EU GPP Criteria for OFFICE BUILDINGS

Green Public Procurement (GPP) is a voluntary instrument. This document provides the EU GPP criteria developed for the office building 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 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 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

This document covers procurement actions for office buildings. For the purposes of these criteria, the product group of “Office buildings” shall comprise buildings where mainly administrative, burocratic and clerical activities are carried out. More in detail, office buildings are considered to be defined as:
"An office building is a building which contains administrative, financial, technical and bureaucratic activities as core representative activities. The office area must make up a vast majority of the total buildings gross area dedicated to this purpose providing a service to other companies or to individuals. Therefore, it could have associated other type of spaces, like meeting rooms, training classes, staff facilities, technical rooms, etc". The criteria do not cover parking areas that are not counted in this total buildings gross area.

This product sheet includes recommendations for the procurement of office buildings. It addresses the design, construction, use and disposal phase of the building. For each of these phases environmental criteria are proposed. Criteria address energy consumption, the use of renewable energy sources (RES), construction materials and products, waste and water management as well as other aspects influencing the environmental impacts of office buildings: constructor's experience, monitoring and user aspects.

The proposed approach focuses on office buildings as a system instead of just an accumulation of components, Criteria can be used in tendering procedures for the construction of new office buildings and major renovations of this type of buildings.

2. Key Environmental Impacts

The key environmental impacts from office buildings are strongly associated with the consumption of energy in the use phase. Further, significant environmental impacts are associated with: a) energy consumption in the production and construction phase, b) use of hazardous constituents and materials that coming from no sustainable sources, c) consumption of water and generation of waste (along all the phases of the office building).
Other impacts are related to the indoor air quality and the well-being/comfort of the employees.

Key Environmental Areas in office buildings life cycle and Key Environmental Impacts	**GPP Approach**
Key environmental areas • Energy consumption in the use phase • CO2 emissions in the use phase • Depletion of natural resources, high amount of building materials • Use of hazardous substances in the building materials • Indoor air quality and indoor air emissions • Water consumption • Waste generation Key environmental impacts: • The following key environmental impact categories along the product life cycle are covered: global warming, acidification, ecotoxicity, human toxicity, eutrophication, resource depletion, and water and energy consumption.	• Purchase of office buildings with high energy performance • Purchase office buildings with low CO2 emissions • Purchase buildings with a limited amount of hazardous constituents • Purchase products with high recycled and reuse content in the building materials • Purchase buildings which facility the recovering of building materials • Purchase buildings which use sustainably harvested and produced resources • Purchase buildings with water saving technologies • Purchase buildings which minimise waste production and ensure proper waste management of C&D and MSU waste

The order of impacts does not necessarily reflect their importance.

Detailed information about the office building product group, including the information about related legislation and other sources, can be found in the Technical Background Report.

3. EU GPP Criteria for Office Buildings

Based on data and information in the Technical Background Report the following sets of EU GPP criteria for purchase of environmental friendly (i.e. with low environmental impacts throughout the lifecycle) and energy efficient imaging equipment devices are proposed:

3.1 EU GPP criteria for the design phase of the office buildings	
Core criteria	**Comprehensive criteria**
SUBJECT MATTER	**SUBJECT MATTER**
Construction and/or major renovation of high energy efficient office buildings	
TECHNICAL SPECIFICATIONS	**TECHNICAL SPECIFICATIONS**
Energy consumption during the use phase The overall energy consumption of the office building shall be amongst the best energy performing new and major renovated office buildings in the member state where it is located. a) If the Member State where the office building is located has developed an energy performance certificate rating A-G, the building shall meet the energy performance rated with class X (*one of the highest ones*) on the respective national calculation methods b) If no energy ratings were developed, the energy performance of the office building shall fall within the *x%* best energy performing new and major renovated office buildings of the Member State where it is located. **Verification:** In the design phase, the designers must provide information about: - the overall energy performance of the building according to the national method where the building is going to be built up - comparison of the energy performance of the building and the national ratings ensuring that the office building to be awarded will have a top energy performance (*XX% of the best energy* performing office buildings in the country).	**Energy consumption during the use phase** The overall energy consumption of the office building shall be amongst the best energy performing new and major renovated office buildings in the member state where it is located. a) If the Member State where the office building is located has developed an energy performance certificate rating A-G, the building shall meet x% better than the energy performance rated with class A on the respective national calculation methods b) If no energy ratings were developed, the energy performance of the office building shall fall within the *x% best* energy performing new and major renovated office buildings of the Member State where it is located. **Verification:** In the design phase, the designers must provide information about: - the overall energy performance of the building according to the national method where the building is going to be built up - comparison of the energy performance of the building and the national ratings ensuring that the office building to be awarded will have a top energy performance (*XX% of the best energy performing* office buildings in the country).
Energy monitoring and efficiency training The office building shall be provided with an energy monitoring system that is able to report the overall energy consumption of the building. This system shall allow the identification of the possible mismatches and improvement potential during the use phase of the office building. A user's information system shall be established ensuring that the information regarded to energy consumption is distributed to at least the maintenance staff. A training session must be given to the building manager on the energy efficient use of the building following the completion of construction/renovation works. The bidder must outline the content of the training.	**Energy monitoring and efficiency training** The office building shall be provided with an energy monitoring system that is able to report the overall energy consumption of the building. An energy monitoring system able to report separately the energy consumption of at least heating, cooling, lighting and domestic hot water shall be installed. This system shall allow the identification of the possible mismatches and improvement potential during the use phase of the office building. A user's information system shall be established ensuring that the information regarded to energy consumption is distributed to at least the maintenance staff. A training session must be given to the building manager on the energy efficient use of the building following the completion of construction/renovation works. The bidder must outline the

Verification: Bidders must provide specifications and graphical documents confirming that the energy monitoring system and the user's information system are installed. Bidders must demonstrate that the information will be displayed, reported and ideally imparted to at least the maintenance staff of the office building.	content of the training. **Verification:** Bidders must provide specifications and graphical documents confirming that the energy monitoring system and the user's information system are installed. Bidders must demonstrate that the information will be displayed, reported and ideally imparted to at least the maintenance staff of the office building.
	Localized Renewable energy sources A minimum of *x*% of the (*net, final or primary)* energy demand must be provided/generated by localized renewable energy sources. Localized renewable sources means renewable energy source generating capacity within the building site itself (e.g. solar panels, biomass boiler, wind turbines, etc) **Verification:** In the design phase, bidders must provide information on the renewable energy systems installed in the building and how the energy generated will be used in the building or sold to the grid.
	AWARD CRITERIA
	Innovative energy efficient building services Bidders must submit specific proposals for achieving energy efficient lighting, heating, cooling and ventilation in the building. It is recommended the energy savings and the use of passive components (e.g. insulation, daylight use, triple glazing in the windows, shadings when necessary, etc)

Explanatory notes
General note: it is recommended to evaluate which would be the best phase for including each of the proposed environmental criteria (architect's design competition, tendering procedure for constructions works, etc)
- **Localized renewable sources percentage:** the contracting authority will need to determine the appropriate minimum % of localized renewable energy source. This will largely depend on the climatic conditions and the design of the building. Typically this should be between 5-20%
- **Energy consumption standards:** the choice of net, final or primary energy will depend on the indicators used for defining energy performance provided in national legislation.
- **Energy consumption standards, defining percentage levels:** the percentage level (ambition level) to insert highly depends on the ambition level of the maximum energy performance defined in national legislation. It is recommended to aim for at least 20% lower than the most usual required energy level for new and major renovated office buildings
- **Training information:** construction works also includes the installation of heating, ventilation, air conditioning and refrigeration (HVAC) as well as energy supply, lighting and water system. A specialist company may be contracted to design and install (and sometimes maintain) these services for the building
- **Energy monitoring**: The monitoring of all energy flows that exceed 5% of the total (excepted) energy consumption is recommended in the comprehensive criteria

SUBJECT MATTER	SUBJECT MATTER
Construction and/or major renovation of high energy efficient office buildings using environmental friendly construction materials and products	
TECHNICAL SPECIFICATIONS	**TECHNICAL SPECIFICATIONS**
Use of construction materials complying with certain environmental criteria At least xx% in cost of the major building elements[1] shall be building products that comply with at least one of the following criteria: 1) Ecolabelled products (labels Type I or Type III in accordance to ISO 14024 or ISO 14025 respectively) shall be selected 2) If point 1 is not possible, materials that provide a clear and transparent information on the product environmental performance based on LCA information in accordance with ISO 14024 should be selected **Verification:** Bidders must provide a list of all: a) the Ecolabelled products used in the building, including their name, the name of their manufacturer and the Ecolabel they have been awarded with, as well as a description of their common function at building level (i.e. description of the product category). Moreover, the applicant shall provide copies of certificates corresponding to the Ecolabels awarded for all of these products. b) The LCA assessment of the materials along with the name of the manufacturer and the description of the function shall be provided.	**Use of construction materials complying with certain environmental criteria** At least xx% in cost of the major building elements shall be building products that comply with at least one of the following criteria: 1) Ecolabelled products (labels Type I or Type III in accordance to ISO 14024 or ISO 14025 respectively) shall be selected 2) If point 1 is not possible, materials that provide a clear and transparent information on the product environmental performance based on LCA information in accordance with ISO 14024 should be selected **Verification:** Bidders must provide a list of all: a) the Ecolabelled products used in the building, including their name, the name of their manufacturer and the Ecolabel they have been awarded with, as well as a description of their common function at building level (i.e. description of the product category). Moreover, the applicant shall provide copies of certificates corresponding to the Ecolabels awarded for all of these products. b) The LCA assessment of the materials along with the name of the manufacturer and the description of the function shall be provided.
	Use of construction recycled and reused materials The preparation for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material defined in category 17 05 04 in the list of waste of the Directive 2008/98/EC on waste shall be increased to a minimum of > 80% by weight. **Verification:** Bidders must provide a detailed description of the methodology to calculate the estimated material recovery potential of the demolition waste, once the building completes its service life. Material recovery potentials should not be hypothetical but based on existing technologies, economic viability and applicable industry standards. In the description bidders must: - identify the potentially recyclable or reusable materials, - explain how these materials could be identified and collected during the demolition processes, and

[1] Building elements are considered as those which in their totality constitute the office building. These are: external and internal walls, slabs, windows and doors and floors (including coverings, etc)

	- foresee which will be the most probable and appropriate recycling process. Finally, bidders must calculate the percentage in weight that the recovered materials represent in relation to the total amount of materials and products used in the building.
	Use of building materials with recycled and reused content At least *xx%* in cost of the building components installed in the building, will be formed by products containing at least *xx%* recycled or reused materials. **Verification:** Bidders must provide a list of all the products used in the building which contain recycled materials, including their name, the name of their manufacturer and the percentage and origins of the recycled content, as well as a description of their common function at building level (i.e. description of the product category). Moreover, bidders must provide copies of the certificates or declarations corresponding to the recycled content of products
Responsible sourcing of wood and wood-based materials At least xx% of the wood and wood-based materials shall be responsibly sourced materials. **Verification:** Certification schemes that can certify this requirement such as FSC[2], PEFC[3], or any equivalent means of proof (accepted by the respective competent body).	**Responsible sourcing of wood and wood-based materials** At least xx% of the wood and wood-based materials shall be responsibly sourced materials. **Verification:** Certification schemes that can certify this requirement such as FSC, PEFC or any equivalent means of proof (accepted by the respective competent body).

Explanatory notes:

General note: it is recommended to evaluate which would be the best phase for including each of the proposed environmental criteria (architect's design competition, tendering procedure for construction works, etc)

- Construction materials that comply with certain environmental criteria: a minimum requirement of 60-80% in cost of all the materials to be used could be proposed
- Recycled/reused content: a minimum requirement of 30 and 50% in cost of materials with at least 20% in weight of recovered content can be used. If award criterion (LCA comparison of building materials) is used, a relatively low percentage should be set
- Use of environmental construction materials and products: this criterion can be in the award phase as the contracting authority will likely not have sufficient knowledge of the market availability and price of such products. If the contracting authority has a good market knowledge, minimum percentages for certain products types or a global one could be included in the specifications.
- Responsible sourcing of wood and wood-based materials: a minimum requirement of 60-80% in weight of the wood and wood-based certified materials can be used.
- LCA comparison of construction materials: the availability of LCA data on building materials varies considerably across Europe. The contracting authority will need to consider whether sufficient data exists to apply this criterion as award one. The contracting authority will need to determine which LCA tools are most appropriate for the region/type of construction work. Where LCA tools are available, it may replace the most specific requirements on building materials (as they are covered by the LCA tool).
The use of LCA tool during the design phase is also recommended.

SUBJECT MATTER	**SUBJECT MATTER**
Construction and/or major renovation of high energy efficient office buildings with high indoor air quality and well-being for the employees	

2 http://www.fsc.org/ Forest Stewardship Council
3 http://www.pefc.org/ Programme for the Endorsement of Forestry Certification

TECHNICAL SPECIFICATIONS	TECHNICAL SPECIFICATIONS
Exclusion of certain materials The following materials/substances will not be used in the building: 1. Products which contains 'Substances of very high concern (SVHC)' 2. Products that release indoor air pollutants (e.g VOC, CO_2, CO, PM, etc): the emissions from the building products used must not exceed the respective values outlined in the European standard for the determination of emissions from building products EN ISO 16000-9 to -11 or equivalent **Verification:** 1. Bidders must declare that these products/substances will not be used in the building 2. Test report based on the outlined methods or equivalent	**Exclusion of certain materials** The following materials/substances will not be used in the building: 1. Products which contains 'Substances of very high concern (SVHC)' 2. Products that release indoor air pollutants (e.g VOC, CO_2, CO, PM, etc): the emissions from the building products used must not exceed the respective values outlined in the European standard for the determination of emissions from building products EN ISO 16000-9 to -11 or equivalent **Verification:** 1. Bidders must declare that these products/substances will not be used in the building 2. Test report based on the outlined methods or equivalent
	A separate room printers and office equipment The building shall have separate service rooms for placing imaging and office equipment generating dust and/or noise (such as printers, copy machines, plotters). **Verification:** In the design phase, bidders must provide graphical documentation showing compliance with the criterion
Minimum Ventilation rate A minimum ventilation rate must be above the respective values outlined in the national standards that ensures the IA pollutants are not concentrated inside the building **Verification:** In the design phase, bidders must provide information on the compliance within the national standards.	**Minimum Ventilation rate** A minimum ventilation rate must be above the respective values outlined in the national standards that ensures the IA pollutants are not concentrated inside the building **Verification:** In the design phase, bidders must provide information on the compliance within the national standards.
Visual comfort 1. Visual comfort based on balanced illumination without appreciable interferences and sufficient illumination levels shall be guaranteed in the permanent workplaces following the respective national best practice. 2. Purchase of the indoor lighting and lighting systems shall be done following GPP criteria **Verification:** Bidders must provide information on the compliance within the national standards	**Visual comfort** 1. Visual comfort based on balanced illumination without appreciable interferences and sufficient illumination levels shall be guaranteed in the permanent workplaces following the respective national best practice. 2. Purchase of the indoor lighting and lighting systems shall be done following GPP criteria **Verification:** Bidders must provide information on the compliance within the national standards
Explanatory notes **General note:** It is recommended to evaluate which would be the best phase for including each of the proposed environmental criteria (architect's design competition, tendering procedure for construction works).	

SUBJECT MATTER	SUBJECT MATTER
Construction and/or major renovation of high energy efficient office buildings with lower waste generation and well waste management	
TECHNICAL SPECIFICATIONS	**TECHNICAL SPECIFICATIONS**
Recycling facilities Dedicated storage space to cater for recyclable materials generated during the use phase shall be constructed. The waste collection area or areas to be provided with sufficient different containers that shall be clearly labelled to facilitate the segregation of materials for recycling and adequately dimensioned according to the building operation and likely level of occupation. **Verification:** Bidders must provide graphical documents proving that a common space has been set aside for waste sorting and collection in all building's floors and evidencing the assumptions made in order to estimate the space provision.	**Recycling facilities and waste management plan** Dedicated storage space to cater for recyclable materials generated during the use phase shall be constructed. The waste collection area or areas to be provided with sufficient different containers that shall be clearly labelled to facilitate the segregation of materials for recycling and adequately dimensioned according to the building operation and likely level of occupation. **Verification:** Bidders must provide graphical documents proving that a common space has been set aside for waste sorting and collection in all building's floors and evidencing the assumptions made in order to estimate the space provision.
	Management plan A waste management plan shall be developed containing information on how to collect the waste generated, provision for the monitoring of the waste streams and giving instructions on the separated waste streams should be sorted and collected. **Verification:** After delivery of the building, the criteria will be evaluated by visual check by the competent body or delegate onsite.
Construction and demolition Waste management The contractor must put appropriate measures in place to reduce and recover (reuse and recycle) waste that is produced during the demolition and construction process. It is required to have a recovery rate of at least 60% related to weight percentage segregation **Verification:** proof of compliance can be provided by an Environmental Management System (EMS) such as EMAS or other evidence of equivalent environmental management measures	**Construction and demolition Waste management** The contractor must put appropriate measures in place to reduce and recover (reuse and recycle) waste that is produced during the demolition and construction process. It is required to have a recovery rate of at least 60% related to weight percentage segregation **Verification:** proof of compliance can be provided by an Environmental Management System (EMS) such as EMAS or other evidence of equivalent environmental management measures
Explanatory notes: Waste reduction and management: the contracting authority must set up a proper monitoring and evaluation system during the construction process that, besides general quality control issues, also focuses on the monitoring of the waste management system	
SUBJECT MATTER	**SUBJECT MATTER**

Construction and/or major renovation of high energy efficient office buildings with lower water consumption	
TECHNICAL SPECIFICATIONS	**TECHNICAL SPECIFICATIONS**

Maximum water consumption The estimated maximum water consumption shall be equal or less than 25 liter/person/day, where person refers to the equivalent of a full-time employee in the office building **Verification:** Bidders must provide documentation with the calculated estimate of the daily water consumption per employee and day. This estimate will be based on the functional characteristics of the bathroom fittings (WC and basin taps), assuming a minimum daily consumption of 1.5l of drinking water, and three uses of the WC (calculated as average flush) and the basin per employee and day. When carrying out these calculations, only potable water will be taken into account, leaving out rainwater or grey water used within the building. Showers are excluded from the estimation. Average flush is defined as: - female average WC flush = (2*reduced WC flush + 1*full WC flush)/3 - male average WC flush = (2*urinal flush + 1*full WC flush)/3	**Maximum water consumption** The estimated maximum water consumption shall be equal or less than 20 liter/person/day, where person refers to the equivalent of a full-time employee in the office building. **Verification:** Bidders must provide documentation with the calculated estimate of the daily water consumption per employee and day. This estimate will be based on the functional characteristics of the bathroom fittings (WC and basin taps), assuming a minimum daily consumption of 1.5l of drinking water, and three uses of the WC (calculated as average flush) and the basin per employee and day. When carrying out these calculations, only potable water will be taken into account, leaving out rainwater or grey water used within the building. Showers are excluded from the estimation. Average flush is defined as: - female average WC flush = (2*reduced WC flush + 1*full WC flush)/3 - male average WC flush = (2*urinal flush + 1*full WC flush)/3
	Water saving installations All sanitary and kitchen water facilities must be equipped with the latest water-saving technologies available on the market: - Dual flush WC with 6l/flush for the full flush and urinals with 3liters/full flush - Water saving devices fitted into cisterns must demonstrate a water saving of at least 30% for toilet flushing - Taps inserts should save at least 50% of water compared to normal tap use **Verification:** Bidders must provide technical data-sheets for the products to be installed that verify compliance with the specifications
	Water saving management system A water saving management system shall be developed consisting of: - A water saving management plan which stipulates the recommended schedule, methods and assessments for the inspection of the water facilities - A water monitoring system able to report the overall water consumption of the building and separately the water consumption of at least toilets, basins, showers, kitchen taps, white appliances, water for irrigation and cooling towers (if existing). The monitoring system shall allow for the identification of possible mismatches between the estimated and actual water consumption and the possible improvement potential during the use phase of the office building - A user's information system shall be established ensuring that the information regarding water consumption is distributed to and ideally imparted to at least the maintenance staff Verification After delivery of the building, the water saving management system as well as the information/communication system will be evaluated by the competent body or delegate.

	AWARD CRITERIA
	Rainwater and grey-water use Bidders must provide a proposal on how to maximise the use of rainwater and grey-water supply and return system of the building. The proposal will be rated according to the following criteria: - Design and quality of the technology including adaptability to the building design - Estimate percentage of overall water supply from rainwater and grey-water sources - Maintenance costs and durability of the product (installation and maintenance costs)

Explanatory notes
General note: It is recommended to evaluate which would be the best phase for including each of the proposed environmental criteria (architect's design competition, tendering procedure for construction works).
- Water saving installations – verification: in order to set the specifications and very compliance, the contracting authority should have an overview of the available technologies such as tap attachments and water flow restrictions on the market. The criteria can be adapted as necessary to fit the market availability
- Water saving installations – defining percentages: the level of ambition (x%) strongly depends on the market availability of the demanded technologies in the specific European region. Where the contracting authority is unfamiliar with the market situation, it is recommended to use this criterion in the award phase in order to set a realistic demand
- Rainwater and grey water use – specifications on the award phase: it is also possible to set minimum percentages of overall water supply for rainwater and grey-water sources, however the potential will vary considerably according to climatic conditions. Therefore local expertise would be needed to set appropriate levels

SUBJCT MATTER	SUBJECT MATTER
Construction and/or major renovation of high energy efficient office buildings with low environmental impact commuting facilities	
TECHNICAL SPECIFICATIONS	**TECHNICAL SPECIFICATIONS**
	Promotion of bicycles Dry bicycle storage space with slots shall made be available for at least 15% of the building users. The cycle storage shall be safe, secure and accessible. Showers, changing rooms and lockers shall be set up in sufficient quantify according to the number of bicycle storage space. **Verification:** Bidders must provide a description and graphical documents proving that a number of bicycles could be safely stored within the building or suitable adjacent structure. Moreover, the applicant shall provide an estimate of the number of people working in the office building, ensuring that at least 15% of them will be supported to commute by bicycle. Bidders must provide graphical documents proving that facilities, showers, changing rooms and storage cabinets are available in sufficient quantify.

3.2 EU GPP criteria for the contract performance clauses of office buildings	
Core criteria	**Comprehensive criteria**
SUBJECT MATTER	**SUBJECT MATTER**
Construction and/or major renovation of high energy efficient office buildings	
SELECTION CRITERION	**SELECTION CRITERION**
Exclusion of certain constructors Construction companies, which have repeatedly acted against environmental legislation and have been found guilty of grave professional misconduct as outlined in Articles 53 and 54 of Directive 2004/17/EC and Article 45 of Directive 2004/18/EC, will be excluded from the tendering procedure	**Exclusion of certain constructors** Construction companies, which have repeatedly acted against environmental legislation and have been found guilty of grave professional misconduct as outlined in Articles 53 and 54 of Directive 2004/17/EC and Article 45 of Directive 2004/18/EC, will be excluded from the tendering procedure
The construction contractor and/or property developers shall have sufficient past experience with sustainable building design. **Verification:** The contractor shall supply a list of the persons responsible for the project, indicating educational and professional qualifications and relevant experience. This should include persons employed by subcontractors where the work is to be sub-contracted. The contractor shall also supply a list of the projects the contractor has carried out over the last two years.	**The construction contractor and/or property developers shall have sufficient past experience with sustainable building design.** **Verification:** The contractor shall supply a list of the persons responsible for the project, indicating educational and professional qualifications and relevant experience. This should include persons employed by subcontractors where the work is to be sub-contracted. The contractor shall also supply a list of the projects the contractor has carried out over the last two years.
The contractor shall ensure that has relevant experience in - Optimal designing for the reduction of floor area needed for the same function - Energy efficient construction design, including if available specific energy demand per m^2 including heating, cooling, lighting, hot water and auxiliary equipment for previous construction - Water efficient construction design, including if available specific water demand per employee. - The use of less polluting energy sources - Installation of monitoring systems and the communication of mismatches to the end users. - Bioclimatic architecture, to achieve energy efficiency, thermal and optical comfort, etc - Use of LCA tools in the design - Use of low environmental impact construction materials - Achievement of good indoor air quality standards **Verification**: Statement by the contractor that the relevant adjustments and calibrations will be carried out.	**The contractor shall ensure that has relevant experience in** - Optimal designing for the reduction of floor area needed for the same function - Energy efficient construction design, including if available specific energy demand per m^2 including heating, cooling, lighting, hot water and auxiliary equipment for previous construction - Water efficient construction design, including if available specific water demand per employee. - The use of less polluting energy sources - Installation of monitoring systems and the communication of mismatches to the end users. - Bioclimatic architecture, to achieve energy efficiency, thermal and optical comfort, etc - Use of LCA tools in the design - Use of low environmental impact construction materials - Achievement of good indoor air quality standards **Verification:** Statement by the contractor that the relevant adjustments and calibrations will be carried out.
Technical capacity to take the necessary environmental management measures in order to ensure that the construction works are executed in an environmental friendly way	**Technical capacity to take the necessary environmental management measures in order to ensure that the construction works are executed in an environmental friendly way**

Bidders must demonstrate their technical capacity (either having the expertise within the company or by co-operation with experts) to put in place certain environmental management measures that meet the following requirements: - Ensuring effective protection of fauna and flora in the building area and its surroundings (where construction takes place in an environmentally sensitive area) - Measures to prevent any harmful waste and hazardous substance flows that may adversely impact the areas - Environmental management measures aimed at minimising waste production on the site, respecting noise regulations and avoiding traffic congestions - Measures to ensure energy and water efficiency **Verification:** Possible proof include EMAS and ISO 14001 certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European international standards concerning certification based on environmental management standards. Other means of evidence provided by the company that can prove the required technical capacity will also be accepted.	Bidders must demonstrate their technical capacity (either having the expertise within the company or by co-operation with experts) to put in place certain environmental management measures that meet the following requirements: - Ensuring effective protection of fauna and flora in the building area and its surroundings (where construction takes place in an environmentally sensitive area) - Measures to prevent any harmful waste and hazardous substance flows that may adversely impact the areas - Environmental management measures aimed at minimising waste production on the site, respecting noise regulations and avoiding traffic congestions - Measures to ensure energy and water efficiency **Verification:** Possible proof include EMAS and ISO 14001 certificates or equivalent certificates issued by bodies conforming to Community law or the relevant European international standards concerning certification based on environmental management standards. Other means of evidence provided by the company that can prove the required technical capacity will also be accepted.
Explanatory notes **- Experience of the architect in environmental construction:** judging the experience of the architect requires experience from the contracting authority. It may be appropriate to bring in external expertise and set up a jury that combines common knowledge to judge the experience statements of competing architects This list is indicative and can be expanded/reduced to fit the situation. It will be necessary for the authority to determine what appropriate past experience means **- Exclusion of grave professional misconduct.** Contracting companies can only be excluded if the national laws of a Member State include provisions on environmental laws and where the violation of such laws (and the final decision in this sense by a court) would constitute grave professional misconduct, bidders who have been convicted in this sense could be excluded (articles 53 and 54 of Directive 2004/17/EC and Article 45 of Directive 2004/18/EC) In procuring office buildings, contracting authorities may let separate contracts (covering, for example, design, construction, % of renovation, etc) to different contractors. In such cases, different contractors may therefore be responsible for ensuring that different criteria are met	

Cost Considerations

Life cycle costing

The contracting authority may optimally wish to carry out a life cycle cost assessment, or to require the bidder to carry out such an assessment. Such an assessment should include the initial cost of the installation, its estimated lifetime, replacement costs of office building and their estimated life, and energy (fuel and electricity) cost and water cost of the office building over its lifetime. The contracting authority will need to

define its winery (including fuel, electricity and those coming from alternative energy sources) price and the rate at which this increases, and its interest rate on investments.

It is recommended to apply a “total cost of ownership methodology” when awarding the contract. This means that instead of considering just the purchase price of the product when assessing the one offering best value for money, the contracting authority will consider the life cycle cost (LCC) over the estimated period of ownership of the building. This would cover the purchase price, the cost of maintenance and other services, the cost of energy and water consumption and other services (such as waste management) for the building, and any disposal costs. This will allow the authority to take into account environmental aspects in both the quality assessment (through environmental technical specifications and/or award criteria) and the price/investment (through inclusion of the Life cycle cost).