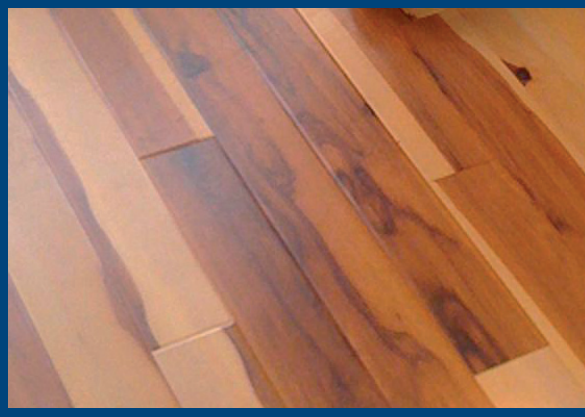
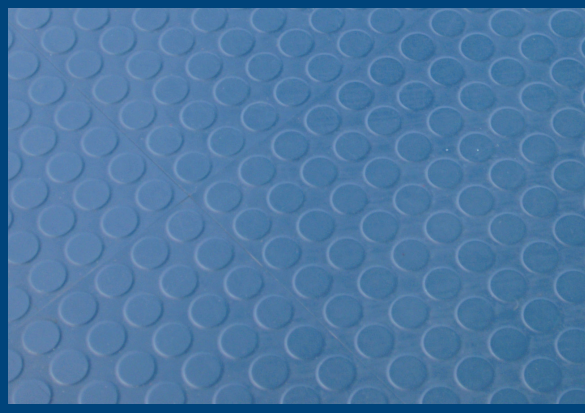
# ENVIRONMENTAL IMPACT OF FLOOR FINISHES

## Incorporating The Green Guide ratings for floor finishes

Andrew Dutfield, Jo Mundy and Jane Anderson



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# GLOSSARY

**Allocation:** sharing the input or output flows of a unit process to the product system under study. This may need to be done where a manufacturing process results in products and co-products, for example, steel and slag.

**Ecopoints:** (as used in the BRE Environmental Profiles methodology) the normalised profile values are multiplied by weighting factors developed for each impact category and the results summed to give a single figure.

**Environmental impact category:** environmental issue being examined, eg climate change, acid deposition and human toxicity to air.

**Environmental profile:** the level of impact in each environmental impact category for the functional unit or product being studied.

**Functional unit:** a qualitative description of function specifically defined for the product/service under study and any alternative products/services to which it is compared. The use of a functional unit means that the alternative designs under study are, in theory, compared fairly. For example, a comparison of external walls may be based on every external wall design in the study achieving a U-value of 0.3 $W/m^2K$ and compliance with building regulations.

**Input:** material or energy that enters a unit process (can include raw materials and intermediate products).

**Intermediate products:** material that has already been processed before being used to produce a product.

**Life cycle:** consecutive and interlinked stages of a product system from raw material acquisition or generation of natural resources to the final disposal.

**Life cycle assessment (LCA):** compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle.

**Normalised profile:** the characterised profile is referenced to the environmental impact for each category at the national or global level in one year (usually for one citizen), giving a 'normalised' profile; the values are directly comparable.

**Output:** material or energy that leaves a unit process (may include raw materials, intermediate products, products, emissions and waste).

**Raw materials:** unprocessed material that is used to produce a product.

# PART 1

# Life cycle assessment using BRE's Environmental Profiles and The Green Guide to Specification

# 1 INTRODUCTION

This report reviews how floor coverings have been assessed within *The Green Guide*[1], including the application of the Environmental Profiles methodology[2] which underlies *The Green Guide*. The way in which floor coverings are addressed within building-level environmental assessment schemes such as BREEAM[3] and the Code for Sustainable Homes (CSH)[4] is also explained.

It aims to provide manufacturers and specifiers with a general understanding of the significant benefits and impacts of floor-covering products over their whole life cycle and to identify opportunities for improvements to the environmental performance of floor coverings.

The report has been produced as part of a series on the Environmental Profiles and the BRE publication, *The Green Guide to Specification*[5]. Many of the other reports in the series focus on particular materials, and provide more specific information in each case. These may also be of value when considering the environmental impact of floor finishes.

# 2 FLOOR FINISHES AND THE GREEN GUIDE

The main purposes of floor finishes used within a building are for aesthetic design, noise insulation and comfort. They are required to be laid on a level surface such as a screeded concrete sub-floor. A floor covering can also have insulating properties on a floor and this can be an important factor in determining the choice of floor covering, especially where there is underfloor heating.

The choice of floor finish is generally determined by the intended use of the building and the practical requirements of an individual space. Designers and specifiers first establish the wear performance required, whether the material needs to be waterproof or easily cleaned and whether particular visual, acoustic or comfort-related qualities are priorities. For the purposes of *The Green Guide*, floor finishes have been divided into three basic groups:

- hard floor finishes
- resilient floor finishes
- carpeting.

To reflect this process and to make the task of the specifier more straightforward, floor finishes (and coverings) have been grouped for each building type into the following product groups:

- carpet, broadloom or sheet and tiles
- resilient floor finishes, including polyvinyl chloride (PVC), rubber and linoleum products
- hard floor finishes, including tile materials and timber finishes.

Many floor finishes are normally fitted or laid with underlays, backings, adhesives and/or grouts assuming a level floor finish beneath. Both domestic and non-domestic maintenance schedules have been included for all flooring, and include activities such as mopping, vacuuming and polishing as they will all have an environmental impact and will influence appearance retention and therefore service life.

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This report reviews how floor finishes have been assessed within *The Green Guide to Specification*, including the application of the Environmental Profiles methodology which underlies *The Green Guide* data. The way in which floor finshes are addressed within building-level environmental assessment schemes such as BREEAM and the Code for Sustainable Homes is also explained. The final section gives *The Green Guide* ratings for floor finishes.

The report will give manufacturers and specifiers a general understanding of the significant benefits and impacts of floor finish products over their whole life cycle and help to identify opportunities for improvements to their environmental performance.

It is part of a series that provides comparable information on cladding, floor finishes, insulation, masonry and concrete, metals, timber and windows to assess the environmental impact of specific construction materials.

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