EU GPP Criteria for furniture

1 INTRODUCTION

Green Public Procurement (GPP) is a voluntary policy instrument. This document provides the EU GPP criteria developed for the product group "furniture". The criteria are split into two broad sections depending on whether the subject matter of the contract is a **refurbishment service for existing used furniture** or the procurement of **new furniture items**. An accompanying Technical Background Report[1] provides further details on the reasons for selecting these criteria and references for further information.

The criteria are divided into Selection Criteria, Technical Specifications, Award Criteria and Contract Performance Clauses. For each set of criteria there is a choice between two ambition levels:

- The *Core criteria are designed to allow for easy application of GPP, focussing on the key area(s) of environmental performance of a product and aimed at keeping administrative costs for companies to a minimum.*
- The *Comprehensive criteria take into account more aspects or higher levels of environmental performance, for use by authorities that want to go further in supporting environmental and innovation goals.*

It should be borne in mind that furniture items which lie within the scope of the product group can vary substantially in nature and in the types of materials used. For this reason, a number of criteria are accompanied by conditional clauses which state under what circumstances these criteria should be considered as relevant enough to include in the invitation to tender.

1.1 Definition and Scope

The product group “furniture” shall comprise free-standing or built-in units, whose primary function is to be used for the storage, placement or hanging of items and/or to provide surfaces where users can rest, sit, eat, study or work, whether for indoor or outdoor use.

The product group shall not comprise the following products:

(a) Products whose primary function is not to be used as furniture. Examples include but are not limited to: streetlights, railings and fences, ladders, clocks, playground equipment, stand-alone or wall-hung mirrors, electrical conduits, road bollards and building products such as steps, doors, windows, floor coverings and cladding.

(b) Furniture fitted into vehicles used for public or private transit.

(c) Furniture products which consist of more than 5% (weight by weight) of materials that are not included in the following list: solid wood, wood-based panels, cork, bamboo, rattan, plastics, metals, leather, coated fabrics, textiles, glass and padding materials.

[1] See IPTS website: http://susproc.jrc.ec.europa.eu/furniture/documents.html

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1.2 Key environmental impacts

After assessing a total of 109 reports related to the LCA of furniture and screening this down to 13 Life Cycle Assessment (LCA) studies and 35 verified Environmental Product Declarations (EPDs) the following conclusions were drawn regarding environmental impacts during the furniture life cycle:

- The dominant fraction (80-90%) of environmental impacts is linked to furniture **materials/ components**. Although the embodied energy in metals and plastics are higher than wood, durability and recyclability are also important considerations. Specifying recycled materials can help reduce material impact.
- **Manufacturing**, assembly and/or treatment of components is the next most significant source of environmental impacts due to the use of chemical mixtures, heat and electricity in drying and curing processes.
- Impacts due to **packaging** vary depending on the individual product but two LCA studies quoted in the preliminary report estimate total impacts of packaging at 6%.
- **Distribution** was difficult to investigate since this can vary widely due to the global nature of the furniture market. In most LCA studies, average transportation scenarios were used, which masks the varying importance of this part of the furniture life cycle.
- The **use** phase was negligible in terms of environmental impact. However, durability and reparability factors are crucial for extending the use phase.
- The **EoL** impacts vary considerably depending on what materials are used in the furniture. Recycling of furniture components or recovering energy from furniture waste is often complicated due to difficulties in separating components.

Key Environmental Impacts during furniture lifecycle	Proposed EU GPP furniture approach
• Loss of biodiversity and soil erosion as a result of unsustainable forest management and illegal logging. • Depletion of resources due to the use of non-renewable resources such as oil/natural gas for plastics. • CO_2 and other emissions as a result of energy consumption in the production of several materials. • Risk to workers, consumers or to the wider environment of the release of toxic substances. • Contribution to poor indoor air quality due to VOC emissions from indoor furniture products. • Wasted materials due to premature End of Life of sub-standard quality furniture. • Wasted materials due to difficulties with repairing, acquiring spare parts or separating parts for recycling.	• Procure timber from legal and sustainably managed forests and only from companies that can demonstrate compliance with the EU Timber Regulation. • Use materials made partly or totally from recycled materials (such as plastic) and/or renewable materials (such as wood). • Require producers at each stage of the supply chain to declare that their products do not contain Substances of Very High Concern. • Set optional limits for total VOC emissions from furniture items and specific formaldehyde emission limits for wood-based panels and upholstery materials. • Procure durable and fit for use furniture that complies with any relevant EN standards. • Procure easy to disassemble, repairable and recyclable furniture that is covered by a warranty.

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2 EU GPP CRITERIA FOR FURNITURE

<table>
<tr><th colspan="2">A. Procurement of furniture refurbishment services</th></tr>
<tr><th>Core criteria</th><th>Comprehensive criteria</th></tr>
<tr><td colspan="2">TECHNICAL SPECIFICATION</td></tr>
<tr><td colspan="2">TS1: Refurbishment requirements

The contractor shall refurbish the furniture items provided by the contracting authority according to the specified requirements.

Depending on the kind of furniture to be refurbished and the condition of the existing furniture, the public authority shall detail as much as possible the operations to be carried out (e.g. re-spraying of metalwork, repair and/or re-finishing of wood surfaces, re-upholstery, desk conversions etc.)

Verification:

The tenderer shall provide details of all the refurbishing operation(s) to be carried out.</td></tr>
<tr><td colspan="2">TS2: Durable upholstery coverings

(This criterion shall only apply when the refurbishment operations involve the introduction or replacement of upholstery covers).

Points shall be awarded for upholstery covering materials, which may be based on either textile fabrics, coated fabrics or leather, that comply with all of the physical quality requirements set out in Appendix I, as appropriate.

Verification:
The tenderer shall provide a declaration from the leather supplier, textile fabric supplier or coated fabric supplier as appropriate, supported by relevant test reports, that the upholstery covering material meets the physical requirements for leather, textile fabrics or coated fabrics as specified in Table 2, Table 3 or Table 4 of Appendix I respectively.

Upholstery materials holding a relevant ISO Type I ecolabel directly fulfilling the listed requirements, or using equivalent methods, shall be deemed to comply.</td></tr>
<tr><td>TS3: Refurbished furniture product warranty

The tenderer shall provide a minimum of a two year warranty, covering repair or replacement, during which time they shall ensure that the goods are in conformity with the contract specifications at no additional cost.

Verification:

The tenderer shall provide a copy of the warranty terms and conditions and a declaration that they cover the conformity of the goods with the contract specifications, including all indicated usage.</td><td>TS3: Refurbished furniture product warranty

The tenderer shall provide a minimum of a five year warranty, covering repair or replacement, during which time they shall ensure that the goods are in conformity with the contract specifications at no additional cost.

Verification:

The tenderer shall provide a copy of the warranty terms and conditions and a declaration that they cover the conformity of the goods with the contract specifications, including all indicated usage.</td></tr>
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AWARD CRITERIA

AC1: Low chemical residue upholstery coverings

Points shall be awarded where the upholstery covering material is shown to comply, as appropriate, with the limits for restricted arylamine dyes, extractable heavy metals and free formaldehyde set out below.

For textile fabrics and coated fabrics:

- No restricted arylamines (see Appendix II) present above 30 mg/kg (limit applies to each individual amine) according to EN ISO 14362-1 and 14362-3.
- Free and partly hydrolysable formaldehyde ≤75 mg/kg according to EN ISO 14184-1.
- Extractable heavy metals determined according to EN ISO 105-E04 being less than the following limits (in mg/kg): antimony ≤30; arsenic ≤1.0; cadmium ≤0.1; chromium ≤2.0; cobalt ≤4.0; copper ≤50; lead ≤1.0; mercury ≤0.02 and nickel ≤4.0.

For leather:

- No restricted arylamines (see Appendix II) present above 30 mg/kg (limit applies to each individual amine) according to EN ISO 17234-1.
- Chromium VI not detectable above 3 mg/kg according to EN ISO 17075.
- Free and partly hydrolysable formaldehyde ≤300 mg/kg according to EN ISO 17226-1.
- Extractable heavy metals determined according to EN ISO 17072-1 being less than the following limits (in mg/kg): antimony ≤30; arsenic ≤1.0; cadmium ≤0.1; chromium ≤200; cobalt ≤4.0; copper ≤50; lead ≤1.0; mercury ≤0.02 and nickel ≤1.0.

Verification:

Points shall be awarded to tenderers that provide a declaration that the leather, textile fabric or coated fabric upholstery covering material, as appropriate, complies with the above limits, supported by results from relevant test methods either commissioned by the tenderer themselves or the material supplier.

Furniture products or textile fabrics holding a relevant ISO Type I ecolabel fulfilling the listed requirements shall be deemed to comply.

AC2: Extended warranty periods

Additional points shall be awarded to each additional year of warranty offered that is more than the minimum technical specification as follows:

- 4 or more years extra warranty: x points
- 3 years extra warranty: 0.75x points
- 2 years extra warranty: 0.5x points
- 1 year extra warranty: 0.25x points

Verification:

A copy of the warranty terms and conditions shall be provided by the tenderer as well as a declaration that they cover the conformity of the goods with the contract specifications, including all indicated usage.

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B. Procurement of new furniture

Core criteria	Comprehensive criteria
SELECTION CRITERIA	
SC1: Legal sourcing of wood or wood-based materials Tenderers must demonstrate their technical capacity to comply with the requirements of Regulation (EU) 995/2010 (EU Timber Regulation) in the supply of solid wood or wood-based products required under this contract, namely to demonstrate that such products are placed legally on the EU market. **Verification:** Technical capacity in this regard may be demonstrated by showing that the tenderer, or the operator supplying the wood if this is not the tenderer, has in place a due diligence system in accordance with Article 6 of the EU Timber Regulation. Where tenderers are Traders within the meaning of the Regulation they must also provide information regarding their technical capacity to demonstrate traceability of wood in accordance with Article 5.	
Sustainable Sourcing of Wood or wood-based materials[2] *These GPP criteria do not include a proposal on the sourcing of wood from sustainable forestry, for the following reasons:* Several Member States are using their own GPP/SPP criteria to define sustainable management of forests and have different processes in place to determine whether certification schemes provide sufficient assurance. Work between leading Member States (Belgium, Denmark, Germany, the UK and the Netherlands) is under way to identify common ground. In this situation, it was not possible, within the framework of this criteria development process, to provide a harmonised definition of sustainable managed forestry. Once the work of the above-mentioned Member States is finalised, the Commission will evaluate the results and decide on possible steps to be taken. The current consensus of the above-mentioned Member States is that, in general, FSC and PEFC provide sufficient levels of assurance for compliance with their national criteria. Although 100% certified sustainable wood is desirable, it could be difficult to achieve due to possible fluctuations in market demand, particularly for SMEs that are accustomed to working with a limited number of suppliers. Instead, a minimum of 25% sustainable wood should be easily achievable while more ambitious public authorities could set a minimum requirement of 70%, with a recommendation to seek feedback from the market prior to publishing the ITT.	
TECHNICAL SPECIFICATIONS	
TS1: Formaldehyde emissions from wood-based panels (*This requirement applies regardless of the weight fraction of wood-based panels in the furniture product*) All wood-based panels used in the furniture product shall have formaldehyde emission rates that comply with the E1 threshold limits for formaldehyde emissions as defined in Annex B	**TS1: Formaldehyde emissions from wood-based panels** (*This comprehensive requirement should be considered as of added value if the weight fraction of the wood-based panels in the furniture product exceeds 5%).* All wood-based panels used in the furniture product shall be shown to have formaldehyde emission rates that comply with 65% of the E1 threshold limits for formaldehyde emissions

[2] *Note to contracting authorities on the legal sourcing of wood:* Suitable remedies should be provided under the contract for cases of non-compliance with the above clause. Advice on the application of these requirements, and the monitoring organisations able to verify compliance, may be obtained from the competent national authorities listed at:

http://ec.europa.eu/environment/forests/pdf/list_competent_authorities_eutr.pdf

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of EN 13986. **Verification:** A declaration from the wood-based panel supplier shall be provided, stating that the panel is compliant with E1 emission limits and supported by test reports carried out according to either EN 717-1, EN 717-2 or EN 120 Wood-based panels holding a relevant ISO Type I ecolabel directly fulfilling the listed requirements, or using equivalent methods, shall be deemed to comply.	as defined in Annex B of EN 13986. **Verification:** A declaration from the wood-based panel supplier shall be provided, stating that the panel is compliant with 65% of E1 emission limits and supported by test reports carried out according to either EN 717-1, EN 717-2 or EN 120 Wood-based panels holding a relevant ISO Type I ecolabel directly fulfilling the listed requirements, or using equivalent methods, shall be deemed to comply.
TS2: Coating formulation hazard restrictions Coating formulations used to coat any wooden or metal components of the furniture product shall meet the following requirements: • Not be classified according to Directive 1272/2008 as Category 1 or 2 carcinogenic, mutagenic or toxic to reproduction. • Not be classified as Acutely Toxic by oral, dermal or inhalation pathways (categories 1, 2 or 3) or to the aquatic environment (category 1). • Not be classified as category 1 for specific target organ toxicity. **Verification:** The tenderer shall declare what coating formulations have been used in the furniture product (if any). This shall be supported by Safety Data Sheets or similar documentation that clearly indicates the hazard classification of the paint or varnish formulation (if any).	**TS2: Coating formulation hazard restrictions** Coating formulations used to coat any wooden or metal components of the furniture product shall meet the following requirements: • Not be classified according to Directive 1272/2008 as Category 1 or 2 carcinogenic, mutagenic or toxic to reproduction. • Not be classified as Acutely Toxic by oral, dermal or inhalation pathways (categories 1, 2 or 3) or to the aquatic environment (category 1). • Not be classified as category 1 for specific target organ toxicity. • Not contain any additives based cadmium, lead, chromium VI, mercury, arsenic or selenium in concentrations exceeding 0.010% by weight. • Not contain any intentionally added phthalates that are classified with any of the hazards described in Article 57 of REACH. **Verification:** The tenderer shall declare what coating formulations have been used in the furniture product (if any). This shall be supported by Safety Data Sheets or similar documentation that clearly indicates the hazard classification of the paint or varnish formulation (if any) and states whether or not the above listed ingredients have been intentionally added in quantities greater than 0.010% by weight.
TS3: Metal treatment restrictions Any metal components used in the furniture shall meet the following conditions: - Stainless steel components that can be considered to come into direct and prolonged skin contact[3] shall have a nickel release rate of less than 0.5 µg/cm^2/week according to EN 1811. - No metal components shall have been electroplated with cadmium, nickel or chromium VI. **Verification:**	

[3] prolonged skin contact for Nickel, as per entry 27 of REACH Annex XVII, is currently defined by CARACAL3 as 10 minutes on three or more occasions within a two week period or 30 minutes on one or more occasions during a two week period.

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The tenderer shall declare which (if any) of the component parts are made of metal and which (if any) are made of stainless steel and considered to come into direct and prolonged skin contact. The tenderer shall declare if any of the metal component parts have been electroplated and if so, what metal was used in the electroplating operation. Where stainless steel components can be considered to come into direct and prolonged skin contact, the tenderer shall provide a test report according to EN 1811 and a declaration from the supplier of the stainless steel demonstrating compliance with the nickel release rate of 0.5 µg/cm^2/week.
TS4: SVHC restrictions No biocides, flame retardants or plasticisers or any other substances shall be used in the manufacture or treatment of the furniture product that: (a) are listed on the latest versions of the ECHA Candidate List at the date of the invitation to tender if they (b) account for more than 0.1% w/w of the final furniture product weight or of any individual component thereof. **Verification:** The tenderer shall declare that the furniture product does not contain any individual SVHC in quantities greater than 0.1% by weight of the furniture product. This declaration shall be supported by similar declarations from all suppliers of component parts[4] and component materials[5] that remain in the final product.
TS5: Durable upholstery coverings Points shall be awarded for furniture that uses upholstery covering materials, which may be based on either textile fabrics, coated fabrics or leather, that comply with all of the physical quality requirements set out in Appendix I as appropriate. **Verification:** The tenderer shall provide a declaration from the leather supplier, textile fabric supplier or coated fabric supplier as appropriate, supported by relevant test reports, that the upholstery covering material meets the physical requirements for leather, textile fabrics or coated fabrics as specified in Table 2, Table 3 or Table 4 of Appendix I respectively. Upholstery materials holding a relevant ISO Type I ecolabel directly fulfilling the listed requirements, or using equivalent methods, shall be deemed to comply.
TS6: Fitness for use The furniture product shall comply with the requirements set out in the latest versions of the following relevant EN standards that may relate to the durability, dimensional requirements, safety and strength of the product: *(contracting authority to make reference to specific standards from Appendix III or other sources that are most relevant to the furniture being procured)* **Verification:**

[4] "Component parts" are considered as rigid and discrete units whose shape and form does not need to be altered prior to assembly of the final product in its fully functional form, although its position may change during use of the final product.

[5] "Component materials" are considered as non-rigid materials whose shape and form may change prior to furniture assembly or during use of the furniture product. Obvious examples include upholstery material but also potentially timber, which may be considered as a component material but be later sawn and treated to be converted into a component part.

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The tenderer shall provide a declaration of compliance with any relevant EN standards, supported by test reports from either the furniture manufacturer or component part/material suppliers, as appropriate.	
TS7: Design for disassembly and repair For furniture consisting of multiple component parts/materials, the product shall be designed for ease of disassembly and reassembly. Disassembly and replacement operations should be capable of being carried out using common and basic manual tools and unskilled labour. **Verification:** The tenderer shall provide technical drawings that illustrate how the furniture item can be assembled/disassembled using basic tools and unskilled labour. In the case of upholstery, such disassembly may include the use of zip fastenings, clips and/or velcro to attach/detach cushions from the frame and interior padding from covering materials. If necessary, provision must be made for screw fittings that go directly into wood-based panels so that the screw can be re-inserted during reassembly at a different point than where it was removed from during disassembly.	
TS9: Product warranty and spare parts The tenderer shall provide a minimum of three year warranty, covering repair or replacement, during which time they shall warranty that the goods are in conformity with the contract specifications at no additional cost. This warranty shall be provided without prejudice to the legal obligations of the manufacturer and seller under national law. Availability of spare parts: The tenderer shall make original spare parts available for a period of at least five years from the date of delivery of the furniture product. The cost (if any) of spare parts shall be proportional to the total cost of the furniture product. Contact details that should be used in order to arrange the delivery of spare parts shall be provided. **Verification:** A copy of the warranty terms and conditions shall be provided by the tenderer as well as a declaration that they cover the conformity of the goods with the contract specifications, including all indicated usage. The tenderer shall also provide a copy of the user manual, which shall include clear and well-illustrated assembly and disassembly instructions on how the furniture product can be assembled/disassembled using basic tools and unskilled labour and also a list of spare parts with the period during which they will remain available under the contract.	**TS9: Product warranty and spare parts** The tenderer shall provide a minimum of five year warranty, covering repair or replacement, during which time they shall warranty that the goods are in conformity with the contract specifications at no additional cost. This warranty shall be provided without prejudice to the legal obligations of the manufacturer and seller under national law. Availability of spare parts: The tenderer shall make original spare parts available for a period of at least five years from the date of delivery of the furniture product. The cost (if any) of spare parts shall be proportional to the total cost of the furniture product. Contact details that should be used in order to arrange the delivery of spare parts shall be provided. **Verification:** A copy of the warranty terms and conditions shall be provided by the tenderer as well as a declaration that they cover the conformity of the goods with the contract specifications, including all indicated usage. The tenderer shall also provide a copy of the user manual, which shall include clear and well-illustrated assembly and disassembly instructions on how the furniture product can be assembled/disassembled using basic tools and unskilled labour and also a list of spare parts with the period during which they will remain available under the contract.
TS10: Collection and reuse of existing furniture stock *An assessment of the condition of the furniture to be collected (if any) shall be provided by the contracting authority (CA) in the ITT which also may define a minimum re-use target to be met (e.g. 50% of provided furniture).* Tenderers shall collect the furniture directly from a site specified by the contracting authority and provide a re-use and recycling service for furniture that has reached the end of its	**TS10: Collection and reuse of existing furniture stock** *An assessment of the condition of the furniture to be collected (if any) shall be provided by the contracting authority (CA) in the ITT which also may define a minimum re-use target to be met (e.g. 70% of provided furniture).* Tenderers shall collect the furniture directly from a site specified by the contracting authority and provide a re-use and recycling service for furniture that has reached the end of its

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service life. The tenderer shall demonstrate how they will extend the service life of the furniture by supplying it for reuse. For furniture items/parts that are considered not suitable to reuse, and according to the knowledge of the CA about appropriate recycling facilities in the region, one of the following options shall be chosen: **Option a.** Furniture items/parts that are not possible to re-use shall be disassembled into different material streams, as a minimum plastics, metals, textiles and wood before being sent to different recycling facilities[6]. Any remaining materials shall be sent to energy recovery facilities. **Option b.** Metal parts from furniture items/parts that are not possible to re-use shall be recycled and the remainder of the furniture product shall be sent to energy recovery facilities. **Verification:** The tenderer shall provide details of the arrangements for the collection of the furniture, as well as re-use and recycling routes to be used. This shall include the details of all involved parties in the re-use and recycling of the furniture.	service life. The tenderer shall demonstrate how they will extend the service life of the furniture by supplying it for reuse. Furniture items/parts that are not possible to re-use shall be disassembled into different material streams, as a minimum plastics, metals, textiles and wood before being sent to different recycling facilities[7]. Any remaining materials shall be sent to energy recovery facilities. **Verification:** The tenderer shall provide details of the arrangements for the collection of the furniture, as well as re-use and recycling routes to be used. This shall include the details of all involved parties in the re-use and recycling of the furniture.
AWARD CRITERIA	
AC1: Recycled wood content in wood-based panels Maximum points shall be awarded to tenderers where solid wood or wood-based panel components used in the furniture product contain an average content of at least 40% pre-consumer and/or post-consumer recycled wood that is covered by third party chain of custody certificates. Points shall be awarded to the recycled wood content of solid wood or wood-based panels that reach 40% by weight. By-products or co-products from logging or sawmilling operations and any wastes that can be reused within the same processes that generated them shall not be considered as recycled materials. **Verification:** The tenderer shall provide a declaration stating the following information: • All components in the product made of solid wood or wood-based panels and their total weight as a % of the furniture product weight.	**AC1: Recycled wood content in wood-based panels** Maximum points shall be awarded to tenderers where solid wood or wood-based panel components used in the furniture product contain an average content of at least 70% pre-consumer and/or post-consumer recycled wood that is covered by third party chain of custody certificates. Points shall be awarded to the recycled wood content of solid wood or wood-based panels that reach 70% by weight. By-products or co-products from logging or sawmilling operations and any wastes that can be reused within the same processes that generated them shall not be considered as recycled materials. **Verification:** The tenderer shall provide a declaration stating the following information: • All components in the product made of solid wood or wood-based panels and their total weight as a % of the furniture product weight..

[6] All recycling facilities shall be permitted in compliance with Article 23 of Directive 2008/98/EC.

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• The actual average recycled wood content of each of the different wood or wood-based panel component(s). • A calculation of the average recycled wood content across all solid wood and wood-based components. Products or component parts certified as “FSC Recycled”, will be accepted as have a recycled wood content of 100%. Products or components certified as "PEFC Recycled”, will be accepted as having a minimum recycled content of 70%. Claims below these thresholds (or above the PEFC threshold) may be made if adequate documentation according to claims of particular recycled wood contents linked to delivery invoices according to the requirements set out by relevant third party certification schemes can be produced. Alternatively, equivalent schemes or other schemes that are approved by the EU Member State where the contracting authority is based or where the furniture being purchased is to be used (if different).	• The actual average recycled wood content of each of the different wood or wood-based panel component(s). • A calculation of the average recycled wood content across all solid wood and wood-based components. Products or component parts certified as “FSC Recycled”, will be accepted as have a recycled wood content of 100%. Products or components certified as "PEFC Recycled”, will be accepted as having a minimum recycled content of 70%. Claims below these thresholds (or above the PEFC threshold) may be made if adequate documentation according to claims of particular recycled wood contents linked to delivery invoices according to the requirements set out by relevant third party certification schemes can be produced. Alternatively, equivalent schemes or other schemes that are approved by the EU Member State where the contracting authority is based or where the furniture being purchased is to be used (if different).
AC2: Contaminants in recycled wood Points shall be awarded to the tenderer if it can be demonstrated that any recycled wood content that is claimed to be used in the product has meet the EPF standard delivery condition limits for the contaminants stated below: - Arsenic 25mg/kg; Cadmium 50mg/kg; Chromium 25mg/kg; Copper 40mg/kg; Lead 90mg/kg; Mercury 25mg/kg - Fluorine 100mg/kg; Chlorine 1000mg/kg - Pentachlorophenol (PCP) 5mg/kg; Creosote (Benzo(a)pyrene) 0.5mg/kg **Verification** The tenderer shall provide a declaration that all recycled wood fibres used have been tested in accordance with the 2002 "EPF Standard conditions for the delivery of recycled wood" or equivalent, supported by appropriate test reports that demonstrate compliance of the recycled wood samples with the limits specified in this sub-criterion.	
AC3: Formaldehyde emissions from wood-based panels All wood-based panels used in the furniture product shall be shown to have formaldehyde emission rates that comply with 65% of the E1 threshold limits for formaldehyde emissions as defined in Annex B of EN 13986. **Verification:** A declaration from the wood-based panel supplier shall be provided, stating that the panel is compliant with 65% of E1 emission limits and supported by test reports carried out according to either EN 717-1, EN 717-2 or EN 120 Wood-based panels holding a relevant ISO Type I ecolabel directly fulfilling the listed requirements, or using equivalent methods, shall be deemed to comply.	**AC3: Formaldehyde emissions from wood-based panels** All wood-based panels used in the furniture product shall be shown to have formaldehyde emission rates that comply with 50% of the E1 threshold limits for formaldehyde emissions as defined in Annex B of EN 13986. **Verification:** A declaration from the wood-based panel supplier shall be provided, stating that the panel is compliant with 50% of E1 emission limits and supported by test reports carried out according to either EN 717-1, EN 717-2 or EN 120 Wood-based panels holding a relevant ISO Type I ecolabel directly fulfilling the listed requirements, or using equivalent methods, shall be deemed to comply.

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AC4: Plastic marking

Plastic parts with a mass greater than 100g shall be marked in accordance with EN ISO 11469 and EN ISO 1043 (parts 1-4). The lettering used in markings should be at least 2.5 mm high.

Where any fillers, flame retardants or plasticisers are intentionally incorporated into the plastic in proportions greater than 1 % w/w, their presence should also be included in the marking as per EN ISO 1043 parts 2-4.

In exceptional cases, non-marking of plastic parts with a weight greater than 100g is permitted if:

- Marking would impact on the perfomance or functionality of the plastic part;
- Where marking is not technically possible due to the production method;
- Where parts cannot be marked because of insufficient appropriate surface area available for the marking to be of a legible size to be identified by a recycling operator.

In the above cases, where non-marking is justified, further details about the polymer type and any additives as per the requirements of EN ISO 11469 and EN ISO 1043 (parts 1-4) shall be included with consumer information.

***Assessment and verification**:*

The tenderer shall provide a declaration of compliance with this criterion, listing all the plastic components with a weight greater than 100g in the furniture product and stating whether or not they have been marked according to EN ISO 11469 and EN ISO 1043 (parts 1-4).

The marking of any plastic components shall be clearly visible upon visual examination of the plastic component. Marking does not necessarily need to be clearly visible in the final assembled furniture product.

In the case of non-marking of any plastic parts with a weight greater that 100g, the tenderer shall justify this and indicate where relevant information is included in consumer information.

AC5: Recycled plastic content

The average recycled content of plastic parts (not including packaging) shall be at least 30 % w/w.

Points shall be awarded in proportion to the actual recycled plastic content, with maximum points being applied for 100% recycled plastic content.

Verification:

The tenderer shall provide a declaration from the plastic supplier(s) stating the average recycled content in the final furniture product. Where plastic components come from different sources or manufacturers, the average recycled content shall be stated for each plastic source and the overall average recycled plastic content in the final furniture product shall be calculated.

The declaration of recycled content from the plastic manufacturer(s) shall be supported by traceability documentation for plastic recyclates. An example approach would be to provide batch delivery information as per the framework set out in Table 1 of EN 15343.

AC6: Low chemical residue upholstery coverings

Points shall be awarded where the upholstery covering material is shown to comply, as appropriate, with the limits for restricted arylamine dyes, extractable heavy metals and free formaldehyde set out below.

For textile fabrics and coated fabrics:

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- No restricted arylamines (see Appendix II) present above 30 mg/kg (limit applies to each individual amine) according to EN ISO 14362-1 and 14362-3..
- Free and partly hydrolysable formaldehyde ≤75 mg/kg according to EN ISO 14184-1.
- Extractable heavy metals determined according to EN ISO 105-E04 being less than the following limits (in mg/kg): antimony ≤30.0; arsenic ≤1.0; cadmium ≤0.1; chromium ≤2.0; cobalt ≤4.0; copper ≤50.0; lead ≤1.0; mercury ≤0.02 and nickel ≤1.0.

For leather:

- No restricted arylamines (see Appendix II) present above 30 mg/kg (limit applies to each individual amine) according to EN ISO 17234-1.
- Chromium VI not detectable above 3 mg/kg according to EN ISO 17075.
- Free and partly hydrolysable formaldehyde ≤ 300 mg/kg according to EN ISO 17226-1.
- Extractable heavy metals determined according to EN ISO 17072-1 being less than the following limits (in mg/kg): antimony ≤30.0; arsenic ≤1.0; cadmium ≤0.1; chromium ≤200; cobalt ≤4.0; copper ≤50.0; lead ≤1.0; mercury ≤0.02 and nickel ≤1.0.

Verification:

Points shall be awarded to tenderers that provide a declaration that the leather, textile fabric or coated fabric upholstery covering material, as appropriate, complies with the above limits, supported by results from relevant test methods either commissioned by the tenderer themselves or the material supplier.

Furniture products or textile fabrics holding a relevant ISO Type I ecolabel fulfilling the listed requirements shall be deemed to comply.

AC7: Low VOC emission furniture

Points will be awarded for demonstrating that the total VOC (TVOC) emissions from the entire furniture product or from particular component parts considered to be the most significant sources of VOC emissions from the furniture product (such as upholstery or wood-based panels) result in chamber concentrations of TVOCs are less than 500 µg/m^3 after 28 days testing according to ISO 16000 or equivalent standards.

Verification:

The tenderer shall provide a copy of a chamber test report carried out by an accredited laboratory and in accordance with the requirements of the ISO 16000 series of standards. The tenderer shall make it clear whether the test was applied to the entire furniture product or only to defined components parts.

Experimental details such as loading rate, air flow and chamber temperature and humidity shall also be included in the report.

Other standards that can be considered as equivalent to ISO 16000 shall include the method developed by CEN/TS 16516, the method described in the ANSI/BIFMA M7.1-2011 standard and

Furniture products or upholstery materials holding a relevant ISO Type I ecolabel fulfilling the listed requirements shall be deemed to comply.

AC8: Improvement in the re-use targets

Points shall be awarded to tenderers offering higher levels of re-use than those stated in the Technical Specification.

Verification:

The tenderer shall provide details of how the additional level of re-use will be achieved

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AC9: Extended warranty periods

Additional points shall be awarded to each additional year of warranty offered that is more than the minimum technical specification as follows:

- 4 or more years extra warranty: x points
- 3 years extra warranty: 0.75x points
- 2 years extra warranty: 0.5x points
- 1 year extra warranty: 0.25x points

Verification:

A copy of the warranty terms and conditions shall be provided by the tenderer as well as a declaration that they cover the conformity of the goods with the contract specifications, including all indicated usage.

CONTRACT PERFROMANCE CLAUSES

CPC1: Legally sourced wood or wood-based materials	**Legally sourced wood or wood-based materials**
All wood or wood-based products used in the furniture product must have been placed legally on the EU market in accordance with Regulation (EU) 995/2010 (EU Timber Regulation.) In order to demonstrate compliance with the EU Timber Regulation, the tenderer, if a 'trader' [7], shall be able to identify: - The operators or the traders who have supplied the timber and timber products used in construction of the building; - Documents or other information indicating compliance of those timber products with the applicable legislation; - Evidence of the risk assessment and mitigation procedures put in place in accordance with Article 6(1) (b) and (c) of Regulation (EU) 995 of 2010. If the lead contractor is an 'operator'[8], they shall be required to provide the following information in respect of timber or timber products provided under the contract: - A description of each type of timber used, including the trade name, type of product, the common name of tree species and, where applicable, its full scientific name;	All wood or wood-based products used in the furniture product must have been placed legally on the EU market in accordance with Regulation (EU) 995/2010 (EU Timber Regulation). In order to demonstrate compliance with the EU Timber Regulation, the tenderer, whether an 'operator'[2] or a 'trader'[1], shall be required to provide the following information in respect of timber or timber products provided under the contract: - A description of each type of timber used, including the trade name, type of product, the common name of tree species and, where applicable, its full scientific name; - Name and address of the trader who supplied the timber and timber products; - The country of harvest, and where applicable: (i) Sub-national region where the timber was harvested; (ii) Concession of harvest; (iii) Quantity (expressed in volume, weight or number of units); - Name and address of the supplier to the operator (trader);

[7] 'trader' means any natural or legal person who, in the course of a commercial activity, sells or buys on the internal market timber or timber products already placed on the internal market

[8] 'operator' means any natural or legal person that places timber or timber products on the market;

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- Name and address of the trader who supplied the timber and timber products; - The country of harvest, and where applicable: (i) Sub-national region where the timber was harvested; (ii) Concession of harvest; (iii) Quantity (expressed in volume, weight or number of units); - Name and address of the supplier to the operator (trader); - Documents or other information indicating compliance of those timber products with the applicable legislation; - Evidence of the risk assessment and mitigation procedures put in place in accordance with Article 6(1) (b) and (c) of Regulation (EU) 995 of 2010 Valid EU FLEGT or UN CITES licenses and/or third party certification of due diligence according to Regulation (EU) No 995/2010 shall be accepted as evidence of legal harvesting and sourcing.	- Documents or other information indicating compliance of those timber products with the applicable legislation; - Evidence of the risk assessment and mitigation procedures put in place in accordance with Article 6(1) (b) and (c) of Regulation (EU) 995 of 2010 Valid EU FLEGT or UN CITES licenses and/or third party certification of due diligence according to Regulation (EU) No 995/2010 shall be accepted as evidence of legal harvesting and sourcing.
CPC2: Improvement in the reuse targets The tenderer shall provide the contracting authority with suitable evidence about the percentages of furniture resold, donated, recycled and disposed of at the latest 12 months after the signature of the contract.	

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3 LIFE CYCLE COSTING

There are virtually no running costs associated with furniture items included within the EU GPP scope. Consequently, the most important influence on life cycle costs is the lifetime of the furniture item. Other relevant aspects are initial cost (price) and disposal costs (or residual value, depending on the specific case). The choice of durable and resistant materials is important but perhaps even more important is that component parts and materials are combined together to form a robust product that is lends itself well to repair or refurbishment. The optimum way to ensure such a product is to require compliance with relevant EN technical standards (where these exist) and to have a minimum warranty included. Due to the increased risk and responsibility, extended warranties are often associated with price increases. Whether or not an extended warranty is attractive or not will depend on the nature of the product itself and what it is to be used for, i.e. moving parts, outdoor use etc.

According to Bartlett[9], the typical lifetime of office furniture in the UK is 9-12 years, despite the fact that furniture is often designed with much longer functional lifetimes. The premature End-of-Life (EoL) of office furniture is often determined by corporate decisions to redecorate or relocate offices and results in perfectly functional furniture becoming obsolete and being disposed of for aesthetic reasons. In general, the need for new furniture stock in a public organisation may be due to:

- New premises/staff or expansion of existing premises,
- Old furniture not being adequate after renovation of existing public buildings (for example the wrong colour, shape or size),
- Old furniture falling into disrepair (damaged furniture that is no longer safe and/or fully functional).

With the latter two situations, it may be possible to actually refurbish existing furniture instead of buying brand-new products. Recently (June 2014), the UK government published the latest version of its guidance document for furniture procurement. Anecdotal evidence clearly states that the refurbishment of existing furniture has clear and substantial economic savings compared to the purchasing of equivalent new furniture. Concrete data is difficult to find on the actual cost savings associated with choosing furniture refurbishment. Walsh[10] estimated cost savings to be 25-50% and the UK government have published the following data as an indicative guide:

Table 1. Estimated average unit prices for furniture items as new, reused or refurbished[11]

	Desks (£)	Chairs (£)	Shelving (£)	Pedestal (£)
New Recommended Retail Price	209	122	100	107
Reused Recommended Retail Price (proxy)	105	86	50	53
Refurbished Recommended Retail Price (proxy)	84	49	40	43

[9] Bartlett, 2009. "Reuse of office furniture – incorporation into the 'Quick Wins' criteria: A study of the market potential for reused and remanufactured office furniture in the UK.

[10] Walsh, 2011. "Public procurement of remanufactured products. An examination of the potential for increasing the use of remanufactured products by local authorities in the North East of England". See: www.remanufacturing .org.uk

[11] UK Government Buying Standards Impact Assessment: accessed June 2015: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/341462/Furniture_GBS_impact_assessment_1407.pdf

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Markets for good-quality second hand office furniture generally involve dealers and auctioneers[12] while not-for-profit organisations are strongly involved with lower quality and domestic second-hand furniture. Neither of these situations is especially adequate for invitations to tender.

Based on the indicative guide costs above, it is clear that cost savings of up to 50% can be achieved. The biggest obstacle to growth in the furniture refurbishment sector in the EU appears to be a lack of demand from the market. It must be borne in mind that furniture refurbishment is most attractive for high quality and expensive furniture items, such as professional office furniture, and that while simple refurbishment tasks can be carried out onsite by technicians, other tasks may require the transport of the furniture to a workshop. To prevent transport costs becoming significant, it is important that the company offering the refurbishment service is not located so far from the contracting authority premises.

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[12] Kelday, 2009. An assessment of the remanufacture of office furniture in the UK. Centre for Remanufacturing and Reuse. See: www.remanufacturing.org

APPENDIX I

Requirements for good physical quality upholstery materials in furniture are defined in Tables 2, 3 and 4 below.

Table 2. Physical requirements of leather used in Ecolabel furniture (taken from Tables 1 and 2 in EN 13336)

Fundamental characteristics	**Test method**		**Recommended values**		
			Nubuck, Suede and Aniline*	**Semi-aniline***	**Coated, pigmented and other***
pH and ΔpH	EN ISO 4045		≥ 3.5 (if the pH is ≤4.0, ΔpH shall be ≤ 0.7		
Tear load, average value	EN ISO 3377-1		> 20 N		
Colour fastness to to-and-fro rubbing	EN ISO 11640. Total mass of finger 1000g. Perspiration alkaline solution as defined in EN ISO 11641.	Aspects to be evaluated	Change of leather colour and felt staining	Change of leather colour and felt staining No destruction of finish	
		using dry felt	50 cycles, ≥ 3 grey scale	500 cycles, ≥ 4 grey scale	
		using wet felt	20 cycles, ≥ 3 grey scale	80 cycles, ≥ 3/4 grey scale	250 cycles, ≥ 3/4 grey scale
		using felt wetted with artifical perspiration	20 cycles, ≥ 3 grey scale	50 cycles, ≥ 3/4 grey scale	80 cycles, ≥ 3/4 grey scale
Colour fastness to artificial light	EN ISO 105-B02 (method 3)		≥ 3 blue scale	≥ 4 blue scale	≥ 5 blue scale
Dry finish adhesion	EN ISO 11644		--	≥ 2N / 10mm	
Dry flex resistance	EN ISO 5402-1		For aniline leather with non-pigmented finish only, 20 000 cycles (no finish damage cracks)	50 000 cycles (no finish damage cracks)	50 000 cycles (no finish damage cracks)
Colour fastness to water spotting	EN ISO 15700		≥ 3 grey scale (no permanent swelling)		
Cold crack resistance of finish	EN ISO 17233		--	-15°C (no finish crack)	
Fire resistance	EN 1021 or relevant national standards		Pass		

*Definitions of these leather types are according to EN 15987.

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Table 3. Physical requirements for textile fabric covering materials in furniture upholstery.

Test factor	Method	Removable and washable coverings	Non-removable and washable coverings
Dimensional changes during washing and drying	Domestic washing: ISO 6330 + EN ISO 5077 (three washes at temperatures as indicated in the product with tumble drying after each washing cycle) Commercial washing: ISO 15797 + EN ISO 5077 (at minimum of 75 °C)	+/- 3.0% for woven fabrics +/- 6.0% for non-woven fabrics	N/A
Colour fastness to washing	Domestic washing: ISO 105-C06 Commercial washing: ISO 15797 + ISO 105-C06 (at minimum of 75 °C)	≥ level 3-4 for colour change ≥ level 3-4 for staining	N/A
Colour fastness to wet rubbing*	ISO 105 X12	≥ level 2-3	≥ level 2-3
Colour fastness to dry rubbing*	ISO 105 X12	≥ level 4	≥ level 4
Colour fastness to light	ISO 105 B02	≥ level 5**	≥ level 5**
Fabric resistance to pilling and abrasion	Knitted and non-woven products: ISO 12945-1 Woven fabrics: ISO 12945-2	ISO 12945-1 result >3 ISO 12945-2 result >3	ISO 12945-1 result >3 ISO 12945-2 result >3

* does not apply to white products or products that are neither dyed nor printed

** A level of 4 is nevertheless allowed when furniture covering fabrics are both light coloured (standard depth ≤ 1/12) and made of more than 20 % wool or other keratin fibres, or more than 20 % linen or other bast fibres.

Table 4. Physical requirements for coated fabric covering materials in furniture upholstery

Property	Method	Requirement
Tensile strength	ISO 1421	CH ≥ 35daN and TR ≥ 20daN
Tear resistance of plastic film and sheeting by the trouser tear method	ISO 13937/2	CH ≥ 2,5daN and TR ≥2daN
Colour fastness to artificial weathering – Xenon arc fading lamp test	EN ISO 105-B02	Indoor use ≥ 6; Outdoor use ≥ 7
Textiles – abrasion resistance by the Martindale method	ISO 5470/2	≥ 75,000
Determination of coating adhesion	EN 2411	CH ≥ 1,5daN and TR ≥ 1,5daN

Where: daN = deca Newtons, CH = Warp and TR = Weft

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APPENDIX II

Included here are the substances listed in Entry 43 of REACH that should be tested for in any dyed leather (using the EN 17234 standard) or textiles (using the EN 14362-1 and -3 standards).

Table 5. Carcinogenic arylamines to be tested in textiles or leather.

Aryl amine	CAS Number	Aryl amine	CAS Number
4-aminodiphenyl	92-67-1	4,4′-oxydianiline	101-80-4
Benzidine	92-87-5	4,4′-thiodianiline	139-65-1
4-chloro-o-toluidine	95-69-2	o-toluidine	95-53-4
2-naphtylamine	91-59-8	2,4-diaminotoluene	95-80-7
o-amino-azotoluene	97-56-3	2,4,5-trimethylaniline	137-17-7
2-amino-4-nitrotoluene	99-55-8	4-aminoazobenzene	60-09-3
4-chloroaniline	106-47-8	o-anisidine	90-04-0
2,4-diaminoanisol	615-05-4	2,4-Xylidine	95-68-1
4,4′-diaminodiphenylmethane	101-77-9	2,6-Xylidine	87-62-7
3,3′-dichlorobenzidine	91-94-1	p-cresidine	120-71-8
3,3′-dimethoxybenzidine	119-90-4	3,3′-dimethylbenzidine	119-93-7
3,3′-dimethyl-4,4′-diaminodiphenylmethane	838-88-0	4,4′-methylene-bis-(2-chloro-aniline)	101-14-4

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