

# SUSTAINABLE CONSTRUCTION

## Simple ways to make it happen



GOVERNMENT OFFICE  
FOR THE EAST OF ENGLAND



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# PROTECTING YOUR BUILDING MATERIALS

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## Plan before you buy

- Plan the timing of your purchases so that delivery is just-in-time for the required building stage
- Avoid keeping materials in storage for too long as this ties up your funds and may lead to damage, spoilage and pilfering.

## Safe and correct storage of materials

- Identify storage requirements for building materials that you have to store and plan a place to store them
- Ensure building materials are stored correctly to avoid damage by damp, excess moisture, rain or daylight
- Store materials safely to prevent theft.

This could help you save money and reduce delays in your project caused by having to restock materials.

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# WHAT YOU CAN DO TO REDUCE WASTE

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## What is waste?

- Waste is anything that goes into a skip and ends up in landfill. For example,
- Unused materials and off-cuts
- Damaged materials and products
- Demolition waste.

## How to reduce waste

- Industry measures show that 13% of waste is new, unused material – take steps to reduce this waste by finding a supplier who accepts returns or exchanges
- A huge 60% of skipped material is packaging – work with your suppliers to take back and reuse packaging
- Exchange material – what might appear of no value to you may be of value to someone else. There are many exchange schemes available
- Crush and reuse aggregates. If you are not able to carry this out, find someone who does
- Poor site conditions increase accidents and can damage materials.

## Duty of care

- You are required to manage your waste under The Site Waste Management Plans Regulations (SWMP) which came into force in April 2008. You will have to keep records of waste removed from the site. Transporting your own waste requires a waste carrier's licence
  - Stamping out fly-tipping is everyone's responsibility – ensure that this type of waste does not originate from your site
  - Less waste lying around means a safer site.
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## Follow-ups

### The Eastex Materials Exchange Programme

Materials exchange programmes are increasingly popular and are a good way of exchanging excess, unused building materials. The Eastex Materials Exchange Programme ([www.eastex.org.uk](http://www.eastex.org.uk)) is a free online service for those who have an excess of stock or a shortage of material. There are six county-specific exchanges available for Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk.

## Other information sources

### NetRegs

NetRegs provides advice on construction waste for small and medium sized enterprises (SMEs). For further information on site waste management plans for the construction industry see: [www.netregs.gov.uk](http://www.netregs.gov.uk) and NHBC Foundation publication NF8: *Site waste management – Guidance and templates for effective site waste management plans*, [www.nhbcfoundation.org/](http://www.nhbcfoundation.org/).

For advice on developing your SWMPs, information about the regulations and guidance on waste management, see [www.wastefile.com](http://www.wastefile.com) and [www.ewise.co.uk/](http://www.ewise.co.uk/).

### NISP East of England Construction & Aggregates Work Group

[www.nisp.org.uk/](http://www.nisp.org.uk/).

### The Materials Information Exchange

[www.salvomie.co.uk/](http://www.salvomie.co.uk/).

### Norfolk Reprocessors Database

<http://reprocessors.databases.org.uk/search.html/>.

### Waste Exchange

[www.wasteexchange.net/](http://www.wasteexchange.net/).

### Waste Watch

[www.wastewatch.org.uk/](http://www.wastewatch.org.uk/).

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# SORTING AND DISPOSAL OF WASTE

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## Why it is important to reduce waste

- Reducing waste saves your business money in three ways:
  - Decreased removal and landfill taxes – every tonne of waste is taxed
  - Reduced materials
  - Reduced labour costs for sorting and transporting the waste.
- Minimising waste going to landfill benefits the environment
- Efficient waste disposal and segregation helps keep your site tidy and organised and reduces the costs of mixed waste
- Transporting your own waste requires a waste carrier's licence.

## Sorting your waste

- Identify waste or demolition products which can be reused or recycled
- Find local waste collection and recycling services.

## Construction and waste management companies

These companies can:

- Offer help and advice on practical recycling schemes
- Provide segregated waste containers, waste collection and recycling services eg the return of plasterboard off-cuts
- Dispose of waste at licensed waste recycling centres.

## Follow-ups

### NORWRAP

Look for construction and demolition waste service providers in your local area. For advice on construction waste management and recycling in Norfolk see the NORWRAP (Norfolk Waste Recycling Assistance Project)

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website ([www.big-e.org.uk/norwrap](http://www.big-e.org.uk/norwrap)) or contact Norfolk County Council's call centre on 0844 8008004 (NORWRAP enquiries).

BRE has developed a suite of tools specifically for the construction industry which can help you sort out your waste. For further information, contact BRE SMARTWaste on 01923 664471, email [smartwaste@bre.co.uk](mailto:smartwaste@bre.co.uk) or see [www.smartwaste.co.uk/](http://www.smartwaste.co.uk/).

## Other information sources

### Envirowise

Envirowise offers free information on reducing waste and making financial savings from resource efficiency. For practical advice on how to increase profits and help the environment, see [www.envirowise.gov.uk](http://www.envirowise.gov.uk) or call the Environment and Energy Helpline on 0800 585794.

### The National House-Building Council (NHBC)

The NHBC advises house builders on how best to manage and minimise waste onsite. Call customer services on 01494 735363 or see [www.nhbcbuilder.co.uk/](http://www.nhbcbuilder.co.uk/).



# DRY LINING WASTE

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## Working with plasterboard

- Try to design rooms with the same dimensions as standard sizes of plasterboard. This will reduce off-cuts and wastage of materials, which can save your business money
- Work accurately to avoid wastage and minimise the production of dust when cutting frames to size
- Minimise air and water pollution; this will benefit the environment and the local community
- Do not leave plasterboard uncovered as it can spoil very quickly.

## Disposal of plasterboard

- Plasterboard has to be separated from other materials in a landfill site and disposal of this waste costs more than disposing of other types of waste
- Landfill tax and disposal charges increase every year
- Find out if your supplier will take off-cuts back as it often works out cheaper
- Keep the amount of plasterboard waste to a minimum and recycle where possible.

## Follow-ups

### WRAP Plasterboard Programme

The WRAP (Waste & Resources Action Programme) Plasterboard Programme is aimed at supporting market development for increased recovery and recycling of plasterboard. A number of initiatives have been developed to encourage the segregation, collection and reprocessing of plasterboard, and therefore reduce the amount going to landfill. More information on all of WRAP's initiatives can be found on [www.wrap.org.uk](http://www.wrap.org.uk) or call the WRAP helpline on 0808 1002040.

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## Other information sources

### Greenspec

For advice on sustainable construction and choosing material and technologies that minimise damage to the environment and local community, see [www.greenspec.co.uk/](http://www.greenspec.co.uk/). A directory of sustainable products and building materials is available on this website. Information is given about different types of plasterboard with above average performance in terms of global warming (carbon footprint) and solid waste. Manufacturers' contact details are also provided.



# CONCRETE AND MORTAR

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## Protect the environment and your local community

- Minimise onsite concrete dust, air and water pollution. Avoiding this type of pollution will help protect the environment and reduce the risk of prosecution
- Take measures to ensure the health and safety of workers on the site (welfare and dust reduction) and the local community.

## Working with mortar

- Lime mortars are preferable to Portland cement mortars in terms of recycling
- Bricks bonded with lime mortar can be reused if the building is demolished in later years, which will help reduce waste in the future
- Ash or brick dust can be added to lime mortar to enhance durability and shorten required setting times.

## Purchase of concrete, mortar and plaster

- To prevent over-ordering of materials, plan the quantities in advance
- Timely ordering is important, especially if buying ready-mixed mortar
- Take care to store these materials correctly to reduce waste and damage.

## Follow-ups

### Minimising dust and emissions

For advice on best practice and ways of minimising dust and emissions from construction or demolition activities, see [www.bre.co.uk/](http://www.bre.co.uk/).

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## Other information sources

### Impacts of concrete and bricks

To find out more about the environmental impacts of concrete and bricks see [www.ecoconstruction.org/](http://www.ecoconstruction.org/). Suppliers of recycled concrete are also listed on this website.

### Greenspec

A directory of sustainable materials, including clay bricks and lime mortars, is available on [www.greenspec.co.uk/](http://www.greenspec.co.uk/). Information about lime mortar and render is given on this website.

### BRE publications

The following BRE publications are available from [www.brebookshop.com](http://www.brebookshop.com):

Hadi M, Rao S, Sargant H, Rathouse K (2004). Working with the community – A good practice guide for the construction industry. BR 472. Watford, BRE Press.

Kukadia V, Upton S, Hall D (2003). Control of dust from construction and demolition activities. BR 456. Watford, BRE Bookshop.



# PLANNING YOUR BUILDING SUPPLIES

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## Smart specification

- Think before you buy and plan your building supplies to keep wastage of materials to a minimum
- Calculate the quantities of materials you will need for the job and do not over-order more than you need for the sake of convenience
- Timely ordering of materials ensures that supplies arrive when required, and reduces storage where they could be damaged or stolen
- If you require a small amount of a material which is only available in bulk, use a materials exchange scheme or plan to use the material for future jobs
- Think about specifying materials that have a good recycle content as this will help to reduce your carbon footprint.

## Contractors and suppliers of materials

- Try to use local suppliers for reclaimed and recycled building products
- Find out if contractors and suppliers have an environmental policy.

## Follow-ups

### WRAP

*Choosing construction products: Guide to the recycled content of mainstream construction products* is available to download from the WRAP website ([www.wrap.org.uk](http://www.wrap.org.uk)) and provides contact details of companies who can provide recycled products. Detailed product datasheets are also available.

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## Further information

### National Green Specification

The National Green Specification website provides a detailed database of environmentally friendly building materials, guides on specification and a checklist highlighting where sustainable best practice can be applied. See [www.greenspec.org.uk/](http://www.greenspec.org.uk/).

### Recycled Products Guide

The Recycled products guide is a database of products and building supplies made from recycled materials. Available from [www.recycledproducts.org.uk/](http://www.recycledproducts.org.uk/).



# USING THE BEST MATERIALS FOR THE JOB

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## Smart specification

- Ensure you use the correct materials for the job to avoid poor workmanship, which can lead to rework
- Avoid rework as it costs money and wastes time and materials
- Use local, natural and sustainable materials and sustainable construction techniques
- Look out for the Forest Stewardship Council's trademark on timber and wood products indicating that wood comes from a sustainably managed forest
- Use renewable or recycled materials to benefit the environment
- Choose alternatives to PVCu window frames such as ethylene-based plastics or modern timber
- Avoid materials that have damaging effects on the environment
- Minimise the use of chemical treatments.

## Follow-ups

### Recycled and reclaimed products

To find out how you can use more recycled and reclaimed products and building materials see [www.ecoconstruction.org/](http://www.ecoconstruction.org/). There is a searchable database of available products on this website with information about the manufacturing processes of the products and their compositions, as well as contact details of suppliers. Information about the environmental impacts of some common construction materials and advice on choosing more environmentally friendly alternatives are also available.

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## Other information sources

### Association for Environment Conscious Building

[www.aecb.net/](http://www.aecb.net/).

### Construction Resources

The UK's ecological building centre can provide specialist advice on environmentally friendly building materials and systems.

Call 020 7232 1181, email [info@constructionresources.com](mailto:info@constructionresources.com) or see <http://constructionresources.com/>.

### Forest Stewardship Council UK

[www.fsc-uk.info/](http://www.fsc-uk.info/).

### Green Register of Construction Professionals

[www.greenregister.org/](http://www.greenregister.org/).

### WRAP

WRAP's Aggregain website: [www.aggregain.org.uk/](http://www.aggregain.org.uk/).





# DO BUILDERS HAVE A CARBON FOOTPRINT?

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## How to reduce your carbon footprint

- Use products that cause minimal harm to the environment and are energy efficient in terms of their manufacture, distribution, use and disposal
- Consider using environmentally friendly alternatives
- Use low energy forms of construction and consider carbon dioxide (CO<sub>2</sub>) arising from site activities
- Reduce journeys to and from the site by planning work and delivery schedules in order to reduce CO<sub>2</sub> arising from transport
- Get advice at the design stage on how the buildings can have a positive environmental impact by using:
  - Passive stack ventilation systems
  - High efficiency condensing boilers
  - Solar hot water exchangers
  - Whole house heat recovery systems
  - Photovoltaic panels.

## Follow-ups

### Lifestyle project

The Lifestyle project, in conjunction with Cambridgeshire County Council, is working to increase knowledge of low carbon solutions and capabilities of builders and other trades in designing and fitting renewable energy solutions. It aims to find cost efficient and effective ways to reduce resource consumption. To find out about the Lifestyle project see [www.lifestyle-project.eu](http://www.lifestyle-project.eu), email [liz.stevenson@cambridgeshire.gov.uk](mailto:liz.stevenson@cambridgeshire.gov.uk) or [shirley-ann.augustin@cambridgeshire.gov.uk](mailto:shirley-ann.augustin@cambridgeshire.gov.uk).

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For information about BREEM (Building Research Establishment Environmental Assessment Method) see [www.breem.org](http://www.breem.org), contact the BREEM helpdesk on 01923 664462 or email [breem@bre.co.uk/](mailto:breem@bre.co.uk/).

## Other information sources

### Cambridge Horizons

*Sustainable construction in Cambridgeshire – A good practice guide.*  
Available to download from [www.cambridgeshirehorizons.co.uk/](http://www.cambridgeshirehorizons.co.uk/).

### The Carbon Trust

[www.carbontrust.co.uk/](http://www.carbontrust.co.uk/).

### The Civil Engineering Environmental Quality Assessment and Award Scheme (CEEQUAL)

[www.ceequal.com/](http://www.ceequal.com/).

### Energy Saving Trust

[www.energysavingtrust.org.uk/](http://www.energysavingtrust.org.uk/).

### Environment Agency

The Environment Agency has produced a construction carbon footprint calculator which calculates the CO<sub>2</sub> generated by construction products (see [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)). The tool also allows waste management options and savings to be made.



# IS CHEAPEST BEST?

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## To cut corners or not to cut corners?

- Using the cheapest materials for the job does not always save you money in the long term
- Using non-compliant, non-standard or inappropriate materials can increase costs, off-cuts and wastage.

## Use the appropriate supplier for the product

- Find out who can advise you on the most appropriate materials for the job; they may offer a more competitive price
- Find out who can suggest recyclable or reusable alternatives which benefit the environment
- Sourcing a local specialist supplier means the materials will blend in with the surrounding buildings (eg local bricks). This may not always be the cheapest option but it will help to boost the local economy and may reduce your transport costs
- Improving relationships with the community will be beneficial for your reputation as a contractor.

## Use the right person for the job

- Hire specialist contractors to carry out work on your building project you are unable to do yourself
  - Bear in mind that mistakes can often be costly to put right
  - Locally based contractors may have experience of working with local or specialist building materials
  - Local recruitment will help to engage with the community.
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# REDUCING TRANSPORTATION

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## How to reduce transportation to and from the site

- Source building materials locally
- Ask suppliers how the building materials were transported
- Fewer trips mean less emissions – reduce the number and length of journeys by planning delivery schedules.

## Benefits and drivers

- Using building materials that are locally available reduces haulage costs
- Purchasing from local suppliers can improve the economy of the local community
- Reduce impacts from transportation by improving delivery scheduling
- Save money and benefit the environment by minimising transport requirements.



## SUSTAINABLE CONSTRUCTION

Do you want to:

- Increase your profit margins?
- Improve your green credentials?
- Increase business opportunities?

This booklet tells you how to make your business more sustainable.

### TOPICS COVERED

- Protecting your building materials
- What you can do to reduce waste
- Sorting and disposal of waste
- Dry lining waste
- Concrete and mortar
- Planning your building supplies
- Using the best materials for the job
- Do builders have a carbon footprint?
- Is cheapest best?
- Reducing transportation



This guide was written by the BRE Environmental Consultancy on behalf of Sustainability East.