THE GREEN GUIDE TO SPECIFICATION

An Environmental Profiling System
for Building Materials and Components

Fourth edition

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Many organisations in both the public and private sectors are finding that ‘greener’ property can lead to lower running costs, reduced enviro-legal risks, greater occupier satisfaction (through better working environments) and enhanced PR and marketing benefits. The numbers of businesses now signing up to Corporate Social Responsibility programmes is evidence of this growth in environmental and social awareness. Better, more environmentally responsible choices regarding the types of materials that we put into our buildings are therefore central to reducing the global environmental impact of the property sector.

In this book, building materials and components are assessed in terms of their environmental impact across their entire life cycle – ‘from cradle-to-grave’, within comparable specifications. Such accessible and reliable information will be of great assistance to all those involved in the design, construction and management of buildings as they work to reduce the environmental impact of their properties.

We are sure that this book will help to ensure that in the future, property professionals will be able to make the soundest possible environmentally responsible choices in their materials selection.

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BRE Trust

Jonathon Porritt
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1 BACKGROUND

The purpose of this 4th edition of *The Green Guide to Specification* is to provide designers and specifiers with easy-to-use guidance on how to make the best environmental choices when selecting construction materials and components. It is more comprehensive than its predecessors and contains more than 1200 specifications used in various types of buildings.

Developing the content has involved the widest possible consultation with industrial partners, manufacturers and trade associations, academics and researchers, and reference to a wide range of other reliable sources of environmental data and information.

The whole process has also been the subject of more rigorous peer review procedures than its predecessors and, as a result, both the methodologies used and the findings made are as robust and dependable as they can be at the present time in the field of environmental impact assessment and life cycle assessment of construction products.

1.1 ENVIRONMENTAL CONSERVATION

Many in the property sector are becoming more aware of the need to reduce exposure to ‘environmental risk’. While the most common construction and development-related risks have been associated with polluting activities or the failure of specialists to deal with specific environmental hazards, the future scope of environmental liability may have far-reaching implications for the construction industry. The impact of the construction process and the associated impact from materials extraction and manufacture in terms of energy and resource use or levels of emissions on global conditions could be identified as a major ‘indirect’ environmental hazard. As such, it is possible that these issues will become potential legal liability flashpoints and that designers, specifiers and materials manufacturers will be obliged to take this into account in the design and construction process.

Environmental impacts come in many different forms. It is widely accepted that there is mounting evidence to suggest that the concentrations of carbon dioxide (CO₂) and other ‘greenhouse’ gases (such as methane) in the atmosphere are increasing. This, it is argued, is leading to global warming and climate change. As the main source of these greenhouse gases is the burning of fossil fuels for energy, a reduction in the energy levels required in the manufacture of building materials represents an opportunity for producers of materials to minimise the environmental impact of their products. The release of chemicals into the atmosphere from manufacturing processes has been linked to damage to the ozone layer and to other effects that are harmful to the environment and human health. Volatile organic compound (VOC) emissions may be irritant or toxic. Nitrogen dioxide and nitrogen oxide (NOₓ), released in combustion processes, are both contributors to acid rain and react with VOCs in sunlight to produce photochemical smog. This smog is implicated in an increased incidence in asthma and respiratory illness. Sulfur dioxide (SO₂), also released from the combustion of oil and coal products, is a main contributor to acid rain. All these impacts are relevant and present in building product manufacture. Suppliers and producers have a responsibility to understand the relative impacts of manufacture and to work towards impact mitigation. Designers and specifiers can assist in this process through making more environmentally responsible choices.

Similar responsibilities are evident in other parts of the construction value chain. Property investors and funding institutions, under pressure from shareholders and insurers, are also seeking a ‘greener’ and more ‘socially responsible’ approach to the design and procurement of buildings, and many property-owning organisations are signing up to Corporate Social Responsibility (CSR) initiatives. A more carefully considered, environmentally aware approach to the specification of materials is important in being able to demonstrate that projects are well managed and are protecting shareholders’ interests through minimising the risks associated with environmental impact. Across all these issues, *The Green Guide* is designed to provide robust information to assist in decision-making processes.

1.2 THE PURPOSE OF THE GREEN GUIDE

Before the publication of the first edition of *The Green Guide* in 1996, there was little accessible, reliable or methodologically robust guidance available for specifiers seeking to minimise the environmental impacts of building materials. Much of the relevant research and information at that time offered either generalised guidance, usually unsupported by quantitative data, or, alternatively, complex numerical assessments that proved difficult for designers and clients to interpret. The first edition of this publication therefore aimed to
Like its predecessors, this fourth edition of *The Green Guide to Specification* provides designers and specifiers with easy-to-use guidance on how to make the best environmental choices when selecting construction materials and components. It is more comprehensive than its predecessors; it contains more than 1200 specifications used in six types of building:

- Commercial, such as offices
- Educational, such as schools and universities
- Healthcare, such as hospitals
- Retail
- Residential
- Industrial.

The principal building elements covered in this edition of *The Green Guide to Specification* include:

- Floors
- Roofs
- Walls
- Windows
- Insulation
- Landscaping.

The performance of each specification is measured against a range of environmental impacts, including:

- climate change
- toxicity
- fossil fuel and ozone depletion
- levels of emissions and pollutants
- mineral and water extraction.

*The Green Guide to Specification* provides robust information to assist decision-making by translating numerical life cycle assessment data into a simple A+ to E scale of environmental ratings, enabling specifiers to make meaningful comparisons between materials and components.

*The Green Guide to Specification* is an essential tool for architects, surveyors, building managers and property owners seeking to reduce the environmental impact of their buildings by informed and responsible selection of construction materials and components.

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