Market (opportunities)/ future business survival (risk, brand/ identity, reputation, growth, innovation, trends, political changes, regulation)
- Product (low impact materials (renewability), energy efficiency (production techniques, transport, usage phase), quality and durability, design for reuse and recycling, life-cycle assessment, sustainable design standards

Impacts/ barriers/ opportunities/

- Specific cultural factors should be teased out –personal experiences/ stories– looking for the unwritten rules – ie 'can you tell us how you dealt with suppliers about making this product more sustainable?' What happens – are there barriers? How do you think things should work for more sustainable outcomes? How did this change occur? What were the improvements?
  Current information sources/ processes – how is the profession developing sustainability thinking? Professional development, sector specific advocacy, easily available training

Phase 4 | Using
Consuming - End of life

Sustainability issues

- Access to information is often limited on:
  - Labelling
  - Green marketing
  - Standards
  - human right issues
  - product environmental impacts/ life cycle analysis
  - companies and their (real) practices
- Energy (and other resources (water, materials) use and the impacts on climate change
- End of life management – why and how?
- Health impacts of products in their total lifecycle (including production and end of life treatment)

Questions

- What does sustainability mean to you?
- What do you think are the biggest sustainability impacts/ issues of this product?
- What are your experiences as a user of this product?
    - How do you think it scores on sustainability?
    - Do you have an idea what steps this product has undergone to be here?
    - Would environmental footprint information on the product (for instance Tesco's carbon miles) be of any benefit to you? If so how?
    - What do you think of sustainability labels? Do you know any?
    - What do you think of green wash? How do you think we can solve it?
- What are you doing to identify/ understand impacts of this product? (life cycle analysis, talking to peers, looking at leading companies?, etc)
  If not, why?
- How did you select this product? What criteria did you use?
- What information/ resources do you use? (industry associations, government sources, internationally, etc)
- Do you see any improvement opportunities for this product? – And within the sustainability area?
- What challenges do you see for this product?
- Do you know where and/ or by whom the different parts of this product are sourced/ produced?
- Are there any subsidies, incentives, tax breaks that are available to assist you to become more sustainable?

Preferred responses should cover:

- User experiences/ perception of the product.
- Knowledge/ perception of sustainability - planet/ people survival (current impacts socially/ environmentally, lifecycle information/ research)
- User needs on sustainability (how to prevent greenwash/ increase sustainable products)
- Product (low impact materials (renewability), energy efficiency (production techniques, transport, usage phase), quality and durability, design for reuse and recycling, life-cycle assessment, sustainable design standards

Impacts/ barriers/ opportunities/

- Specific cultural factors should be teased out – personal experiences/ stories – looking for current information sources/ processes. How did a certain change occur?

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www.thehub.ethics.org.au

CORPORATE RESPONSIBILITY INDEX

Global Reporting Initiative

Global Compact Network Australia