



SBC completed in April 2008

Wolseley Sustainable Building Center - A client driven sustainability showcase

Client:	Wolseley UK Ltd
Contractor:	Sol Construction Ltd
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The project to deliver the Sustainable Building Center saw Wolseley fulfil dual roles of both client and supplier and is an excellent example of how a client can drive sustainability on a project whilst ensuring that the resulting building is fit for purpose and helps to improve that client's business.

Sustainable construction products are going to become increasingly crucial to the industry as it strives to address government targets. Market research, conducted by Wolseley, found that their customers did not understand which sustainable construction products were available and where they might find them. Customers were also unsure of what might be achieved through sustainable building techniques and what standards existed. To address this need, Wolseley commissioned the Sustainable Building Center to be a living, interactive showcase featuring renewable and sustainable materials for building and water conservation products. Inside the building is a 40 seat lecture theatre, 20 seat café and a large open space upstairs gallery capable of seating 20. The Center shows products in situ with cut away sections displaying the technologies embedded in the structure of the building, and touch screens providing information about the products displayed.

There has been great interest in the project from customers and staff throughout both the construction phase and the operational phase. Since the Center opened in April 2008 it has had around 240 bookings from a huge range of organisations, from housebuilders, developers and government departments to Housing Associations and small scale builders.

Key drivers

The strategy for addressing the anticipated increase in demand for sustainable building products involved several key strands:

- The establishment of robust supply chain links
- Securing the necessary products
- The establishment of a team with the necessary skills, knowledge and experience to provide a successful implementation.

The project received a large amount of support from the Wolseley leadership team and this combined with practical and economic support from suppliers proved vital in driving the project forward.

Strategic Partnering

This project is unique as Wolseley are both client and supplier. They were challenged to find a suitable architect which had the appropriate experience and expertise to realise the vision within a commercial environment. As well as this, the company had to audit the entire product portfolio to identify both suppliers and products that could deliver more sustainable outcomes. Wolseley employed a team to not only drive forward the building project to a successful conclusion, but also to establish the sustainable product range. The roles of the team then changed to address the exploitation of commercial opportunities and the day to day running of the facility. They first looked at sustainable construction products in 2003 and this programme has allowed them to deepen their understanding of the products. Rarely did they see them being used, their involvement ending when they left the branch, so it has been good for Wolseley to see products in use and to understand the supply chain experience at first hand. The effects of products performing well (or less well) have been seen.



Eastern elevation showing ground source heatpump compact collectors



Structural engineered timber

Partnering was largely between the design team, the main contractor, the sub-contractors and Wolseley. The complex and unique nature of the project enhanced the communication between team members as they worked together to learn about the products and overcome any difficulties. Communication was conducted largely through monthly project meetings between the client, design team and main contractor with occasional interim meetings. The build was located very near to the Wolseley head office which meant that the client was able to visit the site every day and maintain a close relationship and good rapport with site staff. As this was a showcase project the team appreciated the opportunity to work on it and a "can do" attitude prevailed.

"A real joy has been informal engagement driven by necessity due to the complex nature of the building but also by all parties' willingness to deliver an outstanding result. We saw members of the design team walking about the site, becoming actively involved in delivery, to an extent above that which would normally be expected."

Tim Pollard, Head of Sustainability, Wolseley UK Ltd

Wolseley can supply, all materials for a client and often have a dedicated person to act as an interface, obviating the learning curve every time the two sides need to communicate. However, since in this instance Wolseley are their own supply

chain, they had a central ordering facility and preselected branches responsible for delivering product to site. This was then back integrated into the main contractor, who had a central ordering section.

Sustainable Products

The 6,800 sq ft. building featured two wings with a linking street. The northern wing is a lightweight timber frame structure and the southern wing featured pre-formed concrete elements in the heavyweight structure. The center was designed to achieve excellence in areas such as heating and ventilation, envelope efficiency, glazing, water consumption/drainage, renewables and micro generation and lighting. During the initial phase of the building, a consultation exercise highlighted the opportunities in the design of the building for cut away panels to display products normally hidden in the fabric of the building and touch screen panels to allow stakeholders to access product information. The building has been designed to be flexible so in future if necessary, it can easily be converted into office space.

170 types of products feature in the center including:

- Photovoltaics
- Micro wind
- A sedum roof
- E-glazing
- Natural lighting
- Natural insulation
- Green floor coverings
- Rainwater harvesting
- Biomass boiler
- A ground source heat pump



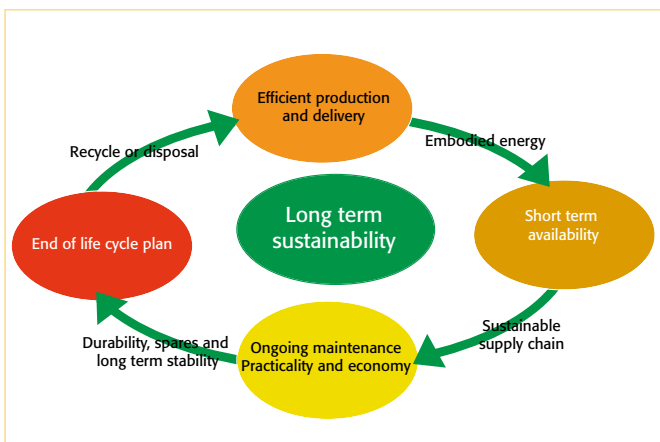
Installation of the rainwater harvesting tank

- Engineered timber
- Low energy lighting
- Water saving devices
- Solar thermal
- Sustainable drainage.

The key criteria for product selection were:

- The product had to be available in commercial quantities
- The product had to be supplied to commercial timescales
- The product had to be competitively priced (according to whole life cycle costing principles).

A model was developed to define the process to help both internal staff and supply partners to understand the requirements:



The center was not designed to feature development products but current, practical products that were already in production that customers could buy off the shelf. Woseley wanted to be able to define why the product was chosen, its features and benefits and the circumstances and projects which would be most appropriate. To ensure a high level of transparency, the Woseley team has worked hard to verify the claims of manufacturers, researching and challenging claims and collating research data.

The center was designed to maximise natural light and used a passive ventilation system. To demonstrate the variety of renewable energy generation technologies available, a selection were installed including a ground source heat pump, a biomass boiler, solar thermal and a condensing boiler. Heat is provided primarily by the ground source heat pump but this can be transferred manually to the biomass boiler, to demonstrate its use. Monitors provide a visual picture in real time of how each technology is performing.

As well as energy generation, the building also showcases water saving technology. A rain water harvesting system provides water for toilet flushing and a sedum roof helps prevent water run off from the roof. To reduce the amount of water flowing off the site into storm drains, a sustainable urban drainage system has been designed in, featuring porous paving and an attenuation system.

Water returning to storm drains has been monitored and, despite recent heavy rain, the system has performed well.

As it is expected that technologies will continue to be developed and new products will come on to the market, the building has been designed to allow for the inclusion of non-structural elements and plant.

"I found it refreshing to be able to actually see the products in use and to be able to envisage how they could be incorporated into our schemes."

Ralph Middlemore
Managing Director, South Staffordshire Property Care,
Central Borders Housing Group.

Training Opportunities

One of the key objectives of the build was to demonstrate the ease with which many of the sustainable technologies could be installed. Woseley deliberately chose a non specialist contractor to install much of the technology and many personnel involved in the project had little previous experience of sustainable technologies. Each stage of the build process was photographed and some stages were filmed so that the learning from the installation of the technologies and systems was not lost.

In addition, the project has partnered with local schools and the team have developed a solar thermal training course with a local college. Online training modules have also been developed for Woseley staff to help disseminate the learning from the project.

Now it is complete, the building is a key training establishment, and is used to train Woseley's colleagues regarding the availability and purpose of sustainable building products. It also serves as an exemplar to customers such as Premier Travel Inns, the Ministry of Defence, house builders and architects.



Worcester Ground source heatpump



South facing roof featuring both solar thermal and photovoltaic installations

Potential Barriers

Before the project began on site it was found that certain parts of the project needed re-engineering. This required the project to go through the process of retendering. Another slight delay was caused by the discovery of a high voltage cable which needed to be diverted. These problems were overcome and any major impact on the project timetable was avoided.

As the building is a showcase, many materials and products were used in combination which would usually be installed separately. This presented a challenge for all partners. In particular, issues of interfaces between materials arose as in some cases, no off-the-shelf connectors were available. To overcome this, the team developed bespoke connectors especially for this project.

Waste Minimisation

The site team bought into the concept of waste minimisation and responsible waste management from a very early stage. A competitive spirit between the trades helped drive it forward and operatives actively looked for opportunities to minimize offcuts. Any site waste was segregated into clearly identifiable skips which were removed for recycling regularly.

Conclusions

The project was completed on budget and on time. The building is a stylish and contemporary building and shows the practical opportunities given by sustainable construction.

Lessons Learnt

As Wolseley usually acts as supplier rather than client, at times, the experience was quite daunting. However, being a one off client meant that they could take a fresh approach. It also gave the team first hand experience of working with the products so once the building was up and running the sales team were more informed.

The team identified one of the most successful parts of the building as the passive stack ventilation system which has exceeded expectations in providing a comfortable environment in areas with extensive fenestration even with intense sunlight. The sustainable urban drainage system has also proved successful and the site now returns less water to the water table than the original brownfield site.

"It was a bold move to invest in the Center and from our discussion it is evident that it is provoking interest amongst some of the market leaders in development and construction."

Patrick Churchard CEng. MCIBSE
Director, ACDP (Integrated Building Services) Ltd.



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