WRAP (Waste & Resources Action Programme) helps many public and private sector organisations to be more sustainable in their approach to construction projects, by working with exemplars on major house building projects and providing a range of freely available tools and resources.

There is a fantastic opportunity for the housing sector to demonstrate sustainability through the built environment and show leadership on sustainable procurement.

There are many ways this can be achieved, for example by designing out waste, improving site practice and recycling and reusing materials. Housing clients can ensure good practice by setting requirements in tender invitations and design briefs. Leading contractors have already shown these requirements can be cost saving or at least cost neutral.

An increasing number of organisations are introducing performance requirements within procurement specifications. For example, the Scottish Executive has asked all public bodies in Scotland to set a minimum level of recycled content in tender specifications and contracts for construction projects. The minimum level is: at least 10% of the total value of materials used on projects over £1m should derive from recycled and reused content. The Central Procurement Directorate in Northern Ireland has set a similar benchmark. In both countries, the standard applies to social housing, schools, roads and other public works.

In England, the new Code for Sustainable Homes includes a mandatory element on site waste management, requiring builders to measure their own performance.

Case studies of both new build and refurbishment projects show that the recycled content of a project can be increased significantly by simple substitution within common product types such as blocks, boards, concrete products and flooring – using alternative mainstream products which have a higher recycled content. These products are readily available at no extra cost and satisfy technical standards. Recycled content can also be improved through the more traditional reprocessing of demolition waste.

Good practice can deliver a ten-fold increase in the tonnage of recovered materials potentially diverted from landfill, and experience has shown that the recycled content requirements can be readily included in a wider set of sustainability criteria in a construction project.

Resources already developed and freely available from WRAP include:
- template wording to include in tender invitations;
- guidance on the wide range of mainstream products with higher recycled content on the market;
- a web-based toolkit for assessing recycled content in new build, refurbishment and infrastructure works; and
- case studies and reports with analysis of the potential for recycled content in designs of housing.
Who is taking action in the sustainable procurement of housing?

**Scottish Housing**
The Scottish Executive’s request to all public sector bodies to set minimum requirements for recycled/reused content applies to Communities Scotland and projects that they fund. This will act as a stimulus for housing associations to deliver more sustainable projects.

WRAP is continuing to work with Communities Scotland to ensure there is information and resources available to Scottish housing associations in order to meet the Executive’s objectives.

**Glamorgan & Gwent Housing Association (GGHA)**
The GGHA have commenced a programme of construction of extra care housing projects for elderly residents requiring a higher level of care. The projects typically consist of large, 3 or 4 storey brick-clad, timber-framed buildings capable of housing 40-60 residents.

Although each building is designed as an extra care facility, it is not dissimilar in layout to conventional flats. Each resident has their own 1 or 2 bedroom unit which includes a lounge, bathroom and kitchen, as well as access to communal rooms. Analysis of designs and product options shows good potential for improvement with minimum effort:

**Redrow Homes**
Redrow participated with WRAP on a case study to demonstrate the potential for higher recycled content in light steel frame housing by providing access to their ‘Debut’ range of low-cost housing designs. The research demonstrated that steel frame houses have a significantly higher base-level recycled content with less scope for improvement than in other forms of construction. However, Redrow are now looking at how their Renewables and Sustainability Policy can accommodate targets for improvements in recycled content across all projects in consultation with their supply chain.

**Raploch Urban Regeneration Company**
The Raploch Regeneration Project is a £120 million initiative to provide new housing, a health centre, urban design projects, community initiatives as well as training and employment opportunities in the Stirling area.

It is proposed to construct approximately 800 new houses by 2011/12 with a wide choice of archetype and tenure, with socially rented and private housing situated side by side to promote an inclusive community.

The R3 consortium, which includes house-builder Wimpey, were the successful bidders on this project and are committed to delivering in excess of the 10% minimum recycled content target set by the Urban Regeneration Company.

**The Northern Ireland Department for Social Development (DSD)**
The DSD has set procurement requirements for all social housing schemes that receive Housing Association Grants or utilise Disposal Proceeds Funds.

From 1st October 2007, all new build, rehabilitation and re-improvement schemes are required to take advice from WRAP in order to meet an average overall target of 10% recycle/re-use value of materials. For projects over £200k, the Association will require contractors to prepare a site waste management plan prior to the start of work on site.

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**Estimates for recycled content (as a % of the total value of materials used)**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base case</td>
<td>13%</td>
</tr>
<tr>
<td>Readily achievable using the top ten product substitutions at no extra materials cost</td>
<td>18%</td>
</tr>
<tr>
<td>Potential at no extra materials cost</td>
<td>21%</td>
</tr>
</tbody>
</table>
Housing construction projects provide excellent opportunities to optimise material resource use, recycle and reuse waste arising on site. On average, between 60-80% of waste generated can be reused or recycled representing a value of up to 5% of a project’s cost.

Typically between 5-15% of materials brought onto site are never used. Further wastage can also result from, among other things, poor logistics and planning, including delivery, storage and handling of materials leading to damage and also from off-cuts and design changes.

The use of large-scale off-site construction has the potential to reduce material wastage by between 70-90%. WRAP are developing tools and guidance to help improve logistics, the design process and material procurement.

Site Waste Management Plans (SWMPs)

SWMPs provide a framework to demonstrate a responsible approach to the environment, promote waste reduction and the efficient management and segregation of waste for recycling. At present, SWMPs are voluntary and are aimed at contractors and clients. However, SWMPs are planned to become mandatory for most construction sites from April 2008 in England and Wales.

Specifically, SWMPs provide the opportunity to link on-site operations for waste management with other stages of the construction process and embed waste reduction, materials reuse and recovery in a company’s site procedures. Examples include:

- Identification of potential wastes and opportunities to reduce.
- Procurement – establish systems and methods of procuring materials that reduce waste and improve materials recovery and recycling through working with the supply chain.
- Contracts – requirements for subcontractors and waste management contractors to reduce, re-use and recycle e.g. through segregation of waste materials.
- Provide a framework for implementation of waste management procedures and targets, on and off site.

Benefits include:
- demonstrating Corporate Social Responsibility;
- reduced disposal costs by waste minimisation and increased materials recovery;
- reduced material costs by efficient design and reduced wastage on site;
- management of risks relating to waste on site; and
- meeting the requirements of quality and environmental management systems (e.g. ISO 14001).

WRAP have been working with the BRE and the NHBC Foundation to develop a housing-specific suite of model requirements, clauses and guidance to help improve waste management practices and have developed contract specifications to facilitate this. WRAP worked with BLL on two housing projects:

1. Timber-framed housing project

In a £10m project constructing timber-framed homes to EcoHomes excellent standard in East Midlands, BLL identified that they could achieve 86% overall recovery of waste materials at no extra cost. Three significant waste streams, by tonnage, were timber, packaging and plastics.

2. High density housing project

An 81% recovery of waste was achieved in a £20m high density residential development in Cheltenham. Had good practice been adopted, which would have involved an additional 15% recovery of ceramics and packaging as well as 10% for plastics, BLL could have increased the overall waste recovery by an additional 8% at no extra cost.

A guide to Quick Wins in waste recovery along with good practice guidance for SWMPs will be available shortly.

Who is taking action?

Bovis Lend Lease (BLL) and Wates Group have already been working on identifying opportunities to improve waste management practices and have developed contract specifications to facilitate this. WRAP worked with BLL on two housing projects:

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How WRAP can help

**Good practice guides**
Advice on site waste management, demolition and recovery of waste materials, and guidance on ‘Quick Wins’ in using higher recycled content.

**Recycled materials**
Information on recycling and how to use recycled materials, particularly aggregates, the material most used in construction.

**Procurement guidance**
Practical guidance on the procurement process, including model clauses to incorporate in project briefs, tender and contract documentation.

**Product information**
A compendium of mainstream products with recycled content commonly used in construction.

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**Case studies**
A huge range of case studies demonstrating the performance of recycled materials and what levels of recycled content are readily achievable across various types of construction.

**Toolkits**
Web-based tools to help assess and meet project requirements for recycled content, specify the use of recycled aggregates, and estimate the CO₂ benefits of using recycled aggregates.

**Training**
In-house workshops and tutorials, provided selectively to projects and organisations that influence major capital expenditure.

**Support for businesses**
A range of business support targeted at the SME recycling sector, including management, expertise, investment and innovation.

To find out more about any of WRAP’s events, tools, guidance and support, contact WRAP’s construction team on **0808 100 2040** or visit [www.wrap.org.uk/construction](http://www.wrap.org.uk/construction)

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