Increased recycled content in construction

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WRAP Built Environment Programme
ABOUT WRAP

WRAP’s vision is a world without waste, where resources are used sustainably.

We help businesses, individuals and communities reap the benefits of reducing waste, developing sustainable products and using resources in an efficient way.
WRAP’S IDENTITIES ACROSS THE UK

WRAP delivers various programmes across the UK:

- WRAP Northern Ireland
- WRAP Cymru
- WRAP England

LOVE FOOD, HATE WASTE

ZERO WASTE SCOTLAND

www.recyclenow.com
WRAP’s Built Environment Programme Objectives

To embed resource efficiency in the manufacture and supply of construction products, and the design and construction of new buildings, infrastructure and refurbishment projects.
How we work

**Strategic Commitment**
- Set targets; embed in policy; set procurement requirements
- Measurement & reporting: t, C, £ impacts

**Evidence base**
- Industry Engagement

**Business case**
- Set targets; embed in policy; set procurement requirements

**STAGE 0 evidence**

**STAGE 1 commitment**

**STAGE 2 embed**

**STAGE 3 implement**

**WRAP Tools and resources**
Bristol Schools PFI

- Pathfinder project under the BSF scheme
- £100m value for 3rd phase
- Evidence to demonstrate how increasing recycled content did not bring with it higher costs or tender prices
- Wording adopted by Bristol in the Output Specification under Sustainable Development – target min 10% RC by value

<table>
<thead>
<tr>
<th>Product type</th>
<th>Lower recycled content brand</th>
<th>Higher recycled content brand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clay facing bricks</td>
<td>5% £250/1000</td>
<td>16% £232/1000 Hanson</td>
</tr>
<tr>
<td>Dense concrete blocks</td>
<td>0% £5.65/m²</td>
<td>50-80% £5.30/m² Tarmac</td>
</tr>
<tr>
<td>Wall insulation</td>
<td>10% £3.65/m²</td>
<td>80% £2.82/m² Superglass</td>
</tr>
<tr>
<td>Concrete roof tiles</td>
<td>0% £570/1000</td>
<td>15% £560/1000 Marley</td>
</tr>
</tbody>
</table>
Bristol Schools outcomes

- Skanska Integrated Projects now offer recycled content as part of their tendering strategy
- Achieved 25% RC at no extra cost
- Bristol Brunel Academy – opened Autumn 2007
- RC requirement adopted for Model Output Specification for the BSF programme.

"Market research identified a range of mainstream construction products offering above-average recycled content at competitive prices.

As a result, we had the confidence to set a requirement in our tender specification for 10% recycled content for the project as a whole without prejudicing our budget. This is important in helping the Council and its schools 'walk the talk' on sustainable development."

Chris Wiseman, PFI Project Manager, Bristol City Council
Recycled content guidance

Online database to facilitate choice editing of products and materials to increase recycled content.
Evidence for a 10% requirement

<table>
<thead>
<tr>
<th>Type of project</th>
<th>Baseline/actual practice</th>
<th>Cost neutral good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detached/terraced house</td>
<td>6 - 26%</td>
<td>16 - 29%</td>
</tr>
<tr>
<td>Commercial office</td>
<td>10* - 22%</td>
<td>12* - 30%</td>
</tr>
<tr>
<td>School, hospital</td>
<td>12* - 20%</td>
<td>15* - 27%</td>
</tr>
<tr>
<td>Road reconstruction</td>
<td>8 - 16%</td>
<td>27 - 29%</td>
</tr>
<tr>
<td>Bridge reconstruction</td>
<td>18 - 23%</td>
<td>33 - 49%</td>
</tr>
<tr>
<td>Retail</td>
<td>11 - 32%</td>
<td>21 - 44%</td>
</tr>
</tbody>
</table>

* Excluding building services
Requirement for reused and recycled content

“....at least 10% of the total value of materials used should derive from recycled and reused content in the products and materials selected.

In addition, show that the most significant opportunities to increase the value of materials derived from recycled and reused content have been considered, such as the top ten Quick Wins or equivalent, and implement good practice where technically and commercially viable.”
Requirement for waste minimisation/management

“....we require a Site Waste Management Plan (SWMP) to be developed from the pre-design stage and implemented in all construction site activities in line with good practice published by WRAP.

The SWMP is required to set targets for waste reduction and recovery based on:

» assessment of the likely composition and quantity of waste arisings; and

» identification of the most significant cost-effective options for improvement (Quick Wins).”
Construction Clients

Tools and guidance to help construction clients implement resource efficient actions.

- Resource efficient construction
  Making the best use of materials, water and energy

- Resource Management Planning process
  Helping you to manage resource efficient projects

- Procurement guidance
  Develop policies and set targets to reduce waste

- Client cost saving guidance
  Cost savings through waste reduction

- Client good practice guidance
  Simple ways to take action on waste

- Site Waste Management Plans
  Plan and implement waste reduction and recovery

- Client case studies
  How clients implemented the Havino Waste to Landfill
Construction procurement guidance

Guidance for the procurement process to help construction clients and contractors achieve good practice.

The model wording covers waste reduction, waste recovery and greater use of recovered materials at all stages of a project: policy, preparation & design, pre-construction & construction, use and post-completion.

Procurement requirements and model wording

Good practice guidance for clients.

Carbon and Water efficient procurement

In consultation with industry and practitioners, WRAP has developed guidance and model clauses to help clients and developers ask for Water and Carbon efficient buildings when procuring design, construction and facilities management services.

Using procurement requirements to reduce waste to landfill

Construction Procurement Guidance explains how to use procurement to help deliver your corporate targets to reduce construction waste to landfill. The
WRAP’s definition of resource efficient construction

Resource efficient construction makes best use of materials, water and energy over the lifecycle of built assets to minimise embodied and operational carbon
Procuring more resource efficient projects

Commit
Policy statement

Cascade
Contract clause

Capture
Project implementation

Project specific RE brief (RMP scoping output)
Procuring more resource efficient projects

Example headline Policy statement

<Name of organisation> is committed to ensuring efficient use of resources on all our projects. Through more resource efficient construction we will reduce the costs and environmental impact of construction and make responsible use of valuable resources. All our [project teams / sub contractors / consultants] must comply with the requirements set within this statement and any further project specific requirements detailed within the project brief.
Procuring more resource efficient projects

Example preamble to PQQs and ITTs

In all of our development work, our aim is to minimise any adverse impacts that construction has on the consumption of resources. We seek this through the design process, materials selection, construction techniques, and operational methods.

All organisations appointed to work on our behalf are required to work in accordance with these principles. Information on our expected approach is set out within our Resource Efficiency Policy Statement to which all consultants and contractors appointed on our projects are expected to conform. Specific project level requirements on resource efficiency are referenced within the project brief.
Procuring more resource efficient projects

Example extract from Project Brief

In line with our policy statement for addressing resource efficiency, the following requirements are expected to be addressed throughout the project.

<table>
<thead>
<tr>
<th>Resource efficiency component</th>
<th>Requirement</th>
<th>KPI</th>
<th>Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Reduce potable water</td>
<td>Reduced water consumption (l)</td>
<td>N% improvement over ‘business as usual’</td>
</tr>
<tr>
<td>Materials</td>
<td>Use fewer raw materials</td>
<td>Reduced material consumption (t)</td>
<td>Reduce material forecast by N%</td>
</tr>
<tr>
<td>Energy</td>
<td>Minimise energy consumption</td>
<td>Reduced energy consumption (kWh)</td>
<td>N% improvement over ‘business as usual’</td>
</tr>
<tr>
<td></td>
<td>Use efficient plant and machinery</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Before starting on site, actions as to how the above requirements will be met should be agreed and captured within a Resource Management Plan (or similar suitable alternative). Roles and responsibilities should be allocated accordingly against each action.

Performance against the requirements should be forecast, measured and captured within the Resource Management Plan for the project. Gateways for review should be agreed and communicated to all relevant members of the project team.

The output from the Resource Management Plan should be reported via WRAP’s Resource Efficiency Reporting Portal. Evaluation of performance should be undertaken at each project stage.

A detailed summary of lessons learnt should be provided at the end of the project.
Further Information

http://www.wrap.org.uk/category/sector/construction
http://rcproducts.wrap.org.uk/
Questions

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