

SITEwise



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Foreword

The construction industry plays a major role in improving the quality of the built environment, but it also impacts on the wider environment in a number of ways.

The construction business in the UK is responsible for nearly a $\frac{1}{3}$ of all industry-related pollution incidents. Construction and demolition waste alone represents 19% of total UK waste. Too many buildings are environmentally inefficient and do not make best use of limited resources such as energy and water. The energy used in constructing, occupying and operating buildings represents approximately 50% of greenhouse gas emissions in the UK.

Sustainable construction techniques have been successfully used to deliver projects in this region, ranging from schools (eg. Hadleigh Primary School, Suffolk) to housing (eg. Gusto Homes, Millennium Green Project, Lincolnshire). However take up of sustainability principles varies significantly, with some leading firms following recognised good practice, but others still making little effort. The environmental efficiency of buildings in the UK remains lower than in many other European countries. An increase in the number of single person households, together with rising domestic waste production and water consumption, means that increases in environmental efficiency are needed just to limit the impact of existing buildings.

The rate of construction in the UK is set to increase. This new emphasis on growth represents an opportunity to shift development towards delivering more sustainable homes and construction.

The Environment Agency and Constructing Excellence are working in partnership to help the construction industry meet the target it has set itself in the East of England Sustainable Construction Strategy for reducing the amount of waste it produces.

A series of practical workshops will be organised around the region, bringing together people who can share their expertise and good practice with the construction industry.



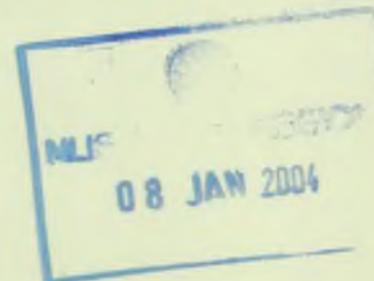
P Woodcock

Environment Agency



D Lenard

Constructing Excellence



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Standard Distribution List for New Publications

SiteWise Pack (A169)

An information pack on the SiteWise campaign which targets the construction industry.

Regional Management Team

~~Paul Woodcock~~
Ron Linfield - Lincoln
Bill Forbes – Ipswich
Keith Stonell - Brampton
Ian Ripley
~~Graham Wilson~~
Allison Long

Corporate Affairs

~~Richard Woodard~~
Julie Vince – Midlands
Jayne Birdsall – North East
Christine Russell – Wales
Communications Officer – North West
Natalie Henshall – Thames
Sheila Crosswaite – Southern
Jenny Reay – South West

Regional Advisory Panel

Andrew Dare
Kay Twitchen
Robert Burgin
Christopher Penn

Area Customer Services Managers

Nigel Fawthrop – Brampton
Paul Quinton – Ipswich
Roger Ashford – Lincoln

Area Education Officers

Marianne Walsh - Brampton
Rachel Mills - Lincoln
Issy Dow - Ipswich

Head Office Contacts

Kate McCarthy – PENS, Bristol
Rebecca Cook – NILS, Bristol

Area External Liaison Officers

Stewart South - Brampton
Matthew Ross - Lincoln
Rob Davis - Ipswich

Library

Helen Baker

Admin

Corporate Affairs Circulation
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**Issued by Hazel Parmenter/
Kay Sarsby, Communications**

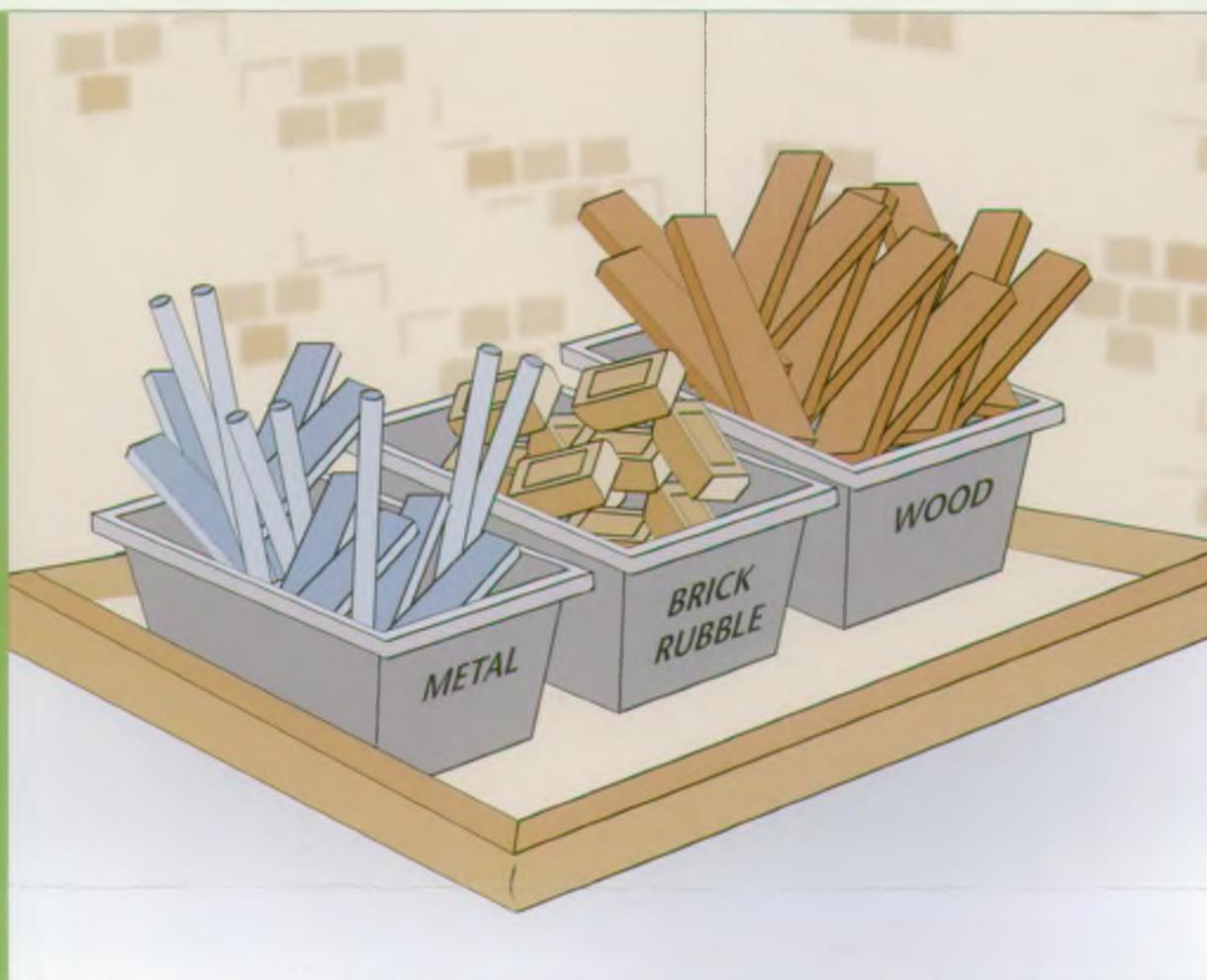
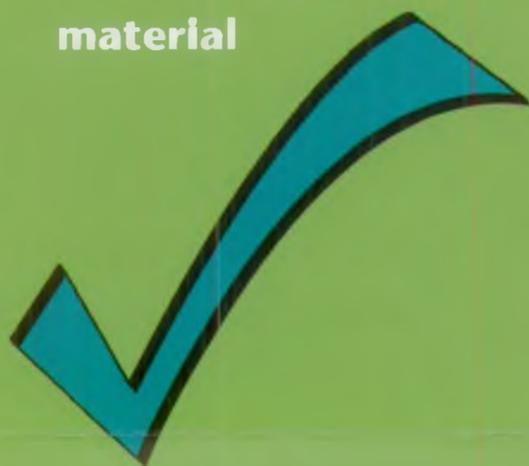
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Hazel/Kay on ext 4309**

SITEwise

Waste storage and disposal

- Waste segregation saves money
- More waste recycled and re-used
- Potential income from salvaged material



- Increased disposal costs
- Wasted raw materials
- Less waste recycled and re-used



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The Environment Agency and Constructing Excellence are working in partnership to deliver SiteWise - a campaign targeting the construction industry.



The SiteWise Campaign

Over 72 million tonnes of construction, demolition and excavation waste is produced annually in England and Wales. This is the equivalent of around 24kg of construction waste for every person in this country every week: around four times the amount of household waste we produce. Construction and demolition waste represents 19% of total UK waste.

This places a substantial cost on the construction industry - costs including landfill tax, the disposal charge itself, and the purchase price of the materials that are being thrown away.

The excessive waste created by the industry, also causes environmental damage that could be avoided. The construction industry impacts on the wider environment through its use of raw materials, energy and water.

The Environment Agency and Constructing Excellence are working in partnership to help the construction industry meet the target it has set itself in the East of England Sustainable Construction Strategy for reducing the amount of waste it produces.

Together, we will be running a series of practical workshops around the region, bringing in people who can talk about what they have done to reduce waste on their construction sites and highlighting the benefits this has brought their business.

There will also be opportunities for discussion about how your own business can introduce similar measures.

SiteWise: the partner organisations



The Environment Agency is the leading public body protecting the environment in England and Wales. Its job is to ensure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world. Its work includes tackling flooding and pollution incidents, cleaning up rivers, coastal waters and contaminated land, improving wildlife habitats, and reducing industry's impacts on the environment.



Constructing Excellence is a DTI-sponsored body. It has been created by merging Rethinking Construction and the Construction Best Practice Programme. Its key aims remain the same: to work with the construction industry to improve its performance in all aspects - in design, quality, sustainability and customer satisfaction. In order to do this, it also aims to work towards sustained recruitment of a suitably skilled workforce at all levels in the industry.

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Introduction

The construction industry can make a key contribution to the delivery of sustainable development in this country. Construction underpins every aspect of our society: the ways in which we live and work are affected by our houses, schools, hospitals, shops, offices, factories, roads and railways.

The construction industry impacts on the environment in many ways. These include local and national impacts of materials supplied and production of waste. There are a number of measures the industry can undertake in order to address the huge amount of waste produced.

The key elements in a successful strategy for reducing construction waste are the same as for other types of waste:

- **A change in the way resources and waste are managed**
- **Tackling the amount of waste produced and breaking the link between economic growth and increased waste**
- **Ensuring that unavoidable waste is put to good use wherever possible, by re-use, recycling, composting or energy recovery.**

This information pack has been designed to give advice and guidance as part of the SiteWise construction waste campaign. It remains each organisation's responsibility to ensure that all aspects of legislation are complied with at all times.

The pack can be used by all organisations involved in construction:

- **Clients, developers and planners**
- **Designers**
- **Contractors.**

The guidelines in the pack are designed to offer both practical measures and ideas for management improvements. They are primarily intended as a source of information for the user but are also useful as a means of persuading others of the benefits to be gained by minimising the production of construction waste, and managing effectively the waste that is produced. All stages of the construction process are important, whether planning, design, construction or demolition.

It has been shown that the waste produced on most construction projects can be at least halved by good

management. If this were achieved across all construction projects in this country, savings of at least £400 million would be made (taking into account the purchase costs of material, its transport to the site, and its storage as well as the direct waste disposal costs). Financial savings will, of course, vary from project to project depending on circumstances.

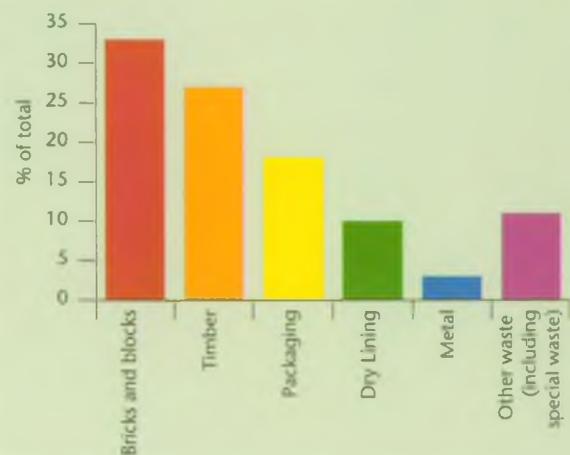
In addition to cost savings, environmental benefits can be achieved through reducing waste and managing it effectively. Other benefits include improvements in efficiency and a company's environmental reputation; which is becoming an increasingly valuable marketing tool.

If waste minimisation and management is to be taken seriously, it is important that commitment is demonstrated at the highest level of the organisation. This will ensure that employees will also recognise its importance. The earlier waste management issues are considered during a construction project, the more likely they are to be incorporated and the more valuable they will be – and this applies equally to client, design and construction organisations.

Types of waste

The construction waste found in site skips varies considerably according to the particular project. Generally, the vast majority of materials found consists of bricks and blocks, timber, and packaging (cardboard and plastic).

Construction waste site skip composition



Sources of detailed advice

Waste minimisation and recycling in construction – boardroom handbook (CIRIA Special Publication 133, 1998)

Waste minimisation and recycling in construction – design manual (CIRIA Special Publication 134, 1998)

Why Bother?

SITEwise

Over 72 million tonnes of construction, demolition and excavation waste are produced in the UK each year. Of this, around 7 million tonnes is generated in the East of England.



Cost

Nationally, the construction industry spends £193 million on landfill tax alone. Landfill tax is due to rise over the next few years to a maximum of £35 per tonne. This will have a huge impact on waste disposal costs. In addition, landfill space available in this region is becoming scarce, and this too will mean rising disposal costs.

The true cost of waste, is much greater than the direct disposal charges. It also includes:

- **The purchase price of the materials thrown away**
- **The costs of delivery and storage of those materials**
- **Labour costs in handling and storing the waste**
- **The loss of potential income from salvaged materials.**

These costs could be dramatically reduced – increasing your business efficiency, your profit margins and making your business more competitive.



Legal requirements

There are many laws that govern how we must manage waste and control pollution, and there is more legislation proposed to make controls more effective, including the implementation of the Landfill Directive and Producer Responsibility initiatives. Businesses that do not manage their waste properly risk prosecution and substantial fines, as well as bad publicity.

Environmental impact

Throwing away excess bricks, blocks and plasterboard requires further raw material extraction and energy and water consumption in the production of new building materials. This has a permanent effect on our environment: we cannot replace these raw materials.

Landfill sites also have environmental impacts: they produce greenhouse gases, leachate, noise and odours which, if not properly controlled have the potential to cause pollution. The extra traffic taking waste to them also has damaging effects on the environment.

If we produce less waste, or manage what we do produce more effectively, we can reduce the damage we are causing.

Can you afford not to bother?

The true cost of construction waste is really around TEN TIMES the cost of disposal.



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Why Bother



Financial benefits

- **A reduction in the wastage of new materials.** The quantity of materials wasted on a site, rather than being used in the works, is often quoted by construction companies at around 10% (depending on the material). The cost of this waste is not only the waste disposal cost but also the purchase price of the material as well as its transport and storage.
- **A reduction in the cost of waste disposal from site.** If the amount of waste produced on a site is reduced, there is naturally a reduction in the direct cost of waste disposal. By separating the types of waste produced ('waste segregation'), material that can be reused or recycled is not sent unnecessarily to landfill, and the costs are further reduced. In addition, by segregating inert waste (waste which will not rot down, such as brick rubble) from the rest, the higher band of landfill tax only needs to be paid for the waste that really deserves it.
- **Increased salvage values.** Reclaiming materials, whether for use on the same or other construction sites, means that waste disposal costs are saved as well as the cost of purchasing new materials unnecessarily. Reclaimed material can range from crushed concrete or brickwork (which has very clear and substantial financial benefits to the industry – particularly since the introduction of the Aggregates Levy) to roof tiles or, in some cases, good quality bricks (although costs here need to be carefully assessed).

Direct costs of waste disposal are generally around 0.3% of the construction cost of a project. Indirect costs, however, mean that the true cost of waste can be up to 6% of construction cost.

Environmental benefits

Even though many organisations involved in construction have environmental policies, and some have environmental management systems, the majority recognise that their activities can cause considerable damage to the environment. This applies just as much to designers and developers as it does to contractors and suppliers.

Waste is one area in which improvements can be made, as reducing the amount of waste not only reduces the environmental effects of waste disposal sites, but also the impacts of obtaining and processing raw materials to make construction products – and this includes reducing water and energy use.

Good waste management will also reduce the likelihood of pollution incidents occurring, such as oil spillages and soil or silt entering watercourses.

For businesses that do have environmental management systems, and must therefore achieve year-on-year improvements in meeting environmental targets, reducing waste can make a major contribution to reducing overall liabilities.

Business benefits

It is clear that environmental performance is playing an increasing role in the selection of designers and contractors. Furthermore, some banks and insurance companies are beginning to require improved environmental assessment and performance as a condition of funding.

Good practice in waste minimisation and management, and in materials management, can lead to efficiencies elsewhere which make a substantial difference to the success of a project. These might include:

- **Reduced damage to critical components**
- **Reduction in double handling of materials or waste**
- **Improved site management**
- **Reduction in time wasted.**

Clients, designers, contractors and suppliers can and should contribute in order to gain the most from improvements in waste management.



Responsibilities

Waste minimisation and management issues should, ideally, be addressed by all of the key parties involved in a construction project: clients (including funding providers), designers, contractors and suppliers can and should contribute in order to have most effect. For example:

- **Clients** can establish environmental criteria for their project, including waste management. This will mean that the other parties involved in a project will have to give proper consideration to these issues
- **Designers** can reduce the resources used in a construction project, and can help site waste minimisation through appropriate design. They can influence the use of reclaimed materials through their specifications
- **Contractors** can have a direct effect in reducing the amount of waste produced on their sites. They can also use reclaimed materials in their projects, and can reduce wastage caused by poor material storage and handling
- **Suppliers** can encourage the use of reclaimed materials e.g. by take-back of unused materials and can influence wastage caused by excessive packaging.



Corporate policy

The key to successful implementation of waste minimisation and management initiatives is the demonstration of commitment at the highest levels of an organisation – whatever its size. Employees will recognise the importance of waste issues and their commitment and involvement will be gained only if management support is clear.

Directors and senior managers can demonstrate their commitment to waste minimisation and good management by:

- **Improving communications – both internal and external**
- **Pursuing changes in industry attitudes to reclaimed materials**
- **Specifying and purchasing reclaimed materials, thus improving the market for them**
- **Including waste minimisation measures in materials purchasing policies**
- **Highlighting the true cost of waste, including the value of the materials being wasted**
- **Improving information available about amounts and types of waste**
- **Implementing an environmental management system, which will include addressing waste management.**

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Making changes

Project planning and implementation

The earlier waste minimisation and management issues are considered during a project, the more likely they are to be included within the scheme. Measures should ideally, therefore, be introduced at the earliest possible stages in order to have maximum effect. However, although the following measures would give maximum benefits if undertaken through a complete project waste minimisation strategy, they would still have a significant effect if brought in independently:

- **Encourage waste minimisation during the design stage**
- **Establish a site waste management plan to cover all waste who will deal with them and how illegal disposal by others will be avoided**
- **Use a partnering contract to facilitate co-operation and team-working**
- **Encourage the use of reclaimed materials**
- **Include a waste minimisation and management targets and incentives in construction contracts.**



Site management

Good results during the construction phase of a project can be achieved through a range of actions, including:

- **Providing training and guidance for all employees – for example, toolbox talks - about good waste management practice**
- **Setting targets for waste production and management, and providing information to employees about progress towards meeting them**
- **Improving materials handling and storage on site**
- **Increasing the reclamation of materials from demolition works**
- **Providing facilities for the segregation of waste.**

Sources of detailed advice

Waste minimisation and recycling in construction – boardroom handbook (CIRIA Special Publication 133, 1998)

Waste minimisation and recycling in construction – design manual (CIRIA Special Publication 134, 1998)

Environmental Good Practice on Site (CIRIA, 1999) Part of the Environment Agency's Building a Better Future video pack

7 million tonnes

of construction and

demolition waste

is generated in the

East of England

each year

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ANGLIAN REGION ADDRESSES

REGIONAL OFFICE

Environment Agency
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

NORTHERN AREA OFFICE

Environment Agency
Waterside House
Waterside North
Lincoln LN2 5HA
Tel: 01522 513 100
Fax: 01522 512 927

CENTRAL AREA OFFICE

Environment Agency
Bromholme Lane
Brampton
Huntingdon
Cambs PE28 4NE
Tel: 01480 414 581
Fax: 01480 413 381

EASTERN AREA OFFICE

Environment Agency
Cobham Road
Ipswich
Suffolk IP3 9JE
Tel: 01473 727 712
Fax: 01473 724 205

-  Area Administrative Boundaries
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GENERAL ENQUIRY LINE

0845 933 3111

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0845 988 1188

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Constructing Excellence Sue Innes Tel: 01986 798707

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