



Rialtas na hÉireann  
Government of Ireland



IRISH GPP  
CRITERIA:

**OFFICE BUILDING DESIGN,  
CONSTRUCTION AND  
MANAGEMENT**

# IRISH GPP CRITERIA: OFFICE BUILDING DESIGN, CONSTRUCTION AND MANAGEMENT



This document sets out the core and comprehensive GPP criteria for the design, construction and management of office buildings. For the purposes of these criteria an office building is defined as:

“A building whose primary function is to provide space for administrative, financial, professional or customer services. The office area must make up a significant majority of the total building’s gross area. The building may also comprise other types of spaces, like meeting rooms, training classrooms, staff facilities or technical rooms”<sup>1</sup>

The criteria have been developed based on a review of the 2016 EU GPP criteria, relevant Irish and European legislation and procurement practice, and a consultation with Irish public bodies and industry experts. **It is expected that these criteria will be further developed and extended to other building types in 2022, to reflect evolving policy and legislation regarding sustainable construction.**

Further context for the development of the criteria, and advice on how they can be applied and verified within tender procedures, is given in the accompanying EPA guidance document and in the EU GPP Training Toolkit.

The *EU GPP criteria for Office Buildings* cover the design, construction, use and demolition phase of buildings. They address energy efficiency, 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 construction: design team experience, monitoring and user aspects.

The EU GPP criteria focus on buildings as a system instead of just an accumulation of components. The criteria can be used in tendering procedures for the construction of new buildings, as well as for renovation and maintenance contracts. The Technical Background report informing the criteria can be accessed *here*.

A *Guidance document on the procurement of green office buildings* is also available from the European Commission.

Information on Ireland’s implementation of the Energy Performance of Buildings Directive (EPBD) is available *here*.

Up to date information on implementation of the nearly-zero energy building (nZEB) standard in Ireland is available on the SEAI website *here*.

Life-cycle impacts beyond energy, including e.g. embodied carbon in building materials, are addressed under the *Level(s) framework*.

<sup>1</sup> Source: [https://ec.europa.eu/environment/gpp/pdf/swd\\_2016\\_180.pdf](https://ec.europa.eu/environment/gpp/pdf/swd_2016_180.pdf)



## THE LEVEL(S) FRAMEWORK FOR SUSTAINABLE BUILDINGS

As legal requirements regarding energy-efficiency for buildings have been tightened, there is increasing focus on other environmental impacts within the construction sector. This includes everything from the extraction and processing of raw materials, to the impact of design on health and wellbeing, to construction and demolition waste. These impacts can be difficult to capture within procurement and planning process. As part of the *Renovation Wave*, the European Commission has launched an assessment and reporting framework that provides a common language for the sustainability performance of buildings, called *Level(s)*.

Level(s) promotes lifecycle thinking for buildings and provides a robust approach to measuring and supporting improvement from design to end of life, for both residential buildings and offices. It uses core

sustainability indicators, tested with and by the building sector, to measure carbon, materials, water, health and comfort, climate change impacts. It takes into account lifecycle costs and value assessments. Level(s) is open source and freely available to all. For all those in the sector, the challenges of cost control and environmental gain are met both by the reduction in energy, materials, and water use; and by future-proofing buildings. For those commissioning, designing, or occupying buildings, Level(s) helps them ensure that their high quality, fit-for-purpose buildings meet their cost and environmental objectives. In 2022, it is planned to publish new EU GPP criteria based on Level(s) for offices and schools – both new build and renovation. You can follow the criteria development process *here*.

## WHAT DO THE CRITERIA COVER?

The following table summarises the core and comprehensive criteria for office building design, building construction and building management. A merged cell indicates that the same criteria apply at core and comprehensive levels.

TOPIC	CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>A. ENVIRONMENTAL COMPETENCE OF THE PROJECT MANAGER, DESIGN TEAM AND CONTRACTORS</b>	SC1. Competencies of the project manager	
	SC2. Competencies of the design team	
	SC3. Competencies of the main construction contractor and specialist contractors	
	SC4. Energy management systems	
<b>B. DETAILED DESIGN AND PERFORMANCE REQUIREMENTS</b>	TS1. Minimum energy performance	TS1. Minimum energy performance
	TS2. Lighting control systems	TS2. Lighting control systems
	TS3. Building energy management system	TS3. Building energy management system
	TS4. Low- or zero-carbon energy sources	TS4. Low- or zero-carbon energy sources
	TS5. Staff travel plan and infrastructure	
	TS6. Recyclable waste storage	
	TS7. Water saving installations	
	TS 8.1 Thermal comfort conditions	TS 8.1 Thermal comfort conditions
	TS 8.2 Daylight and glare control	TS 8.2 Daylight and glare control
	TS 8.3 Ventilation and air quality	TS 8.3 Ventilation and air quality
	AC1. Enhanced energy performance	
	AC2. Low or zero-carbon energy sources	
	AC3. Impact of the main building elements: Environmental Product Declarations (EPDs)	AC3. Impact of the main building elements: Life-cycle Assessment
	AC4. Recycled content in concrete and masonry	AC4. Recycled content in concrete and masonry
	AC5. CO <sub>2</sub> e emissions from transport of aggregates	

TOPIC	CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>C. STRIP-OUT, DEMOLITION AND SITE PREPARATION WORKS</b>	TS1. Demolition waste audit and management plan	TS1. Demolition waste audit and management plan
<b>D. CONSTRUCTION OR MAJOR RENOVATION WORKS</b>	TS1. Sourcing of legal timber	
	TS2. Installation and commissioning of building energy systems	
	TS3. Site waste management	TS3. Site waste management
	TS4. Selection of fit-out materials and finishes	TS4. Selection of fit-out materials and finishes
	CPC1. Installation and commissioning of building energy systems	
	CPC2. Verification of recycled content	
	CPC3. Sourcing of legal timber	
	CPC4. Site waste management	
<b>E. HEATING, LIGHTING AND ENERGY RELATED PRODUCTS</b>	TS1. Heating equipment	TS1. Heating equipment
	TS2. Lighting	TS2. Lighting
	TS3. Energy-related products	TS3. Energy-related products
<b>F. COMPLETION AND HANDOVER</b>	TS1. Quality of the completed building fabric	TS1. Quality of the completed building fabric
	AC1. Installation and commissioning of low- or zero-carbon energy sources	
	CPC1. Quality of the completed building fabric	CPC1. Quality of the completed building fabric
	CPC2. Lighting control systems	
	CPC3. Building energy management system	
	CPC4. Installation and commissioning of low- or zero-carbon energy sources	
		CPC5. Air quality testing
<b>G. FACILITIES MANAGEMENT</b>	TS1. Building energy management system	
	TS2. Energy performance contract	
	TS3. Waste management system	
	CPC1. Energy performance contract	
	CPC2. Waste management	

## IRISH GPP CRITERIA - HOW TO READ THE TEMPLATE

<b>Scope</b>	Defines the products and services to which the criteria apply.
<b>Exclusions</b>	Identifies any related products or services which are not covered by the criteria.
<b>References</b>	The primary sources consulted to develop the Irish GPP criteria.
<b>Eco-labels</b>	Type I eco-labels and other labels which address relevant environmental characteristics of the products or services and may be used either to define GPP criteria, verify compliance or both. Labels with equivalent criteria must also be accepted.
<b>Legislation and Standards</b>	Relevant EU and Irish legislation which applies within the sector and International, European or Irish standards which may be referenced in technical specifications (accompanied by the words 'or equivalent').
<b>Notes</b>	Practical tips and advice on applying the criteria, and explanations of the environmental impacts being addressed.
<b>Core Criteria</b>	Criteria which can be applied by any Irish public body and which are expected to have minimal effect on costs or verification effort.
<b>Comprehensive Criteria</b>	Criteria which go beyond the core requirements to target enhanced environmental performance and may imply some additional costs or verification effort.
<b>Selection Criteria</b>	Criteria which operators must meet in order to be eligible for tender submission (in a two-stage procedure) or award (in an open procedure).
<b>Specification</b>	Minimum requirements which all tenders must meet. Where multiple specifications are included in the criteria, these may be used together (recommended) or separately.
<b>Specification - Variant</b>	An optional alternative to the specification, which allows alternative solutions to be considered.
<b>Award Criteria</b>	Criteria which target environmental performance beyond the minimum requirements of the specification. These may be qualitative or quantitative in nature and must be weighted for evaluation. It is up to the contracting authority to determine an appropriate weighting based on its priorities and the totality of criteria which it is applying in a specific tender.
<b>Contract Management</b>	Clauses which can be inserted into contracts in order to manage environmental aspects and promote progressive improvements in delivery.

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## HOW CAN THE CRITERIA BE APPLIED AND VERIFIED?

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Information about how each of the criteria can be verified is included. The different possible means of verification, including but not limited to **references** relating to previous contracts (supported by **CVs** for personnel proposed for the contract), **environmental management systems**, **third-party certification** for previous works completed, **environmental product declarations** (EPDs) and **energy performance ratings** in accordance with EN 15603 are explained in the guidance document. Please note that the verification methods form an essential part of the criteria and must be included in tender documents to ensure that suppliers are aware of how compliance with the criteria will be assessed. Some simple market research in advance of tendering should be sufficient to confirm that suppliers, products and services are available which meet the criteria and verification requirements.

**Environmental product declarations (EPDs)** – are based on life-cycle analysis and include information about a range of environmental impacts in

addition to carbon footprint. In Europe EPDs must conform to the standard EN 15804. Product Category Rules (PCRs) determine the information to be included and methodology, so that EPDs enable comparison between products fulfilling the same function. Further information about EPDs is available on the website of the *Irish Green Building Council*. *EcoPlatform* is a machine readable database of EPDs from across Europe. See *Annex 1* for further information.

Contracting authorities should consult the *Capital Works Management Framework* (CWMF) guidance documents which are aimed at supporting best-practice construction procurement in the Irish public sector, *Part L of the Building Regulations*, and the *nZEB* Standard.

The *EU GPP Helpdesk* may be contacted regarding the application of the criteria, or you may wish to consult other contracting authorities who have recently conducted tenders for similar projects.

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## OFFICE BUILDING DESIGN, CONSTRUCTION AND MANAGEMENT

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The criteria listed below are representative of the various stages of the construction procurement process but not all stages will be relevant for every tender.

### CRITERIA:

- A. Environmental competence of the design team and contractors
- B. Detailed design and performance requirements
- C. Strip-out, demolition and site preparation works
- D. Construction of the building or major renovation works
- E. Lighting, heating and energy-related products
- F. Completion and handover
- G. Facilities management

### NOTE ON RETENTION AND OTHER CONTRACTUAL REMEDIES

Where these or other criteria are applied which specify levels of environmental performance in the completed building, contracting authorities may wish to consider retaining a percentage of the contract payments pending verification that the required levels have been met. Retention is typically applied in respect of building defects, with the retained payments being released either on completion or following the expiry of the defects liability period. While retention can provide the client with important protection, it can also create cash flow problems for contractors and subcontractors and may even result in inflation in contract prices. The *Capital Works Management Framework* includes standard contract terms providing for retention and a *Model Form* providing for a retention bond. If it is proposed to apply retention in respect of environmental performance (for example, pending confirmation of compliance with any of the GPP criteria set out here) then this must be clearly highlighted in the contract with the mechanisms for verifying performance and resolving any disputes identified. The efficacy and efficiency of retention, in comparison with other contractual remedies, should be carefully considered. Further information is available [here](#).



**IRISH GPP CRITERIA: OFFICE BUILDING DESIGN, CONSTRUCTION AND FACILITIES MANAGEMENT**

<b>SCOPE</b>	<ol style="list-style-type: none"> <li>1. Buildings constituting offices which fall under the remit of specific planning regulations (office space generally considered to be within a range of 50 -80% of the overall building)</li> <li>2. Buildings that provide space for administrative, financial, professional and customer services</li> <li>3. Office spaces including meeting rooms, classrooms, staff rooms and technical rooms</li> <li>4. The supply of construction related services including services such as cooling, heating and ventilation and the provision of electricity</li> <li>5. Renovation projects where the total cost of the renovation works exceeds 25% of the value of the building, excluding the value of the land on which the building is situated</li> <li>6. Renovation works where more than 25% of the building envelope undergoes renovation</li> <li>7. Provision of energy services defined according to Directive 2012/27/EU</li> <li>8. Provision of facilities management services as defined according to EN 15221</li> </ol>
<b>NOT IN SCOPE</b>	<p>Parking areas that are located outside of the building's physical footprint or curtilage.</p>
<b>LEGISLATION AND STANDARDS</b>	<ul style="list-style-type: none"> <li>• Directive 2010/31/EU on <i>Energy Performance of Buildings</i> as amended by Directive 2018/844/EU (implemented by <i>S.I. 183/2019</i>)</li> <li>• <i>S.I. 496/1997</i> Building Control Regulations</li> <li>• <i>S.I. 497/1997</i> Building Regulations (as amended, in particular Part L as amended)</li> <li>• <i>Regulation (EU) 305/2011 on harmonised conditions for the marketing of construction products</i> (as amended)</li> <li>• <i>Regulation (EU) 995/2010 on placing timber and timber products on the market</i> (as amended)</li> <li>• Directive 2012/27/EU on <i>energy efficiency</i>, as amended by Directive 2018/2002</li> <li>• <i>S.I. 151/2011 European Union (Energy Efficient Public Procurement) Regulations 2011</i></li> <li>• <i>S.I. 366 of 2011 European Union (Energy Labelling) Regulations</i>, as amended by <i>S.I. 351 of 2014</i></li> <li>• <i>S.I. 454 of 2013 European Union (Ecodesign Requirements for certain energy related products) Regulations</i>, as amended</li> <li>• <i>S.I. No. 426/2014 - European Union (Energy Efficiency) Regulations 2014</i>, as amended by <i>S.I. No. 646/2016</i></li> <li>• Directive 2009/125/EC <i>establishing a framework for the setting of ecodesign requirements for energy-related products</i></li> <li>• Regulation (EU) 2017/1369 <i>setting a framework for energy labelling</i></li> <li>• ISO 14025 and EN 15804 on Environmental Product Declarations</li> <li>• ISO 14040/14044 and EN 15978 on Assessment of Environmental Performance of Buildings</li> <li>• ISO 13790 and EN 15603 on Energy Performance of Buildings</li> <li>• EN 15251 on design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics</li> <li>• EN 13779 on ventilation for non-residential buildings</li> <li>• ISO 50001 on energy management</li> </ul>



IRISH GPP CRITERIA: OFFICE BUILDING DESIGN, CONSTRUCTION AND FACILITIES MANAGEMENT

NOTES

**IMPLEMENTATION OF THE REVISED EPBD (2018/844/EU)**

Amendments to Part L of the Building Regulations (relating to the conservation of fuel and energy in dwellings) give effect to the European Union (Energy Performance of Buildings) Regulations 2019, published on 03 May 2019 (*S.I. 183 of 2019*). The regulations came into effect on 01 November 2019. The regulations transpose Directive 2010/31/EU of the European Parliament and of the Council on the energy performance of buildings (recast) as amended by Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018. The Directive sets requirements for Member States to improve the energy performance of buildings and make an important contribution to the reduction of greenhouse gas emissions. A revised Technical Guidance Document, L (Conservation of Fuel and Energy) Dwellings has been published to accompany the Regulations.

The Directive defines a Nearly Zero Energy Building (nZEB) as a building that has a very high energy performance. It states that the nearly zero or very low amount of energy required should be covered to a very significant extent by energy from renewable sources, including energy from renewable sources produced on-site or nearby. Article 9(1) of the Directive requires Member States to ensure that by 31 December 2020, all new buildings are nearly zero energy buildings. Under the previous 2011 regulations, a typical new dwelling is built to an A3 Building Energy Rating (BER). The nZEB requirements will equate to an A2 BER. This represents a 70% improvement in energy efficiency and a 70% reduction in CO<sub>2</sub> emissions compared to 2005. It also introduces 20% renewables as a percentage of the total building energy use.

The Directive requires that where major renovations (defined as a renovation where more than 25% of the surface envelope of the building undergoes renovation) are carried out on a building, the building should achieve a cost optimal energy performance at building level insofar as is technically, functionally and economically feasible. The cost optimal energy performance level is equivalent to a B2 BER.

The improvement in performance to this new nZEB standard is achieved by, among other things, advancing the air tightness performance of the building, which in turn requires more effective ventilation systems. An amendment to Part F (Ventilation) of the Second Schedule of the Building Regulations sets out minimum standards to provide effective and adequate means of ventilation in buildings in order to ensure good indoor air quality. A revised Technical Guidance Document, F (Ventilation) has been published to accompany the Regulations.

The main benefits of the new regulations include reduced energy bills, alleviation of fuel poverty, health improvements and reduced greenhouse gas emissions.

**Source:** *Department of Housing, Local Government and Heritage*

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REFERENCES

1. European Commission (2016) *EU GPP criteria for Office building design, construction and management and Technical background report*
2. European Commission (2016) *Procurement practice document: GPP for office buildings*
3. European Commission (2020) *Level(s): A Guide to Europe's New Reporting Framework for Sustainable Buildings*
4. European Commission (2020) *A Renovation Wave for Europe*
5. Irish Green Building Council (2020) *National Readiness Report: Ireland*
6. Irish Green Building Council (2018-2020) *Resources on Nearly Zero Energy Buildings*
7. Irish Green Building Council (2018) *Towards a Circular Economy in Construction*
8. SEAI (2020) *Information on Nearly Zero Energy Buildings*
9. Department of Housing, Planning and Local Government (2021) *Information on Energy Performance of Buildings Directive*
10. Dublin City Council, DCCAE and Dept of Housing (2018) *Repurposing existing fittings and non-structural elements in the construction of the Rediscovery Centre, Ballymun*

## GPP CRITERIA FOR OFFICE BUILDING DESIGN, CONSTRUCTION AND MANAGEMENT

### A ENVIRONMENTAL COMPETENCE OF THE DESIGN TEAM AND CONTRACTORS

#### SUBJECT MATTER

The construction of new office buildings to high energy and environmental performance standards; OR  
The carrying out of major renovations to existing office buildings or high energy and environmental performance standards

These criteria may form part of a selection procedure where the services of a project manager and/or a design team are procured by the contracting authority. The number and size of executed projects required to prove the experience should be proportionate to the tendered project.

#### CORE CRITERIA

#### COMPREHENSIVE CRITERIA

#### SELECTION CRITERIA

##### SC1. Competencies of the project manager

The proposed project manager [or other relevant role as defined in the project specifications] must demonstrate relevant competencies and experience in each of the following areas *[select as relevant to the specific contract]*:

- Project management of building contracts that have met or exceeded the environmental performance requirements set by clients;
- Specific experience in delivering similar projects which met the *[nearly zero energy/passive building/other relevant standard]* standard;
- Successful identification and management of the delivery of a range of environmental technologies and design innovations *[list any which are relevant]* required to deliver improved environmental performance and quality;
- Involvement in the financial appraisal of environmental technologies and design innovations as part of the delivery of projects;
- Projects that included the assessment of building environmental performance using multicriteria building assessment, reporting and certification schemes;
- Use of holistic assessment tools in the design, appraisal and specification of environmentally improved buildings, including LCC and LCA;
- Familiarity with environmental product declarations (EPDs) and experience in evaluating and comparing these;
- Management of design teams and contractors to deliver each of the above aspects.

**Verification:** Evidence in the form of project details and references related to relevant contracts in the previous five years in which the above elements have been carried out. *[The contracting authority may require a minimum number of previous contracts illustrating the above aspects according to the nature of the project.]* This shall be supported by CVs for personnel who will work on the project showing qualifications and experience directly related to the above elements. Where data/reports based on post-occupancy audits carried out by third parties is available, these should also be submitted.



CORE CRITERIA

COMPREHENSIVE CRITERIA

SELECTION CRITERIA

SC2. **Competencies of the design team**

The proposed design team must demonstrate relevant competencies and experience in each of the following areas *[select as relevant to the specific contract]*

- Delivery of projects with measured environmental performance that goes beyond minimum legal requirements;
- Energy efficient building fabric and services design for new-build or renovation projects *(select as appropriate)*, including if available measured energy performance data per m2 from completed projects including heating, cooling, lighting, hot water and auxiliary equipment;
- Specification and design of renewable and/or high efficiency energy generation equipment;
- Installation of Building Energy Monitoring Systems (BEMS), communication of how they work to building managers and their use to diagnose energy use patterns in buildings;
- Water-efficient building design, including measured water demand per employee from completed projects;
- Design specification and monitoring to address daylighting and glare, thermal comfort and indoor air quality;
- Bio-climatic architecture and passive design to provide good thermal and optical comfort, natural air purification etc.;
- Specification, procurement and installation of low environmental impact construction materials. To include reference to EPDs in compliance with ISO 14025 or EN 15804;
- Development and implementation of staff travel plans, including infrastructure for low emission vehicles and bicycles;
- Assessment of building environmental performance using multi-criteria building assessment and certification schemes;
- The use of holistic assessment tools in the design and specification of nearly zero energy buildings including LCC and LCA and comparative studies in compliance with ISO 14040/14044 or EN 15978.

**Verification:** Details of projects delivered in the previous five years in which each of the above elements have been carried out must be provided together with references/certificates of completion. *[The contracting authority may require a minimum number of previous contracts illustrating the above aspects according to the nature of the project.]* This shall be supported by CVs of personnel who will work on the project highlighting specific qualifications and experience of relevance to these areas. Where data/reports based on post-occupancy audits carried out by third parties is available, these should also be submitted.

**CORE CRITERIA**
**COMPREHENSIVE CRITERIA**
**SELECTION CRITERIA**
**SC3. Competencies of the main construction contractor and specialist contractors**

The proposed *[specify relevant discipline]* contractor must demonstrate relevant competencies and experience in each of the following areas *[select as relevant to the contract]*:

- Energy efficient building fabric and services, including if available measured energy demand per m2 from completed projects including heating, cooling, lighting, hot water and auxiliary equipment. This will have been applied in the context of new-build and/or renovation projects *(select as appropriate;)*
- Installation, commissioning and (as relevant) ongoing operation/maintenance of renewable and/or high efficiency energy generation equipment;
- Installation of Building Energy Monitoring Systems (BEMS) and communication of how they work to building managers;
- Installation of water efficient services, including if available measured water demand per employee from completed projects;
- Functioning passive design features to achieve low energy use and good thermal and optical comfort, etc. as evidenced by post-occupancy studies;
- Evidence of air tightness results on previous projects;
- Procurement, installation and verification of low environmental impact construction materials. Familiarity with EN15804 compliant EPDs;
- Supply chain management to ensure compliance with building assessment and certification systems and to support modelled resource efficiency;
- Successful implementation of demolition site waste management plans in order to minimise waste. Selection and knowledge of off-site treatment options;
- Installation of features to address daylighting and glare, thermal comfort and indoor air quality.

**Verification:** Details of projects delivered in the previous five years in which each of the above elements have been carried out must be provided together with references/certificates of completion. *[The contracting authority may require a minimum number of previous contracts illustrating the above aspects according to the nature of the project.]* This shall be supported by CVs of personnel who will work on the project highlighting specific qualifications, training and experience of relevance to these areas. Where data/reports based on post-occupancy audits carried out by third parties is available, this should also be submitted.

**SC4. Energy management systems *[suitable for selection of facilities managers or DBO contractors]***

Candidates must demonstrate relevant experience in implementing energy management systems, such as ISO 50001 or equivalent.

**Verification:** Candidates must provide energy management system certifications for sites they operate or have operated over the previous three years.

## B DETAILED DESIGN AND PERFORMANCE REQUIREMENTS

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS1. Minimum energy performance</b> New buildings must achieve a Building Energy Rating of A2 or better.</p> <p>Major renovations (defined as a renovation where more than 25% of the surface envelope of the building undergoes renovation) must achieve a Building Energy Rating of B2 or better.</p> <p><b>Verification:</b> The tenderer must submit information demonstrating that the building design complies with above requirements. This shall consist of the energy performance of the building calculated according to EN 15603 or equivalent. The calculation shall be verified by either a competent authority<sup>2</sup> or a building assessor certified to use the methodology.</p>	<p><b>TS1. Minimum energy performance</b> New buildings must achieve a Building Energy Rating of A1.</p> <p>Major renovations (defined as a renovation where more than 25% of the surface envelope of the building undergoes renovation) must achieve a Building Energy Rating of B1 or better. A dynamic thermal simulation model compliant with the ISO 13790 hourly method or equivalent shall be used to validate the heating and cooling performance. For major renovations input data reflecting surveyed construction details of the building shall be used.</p> <p><b>Verification:</b> The tenderer must submit information demonstrating that the building design complies with above requirements.</p> <p>This shall consist of the energy performance of the building calculated according to EN 15603 or equivalent, and validated by the results of modelling according to ISO 13790 or equivalent. The calculations shall be verified by either a competent authority<sup>6</sup> or building assessor certified to use the relevant methodologies and calculation methods.</p>
<p><b>TS2. Lighting control systems</b> The core Irish GPP criteria for lighting control systems, which incorporate the requirements of the Triple E Register, must be incorporated in the design.</p> <p><b>Verification:</b> The tenderer must submit information demonstrating that the building design complies with above requirements.</p> <p><b>NOTE:</b> <i>Additional requirements for lighting, heating equipment and energy-related products are set out in Section E</i></p>	<p><b>TS2. Lighting control systems</b> The comprehensive Irish GPP criteria for lighting control systems, which incorporate the requirements of the Triple E Register, must be incorporated in the design.</p> <p><b>Verification:</b> The tenderer must submit information demonstrating that the building design complies with above requirements.</p> <p><b>NOTE:</b> <i>Additional requirements for lighting, heating equipment and energy-related products are set out in Section E</i></p>

<sup>2</sup> A competent authority is a national, regional or local body that is designated to implement independent control of minimum building energy performance, energy performance certificates and building inspections.

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS3. Building energy management system</b></p> <p>A building energy management system (BEMS) shall be installed and commissioned that provides occupants and facilities managers with real-time information on the building's energy use by using networked sensors and a minimum of half hourly utility metering.</p> <p>The user interface shall allow for information on the buildings energy use to be analysed and downloaded by occupants and facilities managers without requiring significant training.</p> <p>The performance of key aspects of the building that can be controlled by the system shall be easy to adjust i.e. lighting, heating, cooling.</p> <p><b>Verification:</b> Tenderers shall provide specifications for the BEMS including information about the user interface. They shall additionally demonstrate how information will be displayed, reported and made available to at least the facilities and/or energy managers for the building.</p>	<p><b>TS3. Building energy management system</b></p> <p>A building energy management system (BEMS) shall be installed and commissioned that provides occupants and facilities managers with real-time information on the building's energy use by using networked sensors and a minimum of half hourly utility metering.</p> <p>The user interface shall allow for information on the buildings energy use to be analysed and downloaded by occupants and facilities managers without requiring significant training. Occupants shall also be able to adjust comfort conditions in zones of the building.</p> <p>The performance of key aspects of the building that can be controlled by the system shall be easy to adjust i.e. lighting, heating, cooling. Additionally, the system shall allow for:</p> <ul style="list-style-type: none"> <li>• Analysis and control of energy uses for different zones within the building (as a minimum for heating, cooling, lighting)</li> <li>• Performance optimisation according to ambient conditions inside and outside the building, and</li> <li>• Diagnosis of the reason for any deviations from design performance.</li> </ul> <p><b>Verification:</b> Tenderers shall provide specifications for the BEMS including information about the user interface. They shall additionally demonstrate how information will be displayed, reported and made available to at least the facilities and/or energy managers for the building.</p>
<p><b>TS4. Low or zero carbon energy sources</b></p> <p>Where the building's location offers the potential to connect to high efficiency and cost-effective alternative energy systems, the building's energy systems shall be designed to connect to this infrastructure.</p> <p><b>Verification:</b> Tenderers shall identify where existing infrastructure exists and determine whether it would be beneficial environmentally for the building to connect to this infrastructure. The primary energy savings shall be quantified.</p>	<p><b>TS4. Low or zero carbon energy sources</b></p> <p>A minimum of 10% of the primary energy demand for the building shall be supplied/generated by localised renewable energy sources or high efficiency and cost-effective alternative systems installed within the curtilage of the building or which are shared with other buildings.</p> <p><i>The minimum requirement could be varied depending on the local context. This could be set with reference to local planning policies and/or a scoping study for the site.</i></p> <p><b>Verification:</b> Tenderers shall provide designs and drawings for the energy systems to be installed together with calculations of their modelled energy generation and the net contribution to the building's primary energy use.</p>



**CORE CRITERIA**
**COMPREHENSIVE CRITERIA**
**TECHNICAL SPECIFICATIONS**
**TS5. Staff travel plan and infrastructure**

*The criterion on the Staff Travel Plan can be combined with an award criterion assessing the quality of the plan.*

A staff travel plan shall be developed for the building in consultation with the contracting authority, the local planning authority and relevant infrastructure providers. The plan shall identify specific measures that, taking into account the local context, may reduce the need for commuting to the building by private car and promote the use of more sustainable modes of transport, to include cycling and walking, public transport, low emissions vehicles, and car sharing.

As a minimum, space and infrastructure for the following modes of transport shall be integrated into the design of the building:

- Electric vehicles: Dedicated parking spaces together with associated electric recharging points;
- Bicycle storage: Secure, covered and easily accessible bicycle storage with e-bike re-charging points.

*The number of spaces in both cases should be set with reference to the contracting authority's targets for clean vehicle implementation and local conditions.*

**Verification:** Tenderers shall provide plans of the building showing the electric vehicle and bicycle storage space(s) and associated service points to be provided. In addition, the assumptions made in order to estimate the space provision shall be provided. Tenderers shall provide an outline of a staff travel plan.

**TS6. Recyclable waste storage**

Dedicated storage space shall be provided within the building, or within the curtilage of the building, to facilitate the segregation of recyclable materials and end-of-life products by occupiers (with reference to the requirements in Section F).

The waste collection area(s) shall be sized based on the likely level of occupation in order to accommodate sufficient containers to maximise recycling whilst also handling residual waste.

**Verification:** Tenderers shall provide plans of the building showing the space(s) that have been designated for waste segregation and collection as well as the assumptions made in order to estimate the space provision.

**TS7. Water saving installations**

All sanitary and kitchen water facilities shall be equipped with water efficient fittings that are in compliance with the specified criteria for sanitary tapware and toilets and flushing urinals.

EU GPP criteria for sanitary tapware: [ec.europa.eu/environment/gpp/pdf/criteria/sanitary/EN.pdf](https://ec.europa.eu/environment/gpp/pdf/criteria/sanitary/EN.pdf)

EU GPP criteria for toilets and urinals: [ec.europa.eu/environment/gpp/pdf/criteria/toilets/criteria\\_Toilets\\_en.pdf](https://ec.europa.eu/environment/gpp/pdf/criteria/toilets/criteria_Toilets_en.pdf)

**Verification:** See the respective EU GPP criteria documents

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS8.1 Thermal comfort conditions</b></p> <p>Design indoor temperature values (minimum room temperature in winter, maximum room temperature in summer) for the office building shall comply with at least category II in accordance with EN 15251 or equivalent. Annex A1 shall be referred to for mechanically cooled buildings and A2 for passively cooled buildings.</p> <p><b>Verification:</b> Tenderers must provide modelling data for the room temperatures demonstrating compliance with the above requirements.</p>	<p><b>TS8.1 Thermal comfort conditions</b></p> <p>Design indoor temperature values (minimum room temperature in winter, maximum room temperature in summer) for the office building shall comply with at least category II in accordance with EN 15251 or equivalent. Annex A1 shall be referred to for mechanically cooled buildings and A2 for passively cooled buildings.</p> <p>Compliance shall be demonstrated using dynamic thermal simulation modelling carried out according to EN ISO 13790 hourly method or equivalent.</p> <p><b>Verification:</b> Tenderers must provide modelling data for the room temperatures demonstrating compliance with the above requirements.</p>
<p><b>NOTE:</b> The above criteria on thermal comfort conditions may need to be adapted in the case of traditionally built buildings. Guidance on this is available from the <i>Department of Housing, Local Government and Housing</i>.</p>	
<p><b>TS8.2 Daylight and glare control</b></p> <p>Useable office space shall for 80% of the useable floor area achieve an average Daylight Factor of 1.5% for externally facing facades and 0.7% for interior facing facades. Both shall be measured at a working plane height which shall be defined by the contracting authority.</p> <p>Locations within the building that may be sensitive to glare shall be identified and control measures to limit direct or indirect glare in these locations shall be specified.</p> <p><b>Verification:</b> Tenderers must describe the modelling approach and provide data for daylighting conditions and glare identification together with a glare control strategy demonstrating compliance with the above requirements.</p>	<p><b>TS8.2 Daylight and glare control</b></p> <p>Dynamic modelling shall be used to demonstrate that during a year the useable office space achieves for a minimum of 55% of the occupied hours:</p> <ul style="list-style-type: none"> <li>• Spatial Daylight Autonomy of 300 lux on the working plane, and</li> <li>• A Daylight Glare Probability value of 40% for locations that exceed 1000 lux (without solar control measures installed)</li> </ul> <p>Both shall be measured at a working plane height which shall be defined by the contracting authority. DGP shall be measured for views of the windows at eye level. The contractor shall provide a summary report based on one years' modelling data for daylighting and glare levels.</p> <p><b>Verification:</b> Tenderers must describe the modelling approach and provide data demonstrating compliance with the above requirements.</p>
<p><b>NOTE:</b> For smaller buildings, dynamic modelling may not be necessary and simpler daylight factor calculations may be sufficient</p>	

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS8.3 Ventilation and air quality</b></p> <p>The ventilation system shall be specified to supply indoor air with a quality rating of IDA 2 according to EN 15251 or equivalent.</p> <p>In locations with poor outdoor air quality, the ventilation systems of the building shall be designed to ensure that clean air is supplied to the offices in compliance with the following criterion:</p> <ul style="list-style-type: none"> <li>• No air intake should be positioned on a façade or facades exposed to busy roads (roads to be indicated in the ITT). Where this is not possible, the opening should be positioned as high above the ground as possible. The design must comply with guidance A2.2 in EN 13779 or equivalent;</li> <li>• Ventilation system filters must comply with the specifications in table A.5 of EN 13779 or equivalent.</li> </ul> <p>Poor air quality is defined as outdoor air (ODA) class 2 or 3 according to EN 13779.</p> <p><b>Verification:</b> Tenderers must demonstrate compliance with the IDA quality rating criteria in EN 15251 or equivalent. Drawings and plans of the ventilation services detailing the air intake locations shall be provided. These shall be provided at the detailed design stage and upon completion. They shall also obtain local air monitoring data from the local public authority enabling classification of the location according to EN 13779.</p>	<p><b>TS8.3 Ventilation and air quality</b></p> <p>The ventilation system shall be specified to supply air with a quality rating of IDA 1 according to EN 15251 or equivalent.</p> <p>In locations with poor outdoor air quality the ventilation systems of the building shall be designed to ensure that clean air is supplied to the offices in compliance with the following criterion:</p> <ul style="list-style-type: none"> <li>• Air intakes shall be located at least 20 metres<sup>3</sup> from sources of poor air quality (as defined below). Where this is not possible, the opening should be positioned as high above the ground as possible. The design must comply with guidance A2.2 in EN 13779 or equivalent;</li> <li>• Ventilation system filters must comply with the specifications in table A.5 of EN 13779 or equivalent.</li> </ul> <p>Poor air quality is defined as outdoor air (ODA) class 2 or 3 according to EN 13779.</p> <p><b>Verification:</b> Tenderers must demonstrate compliance with the IDA quality rating criteria in EN 15251 or equivalent. Drawings and plans of the ventilation services detailing the air intake locations shall be provided. These shall be provided at the detailed design stage and upon completion. They shall also provide local air monitoring data from the local public authority enabling classification of the location according to EN 13779.</p>

<sup>3</sup> This should be the geometric distance measured over the surfaces of the public realm and the building and not a linear distance from point to point. Sometimes this may be referred to in Computer Aided Design (CAD) as a multiple or segmented line, or a polyline.

CORE CRITERIA	COMPREHENSIVE CRITERIA
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<p><b>AC1 Enhanced energy performance</b>  <i>This criterion supplements and encourages further performance improvements over and above the requirements of criterion TS1.</i></p> <p>Up to [X] marks will be awarded to tenders which achieve a Building Energy Rating better than the minimum levels specified in TS1. This means:</p> <ul style="list-style-type: none"> <li>• New buildings must achieve a Building Energy Rating of A1.</li> <li>• Major renovations (defined as a renovation where more than 25% of the surface envelope of the building undergoes renovation) must achieve a Building Energy Rating of B1 or better.</li> </ul> <p><b>Verification:</b> The tenderer must submit information demonstrating the energy performance of the building calculated according to EN 15603 or equivalent. The calculation shall be verified by either a competent authority<sup>4</sup> or a building assessor certified to use the methodology.</p>	
<p><b>AC2 Low- or zero-carbon energy sources</b>  <i>This criterion supplements and encourages improved performance over and above the requirements of TS4.</i></p> <p>Up to [X] marks will be awarded in proportion to the additional primary energy demand for the building to be supplied/generated by localised renewable energy sources or high efficiency alternative systems installed within the curtilage of the building or which are shared with other buildings.</p> <p><b>Verification:</b> The tenderer shall provide designs and drawings for the energy systems to be installed together with calculations of their modelled energy generation and the net contribution to the building's primary energy use.</p>	

<sup>4</sup> A competent authority is a national, regional or local body that is designated to implement independent control of minimum building energy performance, energy performance certificates and building inspections.

CORE CRITERIA

COMPREHENSIVE CRITERIA

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**AC3. Impact of the main building elements: Environmental Product Declarations (EPDs)**

*This criterion may be applied where a Bill of Quantities for a reference building is provided to bidders as the basis for comparison or where designs submitted by different bidders are to be compared as part of the competitive process.*

Up to [X] marks will be awarded based on the improvement in life cycle performance of the main building elements listed in Table A in comparison with a reference building or other competing designs.

NEW BUILD	RENOVATION
<ul style="list-style-type: none"> <li>• Foundations and substructures</li> <li>• The structural frame, including beams, columns and slabs</li> <li>• External walls, cladding and insulation</li> <li>• Floors and ceilings</li> <li>• Internal walls</li> <li>• Windows</li> <li>• Roofs</li> </ul>	<ul style="list-style-type: none"> <li>• External walls, cladding and insulation</li> <li>• Re-roofing and insulation</li> <li>• Windows</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p>

Table A. Scope of the building elements to be evaluated.

The performance shall be evaluated using Environmental Product Declarations (EPDs) that are in compliance with ISO 14025, EN 15804 or equivalent. The ITT must specify which of the following three methods shall be used for the evaluation:

- i. **Simplified option:** Aggregation of the Global Warming Potential (GWP) indicator results for each building element, declared as CO2 equivalent emissions;
- ii. **Indicator results option:** Aggregation of the EPD characterisation results (the LCA results for indicators) for each building element; or
- iii. **Score or rating option:** Aggregation of the weighted EPD scores or ratings (usually a numeric score or letter rating) for each building element.

**AC3. Impact of the main building elements: Life Cycle Assessment (LCA)**

*This criterion may be applied where a Bill of Quantities for a reference building is provided to bidders as the basis for comparison or where designs submitted by different bidders are to be compared during a competitive process. A technical evaluator specialised in LCA should assist in preparing the ITT and carry out a critical review of the submissions.*

Up to [X] marks based on the improvement in life cycle performance of the main building elements listed in Table B in comparison with a reference building or other competing designs. This shall be according to option 2 (based on an LCA) as presented below. The basis for the comparison and the option to be used shall be specified in the ITT.

NEW BUILD	RENOVATION
<ul style="list-style-type: none"> <li>• Foundations and substructures</li> <li>• The structural frame, including beams, columns and slabs</li> <li>• External walls, cladding and insulation</li> <li>• Floors and ceilings</li> <li>• Internal walls</li> <li>• Windows</li> <li>• Roofs</li> </ul>	<ul style="list-style-type: none"> <li>• External walls, cladding and insulation</li> <li>• Re-roofing and insulation</li> <li>• Windows</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p>

Table B. Scope of the building elements to be evaluated.

The performance shall be evaluated by carrying out a Life Cycle Assessment (LCA) of the building in accordance with ISO 14040/14044, EN 15978 or equivalent.

CORE CRITERIA	COMPREHENSIVE CRITERIA
AWARD CRITERIA	
<p><b>AC3. Impact of the main building elements: Environmental Product Declarations (EPDs)</b> (continued)</p> <p>The Product Category Rules (PCRs)<sup>5</sup> for the EPDs shall be specified in the ITT and all bidders must aggregate EPDs in accordance with <i>Annex 1</i>.</p> <p><i>Where analysis using EPDs is carried out prior to procurement of the main contractor, the design team shall provide the contracting authority with a summary of the key technical assumptions used so that they can be included in the tender specifications.</i></p> <p><b>Verification:</b> The tenderer shall provide a bill of materials for the proposed design and the EPD results, which shall be reported according to ISO 14025, EN 15804 or equivalent and verified by an independent third-party. The comparison with the reference building shall be written up in a concise technical report that compares the proposed design option(s) and calculates the improvement potential.</p> <p>The technical report shall describe how each of the points set out in <i>Annex 1</i> have been covered. Where results from a building assessment and certification system are used, the tenderer’s accredited building assessor must provide verification according to the methodology used by the system.</p> <p><i>The technical report shall be subject to a critical review by the contracting authority’s appointed LCA technical evaluator. The critical review shall follow the guidelines in Annex 3.</i></p>	<p><b>AC3. Impact of the main building elements: Life Cycle Assessment (LCA)</b> (continued)</p> <p><i>The ITT must specify which of the following methods shall be used for the evaluation:</i></p> <ul style="list-style-type: none"> <li><b>i. Impact Category results:</b> The aggregated characterisation results for each indicator obtained using the specified LCA method;</li> <li><b>ii. LCA tool score:</b> A single score obtained using a specified LCA tool; or</li> <li><b>iii. Building assessment scheme LCA score:</b> A normalised and weighted score derived from an LCA-based criterion within a specified building assessment and certification scheme.</li> </ul> <p>In each case the methodology shall include, as a minimum, the Lifecycle Impact Category Indicators specified in <i>Annex 2</i>.</p> <p><i>Where an LCA analysis is carried out prior to procurement of the main contractor, the design team shall provide the contracting authority with a summary of the key technical assumptions used so that they can be included in the tender specifications.</i></p> <p><b>Verification:</b> The tenderer shall provide a bill of materials for the proposed design and the LCA results, which shall be reported according to ISO 14044, EN 15978 or equivalent. The comparison with the reference building shall be written up in a concise technical report that compares the proposed design option(s) and calculates the improvement potential. The technical report shall describe how the ‘technical points to address’ (as set out in <i>Annex 2</i>) have been covered.</p> <p>Where the results from a building assessment and certification system are used, the tenderer’s accredited building assessor must provide verification according to the methodology used by the system.</p> <p><i>The technical report shall be subject to a critical review by the contracting authorities appointed LCA technical evaluator. The critical review shall follow the guidelines in Annex 3.</i></p>

<sup>5</sup> Product Category Rules define how life cycle assessment shall be carried out and verified for the purpose of compiling an EPD, so as to ensure consistency and comparability

CORE CRITERIA	COMPREHENSIVE CRITERIA
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<p><b>NOTE:</b> An alternative approach to evaluating the life-cycle impact of building components would be to base this on <i>Level(s) indicator 2.1</i> (Bill of quantities, materials and lifespans). This provides for a full EN15978 compliant LCA including the scope, to identify global warming potential. It would be advisable to apply this in conjunction with Level(s) indicator 6.1 on Life-cycle Costs (LCC). LCA in conjunction with LCC can help to reveal false economies – for example cheaper PVC windows that do not last as long as timber require shorter replacement cycles – resulting in the same or higher cost over time for inferior performance. To support application of the Level(s) indicators in tenders, the identification of baseline/reference materials is needed – RICS has published a list of <i>recommended baseline materials</i>. The Irish Green Building Council is developing Ireland-specific <i>generic data to supplement Environmental Product Declarations</i> when carrying out LCA.</p> <p>The publication of new EU GPP criteria for office buildings and schools in 2022 is expected to further align GPP with the Level(s) framework, and future editions of the Irish GPP criteria are likely to follow a similar approach. You can follow this process and provide input via this page.</p>	
<p><b>AC4. Recycled content in concrete and masonry</b></p> <p><i>This criterion may be used where a concrete and masonry structural solution is to be designed by all bidders. It is recommended to consider combining it with AC5 but should not be used if AC3 is applied.<sup>6</sup></i></p> <p><i>This criterion is applicable to office buildings with concrete structural frames, blockwork walls and in-fill and masonry internal and external walls.</i></p> <p>Up to [X] marks will be awarded to tenderers that achieve greater than or equal to 15% by value of recycled content and/or by-products<sup>7</sup> for the sum of the main building elements in Table C.</p> <p><i>(The minimum content requirement could be set higher if agreement is reached with the design team prior to tendering for the main contractor.)</i></p>	<p><b>AC4. Recycled or re-used content in concrete and masonry</b></p> <p><i>This criterion may be used where a concrete and masonry structural solution is to be designed by all bidders. It is recommended to consider combining it with AC5 but it should not be used if AC3 is applied.</i></p> <p><i>This criterion is applicable to office buildings with concrete structural frames, blockwork walls and in-fill and masonry internal and external walls.</i></p> <p>Up to [X] marks will be awarded to tenderers that achieve greater than or equal to 30% by value of recycled content, re-used content and/or by-products for the sum of the main building elements in Table D.</p> <p><i>(The minimum content requirement could be set higher if agreement is reached with the design team prior to tendering for the main contractor.)</i></p> <p><i>The contracting authority may choose to allocate more points to re-used content according to the local conditions. This could include favouring designs that re-use the primary load bearing structure of an existing building.</i></p>

<sup>6</sup> If specific local conditions and planning policies support the use of recycled content, the contracting authority can evaluate, on a case by case basis, the possibility to include a criterion on recycled content within the ITT alongside the holistic criterion B10.1 EPD/LCA. The assumptions and life cycle inventory data relating to the production and construction phase of the recycled materials would need to be included in the response to B10.1.

<sup>7</sup> A by-product is defined in art. 5 of the Waste Framework Directive as ‘A substance or object, resulting from a production process, the primary aim of which is not the production of that item.’

CORE CRITERIA	COMPREHENSIVE CRITERIA								
AWARD CRITERIA									
<p>AC4. <b>Recycled content in concrete and masonry</b> (continued)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #2c3e50; color: white;">NEW BUILD</th> <th style="background-color: #2c3e50; color: white;">RENOVATION</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>The structural frame, including beams, columns and slabs</li> <li>External walls</li> <li>Floors and ceilings</li> <li>Internal walls</li> <li>Roofs</li> <li>Foundations and substructure</li> </ul> </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>External walls</li> <li>Internal walls</li> <li>Re-roofing</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p> </td> </tr> </tbody> </table> <p>Table C. Scope of the building elements to be included.</p> <p>The recycled content shall be calculated on the basis of an average mass balance of recycled materials and/or by-products according to how they are produced and delivered to site (<i>as applicable</i>):</p> <ul style="list-style-type: none"> <li>For each ready mixed batch from which deliveries are dispatched to the construction site, in accordance with EN 12620 (aggregates for concrete) and EN 206 (concrete) or equivalent</li> <li>On an annual basis for factory made panels, columns, blocks and elements with claimed content levels, in accordance with EN 12620 (aggregates for concrete) and EN 206 (concrete) or equivalent</li> </ul> <p><b>Verification:</b> Tenderers must propose the total recycled content quantifying the proportional contribution of the total recycled content to the overall value of the specified building elements, based on the information provided by the producer(s) of the construction product.</p> <p>Tenderers must describe how the overall value will be calculated and verified, including, as a minimum, batch documentation, factory production control documentation and delivery documentation, and how third-party verification will be arranged during the construction phase.</p> <p><i>The ordering and delivery to site of these building elements should be verified in accordance with the contract performance clauses.</i></p>	NEW BUILD	RENOVATION	<ul style="list-style-type: none"> <li>The structural frame, including beams, columns and slabs</li> <li>External walls</li> <li>Floors and ceilings</li> <li>Internal walls</li> <li>Roofs</li> <li>Foundations and substructure</li> </ul>	<ul style="list-style-type: none"> <li>External walls</li> <li>Internal walls</li> <li>Re-roofing</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p>	<p>AC4. <b>Recycled or re-used content in concrete and masonry</b> (continued)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #2c3e50; color: white;">NEW BUILD</th> <th style="background-color: #2c3e50; color: white;">RENOVATION</th> </tr> </thead> <tbody> <tr> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>The structural frame, including beams, columns and slabs</li> <li>External walls</li> <li>Floors and ceilings</li> <li>Internal walls</li> <li>Roofs</li> <li>Foundations and substructure</li> </ul> </td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> <li>External walls</li> <li>Internal walls</li> <li>Re-roofing</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p> </td> </tr> </tbody> </table> <p>Table D. Scope of the building elements to be included.</p> <p>The recycled or re-used content shall be calculated on the basis of an average mass balance of recycled materials and/or by-products according to how they are produced and delivered to site (<i>as applicable</i>):</p> <ul style="list-style-type: none"> <li>For each ready mixed batch from which deliveries are dispatched to the construction site, in accordance with EN 12620 (aggregates for concrete) and EN 206 (concrete) or equivalent.</li> <li>Whole re-used products, including confirmation of their origin.</li> </ul> <p><b>Verification:</b> Tenderers must propose the total recycled content quantifying the proportional contribution of the recycled or re-used content to the overall value of the specified building elements, based on the information provided by the producer(s) of the construction product.</p> <p>Tenderers must describe how the overall value will be calculated and verified, including, as a minimum, batch documentation, factory production control documentation and delivery documentation, and how third-party verification will be arranged during the construction phase.</p> <p><i>The ordering and delivery to site of these building elements should be verified in accordance with the contract performance clauses.</i></p>	NEW BUILD	RENOVATION	<ul style="list-style-type: none"> <li>The structural frame, including beams, columns and slabs</li> <li>External walls</li> <li>Floors and ceilings</li> <li>Internal walls</li> <li>Roofs</li> <li>Foundations and substructure</li> </ul>	<ul style="list-style-type: none"> <li>External walls</li> <li>Internal walls</li> <li>Re-roofing</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p>
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CORE CRITERIA

COMPREHENSIVE CRITERIA

AWARD CRITERIA

AC5. **CO<sub>2</sub>e emissions from transport of aggregates**

*This criterion should not be used where AC3 is applied. It is recommended to consider combining this criterion with AC4 in order to achieve an overall environmental benefit. This should always be done based on an understanding of the local market conditions and by establishing and clearly specifying in the ITT a weighting of the two criteria that will ensure effective competition and reward bids that offer the best overall environmental performance.*

Up to [X] marks will be awarded based on reduction in the CO<sub>2</sub>e emission/tonne from the transport of aggregates<sup>8</sup> used in the main building elements listed in Table (e). Maximum marks will be awarded to the valid tender offering the lowest total CO<sub>2</sub>e emissions, with all other valid tenders being scored proportionately.

NEW BUILD	RENOVATION
<ul style="list-style-type: none"> <li>• The structural frame, including beams, columns and slabs</li> <li>• External walls</li> <li>• Floors and ceilings</li> <li>• Internal walls</li> <li>• Roofs</li> <li>• Foundations and substructure</li> </ul>	<ul style="list-style-type: none"> <li>• External walls</li> <li>• Internal walls</li> <li>• Re-roofing</li> </ul> <p>Where additional floors or building extensions are foreseen that account for &gt;25% of the existing useable floor area, the list of new-build elements shall also apply.</p>

Table E. Scope of the building elements to be included.

**Verification:** The tenderer shall provide a calculation of the CO<sub>2</sub>e/tonne from the transport of aggregates that are used in the specified building elements. The transport mode(s) shall be specified and the emissions factor for each transport mode multiplied by the relevant quantities of materials as stated in the Bill of Quantities.

<sup>8</sup> Aggregates can encompass: i) natural aggregates (such as sand, gravel, crushed rocks), ii) recycled aggregates (such as materials from Construction & Demolition Waste) and iii) secondary aggregates (such as slag and ashes from industrial processes)

## C STRIP-OUT, DEMOLITION AND SITE PREPARATION WORKS

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS1. Demolition waste audit and management plan</b></p> <p>A minimum of 55% by weight of the non-hazardous waste generated during demolition and strip-out works, and excluding excavations and backfilling, shall be prepared for re-use, recycling and other forms of material recovery. This shall include:</p> <ul style="list-style-type: none"> <li>i. Timber, glass, metal, brick, stone, ceramic and concrete materials recovered from the main building structures</li> <li>ii. Fit-out and non-structural elements, to include doors and their frames, flooring, ceiling tiles, gypsum panels, plastic profiles, insulation materials window frames, window glass, bricks, concrete in the form of blocks and precast elements, steel rebars.</li> </ul> <p>The contractor shall carry out a pre-demolition/strip-out audit in order to determine what can be re-used, recycled or recovered. This shall comprise:</p> <ul style="list-style-type: none"> <li>i. Identification and risk assessment of hazardous waste (including WEEE) that may require specialist handling and treatment, or emissions that may arise during demolition</li> <li>ii. A bill of quantities with a breakdown of different building materials and products</li> <li>iii. An estimate of the % re-use and recycling potential based on proposals for systems of separate collection during the demolition process</li> </ul> <p>The materials, products and elements identified shall be itemised in a Demolition Bill of Quantities. The contractor shall submit a pre-demolition/strip-out audit that contains the specified information. A system shall be used to monitor and account for waste arisings. The destination of consignments of waste and end-of-waste materials shall be tracked using consignment notes and invoices. Monitoring data shall be provided to the contracting authority.</p> <p><b>Verification:</b> Tenderers must submit a waste audit and management plan detailing how they will meet the above requirements.</p>	<p><b>TS1. Demolition waste audit and management plan</b></p> <p>A minimum of 80% by weight of the non-hazardous waste generated during demolition and strip-out works, and excluding excavations and backfilling, shall be prepared for re-use, recycling. This shall include:</p> <ul style="list-style-type: none"> <li>i. Timber, glass, metal, brick, ceramics and concrete materials recovered from the main building structures,</li> <li>ii. Fit-out and non-structural elements, to include doors and their frames, flooring, ceiling tiles, gypsum panels, plastic profiles, insulation materials window frames, window glass, bricks, concrete in the form of blocks and precast elements, steel rebars.</li> </ul> <p>The contractor shall carry out a pre-demolition/strip-out audit in order to determine what can be re-used, recycled. This shall comprise:</p> <ul style="list-style-type: none"> <li>i. Identification and risk assessment of hazardous waste (including WEEE) that may require specialist handling or treatment, or emissions that may arise during demolition</li> <li>ii. A bill of quantities with a breakdown of the different constituent building materials and products</li> <li>iii. An estimate of the % re-use and recycling potential based on proposals for systems of separate collection during the demolition process</li> </ul> <p>The materials, products and elements identified shall be itemised in a Demolition Bill of Quantities. The contractor shall submit a pre-demolition/strip-out audit that contains the specified information. A system shall be used to monitor and account for waste arisings. The destination of consignments of waste and end-of-waste materials shall be tracked using consignment notes and invoices. Monitoring data shall be provided to the contracting authority.</p> <p><b>Verification:</b> Tenderers must submit a waste audit and management plan detailing how they will meet the above requirements.</p>

## D CONSTRUCTION OR MAJOR RENOVATION WORKS

### CORE CRITERIA

### COMPREHENSIVE CRITERIA

#### TECHNICAL SPECIFICATIONS

#### TS1. **Sourcing of legal timber** *This technical specification should be combined with the contract performance clause CPC3*

All timber or timber products to be supplied under the contract must be legally harvested in accordance with Regulation (EU) 995/2010.

The contractor must provide information on:

- The operators or the traders (as defined in Regulation (EU) 995/2010) who will supply the timber and timber products used in the construction of the building.
- Evidence of the risk assessment and mitigation procedures put in place by the operator(s) first placing on the EU market the timber and timber products to be used in the construction of the building, in accordance with Article 6(1) (b) and (c) of Regulation (EU) 995 of 2010 as well as, where applicable, of the means whereby traders further down the supply chain ensure traceability, in accordance with Article 5 of Regulation (EU) 995 of 2010.

**Verification:** Tenderers must describe the systems which they have in place to ensure traceability of timber from its source and compliance with the above requirements.

#### TS2. **Installation and commissioning of building energy systems**

*Depending on the procurement route this may also apply to systems installed by a third-party energy services contractor (see Section E).*

The following systems shall be designed, installed and commissioned in conformance with the agreed designs and specifications:

- Heating, cooling and ventilation (HVAC)
- Low and Zero Carbon energy technologies
- Building Energy Management System (BEMS)
- Lighting controls

Each system shall be subjected to functional performance testing, including measurement of performance.

HVAC systems shall be in conformance with EN12599 or equivalent and, as relevant to other systems installed, other applicable EN, ISO or national standards, or their equivalent.

**Verification:** Tenderers must describe and commit to carrying out a functional performance testing routine in order to ensure that the systems perform within design parameters.

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS3. Site waste management</b></p> <p>Waste arisings during construction and renovation, and excluding demolition waste, shall be less than or equal to 11 tonnes per 100m<sup>2</sup> gross internal office floor area.</p> <p>A site waste management plan shall be prepared prior to the commencement of work on-site. The plan shall establish systems for the separate collection of materials on-site for re-use, recycling and other forms of recovery. The site waste management plan shall encompass:</p> <ul style="list-style-type: none"> <li>i. Construction products that form main building elements, including timber, glass, metal, brick, ceramics, concrete and inert waste, as well as associated packaging materials.</li> <li>ii. Construction products that form part of the building fit-out, including flooring, ceiling tiles, plaster and gypsum panels, plastic profiles and insulation materials, as well as associated packaging materials.</li> </ul> <p>Separate material collection for re-use, recycling and recovery shall respect the waste hierarchy in Directive 2008/98/EC.</p> <p><b>Verification:</b> Tenderers must submit a site waste management plan consisting of:</p> <ul style="list-style-type: none"> <li>i. A bill of materials with estimates for waste arisings based on good practices</li> <li>ii. Estimates of the % re-use potential based on separate collection during the construction process</li> <li>iii. An estimation of the % recycling and recovery potential based on separate collection</li> </ul> <p>A system must be implemented to monitor and account for waste arisings and to track the destination of consignments of waste. Monitoring data shall be provided to the contracting authority.</p>	<p><b>TS3. Site waste management</b></p> <p>Waste arisings during construction and renovation, and excluding demolition waste, shall be less than or equal to 7 tonnes per 100m<sup>2</sup> gross internal office floor area.</p> <p>A site waste management plan shall be prepared prior to the commencement of work on-site. The plan shall identify opportunities for waste prevention and shall establish systems for the separate collection of materials on-site for re-use, recycling and other forms of recovery. The site waste management plan shall encompass:</p> <ul style="list-style-type: none"> <li>i. Construction products that form main building elements, including timber, glass, metal, brick, ceramics, concrete and inert waste, as well as associated packaging materials.</li> <li>ii. Construction products that form part of the building fit-out, including flooring, ceiling tiles, plaster and gypsum panels, plastic profiles and insulation materials, as well as associated packaging materials.</li> </ul> <p>Separate material collection for re-use, recycling and recovery shall respect the waste hierarchy in Directive 2008/98/EC.</p> <p><b>Verification:</b> Tenderers must submit a site waste management plan consisting of:</p> <ul style="list-style-type: none"> <li>i. A bill of materials with estimates for waste arisings and the potential for waste prevention based on good practices</li> <li>ii. Estimates of the % re-use potential based on separate collection during the construction process</li> <li>iii. An estimation of the % recycling and recovery potential based on separate collection</li> </ul> <p>A system must be implemented to monitor and account for waste arisings and to track the destination of consignments of waste. Monitoring data shall be provided to the contracting authority.</p>
<p><b>NOTE:</b> Specifiers may wish to refer to <i>Level(s) indicator 2.2</i> regarding construction and demolition waste to develop and evaluate this criterion.</p>	

CORE CRITERIA	COMPREHENSIVE CRITERIA																													
TECHNICAL SPECIFICATIONS																														
<p><b>TS4. Selection of fit-out materials and finishes</b></p> <p>Each material and finish selected for the fit-out of the offices shall comply with the following emissions limits in table e below. This requirement shall apply to:</p> <ul style="list-style-type: none"> <li>• Ceiling tiles - Paints and varnishes</li> <li>• Textile floor and wall coverings</li> <li>• Laminate and flexible floor coverings</li> <li>• Wooden floor coverings</li> </ul> <p>All testing shall be on the as-finished product.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="background-color: #003366; color: white;">Product</th> <th colspan="2" style="background-color: #003366; color: white;">Emissions limits ug/m<sup>2</sup></th> </tr> <tr> <th style="background-color: #003366; color: white;">3 days</th> <th style="background-color: #003366; color: white;">28 days</th> </tr> </thead> <tbody> <tr> <td>TVOCs</td> <td>10,000</td> <td>&lt;2,000</td> </tr> <tr> <td>Formaldehyde</td> <td>—</td> <td>&lt;120</td> </tr> </tbody> </table> <p>Table F. Materials and finishes emission limits</p> <p><b>Verification:</b> The contractor must provide compliant test results for each material or finish installed. The determination of emissions shall be in conformance with CEN/TS 16516, or equivalent product testing standards or labels which use the European 'reference room' as the basis for testing.</p>	Product	Emissions limits ug/m <sup>2</sup>		3 days	28 days	TVOCs	10,000	<2,000	Formaldehyde	—	<120	<p><b>TS4. Selection of fit-out materials and finishes</b></p> <p>Each material and finish selected for the fit-out of the offices shall comply with the following emissions limits in table f below. This requirement shall apply to:</p> <ul style="list-style-type: none"> <li>• Ceiling tiles</li> <li>• Paints and varnishes</li> <li>• Textile floor and wall coverings</li> <li>• Laminate and flexible floor coverings</li> <li>• Wooden floor coverings</li> </ul> <p>All testing shall be on the as-finished product.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="background-color: #003366; color: white;">Product</th> <th colspan="2" style="background-color: #003366; color: white;">Emissions limits ug/m<sup>2</sup></th> </tr> <tr> <th style="background-color: #003366; color: white;">3 days</th> <th style="background-color: #003366; color: white;">28 days</th> </tr> </thead> <tbody> <tr> <td>TVOCs</td> <td>10,000</td> <td>&lt;1,000</td> </tr> <tr> <td>SVOCs</td> <td>—</td> <td>100</td> </tr> <tr> <td>Formaldehyde</td> <td>—</td> <td>&lt;40</td> </tr> <tr> <td> <b>Carcinogens</b> <ul style="list-style-type: none"> <li>• trichloroethylene</li> <li>• benzene</li> <li>• DEHP</li> <li>• DBP</li> </ul> </td> <td>&lt;10 sum total of the four substances</td> <td>&lt;1 for each substance</td> </tr> </tbody> </table> <p>Table G. Materials and finishes emission limits</p> <p><b>Verification:</b> The contractor must provide compliant test results for each material or finish installed. The determination of emissions shall be in conformance with CEN/TS 16516, or equivalent product testing standards or labels which use the European 'reference room' as the basis for testing.</p>		Product	Emissions limits ug/m <sup>2</sup>		3 days	28 days	TVOCs	10,000	<1,000	SVOCs	—	100	Formaldehyde	—	<40	<b>Carcinogens</b> <ul style="list-style-type: none"> <li>• trichloroethylene</li> <li>• benzene</li> <li>• DEHP</li> <li>• DBP</li> </ul>	<10 sum total of the four substances	<1 for each substance
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**NOTE:** Because fit-out can happen multiple times in a building's lifetime, the overall impact can be very high. Specifiers may wish to refer to *Level(s) indicator 2.3 Design for adaptability and renovation* to develop further requirements in this regard.

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>CONTRACT PERFORMANCE CLAUSES</b>	
<p><b>CPC1. Installation and commissioning of building energy systems</b>  <i>Depending on the procurement route, this criterion may also apply to systems installed by a third-party energy services contractor (see Section E).</i></p> <p>The following systems shall be installed and commissioned in conformance with the agreed designs and specifications:</p> <ul style="list-style-type: none"> <li>• Heating, cooling and ventilation (HVAC)</li> <li>• Low and Zero Carbon energy technologies</li> <li>• Building Energy Management System (BEMS)</li> <li>• Lighting controls</li> </ul> <p>Functional performance testing must be carried out as described in the specifications, including measurement of performance. The contractor shall provide a copy of the survey report or certificate confirming that testing of the building services has been carried out and providing data showing that the services perform within design parameters.</p>	
<p><b>CPC2. Verification of recycled content</b>            As materials are ordered and brought onto site, recycled content claims shall be verified for each batch of product.<sup>9</sup></p> <p>The contractor shall verify claims by obtaining information from supplier(s) of the construction products used. This shall include mass balance calculations supported by batch testing results, delivery documentation, factory production control documentation and/or third party inspection reports.</p>	
<p><b>CPC3. Sourcing of legal timber</b>  <i>Where possible, it is recommended that spot checks be carried out in cooperation with the competent authority responsible for implementation of Regulation (EU) 995/2010 – in Ireland this is the Department for Agriculture, Food and the Marine)</i></p> <p>The contracting authority is entitled to carry out spot checks regarding compliance with TS1 for all or a specified sub-set of the timber products used under the contract.</p> <p>Upon request, the contractor should provide evidence to demonstrate compliance with the EU Timber Regulation:</p> <p>In most cases – where the contractor is not the company first placing timber or timber products on the EU market but obtains such products from others (defined as a ‘trader’<sup>10</sup> in Regulation 995/2010), the contractor should provide the following information in respect of timber or timber products to be verified during the spot check:</p> <ul style="list-style-type: none"> <li>• The operators or the traders who have supplied the timber and timber products used in construction of the building</li> <li>• Documents or other information indicating compliance of those timber products with the applicable legislation</li> <li>• 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.</li> </ul>	

<sup>9</sup> ‘batch’ means a quantity of uniformly labelled product manufactured by the same mixing plant, under the same conditions according to a set mix design with the same input materials.

<sup>10</sup> ‘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

CORE CRITERIA	COMPREHENSIVE CRITERIA
CONTRACT PERFORMANCE CLAUSES	
<p>CPC3. <b>Sourcing of legal timber</b> (continued)</p> <p>In cases where the contractor places timber or timber products for the first time on the EU market for use in the construction project (defined as an ‘operator’<sup>11</sup> in Regulation 995/2010), the contractor should provide the following information in respect of timber or timber products covered by the spot check:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Name and address of the supplier of the timber and timber products</li> <li>• The country of harvest, and where applicable: <ul style="list-style-type: none"> <li>i. Sub-national region where the timber was harvested</li> <li>ii. Concession of harvest</li> <li>iii. Quantity (expressed in volume, weight or number of units)</li> </ul> </li> <li>• Documents or other information indicating compliance of those timber products with the applicable legislation</li> <li>• 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. This may include certification or other third party verified schemes.</li> </ul> <p>Timber covered by valid EU FLEGT or CITES licenses shall be considered to have been legally harvested according to Regulation (EU) No 995/2010.</p>	
<p><b>EXPLANATORY NOTE: SUSTAINABLE SOURCING OF TIMBER</b></p> <p><i>The EU GPP criteria do not include requirements on the sourcing of timber from sustainable forestry, for the following reasons:</i></p> <p>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. In this situation, it was not possible, within the framework of the EU GPP criteria development process, to provide a harmonised definition of sustainable managed forestry. 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.</p> <p>In Ireland, under Action 118 of the <i>Climate Action Plan</i> the Office for Public Works is called upon to ‘support and include stronger emphasis on the use of timber in public procurement and consider a “think wood first” policy in green procurement where practical’, in the context of a roadmap for lower-carbon buildings.</p>	

<sup>11</sup> ‘operator’ means any natural or legal person that places timber or timber products on the market.



CORE CRITERIA

COMPREHENSIVE CRITERIA

CONTRACT PERFORMANCE CLAUSES

**CPC4. Site Waste Management**

Operation of the agreed site waste management plan shall be monitored and reported on during progress of construction work on-site. This shall include data accounting for the weight of materials collected by the separate collection of materials on-site for re-use and recycling according to the scope described in the technical specifications.

A system shall be used to monitor and quantify waste arisings and materials segregated for recycling and re-use. It shall also track and verify the destination of consignments of waste. The monitoring and tracking data shall be provided to the contracting authority on an agreed periodic basis.

**NOTE:**

Specifiers may wish to refer to *Level(s) indicator 2.2* regarding construction and demolition waste to further develop this contract clause. In particular, the recovery and reuse of furnishings and fittings can have significant carbon savings as office furniture can account for as much as 30% of embodied greenhouse gas emissions in office buildings over a 40 year life-cycle. For further information please consult the *EPA page on construction and demolition waste and links*.



## E HEATING, LIGHTING AND ENERGY-RELATED PRODUCTS

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS1. Heating equipment</b></p> <p>The core Irish GPP criteria must be applied in relation to any of the following items of heating equipment supplied as part of the contract:</p> <ul style="list-style-type: none"> <li>• Gas, electric, liquid and solid fuel boilers, including biomass boilers, cogeneration (CHP) and trigeneration equipment</li> <li>• Water heaters</li> <li>• Electric and fuel-driven heat pumps</li> <li>• Steam systems</li> <li>• Solar thermal collectors</li> </ul> <p>The Irish GPP criteria covering the above products can be accessed on the EPA website.</p> <p><b>Verification:</b> The relevant evidence of installer professional competence, product Declarations of Conformity, Energy Labels and other proof required under the relevant criteria for lighting must be provided as part of the tender.</p>	<p><b>TS1. Heating equipment</b></p> <p>The comprehensive Irish GPP criteria must be applied in relation to any of the following items of heating equipment supplied as part of the contract:</p> <ul style="list-style-type: none"> <li>• Gas, electric, liquid and solid fuel boilers, including biomass boilers, cogeneration (CHP) and trigeneration equipment</li> <li>• Water heaters</li> <li>• Electric and fuel-driven heat pumps</li> <li>• Steam systems</li> <li>• Solar thermal collectors</li> </ul> <p>The Irish GPP criteria covering the above products can be accessed on the EPA website.</p> <p><b>Verification:</b> The relevant evidence of installer professional competence, product Declarations of Conformity, Energy Labels and other proof required under the relevant criteria for lighting must be provided as part of the tender.</p>
<p><b>TS2. Lighting</b></p> <p>The core Irish GPP criteria must be applied in relation to any of the following lighting equipment supplied as part of the contract:</p> <ul style="list-style-type: none"> <li>• Lighting audits (a professional service to assess lighting needs and assist in drafting specifications)</li> <li>• Lighting units</li> <li>• Lighting controls</li> <li>• Road lighting</li> <li>• Traffic signals</li> </ul>	<p><b>TS2. Lighting</b></p> <p>The comprehensive Irish GPP criteria must be applied in relation to any of the following lighting equipment supplied as part of the contract:</p> <ul style="list-style-type: none"> <li>• Lighting audits (a professional service to assess lighting needs and assist in drafting specifications)</li> <li>• Lighting units</li> <li>• Lighting controls</li> <li>• Road lighting</li> <li>• Traffic signals</li> </ul>

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS2. Lighting (continued)</b> The Irish GPP criteria covering the above products can be accessed on the EPA website.</p> <p><b>Verification:</b> The relevant evidence of installer professional competence, product Declarations of Conformity, Energy Labels and other proof required under the relevant criteria for lighting must be provided as part of the tender.</p>	<p><b>TS2. Lighting (continued)</b> The Irish GPP criteria covering the above products can be accessed on the EPA website.</p> <p><b>Verification:</b> The relevant evidence of installer professional competence, product Declarations of Conformity, Energy Labels and other proof required under the relevant criteria for lighting must be provided as part of the tender.</p>
<p><b>TS3. Energy-related products</b> The core Irish GPP criteria must be applied in relation to any of the following energy-related products supplied as part of the contract:</p> <ul style="list-style-type: none"> <li>• Air conditioners</li> <li>• Residential ventilation units</li> <li>• Cooking appliances (professional and household)</li> <li>• Dishwashers (professional and household)</li> <li>• Electronic displays and televisions</li> <li>• Refrigerating appliances (professional, household and vending machines)</li> <li>• Washing machines and tumble dryers (professional and household)</li> <li>• Vacuum cleaners</li> </ul> <p>The Irish GPP criteria covering the above products can be accessed on the EPA website.</p> <p><b>Verification:</b> The relevant evidence of installer professional competence, product Declarations of Conformity, Energy Labels and other proof required under the relevant criteria for lighting must be provided as part of the tender.</p>	<p><b>TS3. Energy-related products</b> The comprehensive Irish GPP criteria must be applied in relation to any of the following energy-related products supplied as part of the contract:</p> <ul style="list-style-type: none"> <li>• Air conditioners</li> <li>• Residential ventilation units</li> <li>• Cooking appliances (professional and household)</li> <li>• Dishwashers (professional and household)</li> <li>• Electronic displays and televisions</li> <li>• Refrigerating appliances (professional, household and vending machines)</li> <li>• Washing machines and tumble dryers (professional and household)</li> <li>• Vacuum cleaners</li> </ul> <p>The Irish GPP criteria covering the above products can be accessed on the EPA website.</p> <p><b>Verification:</b> The relevant evidence of installer professional competence, product Declarations of Conformity, Energy Labels and other proof required under the relevant criteria for lighting must be provided as part of the tender.</p>

## F COMPLETION AND HANDOVER

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>TECHNICAL SPECIFICATIONS</b>	
<p><b>TS1. Quality of the completed building fabric</b></p> <p>The building fabric and its construction shall be designed in order to ensure a high standard of air tightness. The design air tightness shall be 4 m<sup>3</sup>/ (h.m<sup>2</sup>) at 50 Pascals for new-build and 8 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for major renovations.</p> <p>Upon completion of the building, the lead contractor shall test the quality of the finished building fabric and its construction according to EN 13829 or equivalent in order to ensure that the design performance has been achieved.</p> <p><b>Verification:</b> Tenderers must provide a commitment to carry out, upon completion, testing of the airtightness of the building fabric and to address any defects that may arise.</p>	<p><b>TS1. Quality of the completed building fabric</b></p> <p>The building fabric and its construction shall be designed in order to ensure continuity of insulation and a high standard of air tightness. The design air tightness shall be 2 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for new-build and 5 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for major renovations.</p> <p>Upon completion of the building, the lead contractor shall test and evaluate the quality of the finished building fabric and its construction according to EN13187 and EN 13829 or equivalent in order to ensure that there are no defects and that the design performance has been achieved.</p> <p><b>Verification:</b> Tenderers must provide a commitment to carry out, upon completion, testing of the thermal integrity and airtightness of the building fabric and to address any defects that may arise.</p>
<b>AWARD CRITERIA</b>	
<p><b>AC1. Installation and commissioning of low- or zero-carbon energy sources</b></p> <p>Up to [X] marks will be awarded to tenderers that provide aftercare service over and above minimum warranty requirements to ensure that low- and zero-carbon energy sources function correctly.</p> <p><b>Verification:</b> The tenderer must outline the extent of the aftercare services expressed in terms of service level commitments and technical scope.</p>	
<b>CONTRACT PERFORMANCE CLAUSES</b>	
<p><b>CPC1. Quality of the completed building fabric</b></p> <p>The contractor shall test the quality of the finished building fabric and its construction to ensure that they meet the design specifications for air tightness. Where defects are identified, remedies must be proposed.</p> <p>A fan pressurisation test shall be carried out for at least 20% of the building's useable internal floor space demonstrating that the design air tightness is 4 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for newbuild and 8 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for major renovations.</p>	<p><b>CPC1. Quality of the completed building fabric</b></p> <p>The contractor shall test and evaluate the quality of the finished building fabric and its construction to ensure that they meet the design specifications for airtightness and continuity of insulation. Where defects are identified, remedies must be proposed.</p>

CORE CRITERIA	COMPREHENSIVE CRITERIA
<b>CONTRACT PERFORMANCE CLAUSES</b>	
<p><b>CPC1. Quality of the completed building fabric</b> (continued)</p> <p>The test shall be carried out in accordance with EN 13829 or an equivalent standard.</p> <p>Testing shall be carried out following practical completion of the building. The contractor must provide a copy of the survey report or certificate confirming that the building meets the air tightness requirement following a test carried out according to EN 13829 or equivalent.</p>	<p><b>CPC1. Quality of the completed building fabric</b> (continued)</p> <p>Testing shall take the form of a thermal imaging evaluation carried out in accordance with EN 13187 and a fan pressurisation test for at least 20% of the building's useable internal floor space demonstrating that the design air tightness is 2 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for new-build and 5 m<sup>3</sup>/(h.m<sup>2</sup>) at 50 Pascals for major renovations.</p> <p>A blower door test shall be carried out in accordance with EN 13829 or an equivalent standard.</p> <p>Testing shall be carried out following practical completion of the building. The contractor must provide a copy of the survey report or certificate confirming that the building meets the air tightness requirement following a test carried out according to EN 13829 or equivalent.</p> <p>There are no significant defects or irregularities in the construction details in accordance with EN 13187 or equivalent.</p>
<p><b>CPC2. Lighting control systems</b></p> <p>Lighting control systems must be designed, installed and commissioned in accordance with the Irish GPP criteria for lighting. The contractor shall provide an operational manual for the systems in electronic format.</p> <p>Training must be provided to the occupants and (where relevant) the facilities management provider on how to correctly use the systems. The interface with the BEMS shall also be addressed.</p> <p>The contractor must provide a copy of the survey report or certificate confirming that testing of the lighting systems has been carried out and providing data showing that the systems perform to within design parameters. They shall additionally confirm that the required materials and training have been provided.</p>	
<p><b>CPC3. Building energy management system</b></p> <p>The BEMS shall be commissioned in accordance with the technical specifications. The contractor must provide an operational manual for the Building Energy Management System (BEMS) in electronic format. Training on how to correctly use the BEMS must be provided to the occupants and (where relevant) the facilities management provider. This shall include use of the user interface to analyse and download energy data using accessible software tools.</p>	



CORE CRITERIA	COMPREHENSIVE CRITERIA
CONTRACT PERFORMANCE CLAUSES	
<p>CPC3. <b>Building energy management system</b> (continued)</p> <p>The contractor must provide:</p> <ul style="list-style-type: none"> <li>• A copy of the survey report or certificate confirming that testing of the BEMS has been carried out</li> <li>• Data showing that the systems perform within design parameters</li> <li>• Confirmation that the required materials and training have been provided.</li> </ul> <p><i>[contracting authority to specify remedies/penalties in the event of systems not performing to required levels]</i></p>	
<p>CPC4. <b>Installation and commissioning of low or zero carbon energy sources</b></p> <p>The low or zero carbon energy systems shall be commissioned in accordance with the technical specifications.</p> <p>The contractor must provide a copy of the survey report or certificate confirming that testing of the energy systems has been carried out and providing data showing that the systems perform within design parameters.</p> <p><i>[contracting authority to specify remedies/penalties in the event of systems not performing to required levels]</i></p>	
	<p>CPC5. <b>Air quality testing</b></p> <p>The contractor shall test the air quality within the building no more than four weeks following completion of the building fit-out with the specified materials and finishes complete and prior to occupation.</p> <p>Testing shall be carried out for each distinct room configuration in the building that accounts for &gt;10% of the office space. Two sample rooms with different façade aspects shall be tested per room configuration.</p> <p>The test results for each room specification tested in the building shall conform with the requirements in table G.</p>

CORE CRITERIA	COMPREHENSIVE CRITERIA								
CONTRACT PERFORMANCE CLAUSES									
	<p>CPC5. <b>Air quality testing</b> (continued)</p> <table border="1" data-bbox="1160 416 2024 866"> <thead> <tr> <th data-bbox="1160 416 1592 469">Substance (s) to be tested</th> <th data-bbox="1597 416 2024 469">Testing Parameters</th> </tr> </thead> <tbody> <tr> <td data-bbox="1160 472 1592 571">Total Volatile Organic Compounds (TVOC's)</td> <td data-bbox="1597 472 2024 571">&lt;500 µ/m3 (eight-hour average) in accordance with ISO 16017-2 or equivalent</td> </tr> <tr> <td data-bbox="1160 574 1592 673">Formaldehyde</td> <td data-bbox="1597 574 2024 673">&lt;100 µ/m3 (30 minutes average) in accordance with ISO 16000-3 or equivalent</td> </tr> <tr> <td data-bbox="1160 676 1592 866">Particulates</td> <td data-bbox="1597 676 2024 866">An eight-hour average for two particle sizes in accordance with ISO 7708 or equivalent: PM10: 50 µ/m3 PM2.5: 15 µ/m3</td> </tr> </tbody> </table> <p data-bbox="1160 900 1630 924">Table H. Parameters for office air quality testing</p> <p data-bbox="1160 943 2042 1054">The contractor shall carry out testing and provide test results demonstrating compliance with the required parameters. All measurements shall be taken during normal occupied hours and under design ventilation conditions in which the systems have been running for at least 12-24 hours prior to testing.</p> <p data-bbox="1160 1070 2042 1094"><i>[contracting authority to specify remedies/penalties in the event of non-compliance]</i></p>	Substance (s) to be tested	Testing Parameters	Total Volatile Organic Compounds (TVOC's)	<500 µ/m3 (eight-hour average) in accordance with ISO 16017-2 or equivalent	Formaldehyde	<100 µ/m3 (30 minutes average) in accordance with ISO 16000-3 or equivalent	Particulates	An eight-hour average for two particle sizes in accordance with ISO 7708 or equivalent: PM10: 50 µ/m3 PM2.5: 15 µ/m3
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<p><b>NOTE:</b> A requirement for a post-completion LCA would also verify that those materials that were specified at the design stage and used in the modelling were the materials that were used in construction. EPDs are product specific so substitutions can have effects on results.</p>									

## G FACILITIES MANAGEMENT

### CORE CRITERIA

### COMPREHENSIVE CRITERIA

#### TECHNICAL SPECIFICATIONS

##### TS1. Building energy management system

The facilities manager shall produce monthly reports for the occupier using data from the Building Energy Management System (BEMS). The arrangement shall be subject to a review on an annual basis.

The reports shall identify trends in energy use within the building, disaggregated so that heating, cooling and lighting can be identified on a seasonal basis as well as by zone or department. The reports shall include recommendations on remedial action and/or further energy savings that could be made.

**Verification:** Tenderers must submit the proposed format for the reports and procedures for remedying and improving performance where this falls below the specified levels.

##### TS2. Energy performance contract

The building operator or facilities manager (as appropriate) shall agree, based on the preliminary modelling of the building's energy consumption, limits on energy consumption associated with lighting, heating, cooling, ventilation and auxiliary power. This shall exclude predicted loads relating to the users such as servers and small power loads.

The contract shall be based on a minimum of ten years' averaged weather and degree days data for the location. The contract shall also define adjustments to account for possible future variations in occupancy, extreme weather events and market energy costs.

If energy usage exceeds these limits, the building operator or facilities manager *[as appropriate]* shall be liable for the additional costs. If energy usage is below these limits, the savings will be shared 50:50 *[or an alternative agreed apportionment of the savings]* with the contracting authority. The arrangement shall be subject to a review on an annual basis.

**Verification:** The building operator or facilities manager shall make a contractual commitment to the agreed arrangement, including the scope and energy limits. A process for independent collation and presentation of the annual data must be provided.

##### TS3. Waste management system

The contractor must implement systems that allow all occupiers to segregate paper, cardboard, glass, plastic and other materials for which local separate collection systems exist into separate streams for recycling. Batteries, ink and toner cartridges, IT equipment and furniture shall also be collected and arranged for re-use or recycling where possible.

**Verification:** Tenderers must submit a proposal for the systems to be used, including details of the waste streams, the segregation systems, working arrangements and contractors to be used.



CORE CRITERIA

COMPREHENSIVE CRITERIA

CONTRACT PERFORMANCE CLAUSES

**CPC1. Energy performance contract**

Energy data shall be independently collated so that the energy performance of the building can be monitored on an annual basis against the agreed energy consumption limits. The building operator or facilities manager shall arrange for the third-party collation of data from utility bills/meters and the Building Energy Management System.

This data shall be reviewed annually by both the operator and the contracting authority in order to determine the building energy consumption and the monthly profit/loss for the operator and public authority.

**CPC2. Waste management**

The contractor shall monitor and quantify on a [monthly or quarterly] basis the overall waste arisings and recycling rate for the building(s). The contractor shall provide the contracting authority with data and identify and implement steps to improve recycling rates and reduce residual waste.



## ANNEX 1: SUPPORTING GUIDANCE ON AGGREGATION OF EPDS

Environmental Product Declarations (EPDs) may be used by bidders to demonstrate how they will reduce the environmental impact of the construction of an office building. This brief guidance note describes:

- When EPDs can be used;
- The rules required to ensure that bids are comparable; and
- The technical support required for bid evaluation.

The need for conformity of EPDs with ISO 14025 or EN 15804 is also highlighted.

### 1.1 WHEN CAN THE EPD OPTION BE USED?

The use of this specification is only recommended where a comparison can be made against a reference building design and/or between different building designs. It is therefore relevant to the following procurement scenarios:

- Where the client already has a reference building design and bill of quantities that has been appraised in order to provide a guide price for comparison with bids;
- Where a design competition is to be used to encourage innovative building designs to be brought forward by design teams and/or contractors;
- Where building designs are required to demonstrate a defined level of environmental performance for specific building elements following rules with an existing building assessment and certification scheme.

In these scenarios, the aggregation of EPDs as the basis for evaluation of performance is appropriate.

### 1.2 CONFORMITY OF THE EPDS USED

EPDs shall be compiled for the listed building elements. These EPDs shall all have been selected from within the same Product Category Rules (PCRs). All EPDs must be in conformance with ISO 14025 or EN 15804 or equivalent. New primary data for building elements may be used to supplement these EPDs but shall be subject to LCA analysis according to the same PCRs. Some existing building assessment and certification schemes apply normalisation and/or weighting rules to EPD results in order to generate a comparative score or rating. As long as the main PCR rules are in compliance with ISO 14025 or EN 15804, these comparative scores or ratings may be used and each design shall be evaluated according to the system used with the same scheme.

### 1.3 WILL ADDITIONAL EXPERTISE BE REQUIRED TO EVALUATE BIDS?

In any bidding process for construction works, the procurer is likely to require supporting design and technical expertise in order to set requirements and evaluate designs. The procurer may wish to call upon expert input at two main stages:

1. Putting together the design brief and performance requirements: Bidders must be instructed on what technical requirements they should follow in order to ensure that the designs submitted are comparable.
2. Evaluating designs and improvement options: A technical evaluation of bidders' responses to this criterion should be carried out in order to support the award decision.

## 1.4 WHAT INSTRUCTIONS SHOULD BE GIVEN TO BIDDERS?

The following technical instructions should be incorporated into the ITT in order to ensure that bids are comparable. Where designs are to be evaluated against a reference building, this must be clearly stated and quantities of the specified building elements provided.

*Technical instructions for bidders using EPDs for building evaluations*

TECHNICAL POINT TO ADDRESS	WHAT THIS MEANS IN PRACTICE
A. <b>COMPARABILITY OF EPDS</b>	<p>The EPDs shall be selected from within the same Product Category Rules (PCRs). The PCR scheme must be specified in the ITT. Where the normalisation and/or weighting rules of an EPD system linked to an existing building certification scheme are to be used, each design shall be evaluated according to the same scheme and rules. The level of uncertainty shall be addressed by including:</p> <ol style="list-style-type: none"> <li>1. a qualitative assessment of the uncertainties based on the sources of background data, how it was obtained or compiled and what kind of process and technology it represents; as well as</li> <li>2. a quantitative assessment for the two most significant building elements identified from the analysis (see tables A and B in specifications)</li> </ol>
B. <b>COMPARISON ON THE BASIS OF FUNCTIONAL EQUIVALENCE</b>	<p>The declared unit, service life and assumptions relating to replacement lifespans shall be those defined within the PCR for the product or building element (see ISO 14025 or EN 15804). A common declared unit shall be used to present the results.</p>
C. <b>BUILDING ELEMENTS WITHIN THE SCOPE OF THE CRITERIA</b>	<p>The scope of the criteria shall, as a minimum, comprise the following building elements:</p> <ul style="list-style-type: none"> <li>• Foundations and substructures</li> <li>• The structural frame, including beams, columns and slabs</li> <li>• External walls and insulation</li> <li>• Floors and ceilings</li> <li>• Internal walls</li> <li>• Windows</li> <li>• Roofs</li> </ul>
D. <b>DEFINITION OF THE BUILDING'S LIFE CYCLE AND BOUNDARIES</b>	<p>EPDs that address cradle to grave shall be compiled. These EPD shall also consider the end of life recycling loads and benefits. Allocation for recycled or re-used materials shall be made according to the following rules: - Inputs (product stage): According to the rules in ISO 14044, Section 4.3.4.3. - Outputs (end of life or maintenance stages): According to the rules in EN 15804 section 6.4.3</p>
E. <b>RELEVANCE OF THE RESULTS TO THE WHOLE BUILDING</b>	<p>The declared unit for each EPD shall be multiplied by the appropriate quantity in the bill of materials. This is to ensure that the total environmental impact for each building design can be compared.</p>



TECHNICAL POINT TO ADDRESS	WHAT THIS MEANS IN PRACTICE
<p><b>F. LIFECYCLE IMPACT CATEGORY INDICATORS TO BE USED FOR EVALUATION PURPOSES</b></p>	<p>As a minimum, the impact category indicators (referred to as parameters) indicated in EN 15804 shall be used:</p> <ul style="list-style-type: none"> <li>• Global Warming Potential (GWP)</li> <li>• Formation potential of tropospheric ozone photochemical oxidants (POCP);</li> <li>• Depletion potential of the stratospheric ozone layer (ODP);</li> <li>• Acidification potential of soil and water (AP);</li> <li>• Eutrophication potential (EP);</li> <li>• Abiotic Resource Depletion Potential for elements (ADP_elements)</li> <li>• Abiotic Resource Depletion Potential of fossil fuels (ADP_fossil fuels)</li> </ul> <p>Other parameters describing resource use, waste and output flows identified by the EN 15804 can also be, partially or fully, included if they are not already covered within other GPP criteria that are specified, e.g. recycled content, renewable energy generation. A weighting system for the selected impact category indicators shall be applied to evaluate the overall results from the EPD indicators or ratings for the building elements. This system shall be selected by the contracting authority on the basis of:</p> <ul style="list-style-type: none"> <li>• A suitable existing weighting system giving a rating, such as those adopted in some verified PCR schemes,</li> <li>• A weighting system proposed by the LCA technical evaluator (see <i>Annex 3</i>).</li> </ul> <p>Where an LCA tool generates an aggregated score for the Office Building, only the result for these impact categories shall be taken into account.</p>

## ANNEX 2: SUPPORTING GUIDANCE FOR CARRYING OUT AN LCA ANALYSIS

Life Cycle Assessment (LCA) can be used by bidders in order to demonstrate how they have reduced the environmental impact of an office building's construction. This brief guidance note describes:

- When this approach can be used;
- The rules required to ensure that bids are comparable; and
- The technical support required for bid selection.

All use of LCA shall be carried out with reference to ISO 14040/ISO 14044 or EN 15978.

### 2.1 WHEN CAN THE LCA OPTION BE USED?

The use of LCA in procurement criteria is only recommended where a comparison can be made of improvement options against a reference building design and/or between different building designs. It is therefore relevant to the following procurement scenarios:

- Where the client already has a reference building design and bill of quantities that has been appraised in order to provide a guide price for comparison with bids;
- Where a design competition is to be used to encourage innovative building designs to be brought forward by design teams and/or contractors;
- Where building designs are required to demonstrate a defined level of performance for specific building components using an LCA-based calculation tool.

In these scenarios an LCA analysis can be made an requirement.

### 2.2 WILL ADDITIONAL EXPERTISE BE REQUIRED TO EVALUATE BIDS?

In any tender process for office buildings the procurer is likely to require supporting design and technical expertise in order to set requirements and evaluate designs. The procurer may wish to call upon this expertise at two stages in the procurement process:

1. When putting together the design brief and performance requirements: Bidders shall be instructed on what technical requirements they should follow in order to ensure that the designs submitted are comparable.
2. When evaluating designs and improvement options: A technical evaluation of tenderers' responses to this criterion should be carried out in order to support the procurer. A technical evaluator shall be required to carry out a critical review of each tenderers LCA analysis according to the guidance in *Annex 3*.

### 2.3 WHAT INSTRUCTIONS SHOULD BE GIVEN TO BIDDERS?

The following technical instructions should be incorporated into the ITT in order to ensure that bids are comparable. Where designs are to be evaluated against a reference building, this shall be clearly stated and the bill of materials provided.

*Technical instructions for bidders using LCA for building evaluations*

TECHNICAL POINT TO ADDRESS	WHAT THIS MEANS IN PRACTICE
<b>A. METHOD AND INVENTORY DATA</b>	<p>The impact assessment method and life cycle inventory (LCI) data to be used by each design team shall, be specified to ensure comparability. Verified primary data may be used to supplement gaps following the guidance in ISO 14040/14044 or EN 15978, and for data from EPDs ISO 14025 or EN 15804. The level of uncertainty shall be addressed by including:</p> <ol style="list-style-type: none"> <li>1. a qualitative assessment of the uncertainties based on the sources of background data, how it was obtained or compiled and what kind of process and technology it represents; as well as</li> <li>2. a quantitative assessment for the two most significant building elements identified from the analysis (see tables a and b in specifications)</li> </ol>
<b>B. COMPARISON ON THE BASIS OF FUNCTIONAL EQUIVALENCE</b>	<p>The following characteristics of the building shall be specified as a reference point for each design (see ISO 14040/14044 or EN 15978):</p> <ul style="list-style-type: none"> <li>• Relevant technical and function requirements, as described in the performance requirements</li> <li>• The envisaged pattern of use</li> <li>• The requested service life</li> </ul> <p>A common functional unit or reference unit shall then be used to present the results (see ISO 14044 or EN 15978). Service lifetime shall be considered in the definition of the functional unit.</p>
<b>C. DEFINITION OF THE BUILDING'S LIFE CYCLE AND BOUNDARIES</b>	<p>The boundary for the analysis shall be cradle-to-grave (see ISO 14040). In the case of a building refurbishment, design teams shall indicatively refer to Module B5 of EN 15978 'boundary for refurbishment'. Allocation for recycled or re-used materials shall be made according to the following rules:</p> <ul style="list-style-type: none"> <li>• <b>Inputs (product stage):</b> According to the rules in ISO 14044, Section 4.3.4.3.</li> <li>• <b>Outputs (end of life or maintenance stages):</b> According to the rules in EN 15804 section 6.4.3.</li> </ul>
<b>D. BUILDING ELEMENTS WITHIN THE SCOPE OF THE CRITERIA</b>	<p>The scope of the criteria shall, as a minimum, comprise the following building elements:</p> <ul style="list-style-type: none"> <li>• Foundations and substructures</li> <li>• The structural frame, including beams, columns and slabs</li> <li>• External walls and insulation</li> <li>• Floors and ceilings</li> <li>• Internal walls</li> <li>• Windows</li> <li>• Roofs</li> </ul>

TECHNICAL POINT TO ADDRESS	WHAT THIS MEANS IN PRACTICE
<p><b>E. LIFECYCLE IMPACT CATEGORY INDICATORS TO BE USED FOR EVALUATION PURPOSES</b></p>	<p>As a minimum, the impact category indicators indicated in EN 15978 shall be used:</p> <ul style="list-style-type: none"> <li>• Global Warming Potential (GWP)</li> <li>• Formation potential of tropospheric ozone photochemical oxidants (POCP);</li> <li>• Depletion potential of the stratospheric ozone layer (ODP);</li> <li>• Acidification potential of soil and water (AP); - Eutrophication potential (EP);</li> <li>• Abiotic Resource Depletion Potential for elements (ADP_elements)</li> <li>• Abiotic Resource Depletion Potential of fossil fuels (ADP_fossil fuels)</li> </ul> <p>Other indicators describing resource use, waste and output flows identified by the EN 15978 can also be, partially or fully, included if they are not already covered within other GPP criteria that are specified, e.g. recycled content, renewable energy generation. A weighting system for the selected impact category indicators shall be applied in order to evaluate the overall score. This system shall be selected by the contracting authority on the basis of:</p> <ul style="list-style-type: none"> <li>• A suitable existing weighting system, such as the weighting systems adopted in some national LCA schemes, or</li> <li>• A weighting system proposed by the LCA technical evaluator (see <i>Annex 3</i>).</li> </ul> <p>Where an LCA tool generates an aggregated scoring for the Office Building, only the result for the impact categories identified in EN 15978 shall be taken into account.</p>



## ANNEX 3: BRIEF FOR LCA TECHNICAL EVALUATOR

The role of the technical evaluator will be to assist the procurer in setting the ground rules for the tenderers, with reference to either Annex 1 or 2, depending on the option chosen. The technical evaluator shall propose and agree with the contracting authority the weighting of the LCIA indicator results, unless this is already predetermined in the technical specifications.

Once tenders have been received the technical evaluator will either:

- Carry out a check for how EPDs have been aggregated, or
- Carry out a critical review of the LCAs for methodological choices, data quality and comparability.

*The critical review will be carried out with reference to ISO 14044, section 6, and the following sections of the European Commission's Product Environmental Footprint (PEF) Recommendation (2013/179/EU): - Critical review (section 9, p-68) - Data collection checklist (Annex III) - Data quality requirements (section 5.6, p-36) - Interpretation of results (section 7, p-61).*



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