

# 1 Introduction

Each year it is estimated that 72.5 million tonnes of construction and demolition waste is created in the UK. This costs the UK's construction industry around £193 million each year in landfill tax, excluding disposal charges.

Construction and Demolition (C&D) waste has been estimated at 6.28 million tonnes for Scotland. That works out at well over one tonne of rubble per person. Of this, 2.31 million tonnes (36.7%) was recovered or recycled, with an estimated 1.36 million tonnes (21.7%) sent for recovery at exempt sites and 2.62 million tonnes (41.6%) sent to landfill<sup>1</sup>.

Scotland is therefore still dumping well over a third of all its Construction and Demolition waste when most of its landfill sites are now full, and at a time when it is using nearly three times the amount of resources that the earth can sustain for a country this size<sup>2</sup>. Materials and waste are Scotland's "biggest hitter" when it come to Scotland's ecological footprint<sup>3</sup>, accounting for 38% of it, with food (29%) and energy (18%) following well behind.

Recycling only partially addresses the construction waste problem, because it can use up considerable resources in re-processing and transportation. Only a fraction of construction elements are actually reclaimed and reused for their original purpose, despite this often being the best environmental option at a local level. The Scottish Ecological Design Association (SEDA) has commissioned this Guide (the first of its kind in the UK), to help address the above problem and provide practical guidance on how to reduce construction waste at source.

Designing details for deconstruction at the start of a project enables one building, at the end of its useful lifespan, to be the resource for the next and helps "close the loop" for resource use. It also designs out future risk and cost by ensuring that building elements and products can be quickly and easily maintained and replaced. This is particularly important if they become unacceptable under future environmental legislation, which is an increasingly common occurrence. Detailing for deconstruction makes any property more attractive as an investment opportunity.

The general guidance here is firmly focused on the idea of practical reuse, and should be read in conjunction with other guidance on sustainable design<sup>4</sup>, deconstruction<sup>5</sup> and recycling<sup>6</sup> where necessary to provide an overall design framework<sup>7</sup>. The details provided have been fully costed, tested and subjected to a Defects Liability insurance assessment. They are offered as viable alternatives to standard details, and illustrate the possibilities that exist for re-use. It simply remains for you, the reader, to apply them appropriately in the context of your next project...



Unnecessary construction waste can be prevented through re-use.  
Source: F. Stevenson



Re-used railway sleepers forming new stairs.  
Source: F. Stevenson

Footnotes:

<sup>1</sup> Figures are for 2001 in Priority Waste Stream Report on Construction and Demolition Waste, The National Waste Plan, SEPA, 2003

<sup>2</sup> Scotland's Footprint, 2004, Best Foot Forward. <http://www.scotlands-footprint.com/>

<sup>3</sup> An ecological footprint is an estimate of the land and sea area needed to provide all the energy, water, transport, food and materials that we consume.

<sup>4</sup> See for example Communities Scotland's "Sustainable Housing Design Guide for Scotland", 2000 and [www.greenspec.co.uk](http://www.greenspec.co.uk), for guidance on design and specification.

<sup>5</sup> See for example CIRIA's guide 607: "Principles for Designing for Deconstruction", 2004

<sup>6</sup> Again, both BRE (Building Research Establishment) and CIRIA (Construction Industry Research and Information Association) have produced well developed guidance on waste minimisation and recycling in a number of texts.

<sup>7</sup> See Halliday, S: "Green Guide to the Architects Job Book", 2000, RIBA for a good overview of when to implement sustainable design principles during the procurement