What is waste minimisation?

Waste minimisation means reducing the amount of waste that would go for treatment or be disposed of to landfill. Waste prevention and minimisation can have significant financial benefits (for both individuals and operators) and assists in protecting the environment. Waste minimisation aims to:

- increase efficient use of materials and resources in order to reduce waste and the consumption of natural resources
- reduce pollution associated with waste generation and handling
- reduce the costs of waste disposal

Waste minimisation requires the reduction of waste at source, by careful consideration of materials on-site at the earliest possible stage of the development. This approach helps to conserve time and resources and demonstrates environmental best practice.

What does it have to do with me?

The County Council, supported by the District and Borough Councils in Northamptonshire, has produced planning guidance\(^1\) that promotes minimisation of development related waste in new development. This guidance, called the SPD, requires householders to prepare and submit a Waste Minimisation Strategy to accompany planning applications made to the District and Borough Councils and the County Council in Northamptonshire.

Waste Duty of Care

The Waste Duty of Care applies to anyone who is a holder of controlled waste, including anyone who produces, imports, keeps or stores, transports, treats or disposes of waste. To comply with the duty of care you must ensure that you:

- Identify the type of waste likely to be produced and store safely and securely
- Prevent the waste from causing environmental pollution or harm to human health
- Do not deposit, treat, keep or dispose controlled waste without authorisation
- Check that your waste, if being transported off-site, is handled by an authorised carrier, authorised to transport, recycle or disposed of the waste safely.

Anyone removing waste should be licensed with the Environment Agency (EA) to do so. You can check by requesting an instant Waste Carrier Validation Check from the EA, by phone (0370 8506506) or online (http://www2.environment-agency.gov.uk/epr/?lang=_e) (registered waste carriers can be located by postcode on the website). For more information on the Waste Duty of Care, refer to www.environment-agency.gov.uk/buisiness/topics/waste/40047.aspx.
What steps can I take at home during development?

This guide identifies practical measures that should be considered when undertaking development work (including renovations) on your home.

The waste hierarchy

The waste hierarchy is the overarching principle that should be considered at all stages of development. It identifies waste management options by sustainability preference. Prevention and minimisation (reduction) form the most preferred options, followed by re-use, recycling, and composting and energy recovery. Disposal to landfill is the least preferred option. The hierarchy acts as a guide and in most circumstances a combination of the above management options may be required to deal appropriately with wastes generated.

The difference between waste minimisation (reduction) and the other options within the waste hierarchy is that waste minimisation is a preventative measure, whereas the other options are remedial. As such, this is the most important aspect of the waste hierarchy because it prevents waste from becoming an issue in the first instance.

Managing waste close to its source

Waste should be disposed or managed as close to its source as possible.

It is important to consider the end location, i.e. where the waste will be disposed of or treated. By reducing the distance waste is transported you can reduce the environmental damage caused by transportation (such as reduced fuel consumption, air pollution and greenhouse gas emissions).

Where materials cannot be recycled or re-used on site, the waste should be disposed of or managed as close to the site as possible.

If you are carrying out the building work yourself, your local household waste recycling centre will accept a variety of different waste streams that may be produced during development, including:

- Cardboard;
- Garden Waste;
- Inert waste e.g. soil and rubble;
- Metals;
- Textiles; and
- Timber.

Depending on the quantity of waste, charges may apply. Please contact your local District or Borough council for more information.
Site based waste minimisation

Prevention, minimisation and re-use of waste materials on-site.

All forms of development are required to address site based waste management. There are some important questions to ask before you start development works that will assist in both planning for waste management and fulfilling requirements of the Waste Minimisation Strategy, which are outlined below.

What type of waste is likely to be produced?
Brickwork, timber, metals, cladding, roof tiles, insulation material, windows, doors, joinery, electrical and plumbing fixtures and fittings, green waste, soil, landscaping tiles, paving, paints and other finishing products, carpets and underlay all have the potential to be re-used.

How much of each type of waste is likely to be produced?

What opportunities and practical measures exist to assist the effective sorting, storage, re-use, recovery and recycling of waste on-site?

Will waste need to be taken off-site? If yes (most likely), what will happen to the waste?
Include waste type, quantity, intended disposal and / or management method and identification of waste management contractors.

An example template is provided below to assist in recording necessary information for both the Waste Minimisation Strategy and Waste Duty of Care.

<table>
<thead>
<tr>
<th>Waste type</th>
<th>Quantity (kg, tonnes, m², m³)</th>
<th>On-site management</th>
<th>Off site management</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floorboards</td>
<td>12 m²</td>
<td>Reused in new building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>5 m³</td>
<td>Reused as landscaping material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green waste</td>
<td>3 m³</td>
<td>Chipped for landscaping and compost</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Mixed rubble | On-site: 2 m³  
Off site: 10 m³ | Reused as landscaping material and clean fill | Disposal centre
by licensed waste carrier - J Bloggs & Sons | Waste Duty of Care transfer note complete and waste described |
| Metals       | 100kg                         | Sold to merchants        |                         |       |
| Plastics     | 5 kg                          | Household waste recycling centre |                      |       |
| Cardboard    | 10 kg                         | Household waste recycling centre |                      |       |
Opportunities for site-based waste management

Practical project management opportunities that will assist in site based waste management include:

- **Incorporate site based waste minimisation into all phases of development as early as possible.** This will help to reduce mistakes and avoid nasty surprises throughout the life of the project.

- **Organise your site to facilitate effective waste management.** Keep all waste materials in separate piles for recycling and reuse to avoid cross-contamination and facilitate easier recovery. Ensure that different skips, bins or piles are clearly marked so that anyone else involved in the project knows what to do. Rainwater can be collected on site and used for mixing mortar.

- **Order materials ‘Just in Time’** to minimise the storage time before the materials are needed on site, thereby cutting down the potential for damage.

- **Keep accurate cutting lists and quantity surveys** to avoid over ordering any materials and reducing the potential for waste creation.

- **Establish a separate waste storage area onsite.** Spreading smaller bins in various locations encourages the incorrect use of bins and different waste types may become mixed up.

- **Hold a garage sale,** this may be a quick and easy way to remove waste from your site. Alternatively, placing classified ads or calling salvage yards could make money and reduce the costs of waste disposal.

Development projects (including demolition, construction and renovations) create many opportunities for effective reuse of building materials on-site. Many materials can be re-used for a variety of purposes, saving you money and protecting the environment. Opportunities for the reuse and recycling of building materials are outlined in Table 1.

Materials Resource Efficiency

Using materials as efficiently as possible to minimise the total use of materials and energy in your development, and to maximise the recycled content of materials used.

Using waste materials found on-site efficiently is one of the best ways to minimise waste, as these materials will no longer become a ‘waste’ product in the traditional sense of the word. Using products with recycled content, reducing the amount of waste produced in the first instance; utilising energy efficient technologies and ensuring that any discarded material is recovered in its highest value application is integral to achieving materials resource efficiency.

Quick wins which address materials resource efficiency include the selection of building materials with:

- **high capacity for recycling** at the end of their intended use; and

- **high percentage of recycled material content** – closing the recycling loop (for more information on available products talk to your building supplier about the potential for using materials with high recycled content materials).
Take time to carefully consider how much of existing structures, fixtures and fittings in your home can be reused during development (Table 1). Utilising existing doors, windows and cladding etc will help maintain consistency with the rest of the house and can save money. In particular, where historic buildings are being renovated, investigate the alternatives to replacement.

Building design should also be considered. Rooms requiring similar services or infrastructure should be located together or as close as possible in order to reduce the amount of materials used (for example kitchens, bathrooms, utility rooms all require water. Locating these rooms together reduces the amount of piping required).

Table 1: Potential reuse of development related wastes

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Potential for Reuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick and concrete</td>
<td>Bricks can be reclaimed and reused in new brickwork. Old brickwork with lime-based mortars can be separated. Cement-based mortar is more difficult and can result in the damage of bricks during separation. Crushed and used as aggregate and hard fill (e.g. for levelling or filling holes before new construction begins)</td>
</tr>
<tr>
<td>Cladding</td>
<td>Refit another building</td>
</tr>
<tr>
<td>Floor and roof tiles, landscaping tiles and paving blocks, ceiling bosses, beams and flag stones</td>
<td>Reused to retain the historic character of old buildings. Tiles can be crushed and used as fill material</td>
</tr>
<tr>
<td>Timber</td>
<td>Engineered timber products (e.g. plywood), beams, boards, panels, pallets and joinery. Sand and retain existing floorboards where possible. Landscaping e.g. borders for flower beds in the garden. Reused in extensions</td>
</tr>
<tr>
<td>Topsoil</td>
<td>Reclaimed and reused for landscaping material or as a medium for compost</td>
</tr>
<tr>
<td>Paint and other finishing products</td>
<td>Leftover materials can be used on other projects</td>
</tr>
<tr>
<td>Green waste, vegetation</td>
<td>It may be possible to remove and replant trees. Chipped or shredded and used as groundcover, mulch or composted</td>
</tr>
<tr>
<td>Metal</td>
<td>All types of metal are recyclable</td>
</tr>
<tr>
<td>Plastics</td>
<td>Ensure that different grades are not mixed together and check with local recyclers as to what is recyclable</td>
</tr>
<tr>
<td>Cardboard</td>
<td>Potential to use your District / Borough council kerbside collection for small amount or household waste recycling centre (flatten and keep dry)</td>
</tr>
<tr>
<td>Asphalt material</td>
<td>If separated from other materials, can be recycled</td>
</tr>
<tr>
<td>Plasterboard</td>
<td>Construction off cuts can be recycled or composted (keep</td>
</tr>
<tr>
<td>Carpets and underlay</td>
<td>Can be used as groundcover for planting projects</td>
</tr>
</tbody>
</table>
Designing for deconstruction

Specific detailing for the deconstruction of buildings aimed at maximising materials resource efficiency and flexibility of building use, as well as minimising environmental impacts.

Designing for deconstruction includes the building and component design, construction and deconstruction techniques and use of materials. Practical opportunities to address designing for deconstruction include:

- **Considering future requirements** and possibilities for refurbishment at an early stage to reduce the requirement for future demolition. Buildings should be designed to be adaptable so that fixtures and fittings can be reused when a change of use occurs or when occupation or ownership of the building changes.

- **Use lime mortars** as opposed to cement mortars so that the bricks can be reused. This is because lime mortars do not set as hard as cement and can easily be separated from the bricks.

- **Employ techniques that will make the eventual deconstruction of the building easier**, such as using:
  - Simple fixing systems that do not require special tools
  - Reversible construction and assembly sequences
  - Component parts that can be easily separated from each other
  - Mechanical fixings rather than chemical fixing (glue) or welding
  - Realistic tolerances for assembly and disassembly
  - Connections and components designed to withstand the dismantling process.

- **Choose materials and products that reduce waste** such as materials that are salvaged or second-hand building materials, standardised to your house dimensions (reduces off cuts), high recycled content, easily maintained and not requiring chemical adhesives or finishes.

- **Leave a copy of the design with the house when you leave** in order to assist maintenance and deconstruction in the future (where possible).

Sustainable development

Incorporate sustainable development practices that promote the careful use of natural resources, waste minimisation and energy efficiency.

Sustainable development links into many of the previous principles, however sustainable development also incorporates pollution potential and whole of life impacts. Practical opportunities to address sustainable development include:

- **Use 10% (by value) of recycled products in construction projects**, for example bricks containing recycled materials, salvaged timber and metals, etc.

- **Choose materials that support sustainable procurement**, for example avoid using tropical hardwoods unless sourced from a well managed source such as the Forestry Stewardship Council.

- **Choose materials with a low pollution potential and whole of life impact**, for example:
  - Natural water-based paints and varnishes are less harmful than oil-based paints and varnishes.
  - Use alternative materials where possible instead of uPVC (unplasticised Polyester Vinyl Chloride) and other plastics which have a high pollution potential.
Opportunities to reduce waste on site and utilise sustainable materials are illustrated in Figure 2.

**Roofing:**
Use reclaimed / high recycled content timber trusses for rafters and consider the use of prefabricated A-Frames. Use mineral fibre insulation as opposed to harmful fibre glass alternatives.

**Windows:**
Using recycled glass will save energy and greatly reduce costs. Timber frames should be used instead of uPVC as this is extremely damaging to the environment.

**External Walls:**
Use brick and aerated blockwork with natural insulation materials to save energy and reduce environmental impacts.

**Paints & finishes:**
Use water-based products as these are less harmful to you and the environment. Natural paints help a building regulate moisture, reducing condensation, mould and related problems.

**Flooring:**
Renovating existing flooring can greatly reduce onsite waste production. Natural flooring materials are an environmentally friendly (and often cheaper) alternative to synthetic carpets & flooring types.

**Figure 2: Opportunities to reduce waste and utilise sustainable materials**

**Further Information**

There is an ever-growing base of information regarding waste minimisation, the following represents a good starting point for anyone keen to learn more and help to reduce waste produced from development projects. Recommended industry guidance identified within the SPD supporting information may also be of use, especially in relation to quick wins, alternative and sustainable building materials and the provision of technical information.

- Environment Agency www.environment-agency.gov.uk
- WRAP www.wrap.org.uk
- Recycle now www.recyclenow.com
- BREEAM www.breeam.org
- Demolition Protocol www.aggregain.org.uk/demolition/
- Designing for deconstruction www.design4deconstruction.org/learnmore.html
- Forest Stewardship Council www.fsc-uk.org/?page_id=13

“The use of sustainably acquired materials and 10% (by value) of recycled products in construction projects supports sustainable development”
This information can be provided in other languages and formats upon request such as large print, Braille, audio cassette and floppy disk. Contact 01604 236014.