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A constructive response on green materials

Moving the agenda forward from timber, major construction firm Bovis Lend Lease is taking a leading role in the development of certifiable sustainability standards for construction materials such as steel and concrete. **Geraint Roberts** reports

The need to ensure that materials or commodity crops do not come from environmentally damaging sources – and that they can be traced back up the supply chain to responsible suppliers – is growing for many firms. Whether it is illegally logged timber, precious metals from war-torn areas of Africa or water-hungry cotton grown in arid farming regions with poorly applied pesticides, firms are keen to avoid risks to their reputations. They want to show investors and customers that they care about where their materials come from and they manage such risks as best they can.

Although companies often use their own standards to audit suppliers, the most credible way to do this is by adopting standards accepted by a range of interested parties, such as the forest management and chain of custody standards developed by the Forest Stewardship Council (FSC) (ENDS Report 395, pp 38-41). Suppliers can then be audited and certified against these standards by accredited certification bodies. Similar standards have been developed for palm oil, cocoa, tea and coffee as well as timber.

But as concern grows about the environmental impacts of buildings and construction and the carbon footprint of products, attention is now turning to materials such as steel and concrete.

The government's draft sustainable construction strategy, issued for consultation last year, included a target to ensure that by 2010 half of construction products are issued with third-party "environmental product declarations" (EPDs) that provide externally verified environmental data. Work on developing such standards for building products is being undertaken by the European standards body CEN. The draft strategy also says half of all developments valued over £1 million should use "responsible sourcing principles" (ENDS Report 391, pp 42-43).

Another key driver is the government's code for sustainable homes, which rates new homes on a scale from one to six according to sustainability criteria that include provisions on responsible sourcing of materials. The code's lowest level, which is now part of building regulations, is easy to achieve. However, many developers – particularly in the public sector – are seeking to achieve the levels between three and six. It is also likely that at some stage the government will introduce similar requirements for commercial buildings and other construction projects (see p 52).

Recently both the Construction Products Association and building consultancy BRE have established responsible sourcing units within their organisations. Meanwhile interest is growing in BRE's environmental assessment method (BREEAM) for office buildings, established in the late 1990s, which includes its Green Guide of environmental ratings for building products.

Now the UK arm of Bovis Lend Lease (BLL) has become one of the first construction firms to publicly announce targets related to responsible sourcing.

A leading UK construction company, BLL was formed in 1999 when Australian developer Lend Lease bought UK construction firm Bovis from P&O. The company focuses on the commercial, industrial and private finance initiative markets, having sold off its house-building business, Bovis Homes, in 1997.

BLL's clients include multinationals such as BP and HSBC and major property developers, including parent company Lend Lease that developed the huge out-of-town Bluewater shopping centre near Dartford, Kent. It typically has 70-80 projects going at any one time, in addition to refurbishment contracts.

"Our parent company and our investors have been the main stakeholders pressing for change... Most of our clients are on a similar journey"
Paul Toyne, Bovis Lend Lease

In November BLL announced a UK sustainability plan with a target to ensure that the key construction materials it uses will be certified to sustainability standards by the end of 2010. The firm has drawn up a shortlist of eight materials and hopes to select standards for three of these – steel, concrete and stone – by the end of this year. They could be proprietary standards developed within the firm or standards developed under the aegis of other bodies.

The company's timber policy, which states that it should specify timber certified to FSC standards, is the model for this work. "We have engaged with the MDs of our timber suppliers on sustainability issues, and we want to do the same with our other material suppliers," says environmental manager Sam Hall.

Procurement guidance, training and monitoring systems have been introduced internally for timber and the company's

Setting sustainability standards for steel products will be complicated but there is a log of interest from suppliers

BOVIS LEND LEASE

sustainability team now plans to do the same for other materials. It is also explaining the reasons for the new responsible sourcing programme to procurement, commercial and project managers.

The firm is involved in a project led by the Concrete Centre to develop a certification scheme for sustainably produced concrete. Over 100 million tonnes of concrete is used in the UK each year.

Following a workshop last year led by Sustainable Development Commission chairman Jonathon Porritt and attended by the heads of some 20 major concrete and cement producers, the Concrete Centre appointed consultants Optimat to develop the scheme, along with a sustainability strategy for the sector.

Both projects are due to be completed by the end of this year and BLL says it wants to be the first construction company to use concrete with certification to the standard.

According to the Concrete Centre's head of sustainability, Guy Thompson, the scheme will probably be overseen by BRE, which already accredits certification bodies for its Green Guide scheme for building products.

Unlike forest management standards, the standard could allow concrete to be certified as meeting "good" and "very good" sustainability levels, as well as a lower "pass" level. A key issue will be what criteria should be set for the pass level.

Unlike timber and agricultural commodities, almost all the concrete used in the UK, along with its main ingredients – aggregates, sand and other 'cementitious' materials – are produced in the UK. Consequently, social and legal compliance issues are not vital in the way that they are in developing countries. More important will be the use of secondary cementitious materials such as blast furnace slag and pulverised fuel ash instead of cement – which greatly reduces concrete's carbon footprint – and the operating standards of the quarries and gravel pits supplying aggregates for concrete.

Steel promises to be more difficult because the supply chain is global and much more complicated. Around half of the 14 million tonnes of steel used in the UK each year is imported. Construction is the biggest market, consuming around 4 million tonnes, followed by the engineering and automotive sectors.

BLL is working on its own standard, but is also taking part in the Eden Project's minerals supply chain stewardship project that is focusing on the use of metals in the construction industry.

Coordinated by project manager Georgina Pearman, the working group's participants also include mining giants Rio Tinto and BHP Billiton, consulting engineers Buro Happold, construction firms Willmott Dixon, Carillion and Sir Robert McAlpine, Corus, Kingspan, the Steel Construction Institute and the British Metals Recycling Association.

The Eden Project had hoped to test the concept of metal traceability in its plans to construct a new building, the Edge, at its site near St Austell, Cornwall, but it has yet to attract sufficient funding.

The working group sought to discover how much appetite there was for metals certification as part of the building process, whether such schemes are feasible and what lessons could be learned from other material certification schemes. It is proving surprisingly popular, says Ms Pearman, and will continue this year though she has yet to secure the necessary match funding.

Metals

Achieving chain of custody certification for metals would be considerably more complex than for timber because of the greater number of stages in the supply chain. Key stages include mining, processing, shipping, fabricating and delivery, as well as the collection and recycling of scrap metal.

The sector also faces a wide range of sustainability issues. For steel and aluminium, the biggest environmental impacts are associated with the volumes used and the energy consumed. For copper, the main environmental harm comes from the amount of waste generated during production. Labour, health and safety issues are also important for mining in many parts of the world.

The targets on materials certification set by BLL's UK business are just one part of its sustainability strategy. This was announced →

Over 100 million tonnes of concrete is used every year in the UK at sites such as Kings Waterfront in Liverpool

12 months after Greg Clarke, chief executive of parent company Lend Lease, announced that the parent group's aspiration was to be a sustainable organisation.

"Our parent company and our investors have been the main stakeholders pressing for change", says BLL's UK sustainability manager, Paul Toyne. "Most of our clients are on a similar journey to us." The work on material standards has been driven partly by the need to minimise risks to the firm's reputation, says Mr Toyne, but also by a desire to innovate. "Will buildings in future be built by these same materials with such high embodied energy, or will others come in?" he asks.

BLL appointed its environmental team some seven years ago and achieved certification to the international standard for environmental management systems, ISO14001, for all of its offices the following year. Since then the team has expanded to six, headed by Mr Toyne, who came to BLL from the consultancy Article 13. Previously he headed WWF's forestry campaign in the UK, at a time when deforestation and imports of illegally logged timber were focusing the construction sector's attention on environmental issues.

BLL has also set a target to cut the amount of construction waste it sends to landfill by 70% by the end of 2010 compared to 2007. The construction sector produces over 100 million tonnes of waste annually, three times that of households. Meanwhile, waste disposal is becoming more and more expensive as landfill sites become scarce. The firm spends £8 million a year on waste disposal and produces an estimated 600,000 cubic metres per annum of construction and demolition waste, of which 60% is landfilled.

The Sustainability Forum, an advisory group of the Strategic Forum for Construction, and the government's Waste and Resources Action Programme (WRAP) have challenged the construction sector to halve the amount of waste it sends to landfill by 2012. They say firms could save millions of pounds by meeting the target, not least by reducing the astonishingly large amount of materials that are delivered to construction sites then sent to landfill unused. One of BLL's competitors, Wates, has an ambitious target to eliminate the landfilling of non-hazardous waste by the end of 2010 (ENDS Report 379, pp 30-33).

BLL's 70% reduction target for landfilled waste is "quite daunting", says Mr Toyne. But it will "focus the minds" of suppliers and managers. "If we miss the target and only achieve a 60% diversion rate it will still be a great achievement for the business," he adds.

The company is also one of eight construction firms taking part in trials organised by WRAP to calculate the "waste neutrality" of developments. The English waste strategy defines this as the situation in which the value of reused or recycled materials equals the cost of disposing of waste materials. The concept has been welcomed by environmental managers in the sector because it shows commercial managers how they can save money.

Help towards meeting the target will also come from the new requirement due later this year for developers and contractors to produce site waste management plans for major projects. The plans must list the types and volumes of wastes expected to be generated by the development and record where they are sent for recycling or disposal (ENDS Report 387, p 43).

BLL is also aiming to cut its carbon dioxide emissions by 20% by the end of 210 compared to a 2008 baseline. The target applies to direct emissions from its offices and developments. It will be met through energy efficiency measures and negotiating contracts for electricity from renewable sources. The company has recently agreed a deal with EDF to supply electricity from renewables for the construction of the Olympic village in Stratford, east London.

Easy wins

With energy costs rising over the last few years, the drivers are similar to those for waste reduction. The company has worked with the Carbon Trust to develop a carbon management programme and is currently conducting a feasibility study to gather accurate data on its footprint. But it has already identified some easy wins, such as introducing software in its IT systems to ensure that office appliances are switched off at the end of the day, and replacing its temporary lighting systems on project sites with much more efficient LED systems.

Mr Toyne says the company currently has no plans to buy carbon offsets in order to claim that it is "carbon neutral". In 2004, before he joined the company, BLL had trumpeted a two-year deal with Future Forests, now the Carbon Neutral Company, which made its European headquarters in Harrow "carbon neutral" and included a similar product for prospective clients.

BLL's final environmental target addresses the design of buildings. It wants all new-build projects and refurbishments of £5 million or more to achieve a BREEAM rating of at least "very good" or equivalent by 2010. Currently around 65% of ongoing projects will meet this level and some 10% will achieve an "excellent" rating. Achieving this goal depends on influencing its clients – the firms for whom it constructs buildings. BLL hopes to persuade all its clients to seek a rating of some kind, even if it is just the lowest level.

Overall, BLL's sustainability strategy is a welcome attempt by a big player to achieve a step change in the environmental performance of the UK's construction sector, which has been lagging. The goals have been set – now it is time to deliver. ■

BOVIS LEND LEASE

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