THE BURDENS OF SUSTAINABILITY

Geoff Barlex, project manager at Clifford Devlin, describes how the burgeoning use of environmental targets is placing ever greater demands on contractors in the construction industry to produce data and documentation to demonstrate compliance.

DESPITE the introduction of the Construction Design and Management (CDM) Regulations the documentation we, as demolition contractors, were obliged to handover on completion of the demolition phase was often contained on a single sheet of A4.

With no construction methodology as such to define, few if any incorporated products to provide CoSHH data for and no installed plant or equipment requiring operational and maintenance manuals, and until fairly recently, the Project Close Out Report (PCOR) we submitted to the contract administrator typically contained little more than details of any service disconnections that we had effected.

That is, until a raft of recent regulations and schemes were introduced to encourage the concept of sustainability into the construction industry. As a direct consequence of these environmental initiatives our PCOR has now developed into a substantial document, which provides summary figures and supporting evidence for recycling and disposal of waste material, CO2 production and methods to control pollution.

The work involved to reduce the environmental impact of our site activities combined with the discipline of monitoring, processing and reporting the data to substantiate it has an incremental, but noteworthy, impact on the duration and the costs of the project.

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We all appreciate the value and importance of sustainable construction and accept that we need to work in a more environmentally friendly way. However, the construction industry is in the midst of its worst slump in living memory and fierce competition is creating huge downward pressure on pricing.

Being able to provide the additional environmental data and reporting while remaining competitive on price, is presenting a real challenge to all those involved in the construction supply chain.

The first significant environmental initiative that required us to amend our reporting procedures was the introduction of the Building Research Establishment's Environmental Assessment Method (BREEAM). We first encountered it during the Bankside 4 project on London's South Bank in 2007. While the majority of BREEAM's requirements are concerned with environmental best practice in the design and construction of the building there are still a number of issues, such as site activities, in which we can influence and contribute to the overall environmental performance of the finished building.

Emissions

Perhaps the most eye-catching of these are the requirements to monitor CO2 emissions created as a result of transportation and site activities. In the absence of any guidelines on how this should be done we devised our own system for calculating a carbon footprint.

The overwhelming majority of CO2 emitted during the demolition phase is linked to energy used by on-site equipment and the consumption of fuel used in any transport to/from the site. The process therefore involves gathering and recording data for gas/oil deliveries, propane (used for cutting operations), electricity and logging vehicle movements to/from the site. Using standard conversion factors we were able to calculate a crude figure for carbon emissions for the Bankside project which was included

in our PCOR and passed to the contract administrator, for eventual submission to the BREEAM assessor.

Since then we have refined the methodology and are now able to advise principal contractors and other partners on how to set targets for CO2 emissions – an additional specification introduced to BREEAM in 2006.

Both BREEAM and its residential counterpart, the Code for Sustainable Homes (CSH), both refer to the maintenance of clean air quality during the construction phase and allocate credits for monitoring and recording it. For all intents and purposes this involves the minimisation of dust emissions during site activities. As a specialist in inner-city demolition we are familiar with working in close proximity to 'sensitive receptors' (e.g. live buildings, pedestrians, traffic etc) and often the planning consent or tender documentation will define an acceptable limit for air quality (defined in terms of particulates or PM10).

The methodology and frequency of monitoring will typically be agreed in advance with the local authority and data is recorded and reported to the relevant Environmental Health Department to demonstrate compliance. As well as including air monitoring data, the close out report now also includes any noise or vibration monitoring which, in inner-city locations, is often a requirement.

Reporting

Since the introduction of the Site Waste Management Plan (SWMP) Regulations in 2008 our standard project reporting now also includes details of the waste generated during the demolition phase. These regulations, which apply to projects in excess of £300k in value, were introduced to reduce the amount of waste which is dumped illegally and promote resource management throughout the construction sector as a whole.

They require us to report in detail the quantity and destination of each waste type generated. This involves firstly segregating the demolition arisings into individual waste streams i.e. glass, ferrous metals, non-ferrous metals, timber and plasterboard etc which are placed into skips awaiting removal to local recycling centres. Brick and concrete hardcore is typically crushed and used as in-fill, for landscaping or left on-site for use in the construction phase. Each consignment of waste is weighed and the data collated. We have regularly been able to recover and reuse/recycle 97 per cent of all waste generated since the SWMP Regulations were introduced.

TARGETS: Site Waste Management Regulations require waste to be segregated on-site into separate material streams and removed for recycling.

The CSH also allocates credits (towards the overall green star rating of the building) for demonstrating compliance with the Considerate Constructor's Scheme, a voluntary Code of Practice set up by the industry in 1997 to improve its image. All registered sites are committed to the Code of Practice which is designed to reduce the negative impact that construction activity can sometimes have on the local environment.

There is plenty of overlap between the various sustainability initiatives and schemes. The CSH and BREEAM both include site waste management as well as CO2 emissions. Rather than prepare a series of separate documents to demonstrate compliance, it made sense that we consolidate all of the sustainability information with CDM data into one report, which can be submitted to any interested parties.

Circulating all of this information in a single document helps to reinforce the holistic nature of sustainability across the entire project team and can help to cross-fertilise environmental best practice throughout the supply chain.

It can also have some unexpected benefits. A recent PCOR created for the demolition phase of a BREEAM project to redevelop and refurbish a Victorian swimming pool in north London was circulated to the principal contractor, the CDM co-ordinator and the environmental consultants but also the client, the London Borough of Camden. The report was included in documentation submitted to environmental auditors from BSI and helped to demonstrate best practice in the council's supply chain assessment, and contributed to its successful certification to ISO 14001.

There is no doubt that having to perform, monitor, record and report the environmental aspects of the construction process while remaining competitive on price is extremely challenging. However, the pressure on the industry to adopt and embrace the concept of sustainability is admirable and only likely to increase as the debate over the denudation of natural resources intensifies. These additional responsibilities placed on participants in the construction supply chain are likely to be with us for some time to come.

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The PM's Role

Carol Bell

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THERE is currently uncertainty about the extent of the project manager's responsibility to deliver sustainable aims or whether their role is purely to facilitate the business case. I believe there is a real opportunity for project managers to challenge the dynamics of a project to incorporate sustainability at the very beginning to ensure environmental, social and financial factors are considered from the outset.

As the sustainability agenda continues to shape all projects, project managers need to ensure that they fully understand what is required of their project in relation to sustainability. For example, the Building Research Establishment's Environmental Assessment Method (BREEAM) ratings now directly influence the business case of a project and as such have become an essential financial consideration rather than just a nice to have. Sustainability objectives help project managers by identifying what the client is trying to achieve, therefore the more knowledgeable a project manager the better placed they are to satisfy client requirements and meet the project aims.

A key challenge for project managers is keeping up to date with the continually evolving sustainability legislation. With the correct expertise and a well informed brief there are opportunities for project managers to advise their team to ensure changing legislation does not negatively impact the success of a project.

Although a voluntary code, the BREEAM rating has a significant impact on the ability to let an office development, as the higher BREEAM ratings command a premium. Therefore project managers need to consider the likelihood that in future it will be difficult to lease an office building without a minimum 'Very Good' BREEAM Rating.

A successful project manager should anticipate future requirements and seek to ensure sustainability objectives are on the agenda right at the outset of a project. It is essential that these issues are not only included in the project brief but are supported by the business case and communicated effectively to all stakeholders. Sustainability should not be regarded as an afterthought once the project budget has already been defined, as this will significantly impact the project's overall cost, time frame and quality.

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