EU GPP criteria for Hard Floor Coverings

Green Public Procurement (GPP) is a voluntary instrument. This document provides the EU GPP criteria developed for the Hard Floor Coverings product group. The accompanying Technical Background Report provides full details on the reasons for selecting these criteria and references for further information.

For each product / service group two sets of criteria are presented:

- The **core EU GPP criteria** are those suitable for use by any contracting authority across the Member States and address the key environmental impacts. They are designed to be used with minimum additional verification effort or cost increases.
- The **comprehensive EU GPP criteria** are for those who wish to purchase the best products available on the market. These may require additional verification effort or a slight increase in cost compared to other products with the same functionality.

1. Definition and Scope

For the purposes of the proposed Green public procurement (GPP) criteria, hard floor covering (HFC) are defined as follows:

- Natural Products
  - Natural stones (CEN TC 246) are pieces of naturally occurring rock, and include marble, granite and other natural stones. Other natural stones refers to natural stones whose technical characteristics are on the whole different from those of marble and granite as defined by CEN/TC 246/N.237 EN 12670 ‘Natural stones – Terminology’. Generally such stones do not readily take a mirror polish and are not always extracted by blocks: sandstone, quartzite, slate, tuff and schist.

- Processed Products (Hardened Products)
  - Agglomerated Stones are industrial products manufactured from a mixture of aggregates, mainly from natural stone grit and a binder as defined by JWG 229/246 EN 14618. The grit is normally composed of marble and granite quarry granulate and the binder is made from artificial components as unsaturated polyester resin or hydraulic cement. This group also includes artificial stones and compacted marble.
  - Concrete Paving (CEN/TC 178) units are products for outer floor-coverings obtained by mixing sands, gravels, cement, inorganic pigments and additives, and vibro-compression as defined by CEN/TC 178. This group also includes concrete flags and concrete tiles.
  - Terrazzo Tiles (CEN/TC 229) are a suitably compacted element of uniform shape and thickness, which meets specific geometrical requirements as defined by CEN/TC 229. The tiles are single or dual-layered. The single-layered type are tiles completely made of granulates or chipping of a

suitable aggregate, embedded in grey and white cement and water. The dual-layered tiles are terrazzo tiles made up of the first face or wear layer (with single-layered composition) and a second layer, known as backing or base concrete layer, whose surface is not exposed during normal use and which may be partially removed.

- Processed Products (Fired Products)
  - Ceramic Tiles (CEN/TC 67) are thin slabs from clays and/or other inorganic raw materials, such as feldspar and quartz as defined by CEN/TC 67. They are usually shaped by extruding or pressing at room temperature, dried and subsequently fired at temperatures sufficient to develop the required properties. Tiles can be glazed or unglazed, are non-combustible and generally unaffected by light.
  - Clay Tiles (CEN 178) are units which satisfy certain shape and dimensional requirements, used for the surface course of pavements and manufactured predominantly from clay or other materials, with or without additions as defined by CEN 178.

2. Key environmental impacts

The key environmental impacts from HFC are linked to energy consumption, in particular for processed products, and raw material extraction for natural products. The existence of hazardous substances in raw materials is also important. Other key impacts relate to emissions, water use and waste management. In order to balance the effort and costs involved in the verification process of the GPP criteria the core and comprehensive criteria are proposed as follows:

- The core criteria focus on energy consumption, the use of hazardous substances, water use and waste management
- In addition to the core criteria, the comprehensive criteria focus on raw material extraction, emissions to air and water, and the potential release of dangerous substances in the use phase.

Key Environmental Impacts	GPP Approach
• Raw material extraction • Natural resource depletion • Emission of carbon dioxide from energy consumption used in extraction and production processes • Pollution of air from emissions to air e.g. particulates, NO_x, SO_2 • Use of water resources • Pollution of water from emissions to water e.g. cadmium (Cd), iron (Fe), and lead (Pb) • Production of waste	• Promote efficient extraction of raw materials • Reduce energy consumption in the production phase to contribute towards reductions in carbon dioxide emissions • Promote low emission rates of pollutants to air and water • Promote efficient use of water resources through recycling • Limitations on the use of certain hazardous materials/substances • Promote effective waste management

Please note that the order of impacts does not necessarily translate to the order of their importance.

Detailed information about Hard Floor Coverings can be found in the Technical Report, including the information about related legislation and other sources:

http://ec.europa.eu/environment/gpp/.

3. EU GPP criteria for Hard Floor Coverings product group

Core criteria	Comprehensive criteria
3.1 EU GPP criteria for hard floor coverings	
SUBJECT MATTER	**SUBJECT MATTER**
Purchase of hard floor coverings with low life cycle environmental impacts.	Purchase of hard floor coverings with low life cycle environmental impacts.
TECHNICAL SPECIFICATIONS	**TECHNICAL SPECIFICATIONS**
1. Raw Material Selection **All Flooring Products:**	**1. Raw Material Selection** **All Flooring Products:**

No substances or preparations that are assigned any of the following phrases (or combinations thereof) as laid down in Council Directive 67/548/EEC and its subsequent amendments may be added to raw materials. R45 may cause cancer R46 may cause heritable genetic damage R49 may cause cancer by inhalation R50 very toxic to aquatic organisms R51 toxic to aquatic organisms R52 harmful to aquatic organisms R53 may cause long term adverse effects in the aquatic environment R54 toxic to flora R55 toxic to fauna R56 toxic to soil organisms R57 toxic to bees R58 may cause long-term adverse effects in the environment R59 dangerous for the ozone layer R60 may impair fertility R61 may cause harm to unborn child R62 possible risk of impaired fertility R63 possible risk of harm to the unborn child R68 possible risk of irreversible effects Alternatively, classification may be considered according to Regulation (EC) No 1272/2008 of the European Parliament and of the Council (4). In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with and of the following hazard statements (or combinations thereof): H350, H340, H350i, H400, H410, H411, H412, H413, EUH059, H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df, H341. The above requirement does not apply to the quota of closed-loop recycled materials used by the process and defined as a material that is extracted from the production system and is returned to the same production system, eventually after a recycling treatment.	No substances or preparations that are assigned any of the following phrases (or combinations thereof) as laid down in Council Directive 67/548/EEC and its subsequent amendments may be added to raw materials. R45 may cause cancer R46 may cause heritable genetic damage R49 may cause cancer by inhalation R50 very toxic to aquatic organisms R51 toxic to aquatic organisms R52 harmful to aquatic organisms R53 may cause long term adverse effects in the aquatic environment R54 toxic to flora R55 toxic to fauna R56 toxic to soil organisms R57 toxic to bees R58 may cause long-term adverse effects in the environment R59 dangerous for the ozone layer R60 may impair fertility R61 may cause harm to unborn child R62 possible risk of impaired fertility R63 possible risk of harm to the unborn child R68 possible risk of irreversible effects Alternatively, classification may be considered according to Regulation (EC) No 1272/2008 of the European Parliament and of the Council (4). In this case no substances or preparations may be added to the raw materials that are assigned, or may be assigned at the time of application, with and of the following hazard statements (or combinations thereof): H350, H340, H350i, H400, H410, H411, H412, H413, EUH059, H360F, H360D, H361f, H361d, H360FD, H361fd, H360Fd, H360Df, H341. The above requirement does not apply to the quota of closed-loop recycled materials used by the process and defined as a material that is extracted from the production system and is returned to the same production system, eventually after a recycling treatment.

Where lead and cadmium (or any of their compounds) are used in the additives, their content shall not exceed the following limits:

Parameter	Limit (% in weight of the glazes)
Lead	0.5
Cadmium	0.1
Antimony	0.25

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.

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Parameter	Limit (% in weight of the glazes)
Lead	0.5
Cadmium	0.1
Antimony	0.25

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.

2. Energy Consumption

Processed Products Only:

The energy consumption shall be calculated as process energy requirements (PER) for agglomerated stones and terrazzo tiles or as energy requirement for firing (ERF) for ceramic tiles and clay tiles. Not applicable to concrete paving units.

PER Limit:

	Hurdle (MJ/kg)
Agglomerated stones	1.6
Terrazzo tiles	1.3

ERF Limit:

	Hurdle (MJ/kg)
Ceramic and Clay Tiles	3.5

See explanatory note 3 for details of how to calculate process energy requirement (PER) or energy requirement for firing (ERF).

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Ceramic and Clay tiles	3.5

See explanatory note 3 for details of how to calculate process energy requirement (PER) or energy requirement for firing (ERF).

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.	**Verification:** Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.
3. Water Use **Processed Products Only:** The waste water produced by the process included in the production chain shall reach a recycling ratio of at least 70%. The recycling ratio shall be calculated as the ratio between the wastewater recycled or recovered by applying a combination of process optimisation measures and process waste treatment systems, internally or externally at the plant, and the total water that leaves the process, as defined in the EU Ecolabel Technical Appendix A3. **Verification:** Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.	**3. Water Use** **Processed Products Only:** The waste water produced by the process included in the production chain shall reach a recycling ratio of at least 90%. The recycling ratio shall be calculated as the ratio between the wastewater recycled or recovered by applying a combination of process optimisation measures and process waste treatment systems, internally or externally at the plant, and the total water that leaves the process, as defined in the EU Ecolabel Technical Appendix A3. **Verification:** Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.
4. Waste management **All Products:** All plants involved in the production of the product shall have environmental measures in place for handling the waste and residual products deriving from the production of the product. It shall include the following: • Procedures for recycling materials for other uses • Procedures for handling and disposing of hazardous waste	**4. Waste management** **All Products:** All plants involved in the production of the product shall have environmental measures in place for handling the waste and residual products deriving from the production of the product. It shall include the following: • Procedures for separating and using recyclable materials from the waste stream • Procedures for recycling materials for other uses

<table>
<tr>
<td>Processed Products Only:

At least 65% (by weight) of the total waste generated by the process or the processes shall be recovered according to the terms and definition established by Council Directive 2008/98/EC, amending Directives 91/156/EC and 75/442/EEC on waste.

Verification: Possible means of proof include EMAS and ISO 14001 certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European or international standards concerning certification based on environmental management standards. Other means of evidence provided by the tenderer that can prove the required technical capacity will also be accepted.</td>
<td>• Procedures for handling and disposing of hazardous waste

Processed Products Only:

At least 85% (by weight) of the total waste generated by the process or the processes shall be recovered according to the terms and definition established by Council Directive 2008/98/EC, amending Directives 91/156/EC and 75/442/EEC on waste.

Verification: Possible means of proof include EMAS and ISO 14001 certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European or international standards concerning certification based on environmental management standards. Other means of evidence provided by the tenderer that can prove the required technical capacity will also be accepted.</td>
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<tr>
<td>5. Cleaning

The tenderer should provide information on the cleaning regime for the particular hard floor covering bought.

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<td>6. Emissions to air

Processed Products Only

Agglomerated stones:

The emissions to air for the following parameters for the whole manufacturing process shall not exceed:

<table>
<tr><th>Parameter</th><th>Hurdle (mg/m^2)</th><th>Standard</th></tr>
<tr><td>Particulates</td><td>300</td><td>EN 13284-1 or equivalent</td></tr>
<tr><td>NO_x</td><td>1200</td><td>EN 14792 or</td></tr>
</table>
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		equivalent
SO_2	850	EN 14791 or equivalent
Styrene	2000	-

Ceramic tiles:

The total emissions to air of particulates for pressing, glazing and spray drying shall not exceed 5 g/m^2.

The emissions to air for the firing stage only shall not exceed:

Parameter	**Hurdle (mg/m^2)**	**Standard**
Particulates	200	EN 13284-1 or equivalent
Fluorides (as HF)	200	ISO 15713 or equivalent
NO_x	2500	EN 14792 or equivalent
SO_2 (Sulphur content in raw material $\leq$ 0.25 %)	1500	EN 14791 or equivalent
SO_2 (Sulphur content in raw material > 0.25 %)	5000	EN 14791 or equivalent

Clay tiles:

The emissions to air for the following parameters for the clay tiles firing stage shall not exceed the specific limits calculated using the formula:

Value (mg/m^2) = Emission rate (mg/[m^2 (area) x cm (thickness)])

Parameter	**Emission rate**	**Limit value (mg/m^2)**	**Standard**

	(Mg/m^{2}cm)		
Particulates	250	1000	EN 13284-1 or equivalent
Fluorides (as HF)	200	800	ISO 15713 or equivalent
NO_x	3000	12000	EN 14792 or equivalent
SO_2	2000	8000	EN 14791 or equivalent

The limits calculated in this way cannot exceed the limit values provided in the table above.

Terrazzo tiles and concrete paving units:

The emissions to air for the following parameters for the whole manufacturing process shall not exceed:

Parameter	**Hurdle (mg/m^2)**	**Standard**
Particulates	300	EN 13284-1 or equivalent
NO_x	2000	EN 14792 or equivalent
SO_2	1500	EN 14791 or equivalent

Emissions should be calculated taking into account the indications of EU Ecolabel Technical Appendix A6.

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted, including reports based on the standards above or their

<table>
<tr><td></td><td>equivalents.</td></tr>
<tr><td></td><td>7. Emissions to water

Processed Products Only:

After wastewater treatment (on-site or off-site) the following parameters shall not exceed the following limits:

<table>
<tr><th>Parameter</th><th>Limit</th><th>Standard</th></tr>
<tr><td>Suspended solid emission to water</td><td>40 mg/l</td><td>ISO 5667-17
or equivalent</td></tr>
<tr><td>Cd emission to water</td><td>0.015 mg/l</td><td>ISO 8288
or equivalent</td></tr>
<tr><td>Cr(VI) emission to water</td><td>0.15 mg/l</td><td>ISO 11083
or equivalent</td></tr>
<tr><td>Fe emission to water</td><td>1.5 mg/l</td><td>ISO 6332
or equivalent</td></tr>
<tr><td>Pb emission to water</td><td>0.15 mg/l</td><td>ISO8288
or equivalent</td></tr>
</table>

The ‘Fe’ parameter is applicable to all the processed products with the exclusion of ceramic tiles.

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted, including reports based on the standards above or their equivalents.</td></tr>
<tr><td></td><td>8. Cement

Processed Products Only:</td></tr>
</table>

The use of raw materials for cement production shall be consistent with extraction management for processed products requirements.

Those products that use cement in the production process shall provide the following information:

- cement included in any product shall be produced using not more than 3800 MJ/t of process energy requirement (PER), calculated in accordance with EU Ecolabel Technical Appendix A4
- the cement included in any product shall be produced respecting the following air emission limits:

Parameter	**Hurdle (g/t)**	**Standard**
Dust	65	EN13284-1 or equivalent
SO_2	350	EN 14791 or equivalent
NO_x	900	EN 14792 or equivalent

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted, including reports based on the standards above or their equivalents.

9. Use Phase

Glazed tiles only:

In order to control the potential release of dangerous substances from glazed tiles, the products shall be verified according to the EN ISO 10545-15 test. The following limits shall not be exceeded:

Parameter	Hurdle (mg/m^2)	Standard
Pb	80	ISO 10545-15 or equivalent
Cd	7	ISO 10545-15 or equivalent

Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted, including reports based on the standard above or its equivalent.

10. Extraction

Natural Products:

The extraction management of natural products shall meet the limits for the indicators outlined in the table below.*

Indicator	Notes	Hurdle (Minimum Requirements)
Water recycling ratio	Waste water recycled / total water leaving the process * 100	< 65
Quarry Impact Ratio	m^2 comprised area (quarry front + active dump) / m^2 authorised area (%)	> 50

Natural resource waste	m^3 usable material / m^3 extracted material (%)	< 25
Air quality	Yearly limit value measured along boundary of quarry area PM 10 suspended particles $\mu g/m^3$. Test method EN 12341	> 150
Water quality	Suspended solids (mg/l) Test method ISO 5667-17	> 40
Noise	Measured along the border of quarry area (dB(a)). Test method ISO 1996-1	> 60
Ground water table and ground water flow	There shall be no interference with surface water-bodies with civil catching or springs, or if the water-body is included in the Register of Protected Areas established by a Member State according to Directive 2000/60/EC of the European Parliament and the Council of 23 October 2000 establishing a framework for Community action in the field of water Policy Watercourse average flow is >5 m^3/s There shall be no interference with any deep confined waterbed	>5 m3/s
Extraction Management	Technical report required containing an environmental recovery plan and/or environmental impact assessment report	n/a

Verification: Possible means of proof include EMAS and ISO 14001

certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European or international standards concerning certification based on environmental management standards. Other means of evidence provided by the tenderer that can prove the required technical capacity will also be accepted.

Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.

11. Finishing Operations

Natural Products Only:

Finishing operations on natural products shall be made to the following requirements:

Parameter	**Hurdle required to pass**	**Standard**
Particulate emission to air	PM10 < 150 μg/Nm^3	EN 12341 or equivalent
Styrene emission to air	< 210 mg/Nm^3	-
Water recycling ratio	≥ 90%	-
Suspended solid emission to water	< 40 mg/l	ISO 5667-17 or equivalent
Cd emission to water	< 0.015 mg/l	ISO 8288 or equivalent
Cr(VI) emission to water	< 0.15 mg/l	ISO 11083 or equivalent
Fe emission to water	< 1.5 mg/l	ISO 6332 or equivalent
Pb emission to water	< 0.15 mg/l	ISO8288 or equivalent

	Verification: Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted, including reports based on the standards above or their equivalents.
AWARD CRITERIA	**AWARD CRITERIA**
1. Additional points shall be awarded in proportion to the amount of recycled or reused content in hard floor coverings. The use of materials containing recycled or reused content should not affect the performance of the hard floor covering. **Verification**: The tenderer must provide a written guarantee that this criterion will be met. The tenderer must provide a declaration regarding the recycled or reused content of the product. The declaration shall be made in accordance with the methodology outlined in ISO 14021:2001 or equivalent.	1. Additional points shall be awarded in proportion to the amount of recycled or reused content in hard floor coverings. The use of materials containing recycled or reused content should not affect the performance of the hard floor covering. **Verification**: The tenderer must provide a written guarantee that this criterion will be met. The tenderer must provide a declaration regarding the recycled or reused content of the product. The declaration shall be made in accordance with the methodology outlined in ISO 14021:2001 or equivalent.

Explanatory notes

1. The Technical Appendix of the current EU Ecolabel can be viewed at the following link:

   http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:208:0021:0038:EN:PDF

2. Where standards are specified in the core and comprehensive criteria, for example test methods, other equivalent standards can also be used where appropriate.

3. Calculating process energy requirement (PER) or energy requirement for firing (ERF) - When providing a calculation of process energy requirement (PER) or energy requirement for firing (ERF), the correct energy carriers shall be taken into account for the entire plant or for the firing stage only. Gross calorific values (high heat value) of fuels shall be used to convert energy units to MJ (Table A1). In case of use of other fuels, the calorific value used for the calculation shall be mentioned. Electricity means net imported electricity coming from the grid and internal generation of electricity measured as electric power. See the table below for calculation of PER or ERF.

Table for calculation of PER or ERF

Production period	**Days**	**From**	**To**	
Production (kg)				
Fuel	**Quantity**	**Units**	**Conversion factor**	Energy (MJ)
Natural gas		kg	54.1	
Natural gas		Nm^3	38.8	
Butane		kg	49.3	
Kerosene		kg	46.5	
Gasoline		kg	52.7	
Diesel		kg	44.6	
Gas oil		kg	45.2	
Heavy fuel oil		kg	42.7	
Dry steam coal		kg	30.6	
Anthracite		kg	29.7	
Charcoal		kg	33.7	
Industrial coke		kg	27.9	
Electricity (from net)		kWh	3.6	
			Total energy	
Specific energy consumption (MJ/ kg of product)				

4. There shall be no interference with any deep confined waterbed (see EU Ecolabel Technical Appendix A1):

   - There shall be no interference with surface water bodies with civil catching or springs, or if the water-body is included in the Register of Protected Areas established by a Member State according to Directive 2000/60/EC establishing a framework for Community action in the field of water policy or if the watercourse's average flow is >5 m^3/s (see EU Ecolabel Technical Appendix A1),

   - There shall be a waste recovery closed system for avoiding waste from sawing being dispersed to the environment and to feed the recycling loop. Water shall be contained in close proximity to the place where it is used in quarrying operations and then it shall be conveyed by closed pipes to the suitable processing plant. After clearing, water shall be recycled.

5. The contracting authority shall have regard to local circumstances (e.g. building types, sizes and locally available materials) and undertake a market survey to determine the best available hard floor covering for the need identified.

6. The contracting authority should ensure that the hard floor covering they are proposing to purchase have met the requirements of relevant Directives e.g. Habitats Directive / Birds Directive in their production and any National laws and/or regulations e.g. relating to extraction of materials.

7. Award criteria: Contracting authorities will have to indicate in the contract notice and tender documents how many additional points will be awarded for each award criterion. Environmental award criteria should, altogether, account for at least 15 % of the total points available.

8. Packaging:

   Article 3 of the Directive 94/62/EC of 20 December 1994 on packaging and packaging waste, defines packaging as being:

   > "All products made of any materials of any nature to be used for the containment, protection, handling, delivery and presentation of goods, from raw materials to processed goods, from the producer to the user or the consumer. 'Non-returnable` items used for the same purposes shall also be considered to constitute packaging."

   The extent to which packaging is an important environmental consideration for a product depends on a number of variables including product lifetime and packaging material. For example, for a short lived product, packaging is more likely to be important than it is for a long lived product.

   Where the contracting authority views packaging as a significant issue they may wish to seek information from tenderers to confirm they have taken into account the environmental impact of their packaging option and that the supplier is consistent with the contracting authority's policies.

9. Type I or ISO 14024 ecolabels - The Type I or ISO 14024 ecolabels are those where the underlying criteria are set by an independent body and which are monitored by a certification and auditing process. As such they are a highly transparent, reliable and an independent source of information. These labels have to meet the following conditions:

    - The requirements for the label are based on scientific evidence,
    - The ecolabels are adopted with the participation of all stakeholders, such as government bodies, consumers, manufacturers, distributors and environmental organisations,
    - They are accessible to all interested parties.

10. In public procurement, procurers may require that the criteria underpinning a certain ecolabel must be met, and that the ecolabel may be used as one form of proof of compliance. They are however not allowed to request that a product carries an ecolabel. Moreover, procurers may only use ecolabel criteria which refer to characteristics of the product or service itself or production processes, not those relating to the general management of the company.

11. Proof of compliances - Where the verification for the criteria states that other appropriate means of proof can be used, this could include a technical dossier from the manufacturer, a test report from a recognised body, or other relevant evidence. The contracting authority will have to satisfy itself on a case by case basis, from a technical/legal perspective, whether the submitted proof can be considered appropriate.

12. ISO 14021:2001 defines recycled content as follows:

    The proportion, by mass, of recycled material in a product. Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the following usage of terms.

    - Pre-consumer material: Material diverted from the waste stream during a manufacturing process. Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.
    - Post-consumer material: Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain."

Cost Considerations

It appears that limited research has been undertaken regarding the cost of 'green' products compared to 'non-green' products for the hard floor coverings product group. However when the contracting authority is considering the procurement of hard floor coverings it is important that they take into account all costs throughout the life cycle of the product[1].

[1] http://www.facilitiesnet.com/bom/article.asp?id=6484

Costs will be incurred not just at the initial outlay of the product and its installation but also in the maintenance and end of life stages. Durability will also influence the cost impacts of a hard floor covering, the longer the life span of a specific floor covering type the more time the initial costs will be spread over.

Maintenance costs should also be considered when comparing different types of hard floor surfacing. The contracting authority will need to take into account the exact circumstances of their requirements and expected life span in order to assess the best available option.

At the end of life stage, a ‘green’ product should be easily reused or recycled, and where this is maximised the cost of disposal to landfill will be minimised. For HFC it is more likely the case that the material can be recycled into other products and uses.

Due to the wide range of hard floor coverings available, the contracting authority will need to carefully consider the options available with regard to the specific proposed use, to ensure it is suitable and balance any cost considerations with the use of ‘green’ products and environmental impacts.