RECYCLING IN CONSTRUCTION

How to re-use, reclaim and recycle construction materials on-site
A guide for site engineers, agents and foremen
<table>
<thead>
<tr>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to this booklet</td>
</tr>
<tr>
<td>Introduction to recycling and waste management</td>
</tr>
<tr>
<td>Getting started – a quick overview of how to begin recycling</td>
</tr>
<tr>
<td>Understanding your situation and identifying waste arisings</td>
</tr>
<tr>
<td>Re-use versus recycling</td>
</tr>
<tr>
<td>Waste management contractors</td>
</tr>
<tr>
<td>Planning and allocating storage for different wastes</td>
</tr>
<tr>
<td>Site signage</td>
</tr>
<tr>
<td>Training the workforce</td>
</tr>
<tr>
<td>Buying recycled</td>
</tr>
<tr>
<td>Useful contacts</td>
</tr>
</tbody>
</table>
Protection of the environment is everyone’s business. On construction and demolition sites, key environmental considerations include the reduction of waste and the re-use and recycling of waste materials.

This booklet is part of a series of guidance documents for construction projects produced by WRAP (the Waste & Resources Action Programme) to help increase recycling in the construction sector. It is aimed at site agents and general foremen responsible for the day-to-day running and organisation of construction sites. Other guidance in this series includes on-site reference tools for contractors and labourers, and more detailed information on waste management for environmental managers. For further information on WRAP’s programmes visit www.wrap.org.uk or call their helpline on 0808 100 2040.
Who should read this guide?
This guide will help site agents, engineers and foremen plan recycling and waste management activities on-site. It covers a range of different construction activities, including:

- Demolition projects;
- Refurbishment projects; and
- New build projects.

It offers specific advice for dealing with six of the most common waste material categories that you will encounter on-site: plastics; wood; plasterboard and plaster; glass; bricks and tiles; and concrete, brick, asphalt, stones and soils.

How will this booklet help me?
If you are running a construction site, the easy-to-follow advice within this guide will help you to plan for recycling on-site. It will also help you to motivate fellow workers to recycle their waste. The guide walks you through the process of establishing on-site waste segregation by offering advice on which materials should be separated and how they should be stored.

Why is this important?
Recycling on-site can offer real benefits, not only through better planning and compliance with regulations but also savings in waste disposal charges. There are also a number of waste and recycling related laws which require organisations to account for their waste, and government initiatives to encourage recycling. This leads to savings on material costs as well as waste disposal charges.

When to use it
This manual should be used when you are setting up a site, to ensure that all the facilities for recycling are in place and that all site workers understand their responsibilities. It should also be used during site operations to ensure that systems are working properly and to identify any changes that may be needed.

Is there further help available?
WRAP has produced a toolkit that brings together a range of guidance to help you to recycle and manage your waste on-site:

1. Site recycling and waste management manual which contains guidance for environmental managers wishing to manage their waste more effectively
2. Recycling prompt cards for your workforce which give simple instructions on handling on-site waste and recycling
3. Site signage and posters – these can be displayed on skips and in canteens or staff rooms to help promote recycling

This further guidance, and the site signage and posters, are available in the office manual or for download through WRAP’s construction website – www.wrap.org.uk/construction
INTRODUCTION TO RECYCLING AND WASTE MANAGEMENT

Many construction companies, both large and small, use simple waste management practices to generate real benefits for their projects. Managing your waste involves looking at the rubbish generated on-site and finding solutions to reduce it, re-use or get it recycled.

For most sites this is a relatively simple process and involves segregating waste by designating separate areas or skips for different wastes. Further advice on how to do this is provided within this guide.

What is re-use and recycling?
Waste management is built around a series of options:

- Reduce the generation of waste; this is the most effective solution;
- Re-use the product in its original form; examples include wooden pallets and bricks;
- Recycle the material for another purpose; examples include crushed concrete as aggregate and metal sent for scrap; and
- Only if there is no other option should the material be disposed of to landfill.

There is a wide range of opportunities to re-use a number of materials on-site. This is a win-win situation, saving money on both raw material and disposal costs. It also saves on the energy required to transport and reprocess the waste materials. Materials which can be recycled include: metals, paper, glass, plastic, wood, concrete and other construction materials such as bricks, rubble, plasterboard and asphalt. See page 7 of this booklet for more details.

Why should you manage waste and recycle?
Over 30% of the materials purchased for your project can go to waste, but you can save much of this by reducing waste production, and re-using and recycling the waste that is produced. Better materials and waste control policies, like on-site waste segregation and reduced delivery packaging, can also lead to a cleaner, tidier site and potentially less accidents.

Lower waste management costs
When waste leaves your site to be disposed of to landfill, there are a number of charges, one of which is the Landfill Tax. This currently costs businesses between £2 and £18 per tonne depending on the nature of the waste and this charge is set to increase by £3 per year. It is becoming more expensive to send material to landfill because of decreasing capacity and increasing regulatory requirements, so any reduction in waste leaving your site will save you money.

Many waste materials can be recycled either through the manufacturer or by recycling companies, avoiding the need to send them to landfill altogether and so reducing costs. You can also re-use materials on-site, which achieves a further cost saving by reducing the amount of new materials which are required. Waste that is not segregated may be impossible to recycle and may therefore have to be sent to landfill.
Legal requirements
All construction sites are legally required to handle and dispose of waste safely and responsibly. Therefore, procedures for handling waste should already be company policy. However, it is important that all workers on-site understand what they are required to do with their waste, to ensure that your site complies with the law. Your project or site manager will be able to advise you further on correct waste management and handling procedures.

Cleaner and safer site
By managing site waste, you will improve working practices by encouraging workers to think about where they are placing their waste. Sites with good waste management practices often see a reduction in accidents resulting from materials and waste left in inappropriate places and also less site litter.

Comply with company policy
Many companies now have formal policies on waste management and recycling, often as part of broader corporate aims such as sustainable construction. Even if your company does not have such a policy, the client or main contractor on a site may require that you work to their policy.

Improve your company’s reputation
By promoting good waste management practices on-site you are contributing to the overall reputation of your employer, and you may be helping them to win more business. This is particularly true of government-funded projects which may require certain standards of waste management policies before awarding a contract.

How easy is recycling?
As you will see throughout this booklet, on-site waste management goes hand in hand with other construction activities. By taking simple actions, and ensuring that everyone on-site is aware of what is required of them, even the smallest site can make real and immediate savings in direct costs and in project efficiency.

If you are already segregating waste, then consider whether it can be separated further on different jobs. Bear in mind that the quality of waste in equals the quality of waste out. Higher quality, segregated waste can benefit your site by lowering your overall waste management costs. You may even consider offering incentive schemes for good on-site segregation which has proved successful in a number of construction companies.

The reason segregation is important is because waste management companies supply different recycled material markets, each of which will have different quality requirements. The higher the quality of material separation and the lower the contamination level, the higher the value of your waste to them, and the greater the leverage you will have in negotiating waste management contract prices.
GETTING STARTED – A QUICK OVERVIEW OF HOW TO BEGIN RECYCLING

The following diagram and table provide a quick guide and checklist to help you through the process of recycling and waste management on-site. You can find more details and tips for each action throughout the rest of this booklet.

Plan your requirements → Liaise with waste contractors → Set up site segregation → Train staff → Implement and review
<table>
<thead>
<tr>
<th>ACTION</th>
<th>DONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Understand and action your company policy on waste management – does this include recycling, does the project have a nominated representative for waste or on large projects a waste team? (see page 12).</td>
<td></td>
</tr>
<tr>
<td>• Consider health and safety issues and ensure all workers are aware of the potential dangers of the waste they may be handling and the correct procedure for doing so (see pages 8 and 17).</td>
<td></td>
</tr>
<tr>
<td>• Carry out a site waste management audit to identify the types and quantities of waste on-site (see page 7).</td>
<td></td>
</tr>
<tr>
<td>• Before planning recycling, consider which materials can be re-used (e.g. pipe and timber offcuts, bricks) and where these should be stored. Speak to your site manager who will be able to advise on which materials are suitable for re-use (see page 10).</td>
<td></td>
</tr>
<tr>
<td>• Find out how your waste management contractor requires waste to be segregated and stored – some materials, such as plasterboard, may have specific requirements. You should ensure that any recommendations made are both feasible and cost effective in the context of your project (see page 12).</td>
<td></td>
</tr>
<tr>
<td>• Plan on-site waste storage with consideration for workers to make recycling as easy as possible. Use standard signage to indicate where each material should go (see pages 13 and 16).</td>
<td></td>
</tr>
<tr>
<td>• Organise training such as on-site briefings and further guidance for site workers such as the card prompts available in this series of guidance (see page 17).</td>
<td></td>
</tr>
<tr>
<td>• Decide how best to motivate workers on-site to begin recycling and managing waste more efficiently. Would workers respond to targets with bonuses for achieving them?</td>
<td></td>
</tr>
<tr>
<td>• Buy recycled – there is a wide range of construction products which contain recycled content. Where possible, purchasing these will help to increase the demand for waste materials for recycling from your site, as well as helping to reduce your impact on the environment (see page 18). See the contacts at the back of this guide to help you source such products (page 19).</td>
<td></td>
</tr>
<tr>
<td>• Continue to audit your waste management and recycling procedures and encourage feedback from site workers. If certain skips are becoming contaminated, find out why so you can remedy the situation.</td>
<td></td>
</tr>
</tbody>
</table>
UNDERSTANDING YOUR SITUATION AND IDENTIFYING WASTE ARISINGS

Before you can begin segregating your site waste, you will need to lay the foundations for this process. One of the easiest ways to start assessing your situation is to carry out an on-site waste management audit.

This will help you to identify the types and quantities of waste you are generating and the stages in the project where particular wastes are arising. Waste audits should be carried out at regular intervals over the duration of the project to monitor progress, and to pick up on any areas which require attention.

Before you begin measuring your waste, ensure that all wastes are being handled and stored in a safe, environmentally acceptable manner at reasonable cost. Check current procedures and waste management contracts with your site manager.

Is waste management part of a broader environmental management system? If so, your nominated representative site or project manager can also provide forms and guidance which will help you to carry out an on-site waste audit. If not, you may wish to put together your own waste audit form. using some of the following tools:

- A checklist of wastes;
- A site waste questionnaire;
- Interviews with site workers to gain their feedback; and
- Observing on-site practice.

Whichever methodology you choose it should broadly cover the following areas.

The different types of waste you have on-site

Which are the most common materials thrown away on-site? Look in skips, and speak to site workers and sub-contractors to find out which of the following materials you are disposing of:

a. Hazardous waste
b. Plastic waste
c. Glass waste
d. Plasterboard waste
e. Wood waste
f. Packaging waste
g. Inert waste – concrete, bricks, asphalt, stones and soils

Record your results on a waste audit checklist. It may also be useful at this stage to make a note of particular wastes in each category which may require extra attention. If you are nor sure whether a waste is hazardous, check with your site or environmental manager.
How much waste do you generate on-site?
If you are not doing so already, you should record, against the materials above, approximately how much of each material you are throwing away. You do not need to actually weigh the waste as this will not always be practical, but you should try and record the amounts as accurately as possible as this information will help when speaking to different waste management contractors.

One method is to look into each skip and either count the large items such as pallets, or to estimate the percentage of each skip by volume. For example, you may estimate that 10% of the skip is made up of plastic pipes, 25% of bricks, 10% of packaging waste and the remainder of timber. Record these on materials audit sheets and also check that you are not paying for partially loaded skips.

Is the waste being handled safely?
Incorrectly handled or stored wastes can be a cause of accidents or lead to workers being exposed to harmful substances. Most wastes from construction sites will be inert or non-hazardous, but some, such as asbestos, chemicals, oils or contaminated soils may be classed as hazardous and will require special measures for handling and storage. Ensure that all wastes are being handled in accordance with the site waste management policy. If in doubt about any material, consult the site or environmental manager.

How often, and at what stage in the project, are specific wastes generated?
Different stages in the construction will generate different types of waste. For example, you may find that you have a greater amount of concrete and excavation waste in the early stages of the project. Wastes in the later stages may be mainly plastic offcuts from plumbing activities, wood offcuts from joinery and packaging. Knowing this information will help you to plan how best to segregate your waste as your project progresses, as you will be able to anticipate changes in the type and amount of waste.
UNDERSTANDING YOUR SITUATION AND IDENTIFYING WASTE ARISINGS CONTINUED

Why is the waste generated in the first place?
Often you can cut down on the amount of waste generated on-site by just asking why it is there in the first place, and rethinking how materials are used on-site. For example, many construction sites over order materials and the excess goes to waste at the end of the project. There is a double cost to this – once when you pay for materials which aren’t required, and secondly when you pay to dispose of them. If you find this is happening on your site, speak to the person in charge of ordering materials to find out if this could be managed more efficiently, although this may have to be balanced with the availability of materials and the ability for your suppliers to turnaround deliveries quickly. Similarly, you may discover that there are large amounts of offcuts which are being thrown away. This might be avoided by ordering materials in more appropriate lengths or sizes.

What record-keeping systems are in place?
It is important that adequate records are kept as proof of good waste management. A record-keeping system would typically include a file of consignment notes including hazardous wastes, records of waste produced by a particular sub-contractor and storage records highlighting any problem wastes which may be stored for a long period. The type of records that are required will depend on the layout of the site, the type of construction work, and the types of waste produced. Ensure that anyone who has a responsibility for waste is aware of the different records which are necessary. Many of these are legal requirements under the Waste Management Regulations.

Set recycling targets
By setting recycling targets at the outset, you can measure and manage the success of your on-site waste plans and apply corrective actions where required. Targets can also be used to motivate workers by keeping them informed about monthly recycling levels, and letting them know whether they are meeting targets. You may also consider offering incentives to workers to achieve recycling targets.

AT A GLANCE

1. Assess your waste
2. Consider site health and safety
3. Appoint a nominated waste representative or team
4. Set targets
5. Involve site workers
6. Look at all stages of the project
7. Put record keeping systems in place
8. Regularly review waste management practices
There is a simple waste procedure to help you to decide what you should do with your waste based on the benefit to the environment. In addition, because many of the following options involve preventing waste, they can also save you money:

**REDUCE**
Reduce – where possible stop waste coming on-site in the first place. This can be achieved by ordering only quantities which are required, and speaking to manufacturers to order size-specific items which do not require cutting to size.

**RE-USE**
Re-use – the next option should always be to consider whether the materials can be re-used, either on-site or by someone else. Items such as timber, tiles and bricks are often easily re-used. Packaging items such as pallets and crates may also be collected by the supplier for re-use elsewhere.

**RECYCLE**
Recycle – this option is for all materials which can’t be reduced or re-used. It involves processing the waste material, for example crushing concrete to make aggregate or melting metal or glass to form new products. Some recycling can be carried out on-site, but often the waste has to be sent to an off-site recycling company for processing. Segregation of wastes to prevent contamination is important for recycling and will ensure that skips aren’t rejected by your waste contractor.
Reclaimed bricks and tiles that meet the relevant building standards can be re-used on-site for construction. Lower quality reclaimed bricks can be used in other ways, such as landscaping. Bricks and tiles that you cannot use can be offered, through recycling schemes (e.g. the CIRIA internet register of recycling sites) to other projects or organisations that can re-use them;

Cardboard packaging can be re-used for temporary internal floor covering to protect from site traffic. This should then be recycled at the end of its useful life;

Transport pallets should always be re-used or reclaimed by the supplier. Many pallet firms will pay for slightly damaged or irregular sized pallets;

Consider re-sizing and using loose timber for formwork;

Concrete and demolition rubble can be crushed, screened and re-used as recycled aggregate in a range of applications from bulk fill to use in new concrete. Mobile plant can be hired to do this on-site. However, different materials must first be separated - wooden fixtures, windows, plumbing and wiring should be removed and recycled separately;

Topsoil can be reclaimed and re-used for landscaping or as compost once all the necessary tests (for physical properties, chemical composition and moisture content) have been carried out; and

Regularly review all construction, demolition and excavation waste being generated on-site for possibilities of re-using it elsewhere. Further information on the re-use of materials and a supplier directory can be found at the end of this booklet.
WASTE MANAGEMENT CONTRACTORS

Your waste management contractor will be able to provide advice on how best to collect, segregate and store your waste for recycling. They should therefore be contacted as early as possible in your waste planning process, as this may save unnecessary segregation on-site.

Waste management and recycling companies will also help you ensure you meet your legal obligations and may advise you on how to save money on waste management costs. Segregating wastes on-site will often reduce disposal costs and can help in negotiating waste management contracts with some waste contractors. Some materials have specialist recyclers, and you should contact them to discuss any specific collection requirements. For example, plasterboard skips should always be kept dry as it is harder to recycle wet plasterboard. Details of recycling companies can be found on page 19 of this booklet.

When discussing your waste contract, you may wish to have answers to the following questions to hand which may help you negotiate a better contract price:

1. Approximate tonnages of waste you are producing each week or month (see page 7 for advice on collating this data)

2. The type of waste materials you are generating on-site and how this is likely to change as the project progresses (see page 7 for advice on collating this data)

3. Site considerations, particularly if there are space or access restrictions

4. Whether you are able to compact or bale materials on-site for collection
PLANNING AND ALLOCATING STORAGE FOR DIFFERENT WASTES

Speak to waste management contractors at the earliest opportunity when planning operations and prior to ordering skips. They have an incentive to help you improve your segregation and maintain exclusive contracts.

Some product manufacturers run recycling schemes (for example, with plasterboard). They will be able to advise if your development is eligible and how best to store the waste for recycling.

Contacts for a range of recycling companies and manufacturers can be found at the end of this booklet.

When planning waste storage follow these simple rules:

1. Make segregation easy - place the skips to minimise the distance employees have to carry materials. This will help prevent contamination of segregated waste. For larger sites you may wish to provide smaller intermediate bins (e.g. wheelie bins) in key areas for bulking up. Workers should be allocated to collect the bins and segregate the waste into larger skips in the main waste storage area at the end of each day.

2. Monitor progress – regularly review progress to make sure all workers are following site rules. Inspect the segregated material to ensure that contamination is minimised, and retrain/instruct workforce as required.

Some materials have their own particular requirements for storage for recycling to prevent damage and contamination. Here is a quick guide to recycling the main materials on-site:
<table>
<thead>
<tr>
<th>WASTE TYPE</th>
<th>NOTES FOR RE-USE, RECYCLING AND STORAGE</th>
</tr>
</thead>
</table>
| Plastics   | • There may be several different types of plastics in your demolition waste, including PVC in windows and gutters, HDPE in drainage pipes and fittings, PP in tarps and crates and LDPE in plastic film packaging and damp-proof membranes;  
  • Check with your waste contractor to find out if they have any specific requirements (e.g. what are the acceptable levels of contamination) for the separation of different plastics, and whether there are financial incentives (e.g. reduced skip prices) to make this worthwhile. Note that plastic can usually be collected in one skip for mixed plastics (which may also include packaging);  
  • PVC can be recycled through the Recovinyl scheme, see www.recovinyl.com;  
  • Clearly label the plastics skip and detail what it should contain to prevent contamination;  
  • If you have plastic crates or pallets your supplier may offer a bring-back scheme whereby you can send the packaging back to the manufacturer for re-use, so store them separately from other waste plastic; and  
  • Sometimes plastic piping sections can be re-used on the job, saving on the costs of new materials. Consider which other reclaimed plastics can also be re-used on your project. |
| Wood       | • Wood can be reclaimed from many demolition, refurbishment and subsequent new build sources, including floorboards, rafters, doors, frames, offcuts, temporary works, fencing, posts, poles and railway sleepers. It can be re-used directly or sent to recycling depots for cleaning, de-nailing and resizing or being turned into chipboard;  
  • Segregate wood from the waste stream and, where possible, re-use it in its original form. Encourage segregation by setting aside an appropriate dry storage area on-site for timber to be stacked and stored. Ensure that skips for timber waste are easy to access and well labelled (use simple signs such as ‘Timber skip, no masonry’). Assign a skip for segregating unusable wood waste;  
  • Identify likely sources of the various waste wood types and volumes you are generating – consider which materials you can re-use on-site, and which are returnable to the supplier (e.g. blue CHEP pallets should always be re-used or returned); and  
  • Wood treated with some chemicals or preservatives can be hazardous wastes and must not be mixed with untreated wood. |
| Plasterboard| • Plasterboard recycling processes can handle demolition waste, waste from rebuilds, production scrap in the form of virgin plasterboard offcuts, complete or broken board parts;  
  • Provide a dedicated skip for plasterboard collection. Cover the skip, as dry plasterboard is much easier and more cost-effective to reprocess. Ensure each skip is easy to access and well labelled (use simple signs such as ‘Plasterboard Only’);  
  • Minor contamination is acceptable from certain materials (e.g. nails and screws, wallpaper and other wall coverings) but you should avoid excessive contamination as it reduces the cost effectiveness of the recycling process; and  
  • Plasterboard is a ‘non-inert’ waste. It should be disposed of separately from inert waste such as bricks and concrete to prevent contamination of these wastes. |
| Glass      | • Most of the glass on building sites comes from window waste. The glass used for this is called flat glass;  
  • Consider whether flat glass separation is relevant for your project. If not, are other glass wastes likely to occur (e.g. catering, containers etc) and can these be collected easily? (e.g. positioning dedicated wheelie bins next to canteen exits). If this is a particular problem, you may wish to specify targets for the catering operation separately from the construction workforce;  
  • For demolition projects, when deconstructing windows, safely remove the glass from the frames and store each material separately. For projects with a significant number of windows, please refer to WRAP guidance for best practice at www.wrap.org.uk/glass; and  
  • When handling glass all personnel should wear steel toe cap boots at all times. |
Waste Type | Notes for Re-use, Recycling and Storage
--- | ---
Bricks and tiles | • Bricks and tiles are frequently re-used on many construction sites. They are also readily available to purchase from specialist reclamation companies. Stockpiling and re-using site-won bricks and tiles will save on both landfill and purchase costs;
• Encourage proper segregation of the bricks and tile waste that you generate. Assign an appropriate area for stacking and storage of reclaimed bricks and tiles, and assign a skip for collection of cement or mortar waste. Use simple labels on all skips and at all storage areas, detailing what is, and isn’t allowed in each;
• Segregated bricks and tiles that you cannot re-use could be offered to other projects or organisations. CIRIA can provide further information on this, contact them at: Classic House, 174 - 180 Old Street, London EC1V 9BP, tel: 020 7549 3300 and email: enquiries@ciria.org; and
• Alternatively, waste bricks and tiles can be sent to be recycled into aggregate either on- or off-site.

Packaging | • As much as 50% of the waste by volume that leaves a construction site can be packaging materials. Recent research has shown that the average UK site generates 5.27 tonnes of packaging waste per week, with timber pallets, cardboard and polythene film the key waste products. Many manufacturers offer bring back or recycling schemes for packaging – refer to the useful contacts on page 19 for details of these companies;
• On-site segregation of packaging will be largely dictated by how it is going to be recycled. Speak to the company who will be collecting your waste for advice on how they would like you to segregate and store it; and
• Where you are collecting packaging in one skip, encourage workers to use the skip space efficiently by flat-packing cardboard boxes, compressing plastic film and breaking down offcuts of plywood to manageable sizes. You may also wish to bale waste to reduce its volume.

Concrete, brick, asphalt, soils and stones | • Inert materials such as concrete, brick, asphalt, soils and stones make up the bulk of construction, demolition and excavation waste. Much of it can be segregated and re-used or recycled;
• Demolition and excavation waste can be crushed and screened on- or off-site for use as aggregate, re-used on-site as hardcore or for backfill at other excavation sites;
• Concrete, bricks, asphalt and stone can often all be directed toward the same segregation area, but where possible should be stockpiled separately. They are more valuable when they are segregated. When required for landscaping, soil should be stored separately;
• Identify which materials you can segregate and whether any extra equipment is required, such as a mobile plant to process demolition waste into recycled aggregates; and
• Contaminated inert waste must be segregated and disposed of separately, as these cannot be recycled.
In order to make recycling easy, all skips should be clearly labelled detailing the materials which can be disposed of in each skip, preferably, using waterproof signage. You should ensure that all site workers recognise these signs and are familiar with them. Provide site workers with the recycling prompt cards available in this series of guidance. These will help them to remember which materials go in each skip. Contact WRAP to order free copies of these prompts.

The following national standard signage for skips can be downloaded free of charge from www.wascot.org.uk/construction/colourcoding.htm
Site workers should be properly trained in recycling procedures. You should explain the following to all workers, including sub-contractors:

- The site’s waste management procedure;
- Safety procedures and the use of personal protective equipment for handling different types of waste;
- Segregation skills, for example, removing nails and deconstructing windows;
- Collection schedules and procedures;
- Any paperwork which needs to be completed; and
- Skip signage.

It is a good idea to get commitment from all site workers from the start of the project by providing training in waste management and explaining that recycling is part of everybody’s job. There are a variety of training aids available to achieve this:

- Tool box talks – available from the Construction Confederation;
- Site visits – available from Envirowise;
- Waste awareness courses for operatives and site managers – available from CIWM; and
- Posters and recycling prompt cards – available as part of this series of guidance.

Contacts for all these organisations can be found at the end of this brochure. You may wish to take the training further by offering incentives for the workforce to meet recycling targets. Some materials will have specific handling requirements which may require more in depth training, for example:

- **Hazardous waste** – provide information on how to identify hazardous waste and appropriate disposal methods. All site workers should have access to safety equipment and personal protective equipment to use when handling such waste. Where documentation is required, ensure clear instructions for completing this are available;

- **Handling flat glass and deconstructing glazing units** – inform your workforce of the site’s glass recycling policy. Ensure safety procedures are well signposted and that adequate personal protective equipment is available (e.g. Kevlar sleeves, safety visor and gloves). The assigned storage area for the waste flat glass should be well managed with clear entrance and exit access to deliver or remove material. Glass should be stacked safely and instructional signage should be clearly visible to all operatives; and

- **Reclaiming bricks and tiles**—ensure the workforce is trained in the various handling and separation techniques, e.g. removing mortar from bricks, or assessing frost damage in clay tiles. This will improve the quality and value of the batch.
By using products with a recycled content, you can impact your site in more than one way:

1. You are lessening your impact on the environment
2. You are creating a demand for recycled products and the waste materials used to make them, meaning that your site waste will be in greater demand

Examples of recycled products for the construction industry include:

- Panel board products such as particleboards (chipboard), oriented strand board (OSB) and fibreboards (such as MDF);
- Surfacing products, such as mulches for landscaping and road verges;
- Wood-plastic composites, used to make door and window frames, decking and mouldings;
- Plastic pipes, ducting and damp proof course products;
- Plasterboard;
- Blocks and tiles; and
- Recycled aggregates in concrete, asphalt and unbound applications.

Where your procurement policy requires on-site purchasing, consider products that are fit for purpose and contain recycled content. There are a wide range of construction products made from recycled materials available and WRAP has produced guidance relating to housing and civil engineering works (www.wrap.org.uk/procurement).

A full range of building specifications and products with a recycled content can also be found at www.greenspec.co.uk
The following organisations can provide further information on the recycling of construction waste.

**WRAP** provides a variety of guidance, tools and information relevant to recycling wood, plastics, glass, paper, aggregates, plasterboard and organics (compost) in construction. Guidance can be downloaded freely from the specific materials pages on the WRAP website (www.wrap.org.uk) or through the WRAP construction webpages (www.wrap.org.uk/construction).

**Plastics**
Recovinyl
Scheme for collecting and recycling PVC from construction and demolition sites – see www.recovinyl.com
Recoup
Provides expertise on plastic recycling – see www.recoup.org or tel: 01733 390 021

**Wood**
www.recyclewood.org.uk
for wood reprocessors in your region
TRADA
Wood industry trade association – see www.trada.co.uk or tel: 01494 569 600

**Glass**
British Glass
Glass industry trade association – see www.britglass.org.uk or tel: 0114 290 1850

**Bricks and tiles, concrete, demolition rubble and soils**
www.aggregain.org.uk
WRAP’s recycled aggregates resource

**Recycled content and products**
www.wrap.org.uk/procurement
National Green Specification - see www.greenspec.co.uk

**Waste auditing**
Envirowise – free site waste audits visits www.envirowise.org.uk
SMARTWaste – BRE’s waste audit tool www.BRE.co.uk

**Waste management facilities and recycled aggregate suppliers**
www.bremap.co.uk
www.ciria.org/recycling
HELP IS AT HAND

This booklet is part of a series of guidance documents sponsored by WRAP. A series of eight construction and demolition ‘How to Guides’ have been produced, which can bring key benefits to your organisation as well as to the communities and environment you operate in. A companion series of construction and demolition best practice case studies are also available which demonstrate in detail how forward thinking industry members have made real triple bottom line savings on their construction projects. For advice on re-using and recycling construction and demolition materials or to download ‘How to Guides’ and case studies visit www.wrap.org.uk

Envirowise offers UK businesses free, independent and confidential advice and support on practical ways to increase profits, minimise waste and reduce environmental impact. It can provide free on-site advice on better waste management practices. Call the Environment and Energy Helpline on 0800 585 794 or visit www.envirowise.org.uk

CIRIA represents many different stakeholders in the modern built environment and works with them to identify, publish and promote emerging industry best practice. www.ciria.org.uk

The Construction Confederation is one of the leading representative bodies for contractors, representing some 5,000 companies who in turn are responsible for over 75% of the industry’s turnover. www.constructionconfederation.co.uk

The Institution of Civil Engineers (ICE) promotes civil engineering around the world. www.ice.org.uk

The Chartered Institution of Wastes Management (CIWM) represents over 6,000 waste management professionals and sets the professional standards for individuals working in the waste management industry. www.ciwm.co.uk

These materials are supported by: