“Capturing Opportunities from Financing Offsite Building Manufacture”

Industry Workshop Report

Workshop held on Friday the 24th of July 2016

at the WA Club in Perth, WA

Capturing Opportunities from Financing Offsite Building Manufacture - Stakeholder Outreach Workshop

Sustainable Built Environment National Research Centre (SBEnrc)
Friday, June 24, 2016 from 8:30 AM to 1:30 PM (AWST)
Perth, WA

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Introduction

On the 24th of July the Sustainable Built Environment National Research Centre (SBEnrc), in collaboration with the EU Centre for Global Affairs at eh University of Adelaide and prefabAUS, held an Industry Stakeholder workshop in Perth, WA, at the WA Club on the topic of "Capturing Opportunities from Financing Offset Building Manufacture". The workshop was held as an official partner event as part of the European Union's Green Week 2016.

The workshop was well attended with 25 representatives from banks, builders, government agencies and researchers. In-line with the Green Week theme of "Investing in the Future" the workshop focused on how the banking community perceived risks and rewards from investing in the manufacture of buildings in Australia.

The manufacture of buildings has the potential to provide high quality and cost-effective houses, apartments, office blocks and a range of other building types, utilising the technologies, materials, design knowhow, and construction experience currently in the both the building and manufacturing sectors. This together with the benefits pointed out previously suggest that it is likely that a large part of building construction will shift from individual buildings constructed onsite to the aggregation of construction in dedicated facilities to be transported for erection on site. Manufactured buildings are unlikely completely replace conventional building approaches, but they stand to significantly increase share in the market, particularly for multi-storey buildings.

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As with a number of other advanced industries, such as renewable energy technology, the slow recognition of the value that can be created through the manufacture of buildings in many countries such as Australia may lead to a missed opportunity with off-shore providers dominating the nation's future building market.

In order to capture the potential of building manufacture the building sector needs to quickly develop the infrastructure for the construction of buildings in centralised facilities and their transport and erection on site. This may involve a transition strategy that includes an initial push for the use of panelised onsite construction to build momentum in the manufacture and erection of prefabricated components and modules. It is particularly important to develop the sector in a manner that takes advantage of the cost effectiveness of sourcing building modules off-shore, otherwise such offerings will compete with domestic construction.

There are already cases of off-shore building manufacturing plants that are importing Australian electrical and plumbing components to ensure that standards and codes are met when shipping to Australian customers. Hence, if countries like Australia do not seize the opportunity of building manufacturing, foreign companies will certainly continue to bring them to market, which if not harnessed as part of the sectors overall development could lead to job losses across the building sector and its supply chain.

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Advantages of Financing Offsite Construction of Buildings in Australia

Introduction

The transition to the offsite construction and manufacture of buildings stands to create a lucrative opportunity for the building sector in Australia. In 2012 the economic output from the manufacture of buildings globally was estimated at just over US$90 billion, up from $60 billion in 2011. Asia-Pacific was the largest regional market in 2012, worth just under $60 billion, outperforming all other regional markets, and set to rise to some $100 billion by 2020. China constituted the largest share of the Asia-Pacific market with just over 60% in 2012, followed by Japan at 22%, Australia at 7%, and Indonesia at 5%. The growing number of case studies and examples of manufacturing buildings provides quantifiable data that can inform efforts to capture the opportunities by providing strong evidence to developers, investors, and homebuyers.

There is great potential for the manufacture of buildings to be harnessed to significantly strengthen both the building and manufacturing sectors. Domestic building industries around the world will face strong international competition in the near future, especially as the quality of imported prefabricated and manufactured building offerings is increasing and the price is decreasing. However the transition to manufactured buildings must be undertaken in such a way as to harness a nations existing pool of skills and trades so as to allow workforce transitioning in a manner that strengthens industry.

There have been early efforts in this space that have demonstrated the potential however to date it is estimated that this construction method contributes some 3 percent of the value created by the Australian construction industry. This low level of uptake not only forgoes associated benefits but also opens up business to the threat of imports from the region, with Australian imports of buildings anticipated to reach a value of $30 billion by 2025, displacing around 75,000 jobs nationally.

What are the benefits, and to who?

At a project level there are numerous economic, social, and environmental benefits associated with building manufacture or offsite construction. According to research by the Australian Sustainable Built Environment National Research Centre (SBEnrc, 2014), new approaches to design, materials, and expanding the use of modular techniques can take advantage of faster fabrication times, lower costs, less waste, high quality standards, and shorter onsite construction periods. These enhanced outcomes provide benefits to both the builders and the financiers as summarised below.

Benefits to Builders

- *Reduced Costs*: Faster construction times together with reduced delays from delivery, coordination, and inclement weather lead to reductions in project cost, including: cost of finance and insurances per project, hire equipment, plant and equipment fuel, and staffing costs, also reducing homebuyers need to pay rent.
- *Increased Safety*: Significantly improved workplace occupational health and safety by bringing the majority of building construction indoors and providing 24 hour lighting and climate control. Easy use of platforms, mini-cranes, wheeled scaffolds, and harnesses.
- *Materials Benefits*: A central facility allows for 24 hour receipt of bulk orders with secure storage which will reduce costs and delays. Materials can easily be reused which can reduce waste by 30-40%, reducing wasted materials and dumping costs - some 40% of landfill in Australia is derived from construction waste.
- *Access to Services*: A central facility allows for line-side services such as scaffolding hire, materials stores, tool shops, building component manufacture (such as window frames), and access to fixed cutting and fabricating equipment (rather than on-site handheld equipment).

Benefits to Financiers

- *Reduced Risk*: By taking a manufacturing approach to building construction the focus shifts to eliminating defects and ensuring consistent quality. Such as approach will lead to a greater quality product (the building) and the near elimination of variations during construction that often arise due to issues related to onsite construction methods. The faster construction times also reduce the risk that the project will be delayed which will prolong the time that the buyer waits before beginning payment on the mortgage. In the case of commercial building projects the faster construction time strengthens the business case as it can see occupants/tenants paying rent/rates earlier that onsite construction.
- *More Attractive to Home Buyers*: Given the faster construction time and higher level of quality homebuyers will soon be faced with the option to reduce the time they wait for their home from around 18-24 months to 6-9 months which significantly reduces the amount paid in rent and sees the mortgagee paying the mortgage mush sooner.
- Less Theft or Damage of Materials: Given the construction is now undertaken in a factory environment materials can be better protected from weather conditions and from theft. Such costs can increase the construction cost if an onsite method is selected.
- *Increased Safety*: Significantly improved workplace occupational health and safety by bringing the majority of building construction indoors and providing 24 hour lighting and climate control. Easy

use of platforms, mini-cranes, wheeled scaffolds, and harnesses. This will see significantly less work place accidents and injuries.

- *Reduced Materials Costs*: A central facility allows for 24 hour receipt of bulk orders with secure storage which will reduce costs and delays. Materials can easily be reused which can reduce waste by 30-40%, reducing wasted materials and dumping costs - some 40% of landfill in Australia is derived from construction waste.
- *Access to Services*: A central facility allows for line-side services such as scaffolding hire, materials stores, tool shops, building component manufacture (such as window frames), and access to fixed cutting and fabricating equipment (rather than on-site handheld equipment).

Why does building manufacture present an opportunity for the finance sector?

The shift to the manufacture of buildings stands to reduce a number of impacts including economic (reducing the time homebuyers rent while their home is constructed), social (significantly improving workplace occupational health and safety by bringing the majority of building construction indoors), and environmentally (through reduced materials wastage, reduced materials transportation, greater inclusion of energy and water efficient elements, and the potential for greater use of recycled materials). Research by the Australian Sustainable Built Environment National Research Centre (SBEnrc, 2014) has shown that building manufacture allows for cost savings, faster delivery times, and the reduction of a number of impacts associated with on-site building construction methods, such as:

1. *Cost Savings*: The shift to prefabrication of buildings stands to deliver a range of cost savings to developers, builders, and owners. The greatest cost benefits are achievable in projects where replicable structures are used, such as apartments, housing developments, hotels, student accommodation, classrooms, prisons, and mining accommodations. Direct costs savings are achieved from the faster delivery of buildings using prefabrication methods, along with reductions in construction waste both from design and higher reuse of materials, weather damage of materials, damage caused from onsite handling in often restricted sites with multiple trades, and the elimination of vandalism and site theft during construction. The potential for such savings opens up the opportunity for the greater provision of affordable and social housing along with the provision of a higher level of quality and non-standard inclusions in residential and commercial buildings. In particular it would make 'sustainability' related inclusions that can deliver lower operating costs to occupants and owners more economically feasible at the construction stage (especially energy related inclusions). Not only is there significant potential for cost savings it is likely that due to a manufacturing approach being taken that rewards reducing variations that the initial price of the building is close to the final price, whereas onsite construction enjoys the ability to incur variations that add to the cost of the project.
2. *Faster Delivery*: The shift to the manufacture of buildings stands to significantly reduce construction times, along with reducing onsite delays often caused by waiting for materials

delivery, coordinating service providers and subcontractors, and from inclement weather. Reducing construction times can lead to a range of benefits such as reducing the cost of fees on land taxes, equipment hire, fuel bills, and staff on-costs. The shift will also allow a greater volume of buildings to be delivered as not only is the construction time shorter it can be carried out at the same time as site preparation (i.e. footings, retaining walls, and landscaping). This is important as the shift is likely to reduce the labour requirement of individual buildings so it will be important to compensate with a growth in building output.

3. *Improved Work Place Conditions*: The shift to the manufacture of buildings in dedicated facilities will provide a number of improvements to workplace conditions, including:
   - Protection from weather and other hazards for both workers and materials, along with the provision of appropriate lighting levels 24 hours a day,
   - Provision for use of central power tool facilities rather than the reliance on hand tools or portable power tools onsite, and
   - Greater ability to provide elevated platforms, mini cranes, roped harnesses, and other safety equipment due to construction undertaken in a fixed facility with flat floors and overhead beams.

Furthermore, the shift to a centralised facility leads to a number of benefits such as greater flexibility in supplier choice as materials can be stockpiled rather than being needed on demand at multiple sites across a city or region, a regular delivery location with dedicated loading bay facilities reducing transportation costs of supplies, and the assurance that there will be someone to sign for materials at the facility.

What needs to be sorted in order to capitalise on the opportunity?

However the transition to manufactured buildings must be undertaken in such a way as to harness the existing pool of skills and trades so as to allow workforce transitioning in a manner that strengthens industry. Further a number of challenges will need to be faced such as issues related to finance, insurance, and warranty structures. For instance, until recently the Queensland Home Warranty Scheme that protects consumers and builders excluded '*offsite prefabrication in a factory of the whole of a building*' (BSA, 2011). There are a number of barriers to finance that need to be overcome, namely:

- *Progress Payments:* In order to provide the access to capital needed to significantly upscale building manufacture, and capture the associated benefits, long standing financing structures need to be rearranged in the building sector that are on progress payments at different stages of onsite construction rather than being able to support factory style construction prior to transportation to site of completed product for erection. Issues related to the lack of a

standardised quality assessment process for offsite construction along with gaps in current building standards and codes complicate matters.

- *Completion Risk:* There is also uncertainty around managing completion risk, such that the building is in the possession of the manufacturer up until delivery and may not be able to be easily completed should the manufacture halt operations (this may be affected by issues related to intellectual property of manufacturing methods hindering a shift in manufacturer if required). This also presents a risk to the builder or manufacturer as clients many not provide purchase confirmation until the building is delivered and able to be used for collateral for loans, leaving open the potential to withdraw part-way through the offsite construction or not being able to secure a loan at time of delivery.
- *Warrantees and Defect Rectification*: There is a need for a clear and accountable process for the rectification of defects, especially when sourcing building modules from overseas, along with insurance and warrantee structures that support offsite construction and onsite erection. The allocation of responsibility for defects is complicated by the nature of the offsite delivery model in that it can require multiple contractors to undertake offsite construction, module transportation, and onsite preparation and assembly, with each stage able to identify defects and warranty issues.

This paper investigates if the performance of manufactured buildings is superior to onsite construction methods, and considers ways to overcome barriers to financing in an Australian context.

What is needed to accelerate building manufacture in Australia?

Despite the opportunities there are a number of challenges to overcome, both real and perceived, in order to mainstream building manufacture, especially in Australia. For instance there are lingering miss-perceptions around the costs involved in building manufacture and the ability to produce high-end homes and commercial buildings. In the past, manufactured buildings have often been perceived to be only used for site huts or temporary transportable rooms or offices which are common in Australian construction sites, mines, and schools, however the latest marked offerings allow for high quality precision designed buildings to be produced. Along with such perceptions that need to be addressed, the shift to aggregating construction of buildings to dedicated facilities to be transported to site for election presents a number of challenges to be addressed in order to progress the industry, namely:

Perceptions of Quality

- There is a need to shift perceptions of the industry and consumers around manufactured buildings being simply temporary reloadable structures to recognising them as high quality precision built buildings; this may be through independent quality verification, demonstration buildings, community education programs, and qualifying the specific benefits to consumers.

Design Processes and Controls

- There is a need to ensure that design, construction, and erection processes harness the full potential of the building manufacturing model and allow a streamlined delivery. This may include the updating of design codes and standards and associated changes to education and skills development programs. Key Ares for consideration include ensuring interoperability of standardised components and avoid re-invention of design practices by competing companies which may hinder the overall industry.
- There is a need to re-evaluate building project management processes related to materials and goods and services supply models to capture benefits from constructing multiple buildings in one location concurrently, such as being able to stockpile building materials and cluster buildings for sub-contractors to work on multiple buildings on one site.
- There is a need to standardise building transportation requirements and restrictions at a national level to allow for greater ease in interstate transportation of manufactured buildings or components.

Supply Chains

- There is a need to effectively engage with small businesses involved in building construction to shift from individual building contracts on various sites to a clustering of skills to deliver multiple building projects from a centralised factory-style facility. There is a need to also engage with advanced manufacturing business to assist in a transition from sectors such as the auto industry to supporting the building manufacture industry.
- There is a need to develop efficient and effective building transportation and erection processes and equipment to minimise associated costs and maximise accessibility to various site conditions. This will involve the building industry working with trucking and crane companies to a much greater extent.

Financial Models

- There is a need to address impacts on completion risks such that the building is in the possession of the manufacturer up until delivery and may not be able to be easily completed should the manufacture halt operations, or the client may not qualify for finance or withdraw part way through the construction process.

- There is a need to overcome in collaboration with banks and financial institutions the resistance to rearrange long standing financing structures that are based on progress payments at different stages of onsite construction to support factory style construction prior to transportation to site of completed product for erection.

Defects and Insurances

- There is a need for a clear and accountable process for the rectification of defects, especially when sourcing building modules from overseas. Further there are issues of the allocation of responsibility for defects given that the buildings can be constructed, transported, and erected using different contractors.
- There is a need for insurance and warrantee structures to support offsite construction and onsite erection.

Skills Development and Transitioning

- There is a need to provide capacity building to trades to adapt to building prefabrication, this may involve both the development of training courses and programs along with incentive schemes to encourage up-skilling.

Innovative Financing for Building Manufacture

Construction Phase Financing

The most often mentioned barrier to financing building manufacture is that as the construction phase takes place in a private facility, rather than onsite, it is difficult to use financing mechanisms that have been established to support onsite construction. Further as the value of the manufactured product is substantial compared with other manufactured goods a series of progress payments is preferred by builders. Hence the conflict between capturing the benefits of offsite construction and accessing progress payments using current financing arrangements presents a significant barrier to the upscaling of building manufacturing. This is due to the fact that unlike onsite construction, where the partially completed building is in the custody of the owner or developer and therefore forms collateral on the loan, using an offsite model calls for progress payments to be made while the building remains in the custody of the builder in a private facility.

Lending institutions are however accustomed to releasing funds for buildings constructed offsite after the building has been placed on site. The stage at which funds are released varies between lenders from when the building is installed on approved footings to when a certificate of occupancy has been issued. Hence the issue of progress payments is currently being overcome by developers, or even the building manufacturers, providing the funding required for the construction phase to then allow customers to seek purchasing finance based on the completed building. Although this model allows for the client or owner to secure traditional loan products based on a completed building there are

two draw backs that are hindering the growth of the industry. Firstly it lends itself to large companies who can afford to provide construction phase financing, with smaller operators having to mortgage their own assets (or requiring customers that have appropriate assets to leverage), and secondly it means that the risk is carried by the builder or manufacturer until payment is made. Since the purchase finance cannot be secured prior to the construction stage this leaves the builder open to risks like the customer not being able to secure funding after the building is complete, or having the client change their mind before the building is completed.

Providing Assurance of Quality

A key element in ensuring the quality of buildings constructed offsite using prefabrication and/or manufacturing based processes is the provision of associated design codes and standards that can be assessed for compliance. In the USA, the U.S. Department of Housing and Urban Development can created a construction and safely standard for offsite construction and building manufacture, the '*Manufactured Home Construction and Safety Standards*'. This standard classifies a manufacture home as one that is '*constructed on a permanent chassis*' and provides standards for design, construction, and installation of manufactured homes to assure the quality, durability, safety, and affordability. The standards include a dispute resolution component along with the provision for inspections and record keeping.

A second key way to provide assurance of quality is through the provision of a warranty or assurance scheme. For example in Japan, where prefabricated housing represents some 13 percent of the building stock, building owners are provided with a standard 20 year warranty which entails strong after sales service. In the UK efforts to increase the viability of securing construction financing have focused on providing independent certification of the processes used in offsite construction and building manufacture in collaboration with the Council of Mortgage Lenders. The '*Build Offsite Property Assurance Scheme' (BOPAS)* seeks to provide assurance to lending institutions that buildings constructed offsite are sufficiently energy efficient and durable and will be readably saleable for a minimum of 60 years. The BOPAS certification process consists of two components:

(1) A *durability and maintenance assessment* that provides an independent technical assessment of the building's suitability and encompasses issues relating to reparability, maintainability, and suitability for housing (or other building types).

(2) Accreditation *of the design and/or construction processes* that is solely risk based, in which designers, manufactures and constructors are evaluated on key performance areas at each stage of project development from concept design to project completion. The major performance areas are: risk management, competency management, configuration management, procurement management, and process control.

The process accreditation occurs in two stages. An organisation initially undergoes a gap audit in which any significant weaknesses are highlighted and adoption of best practice is facilitated. A full implementation audit is then undertaken in which key performance areas are examined against a best practice standard, with accredited organisations undergoing regular visits to ensure proficiency is maintained. A key feature of the BOPAS system is the use of an online database that provides valuers, lenders and surveyors a single point of reference to find all accredited designers, manufacturers, constructors and building systems.

Provision of Loan Insurance

In the USA, the provision of government-insured mortgage loans offered by the Federal Housing Administration encourage mortgage lenders to finance manufactured homes by protecting the lender against the risk of default from the buyer. Traditionally, manufactured homes have been financed as personal property through comparatively high-interest, short-term consumer instalment loans. Mortgage lenders have now established appropriate products that allows buyers to finance their home purchase at a longer term and lower interest rate than with conventional loans. The buyer pays an upfront insurance premium, along with an annual premium based on the declining balance of the loan. The maximum loan term is 20 years for a manufactured housing loan. Despite such progress a study has found that from 2001 to 2010 in the United States an estimated 65% of manufactured housing customers who owned their land and took out a loan financed their purchase with a chattel loan, which is a secured loan where the financier takes charge over the asset. Although chattel loans have lower initial costs and may close sooner than mortgages, interest rates on chattel loans, however, are usually higher and chattel loans generally have lesser consumer protections than mortgages. Overall, customers buying prefabricated homes tend to pay higher interest rates for their loans than ordinary home buyers. In 2012, according to the Consumer Financial Protection Bureau (CFPB, 2014) approximately 68% of all manufactured-housing purchase loans in the USA were classified as high-priced mortgage loans.

Issues Related to Defects and Contractual Arrangements

Further to issues related progress payments there are issues related to the responsibility for defects given that the construction of the building is now undertaken in two stages that may involve different contractors. The first stage is the offsite construction stage to produce building components or modules, and the second stage is related to onsite construction, such as site preparation, construction of footings and building core, and transportation, lifting, and assembly of building modules. At each of these stages defects can be present and the responsibility for defect identification and rectification is not always clear cut which can lead to conflict between parties. Litigation can arise between the manufacture and the installer in cases where the contractual responsibility has been divided between the two, where both parties are likely to point the finger at one another over delays and defects.

The potential for such issues can also be of concern for lending instructions, causing a barrier to finance, however this can be overcome through a 'Design and Construct' contractual arrangement. In such an arrangement the builder or developer will undertake the design and enter into a subcontract with a manufacturer who will produce the modules. The builder will undertake associated on-site construction and installation of the modules. Within such a contractual arrangement, there is a single point of responsibility whereby the builder is accountable for all design, construction and manufactural faults and defects. The manufacturer of the modules or building components is responsible for rectification of defaults as if it were any other subcontractor.

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Findings from Workshop Survey

Risks of Investing/Financing Manufactured Buildings

- *Progress Payments:* Current financing structures in the building sector are based on progress payments at different stages of onsite construction which presents a challenge when the building is to be constructed offsite in a private factory prior to transportation to site.

  How much of a risk to you see this being for investors/financiers?

Very High	High	Moderate	Low	Very Low
7	4	4	1	0

- *Negative Perceptions*: There is a need to shift perceptions of the industry and consumers around manufactured buildings being simply temporary reloadable structures to recognising them as high quality precision built buildings; this may be through independent quality verification, demonstration buildings, community education programs, and qualifying the specific benefits to consumers.

  How much of a risk to you see this being for investors/financiers?

Very High	High	Moderate	Low	Very Low
5	5	2	1	0

- *Completion Risk:* There is also uncertainty around managing completion risk, such that the building is in the possession of the manufacturer up until delivery and may not be able to be easily completed should the manufacture halt operations.

  How much of a risk to you see this being for investors/financiers?

Very High	High	Moderate	Low	Very Low
3	11	1	1	1

- *Quality and Lifespan*: There is a need for a clear and accountable process for the rectification of defects, especially when sourcing building modules from overseas, along with insurance and warrantee structures that support offsite construction and onsite erection.

  How much of a risk to you see this being for investors/financiers?

Very High	High	Moderate	Low	Very Low
2	3	8	5	0

Rewards from Investing/Financing Manufactured Buildings

- *Reduced Risk of Delays:* Faster construction times and a focus on greater quality construction will reduce the risk that the project will be delayed, especially from supply issues or weather related delays. This reduces a number of risks, such as delayed mortgage payments, delayed rental payments, and delayed occupancy dates for hotels.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
6	6	4	1	0

- *Reduced Risk of Variations:* A manufacturing approach shifts focus from assuming that variations can be undertaken onsite, to getting it right the first time. This is achieved by eliminating defects and ensuring consistent quality in design, workmanship, and materials, hence avoiding costly variations.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
5	6	6	1	0

- *Increased Construction Safety:* A factory environment for building construction allows improved workplace occupational health and safety that will reduce the number of work place accidents and injuries and the associated impacts.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
5	4	7	0	0

- *Greater Return on Equity:* The faster construction times mean that return on equity can be increased by completing a project sooner and re-investing the capital in subsequent projects, especially on commercial projects. Given the faster construction time the initial capital could be invested into multiple subsequent projects in the same time that it would take to deliver an onsite construction project.

  How valuable do you think this would be to investors?

Very High	High	Moderate	Low	Very Low
4	12	4	0	0

- *More Attractive to Home Buyers:* Given faster construction times, homebuyers are likely to be interested in reducing the time they wait for their home to be built, which not only reduces the amount paid in rent or alternate accommodation but also sees them occupying the property sooner and hence paying the mortgage.

  How valuable do you think this would be to lenders?

Very High	High	Moderate	Low	Very Low
4	10	3	0	1

- *Less Theft, Vandalism or Damage of Materials:* Given the construction is undertaken in a factory environment materials and tools can be better protected from weather conditions and from theft. Such costs can increase the construction cost and cause delays.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
3	5	7	2	0

- *Reduced Materials Costs:* A central facility allows for 24 hour receipt of bulk orders with secure storage which will reduce costs and delays. Further materials can easily be reused which can reduce waste by 30-40%, reducing wasted materials and dumping costs.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
2	9	6	0	0

- *Land Value Unaffected until Completion:* As construction is offsite the land value of the intended site is not affected should the construction be interrupted, postponed, or abandoned. Rather the near complete building is delivered to site, maximising the lands utility and worth throughout the construction phase.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
1	6	7	1	1

- *Greater Security on Completion Risk:* Given the construction is undertaken in a centralised facility the majority of the tools and equipment are owned by the manufacturer and can be used as security for loans, rather than these assets being owned by independent trade contractors.

  How valuable do you think this would be to lenders and investors?

Very High	High	Moderate	Low	Very Low
0	3	6	4	0

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