HQE RESIDENTIAL CERTIFICATION SCHEME

Technical requirements guide
For built and renovated residential buildings performance

HQE Residential Certified by CERQUAL Qualitel Certification

Version 02: January 2025

www.qualitel.org
136 Bd Saint Germain - 75006 Paris - France

NOTE

CONTENTS

0. Change record

Version number and date	Date of implementation	Main changes made
00 / 01/01/2023	01/01/2023	First application
02 01/01/2025	01/01/2025	Changes shown in violet in this document

1. Introduction

The HQE Residential certification scheme consists of 3 documents:

- Technical requirements guide
- Project Management and Governance guide
- Quality of Services and Information guide.

HQE Residential certification contributes to achieving 10 of the 17 Sustainable Development Goals (SDG) set by the United Nations to achieve a better and more sustainable future for all.

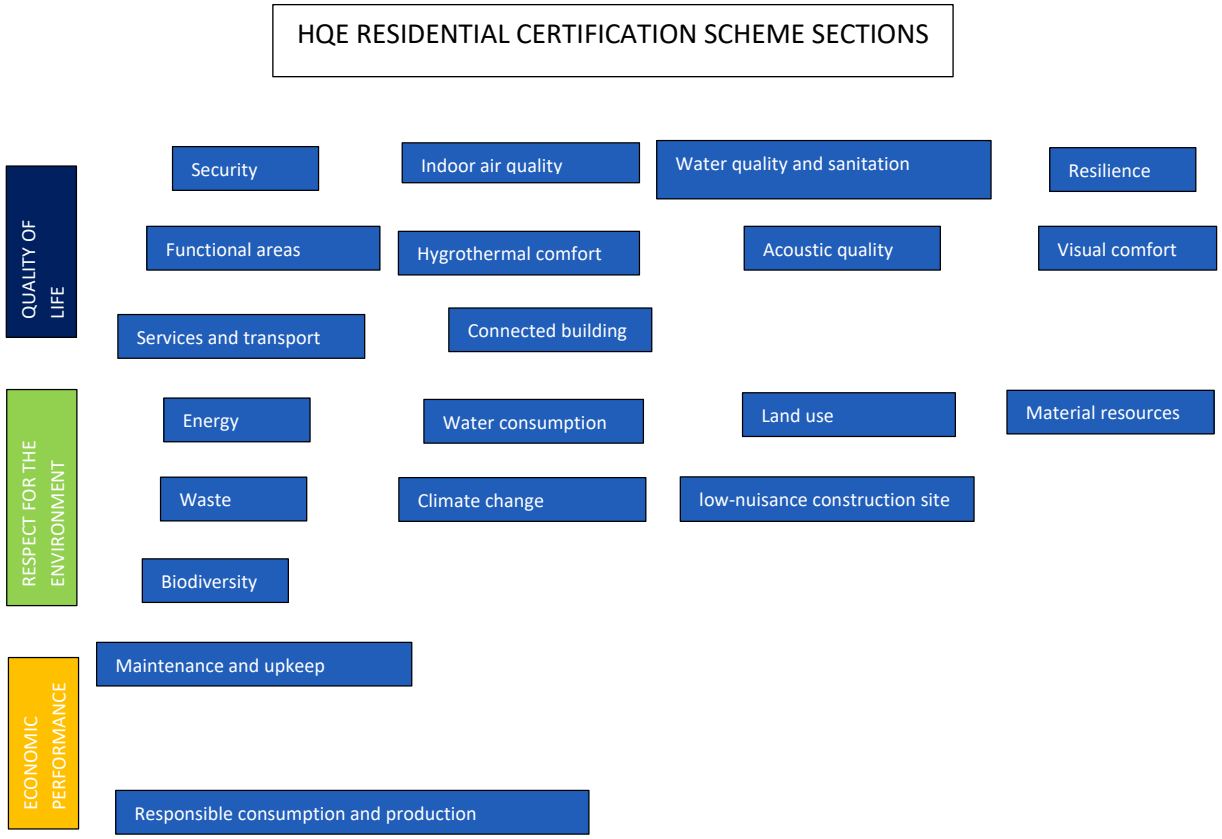
This document specifies the technical requirements for the performance of new-build and renovated residential buildings. It is part of the transition towards a circular economy, which is recognised as an objective of the energy and ecological transition.

The technical requirements are divided according to the 3 commitments and 20 sections of the sustainable building reference framework developed by Alliance HQE.

The HQE Residential certification scheme is developed taking into account ISO 15392 (Sustainability in buildings and civil engineering works - General principles) and ISO 20887 (Sustainability in buildings and

civil engineering works — Design for disassembly and adaptability — Principles, requirements and guidance).

In addition to the HQE levels, the certification scheme proposes a classification system enabling a property developer to justify that their building projects are EU Taxonomy aligned, defined by the delegated regulation (EU) 2021/2139 of 4 June 2021 and its updates, as long as they contribute to climate change mitigation or adaptation.



2. Rating system

Each requirement has a corresponding rating level. 4 levels are defined:

- PR level (PRE-REQUISITE)
- HQE level
- HQE level 2 points
- HQE level 3 points

To specify the assessment methods, for each requirement and for each audit type, examples are given of the types of evidence that can be provided by the Applicant during the various audits.
The types of evidence may include the following:

- Drawings;
- Supporting memos;
- Descriptive memos;
- Written commitments;
- Design calculations reports;
- Excel spreadsheets;
- Project specifications extracts;
- Construction works agreements;
- Site management documents;
- etc.

3. Calculation of the levels achieved for the certificate

3.1 Calculation of the level achieved per commitment

Each commitment is rated on a scale of 0 to 4 stars, depending on the score achieved under each section. The levels shown below are the **minimum number of points** required to obtain the stars.

Commitments	*	**	***	****
Quality of life 10 sections	All PR requirements met	All HQE requirements met	20 points to be validated from the 2 and 3-points of selected requirements	50 points to be validated from the 2 and 3-points of selected requirements
Respect for the environment 8 sections	All PR requirements met	All HQE requirements met	16 points to be validated from the 2 and 3-points of selected requirements	40 points to be validated from the 2 and 3-points of selected requirements
Economic performance 2 sections	All PR requirements met	All HQE requirements met	4 points to be validated from the 2 and 3-points of selected requirements	10 points to be validated from the 2 and 3-points of selected requirements

In Renovation, the HQE requirements apply only to the works programme.

3.2 Overall achieved level calculation

Four rankings are possible depending on the number of stars obtained on each entry.

Global level	Renovation	Construction
HQE performance	3 stars	Not available
HQE High-performance	6 stars	6 stars
HQE Excellent	7 to 9 stars	7 to 9 stars
HQE Exceptional	10 to 12 stars	10 to 12 stars

For an HQE Performant-certified renovation project, all PR level requirements applicable to the project must be compliant for the 3 commitments.

For an HQE High-Performance- certified project, all the PR level **and** HQE 1 point level requirements applicable to the project must be compliant for the 3 commitments.

For an HQE Excellent-certified project, all the PR level **and** HQE 1 point level requirements applicable the project must be compliant with the 3 commitments **AND** (as an example) 16 points must be validated from the 2 and 3 points requirements of the Respect for the environment commitment.

4. General provisions

Fitness for purpose	Level	Method of proof
DG.1 The Applicant chooses suitable products and equipment for: • the purpose of the building, communal areas, accommodations rooms accommodation and their occupants; • their environment: resistance to pests (wood-eating insects and wood-decaying fungi) and to climatic conditions (tropical, seaside, freeze/thaw, etc.); • recognition of their quality (certification, proof of standard compliance, technical Appraisals, etc.) in the relevant fields.	PR	Design audit: Project specifications, Construction works contracts, Written commitment from the applicant

Banned chemicals	Level	Method of proof
DG.2 Chemicals listed under the additional information heading are not used unless it has been proven that their use is essential for society.	PR	Design audit: Project specifications, Construction works contracts, Written commitment from the applicant

Additional information:

The chemical substances are those of the European Reference Standard for so-called "Sustainable" Activities or European Taxonomy in Annex 1 Appendix C:

The activity does not lead to the manufacture, market launch or use of:
a) substances listed in Annexes I or II to Regulation (EU) 2019/1021, on their own, in a mixture composition or in items, except in the case of substances present as an unintentional trace contaminant;
(b) mercury and mercury compounds, their mixtures and mercury-added products as defined in Article 2 of Regulation (EU) 2017/852;
(c) substances listed in Annexes I or II to Regulation (EC) 1005/2009, on their own, in a mixture composition or in items;
(d) substances listed in Annex II to Directive 2011/65/EU, on their own, in a mixture composition or in items, unless a full compliance with the Article 4(1) of this Directive;
(e) substances listed in Annex XVII to Regulation (EC) 1907/2006, on their own, in a mixture composition or in items, unless a full compliance with the conditions listed in that Annex;
(f) substances meeting the criteria set out in Article 57 to Regulation (EC) 1907/2006, on their own, in a mixture composition or in items, and identified in accordance with Article 59(1) of that Regulation, unless their use has been proven to be essential for the society;
(g) other substances, meeting the criteria set out in Article 57 to Regulation (EC) 1907/2006, on their own, in a mixture composition or in items, unless their use has been proven to be essential for the society.

5. Quality of life

5.1. Security

5.1.1. Safety of people

Securing roofing work	Level	Method of proof
SE.1.1: To facilitate maintenance work on the roof, guardrails or anchorage points and/or lifelines are integrated into the roof.	PR	Design audit: Project specifications, Construction works contracts. Execution audit: Check for the presence guardrails or anchorage points and/or lifelines .
Electrical safety	**Level**	**Method of proof**
SE.1.2: To ensure electrical safety: - Where there are local regulations relates to electrical installations, these are complied with. - Without local regulation, the IEC 60364 series of standards for low-voltage electrical installations is followed.	PR	Design audit: Project specifications, Construction works contracts.
Fire safety	**Level**	**Method of proof**
SE.1.3: Fire safety instructions are drawn up. It's based on: • local regulations where the exist, • or on the points defined in the additional information.	PR	Design audit: Fire safety instructions

Additional information:

The points to be covered in the safety instructions include at least:

- *rapid and safe evacuation of the residents (Including: alarm, evacuation plans, sufficient number and width of easily-manoeuvrable-signposted passageways, emergency lighting, fire resistance, smoke extraction);*
- *limiting the sources of the fire accident (from heating equipment, cooking appliances and including a technical installations monitoring);*
- *preventing flame spread (including: isolation from third parties, isolation of risk space, interior partitioning, fire behaviour of materials, smoke extraction);*
- *take measures to facilitate the action of the emergency services (routes accessible to emergency vehicles, accessible facades, smoke extraction, fire extinguishers, fire detection, security service, alert).*

If necessary, refer to the French Decree of 31 January 1986.

SE.1.4: Each accommodation housing unit is equipped with a smoke and carbon monoxide alarm.	PR	Design audit: Project specifications, Construction works contracts. Execution audit: Visual inspection to check the presence of a smoke and carbon monoxide alarm

5.1.2. Health and safety

Electromagnetic fields	Level	Method of proof
SE.2.1 Electricity meters and switchboards installed against a wall separating a sleeping space in the accommodation or in an adjoining housing unit accommodation.	HQE	Design audit: Floor plans with identification of the electricity meters and switchboards Execution audit: Visual inspection of the positioning of the electricity meters and switchboards
SE.2.2 At least one provision is taken to reduce the electromagnetic fields of the project: • Installation of shielded cables (reduced electric field) or twisted shielded cables (with 2 shielding) in the bedrooms and living room; • Use of shielded cable ducts in the bedrooms and living room; • Sockets in the living room for the internet connection not installed against a wall separating a sleeping space in the accommodation or in an adjoining accommodation; • Positioning of risers away from bedrooms, etc.	HQE 2 pts	Design audit: Project specifications, Construction works contracts.

5.1.3. Security

Anti-intrusion provisions	Level	Method of proof
SE.3.1 Instructions concerning the anti-intrusion measures taken in the common areas and accommodations are drawn up and take into account the following points: • Lighting of the surrounding areas, car parks, entrance hall • Perimeter enclosure • Access to the building (from the outside, from the car parks, from the cellars, from various storage rooms (bins, bicycles, etc.)) • Access to accommodations (resistance of walls between communal areas and accommodations, doors and openings, electronic surveillance, etc.)	PR	Design audit: Anti-intrusion provision instructions
SE.3.2 For a multi-unit building, the entrance to the building is equipped with an access control device (key door, badge, code lock, intercom, videophone, etc.)	PR	Design audit: Project specifications, Construction works contracts. Execution audit: Visual check of the presence of the access control system
SE.3.3 For multi-unit building, access control system is installed on the corridors leading from the car park to the accommodations (access control or equivalent) if the building has a car park inside the building. If this area is served by a lift, the lift should also restrict access.	HQE	Design audit: Project specifications, Construction works contracts. Execution audit: Visual check of the presence of the access control system
SE.3.4 To limit the access risk to the housing unit accommodation; the following will be installed: ➢ PR: a door meeting CR3 according to EN 1627 and equipped with a 3-point locking ➢ HQE 2 pts: a CR4 door according to EN 1627 and equipped with a 3-point locking system ➢ HQE 3 pts: a CR5 door according to EN 1627 and equipped with a 5-point locking system	PR HQE 2 pts HQE 3 pts	Design audit: Project specifications, Construction works contracts. Execution audit: Visual check, technical data sheet characterising the products

Anti-intrusion provisions	Level	Method of proof

Additional information:

Standard EN1627 classifies products according to their performance in terms of break-in resistance. Six classes are defined according to the type of tools used and the resistance time.

Resistance class CR	*Types of tools*	*Resistance time (min)*	*Total test time (min)*
1	*Small tools such as screwdrivers, spanners, pliers*	*-*	*-*
2	*Level 1 + wedges, saws, large screwdrivers*	*3*	*15*
3	*Level 2 + crowbar, hammer, pin driver, hand drill*	*5*	*20*
4	*Level 3 + sledgehammer, chisel, wood chisel, metal shears, axe, bolt cutter, cordless drill*	*10*	*30*
5	*Level 4 + hole saws, reciprocating saw, jig saws, disk saws*	*15*	*40*
6	*Level 5 more powerful and efficient*	*20*	*50*

SE.3.5 In accommodation: ➢ HQE 1 pt: An alarm system is installed. ➢ HQE 2 pts: A remote-monitoring alarm is installed.	HQE HQE 2 pts	Design audit: Project specifications, Construction works contracts. Execution audit: Visual check of the presence of the proper alarm system
SE.3.6 Ground-floor windows and any other accessible by architectural features (low wall, fence, climbable facade elements, etc.) are equipped with external protection (bars, burglar-proof glass, tilt-and-turn or jalousie window, louvered shutter, door guard).	HQE 2 pts	Design audit: Project specifications, Construction works contracts. Execution audit: Visual check

5.2. Air quality

5.2.1. Control of pollution sources

Identification and treatment of pollution sources	Level	Method of proof
QAI.1.1 If soil pollution is identified, the site is treated as part of the construction project.	PR	Design audit: Site analysis. Project specifications, drawings, Construction works contracts.
Additional information: *The identification of soil pollution corresponds to an inventory of the history of activities on the site and the potential associated pollutants.* *The sampling plan is defined in accordance with ISO 18400. Soil quality - Sampling.*		
QAI.1.2 For projects located in municipalities with a radon potential risk to the health of residents or with high radon concentrations >300Bq/m3: • An information document specifies the level of radon risk identified in the municipality and informs of the potential risks and good practices to be followed where applicable. The document is distributed to the residents and the property manager. • The units are ventilated in accordance with the local regulations. • In the case of on-grade construction, the soil/building interface is treated to ensure radon-tightness. • Crawl spaces, cellars or car parks must be ventilated. • Joints, network passages and cracks are sealed.	HQE 3 pts	Design audit: level of radon risk information document. Project specifications, Construction works contracts.
Additional information: *Radon is a radioactive gas produced by the breakdown of uranium or radium in the earth's crust. From soil and water, radon diffuses into the air and, due to the containment effect, is found in higher concentrations inside buildings than outside.* *Radon has been classified as a "carcinogenic to humans" by IARC since 1987.* *Radon measurements are carried out according to ISO 11665 - 2021 "Measurement of radioactivity in the environment - Air: radon-222".* *The WHO recommends a reference level of 100 Bq/m3 and recommends not exceeding the threshold of 300 Bq/m3.*		
QAI.1.3 In the kitchen, an air extraction duct independent of that provided for the ventilation system is available for connection to an extractor hood, while complying with the construction and installation rules concerning non-	HQE 2 pts	Design audit: Project specifications, drawings,

airtight gas appliances and wood stoves.In the kitchen, an air extraction duct independent of that provided for the ventilation system is available for connection to an extractor hood, while complying with the construction and installation rules concerning non-airtight gas appliances and wood stoves.		Construction works contracts.
QAI.1.4 Units are over-ventilated for a period of at least 1 week prior to building delivery.	HQE 3 pts	Design audit: Project specifications, drawings, Construction works contracts. Execution audit: Check the work schedule

Additional information:

For controlled mechanical ventilation or fan-assisted natural ventilation, over-ventilation can be achieved by forcing airflows to the maximum.
For a project that does not include mechanical ventilation or where the system is not connected before delivery, it is possible to manage over-ventilation by opening the windows, in accordance with the climatic conditions and the site working hours.

QAI.1.5 Measures are planned to prevent the entry of polluted outside air into the accommodations: • With CMV: position all air inlets more than 10 metres away from car parks; from a place that emits odours (household waste bin storage room, factory, etc.); from exhaust air vents. • Without CMV: identify the sources of pollution and analyse the wind patterns inside the accommodations and justify the positioning of windows and openings.	HQE 2 pts	Design audit: Layout plans and plans of the apartments with positioning of the air inlets. Layout and accommodation plans with wind routes.
Contribution of construction products to indoor air quality	**Level**	**Method of proof**
QAI.1.6 If there are local regulations governing asbestos materials, these are complied with. If there are no regulations: • Asbestos-containing materials are not permitted in Construction projects. • For Renovation operations, existing asbestos-contaminated or potentially asbestos-contaminated materials must not be defaced.	PR	Design audit: Project specifications, Construction works contracts.

QAI.1.7 Indoor floor coverings; indoor floor covering installation products; indoor wall and ceiling paints must comply with the following requirements: - formaldehyde emissions < 60 µg/m3 at 28 days ; - TVOC (Total Volatile Organic Compounds) emissions < 1500 µg/m3 at 28 days. These data are established in accordance with ISO 16000 standards, based on tests carried out by a laboratory accredited or in the process of being accredited in accordance with ISO 17025.	HQE 3 pts	Design audit: Project specifications, Construction works contracts. Execution audit: Provision of technical data sheets characterising the products used

Additional information:

The ISO 16000 series is used to characterises VOCs and/or formaldehyde emission from building, decoration and furnishing products. This characterisation is carried out in two stages:

- *Simulation of indoor air emission generation:*
  - *Emission test chamber method: ISO 16000-9*
  - *Emission test cell method: ISO 16000-10*
  - *Sampling, storage of samples and preparation of test specimens: ISO 16000-11*
- *Measurement of pollutants in indoor air:*
  - *Determination of formaldehyde by active sampling: ISO 16000-3*
  - *VOC determination by active sampling: ISO 16000-6*

ISO/IEC 17025 establishes the General requirements for the competence of testing and calibration laboratories.

QAI.1.8 Building components and materials used in the construction that may come into contact with occupiers emit less than: - 0.06 mg of formaldehyde per m^3 of material or component - 0.001 mg of other categories 1A and 1B carcinogenic volatile organic compounds per m3 of material or component.	HQE 2 pts	Design audit: Project specifications, Construction works contracts. Execution audit: For at least 1 product per category, check the test reports

Additional information:

Products concerned: paints and varnishes, ceiling tiles, floor coverings, including adhesives and associated sealants, interior insulation and interior surface treatments, such as those used to combat damp and mould.

The tests shall be carried out in accordance with the conditions specified in in Annex XVII to Regulation (EC) 1907/2006 -Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

QAI.1.9 : The components and construction materials used comply with the criteria set out in Appendix C of the European Taxonomy Regulation.	HQE 3 pts	Design audit: Project specifications, Construction works contracts. Execution audit: Provide 5 attestations from manufacturers that they comply with

		the criteria in Appendix C (for example in the following areas: floor and wall coverings, paints and varnishes, heat pumps, lighting equipment, etc.).

Additional information:

The chemical substances are those listed in the European reference framework for 'sustainable' activities or European Taxonomy in Appendix C.

5.2.2. Ventilation

Ventilation and venting equipment	Level	Method of proof
QAI.2.1 The local regulations on natural ventilation, fan-assisted natural ventilation or controlled mechanical ventilation are complied with. Otherwise, in the presence of a controlled mechanical ventilation • The system provides an air exchange rate of: • 0.5 vol/h from studio apartment to 2-bedroom unit. 0.7 vol/h from 3-bedroom unit. The kitchens, bathrooms and toilets each have a CMV extract unit. 0.7 vol/h from 3-bedroom unit. All the windows in the living rooms and bedrooms have an air inlet compatible with the chosen self-regulating ventilation system. 0.7 vol/h from 3-bedroom unit. All interior doors have a 2 cm undercut or a ventilation grill. 0.7 vol/h from 3-bedroom unit. Blackout devices (roller shutters, etc.) for windows in the closed position must not prevent the proper functioning of the air inlets.	PR	Design audit: Project specifications + design calculations report + Plan of the apartments with positioning of the extract units and air inlets. Project specifications + design calculations report + Plan of the apartments with positioning of the extract units and air inlets.
QAI.2.2 CMV or natural assisted ventilation calculations report is provided for multi-unit building.CMV or natural assisted ventilation calculations report is provided for multi-unit building.	PR	Design audit: CMV or natural assisted ventilation sizing calculations report.CMV or natural assisted ventilation sizing calculations report.
QAI.2.3 A self-check of the entire ventilation system is carried out to validate the compliance and proper functioning of the equipment including flow rate and pressure measurements.	PR	Design audit: Project specifications, Construction works contracts.

		Execution audit: Provisioning of the self-check report on ventilation system

Additional information:

Self-check includes:

- *Analysis of the available documentation relating to ventilation system of its parameters, characteristics and operating regime (drawings, data sheets, operation and maintenance manuals).*
- *On-site functional checks to assess the completeness and operational capability of the ventilation system. The checks show whether the various components of the system (e.g. fans, filters, heat exchangers) have been correctly assembled and installed, including moving parts. All the following points are checked:*
  - *all components have been installed and are in good condition;*
  - *the system has been installed correctly and in accordance with the*
  - *design and appropriate standards and regulations;*
  - *the ventilation system is clean and free of loose objects;*
  - *the ventilation system can be operated and serviced; and maintained*
  - *all the ventilation system components are accessible for operation and maintenance;*
  - *all controls are accessible.*
- *Functional measures to ensure that the system meets the design specifications for the following aspects of performance:*
  - *air flow rate and direction;*
  - *static pressure;*
  - *operating time for timed systems.*

  These measures depend on the ventilation system type.

QAI.2.4 For dual flow ventilation, at least one filter of the following class is installed: ➢ PR: ISO ePM10 > 50 % ➢ HQE: ISO ePM10 >70 % according to ISO 16890 or a filter of equivalent efficiency according to local standards. It is completed by a clogging detector with an audible or visual signal.	PR HQE	Design audit: Project specifications, Construction works contracts

Additional information:

ISO 16890 concerns the testing and classification method for air filters used in ventilation systems. It focuses on the filtration efficiency on different sizes of fine particles (PM1, PM2.5 and PM10) also used as assessment parameters by the WHO.
The new ISO 16890 standard divides air filters into four groups.

ISO ePM1	*ePM1,min ≥ 50 %*
ISO ePM2.5	*ePM2.5,min ≥ 50 %*
ISO ePM10	*ePM10,min ≥ 50 %*
ISO coarse	*ePM10,min ≤ 50 %*

The standard requires a filter to have a minimum efficiency of 50 % depending on the targeted particle size. For example, if a filter retains more than 50 % of PM1 particles, it will be classified as an ISO ePM1 filter.

PM1 refers to all fine particles smaller than 1 micron (one thousandth of a millimetre), for example:
1 µ (micron) = 0.001 mm (= PM1)
2.5 µ = 0.0025 mm (= PM2.5)

10 µ = 0.01 mm (= PM10) *Reminder: finer particles pose a greater threat for human health. More effective filters against PM1 provide better indoor air quality.*		
QAI.2.5 In a detached house, the main bathroom has an operable window. In multi-unit buildings, at least 50 % of the apartments has an operable window in the main bathroom.	HQE 2 pt	Design audit: Housing units layout plan Execution audit: Visual inspection to check the presence of opening windows in the main bathrooms

5.2.3. Indoor air quality assessment

Measures	Level	Method of proof
QAI.3.1 The indoor air quality is measured on receipt of the accommodations and before handing over the keys. If pollutant concentrations are found to be high, provisions are taken to reduce them.	HQE 2 pt	Design audit: Project specifications, Construction works contracts Execution audit: Measurement report

Additional information:

EN 15251 and PR EN 16978 provide indicative indoor air concentration limits for several pollutants. They are based on the WHO Indoor Air Quality (IAQ) guidelines for indoor exposure.
Applicants can implement indoor air quality measurements according to the protocol set up by the HQE Performance working group. The table below lists the selected pollutants.

The concentrations obtained can then be compared with the health reference values recommended by the World Health Organisation (WHO), the German Federal Environment Agency, the High Council for Public Health (HCSP).

Selected pollutant	*Health reference values*
Benzene	*Long-term value: 1.7µg/m3 - WHO standard*
Total Volatile Organic Compounds (TVOCs)	*Level 1: <300 µg/m3: target value, no impact on hygiene* *Level 2: > 300 - 1000 µg/m3: no specific impact however increased ventilation recommended.* *Level 3: > 1000 - 3000 µg/m3: some impacts on hygiene. Tolerated level for a maximum of 12 months. Source tracking, increased ventilation recommended.* *Level 4: > 3000 - 10000 µg/m3: major impacts. May not be tolerated for more than one month. Search for sources, increased ventilation required.* *Level 5: > 10000 - 25000 µg/m3: unacceptable situation. Use only if unavoidable for short periods (hours) only with intensive ventilation.* *Reference: Commission - Indoor Air Hygiene - of the German Federal Environment Agency*
Nitrogen dioxide (NO2)	*40µg/m3 - WHO standard*
Formaldehyde	*30 µg/m3: air quality standard value (High Council for Public Health - French HCSP)* *50 µg/m3: maximum permissible value for long-term exposure (HCSP)* *100 µg/m3: long-term value - WHO standard*
Radon (for the areas concerned)	*100 Bq/m3: recommended reference level* *300 Bq/m3: reference level which should not be exceeded* *WHO reference*
Carbon monoxide (CO) if source	*7 mg/m3 for 24-hour exposure* *10 mg/ m3 for 8-hour exposure* *35 mg/ m3 for 1-hour exposure* *100 mg/ m3 for 15-min. exposure* *Reference: WHO*
Particulate matter (PM 2.5 and PM 10)	*Short term: PM 10: < 50 µg/m3 and PM 2.5: < 25 µg/m3* *Long term: PM 10: < 20 µg/m3 and PM 2.5: < 10 µg/m3* *Reference: WHO*

5.3. Water quality and sanitation

5.3.1. Water supply

Water network	Level	Method of proof
QEA.1.1 If the water distributed by the network is intended for human consumption, each accommodation must have a non-return system (backflow preventer, non-return valve system, etc.) on the cold water supply and, if necessary, on the hot water supply if there is a collective DHW system.	PR	Design audit: Project specifications, Construction works contracts
QEA.1.2 For any contact with water intended for human consumption, the products are selected from the materials below: • Metals, alloys and copper, iron, aluminium and zinc-based metal coatings, • Materials based on hydraulic binders, glazes, ceramics and glass, • Organic materials with a certificate of conformity (equivalent to certificate of sanitary conformity validated by a recognised scientific body).	HQE	Design audit: Project specifications, Construction works contracts
DHW distribution	**Level**	**Method of proof**
QEA.1.3 In the case of collective production of DHW, a looping system is present up to the point of entry of the accommodations. (Unless it is demonstrated that looping is not necessary for the maintenance of water temperature for climatic reasons)	PR	Design audit: Project specifications, Construction works contracts

5.3.2. Sanitary quality of water

Flushing the pipes	Level	Method of proof
QEA.2.1 All water distribution systems are pressurised and flushed after installation and before the fittings are installed. This is the responsibility of the Plumbing contractor.	PR	Design audit: Project specifications, Construction works contracts
Knowledge of water	**Level**	**Method of proof**
QEA.2.2 For countries where the water distributed by the network is intended for human consumption:	HQE	Design audit: Project specifications, Construction works contracts

The water is analysed at the general meter at the base of the building or home and the water is analysed at the tap outlet after the works, rinsing and disinfection. In case of deviations from the local regulations or, if applicable, from the ISO 147 Water Quality standard, the Applicant shall take the necessary actions to correct them. These results should be communicated to future occupants. The tests will be carried out for each building, on the accommodation furthest from the building water supply point and on a randomly selected accommodation. For individual houses, a sampling rate of 5 % of the houses is retained, with a minimum of one house.		<u>Execution audit:</u> Provision of water analysis results
QEA.2.3 For countries where the water distributed by the network is not intended for human consumption: A water treatment system for human consumption is in place. 0.7 vol/h from 3-bedroom unit. The water is analysed at the general meter at the base of the building or home and the water is analysed at the tap outlet after the works, rinsing and disinfection. In case of deviations from the local regulations or, if applicable, from the ISO 147 Water Quality standard, the Applicant shall take the necessary actions to correct them. These results should be communicated to future occupants. The tests will be carried out for each building, on the accommodation furthest from the building water supply point and on a randomly selected accommodation. For individual houses, a sampling rate of 5 % of the houses is retained, with a minimum of one house.	HQE	<u>Design audit:</u> Project specifications, Construction works contracts <u>Execution audit:</u> Provision of water analysis results
QEA.2.4 Case of countries with regulations to limit the risk of legionella: Regulations must be complied with.	PR	<u>Design audit:</u> Project specifications, Construction works contracts
QEA.2.5 Case of countries without regulations to limit the risk of legionella: The risks relating to the development of legionella are limited to the points of use at risk (shower and bath) in the production and distribution of domestic hot water.	HQE 2 pts	<u>Design audit:</u> Project specifications, Construction works contracts

Additional information:

In order to limit the risks relating to the development of legionella from the points of use at risk (showers and baths) in the production and distribution installations of domestic hot water:

- *where the total volume of hot water storage equipment is equal to or greater than 400 litres, the temperature of the water at the point of supply must be at least 55°C at all times or be raised to a sufficiently high level at least every 24 hours. The distribution point is located at the outlet of the final storage tank when several tanks are installed in series,*
- *whatever the type of hot water production (with or without storage), when the volume between the point of distribution and the most distant drawing point is greater than 3 litres, the temperature of the circulating*

water must be at least 50°C at all points of the distribution system, with the exception of the final tubes supplying the drawing points, the volume of which must be as small as possible and imperatively less than or equal to 3 litres.

If necessary, refer to the French Decree of 30 November 2005.

5.3.3. Wastewater management and sanitation

Wastewater treatment	Level	Method of proof
QEA.3.1 If no connection to the collective sewage system is planned, a sewage system is set up to ensure the treatment of wastewater.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual check of the presence of a sewage system for the treatment of wastewater

5.4. Resilience

5.4.1. Handling of the main climatic hazards

Information for residents and managers	Level	Method of proof
RES.1 The climatic hazards with the most significant effects on the operation are identified. An information document specifying the procedures implemented in the building or by the community and/or the good practices to be followed in the event of climatic hazards identified as a priority are distributed to the inhabitants and the manager.	PR	Design audit: Site analysis AND Information document for the tenants. Execution audit: Check the presence of the information document for the tenants.
Coping with the effects of climatic hazards	**Level**	**Method of proof**
RES.2 The climatic hazards with the most significant effects on the operation are identified. At least one constructional or organisational measure is planned for the operation to reduce one or more of the effects **of a hazard** identified as a priority.	HQE	Design audit: Justification note including prioritisation of hazards and measures taken on the operation.
RES.3 The climatic hazards with the most significant effects on the operation are identified. A note presents the constructive or organisational measures (or a justification by calculation of constructive provisions) planned on the operation to reduce one or more effects of **each hazard** identified as a priority.	HQE 3 pts	Design audit: Justification note including prioritisation of hazards and measures taken on the operation.

Additional information:

The method of prioritising hazards should take into account:

- *"Vulnerability" of the site, which provides information on the current level of risk;*
- *"Occurrence forecast" which gathers information on climate projections (notably those of the Intergovernmental Panel on Climate Change - IPCC). The climate projection scenario and/or model will be clearly indicated.*

The hazard(s) to be addressed should be included in the following list:

	Temperature-related hazards	Wind-related hazards	Water-related hazards	Solid mass-related hazards
Chronic	Temperature changes (air, fresh water, seawater)	Changes in wind patterns	Changes in precipitation patterns and types (rain, hail, snow/ice)	Coastal erosion

	Thermal stress		Hydrological or rainfall variability	Soil degradation
	Temperature variability		Ocean acidification	Soil erosion
	Permafrost thawing		Seawater infiltration	Solifluction
			Sea level rise	
			Water stress	
Acute	Heat wave	Cyclone, hurricane, typhoon	Drought	Avalanche
	Cold wave/frost	Storm (including snow, dust, sand)	Heavy precipitation (rain, hail, snow/ice)	Landslide
	Forest fire	Tornado	Flooding (coastal, riverine, rainfall, groundwater rise)	Subsidence
			Glacial lake outburst floods	

RES.4: Depending on the identification of the hazards, the adaptation solutions implemented are communicated to the future manager. Indicative follow-up indicators for these solutions are created and communicated to the future manager. The future manager is informed that he/she must follow-up the adaptation solutions implemented, with associated indicators (those transmitted or others), and take them into account in his/her maintenance and upkeep programme.	HQE 3 pts	<u>Design audit:</u> Booklet given to the manager

5.5. Functional areas

5.5.1. Private areas

Wall coverings	Level	Method of proof
EF.1.1 Walls and partitions behind and to the side of a sanitary appliance (sink, bath, shower, washbasin, washbasin) are covered with a suitable covering. The covering must cover at least the linear length of the sanitary appliance.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspection to check the presence of the wall covering.
Floor coverings	**Level**	**Method of proof**
EF.1.2 The floor coverings of private outdoor areas (balconies, terraces, verandas) are non-slip.	HQE	Design audit: Project specifications, Construction works contracts Execution audit: Technical data sheet characterising floor coverings.
Additional information: *For example:* • *according to standard DIN 51130: slip rating R10* • *according to standard NF P05-011: slip rating PC10*		
Privacy of accommodation	**Level**	**Method of proof**
EF.1.3 A minimum percentage of the accommodations have a private outdoor space of at least 3 m² attached to the accommodation. • HQE: 70 % • HQE 3 pts: 100 % AND provision is made for the privacy of the home. For example: • Terraces and balconies are equipped with a screen, a fence, a pergola, vegetation, a privacy fence panel • If there are several buildings, balconies and terraces are not opposite each other.	HQE HQE 3 pts	Design audit: Ground plans and/or plans of the accommodations. Project specifications, Construction works contracts
Adaptability	**Level**	**Method of proof**

EF.1.4 50% of homes can be adapted by removing or adding partitions, without the need for operations on the water and electricity networks between: • HQE 2 pts: 2 main rooms OR the kitchen and living room (the closed kitchen must feature a window). • HQE 3 pts: 2 main rooms AND the kitchen and living room (the closed kitchen must feature a window). If a kitchen is partitioned off to create a closed kitchen, it features a window. For studio apartments and single-bedroom accommodations, direct daylight is accepted.	HQE 2 pts HQE 3 pts	Design audit: Drawings of the accommodations and drawings of the plumbing and electricity networks.
EF.1.5: The architectural, technical and regulatory provisions are designed to allow for the evolution of the building. It should be shown that the chosen structure potentially allows for changes of use through the following, for example: • Sufficient building thickness. • Sufficient height between levels. • Stabilisation of the structure (e.g. bracing) allowing a change of use. • Structural soundness and continuity, including foundations. • Structural frames allowing change of use.	HQE 3 pts	Design audit: Justification note of the building's development potential.

Additional information:

The supporting documentation is compliant with ISO 20887 Sustainability in buildings and civil engineering works - Design for disassembly and adaptability.

5.5.2. Common areas

Accessibility	Level	Method of proof
EF.2.1 Where regulations on accessibility and adaptability of the building to disabled and ageing people exist in the country, they must be complied with.	PR	Design audit: Project specifications, Construction works contracts, Applicant's commitment
EF.2.2 In case of existing regulations on accessibility and adaptability of the building to disabled and ageing people in the country:	HQE 2 pts	Design audit: Project specifications, Construction works

• at least two improvements beyond the regulations are made to the interior or exterior common areas and two improvements beyond the regulations to the private areas. OR • possible adaptations of the building are demonstrated (see additional information).		contracts + Specification note
EF.2.3 In the absence of regulations on accessibility and adaptability of the building to disabled and ageing people in the country: The planned and unplanned accessibility and adaptability of the building to disabled and ageing people are detailed with regard to: • Common areas: ○ outdoor pathways; ○ car parking; ○ access to the building; ○ internal horizontal corridors; ○ internal vertical corridors (stairs and lifts); ○ floor coverings. • Private areas: ○ doors (width, threshold); ○ control equipment and devices; ○ sanitary facilities. OR Demonstrate the possible adaptations of the building (see additional information).	HQE 2 pts	<u>Design audit:</u> Project specifications, Construction works contracts + Specification note

Additional information:

The demonstration of the adaptability of the building consists in indicating the possible modifications allowing for developments on the accommodation, of several accommodations and/or of the whole building: removal/addition of partitions without operations on the electricity or water network, fitting out of the attic, regrouping of accommodations, etc.

5.6. Hygrothermal comfort

5.6.1. Bioclimatic design

Bioclimatic design	Level	Method of proof
CH.1.1 Bioclimatic design is justified for each of the following topics: • Building/Envelope; • Orientation; • Solar gain management; • Natural ventilation.	PR	Design audit: Bioclimatic design justification note

5.6.2. Thermal discomfort

Thermal discomfort	Level	Method of proof
CH.2.1 All the vertical openings in living rooms and bedrooms have external systems. All the vertical openings in kitchens have external systems except on the least sunny orientation. All the horizontal or tilted openings (angle of the opening with the horizontal plane less than 60°) have external systems.	PR	Design audit: Project specifications, Works contracts, Plans Execution audit: Visual inspection of the installed occultations
Additional information: *External systems: installation of mobile external protection such as roller shutters, shutters, blinds, external opaque blinds, adjustable sunshades or any other architectural device that protects the openings from the sun. Architectural devices must be justified by an architectural study (Simulation of sunlight and shade to justify the efficiency of the protection on the openings).*		
CH.2.2 A Dynamic Thermal Simulation (DTS) is carried out for each type of building, justifying the representativeness of the selected buildings and the input data used (climatic scenario, technical characteristics of the building, occupancy and use scenario).	HQE	Design audit: Dynamic Thermal Simulation report Execution audit: Visual inspection of the equipment installed in accordance with the DTS.

Additional information:

This is a dynamic model of heat exchange in the building. It allows to evaluate the temperature changes in each room of the building and to calculate the consumption of the equipment. Numerous software packages allow this modelling, such as Pleïades Comfie, TRNSYS, etc.

Accepted DTS software and assumptions about DTS inputs.

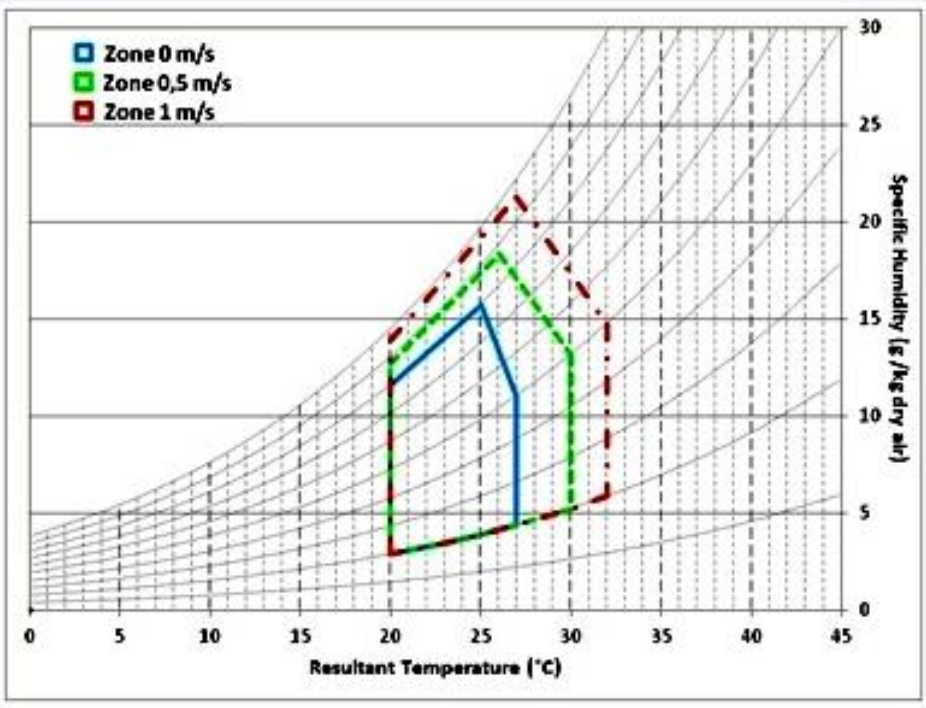
CH.2.3 In the case of non-air-conditioned main rooms (living room and/or bedrooms), the resulting temperature and humidity combination does not exceed the Givoni polygon by more than x% of the annual occupancy time for the country concerned: ➢ HQE: 40 % ➢ HQE 2 pts: 30 % ➢ HQE 3 pts: 20 %	HQE HQE 2 pts HQE 3 pts	<u>Design audit:</u> Design report

Additional information:

The DTS calculation provides the temperature and humidity conditions of the interior spaces at a given time, which can be plotted on a diagram.

The Givoni area should also be shown on the same diagram. The temperature/hygrometry pairs allow a representation of the number of annual hours in the Givoni area.

The Givoni comfort area is represented by the inner surface of the polygon below, depending on the chosen air speed. The latter is determined according to the characteristics of the project, its location and the climate scenario.



5.6.3. Passive systems

Passive systems	Level	Method of proof
CH.3.1 The accommodations are dual aspect or bi-orientated in the amount of: ➢ HQE 2 pts > 40 % of 2-bedroom accommodations and above. ➢ HQE 3 pts > 60 % of 3-bedroom accommodations and above and no studio apartment/1-bedroom accommodations present on the sunniest orientation.	HQE 2 pts HQE 3 pts	Design audit: Drawing of levels and facades
Additional information: *According to the definition of the Decree of 4 August 2021 (RE2020), an accommodation is said to be a dual aspect accommodation, in relation to summer comfort, if, for each orientation (vertical north, vertical east, vertical south, vertical west and horizontal), the surface area of the openings is less than 75 % of the total surface area of the openings in the accommodation.* *An accommodation is said to be bi-orientated if it is exposed to two orientations.*		
CH.3.2 From 2-bedroom accommodation upwards, all the living rooms of the accommodations have opening surfaces giving onto the outside or onto a common open-air corridor (without taking into account the openings of the rooms containing a lavatory) located on the opposite facades.	HQE 3 pts	Design audit: Drawing of levels and facades
CH.3.3 Choice of cladding to achieve an albedo greater than or equal to 0.4 over the entire roof (excluding surfaces used for technical equipment) OR Choice of cladding to achieve an albedo greater than or equal to 0.4 on the facades of at least the ground floor and first floor of the buildings.	HQE 3 pts	Design audit: Project specifications, Construction works contracts with details of the colour of the materials chosen
Additional information: *Albedo is the reflectivity of a surface, i.e. the ratio of the flux of light energy* ***reflected*** *to the flux of incident light energy.Albedo is the reflectivity of a surface, i.e. the ratio of the flux of light energy* ***reflected*** *to the flux of incident light energy.* *Albedo refers to a scale from 0 to 1, with 0 being black and 1 being white.* *High albedo materials absorb and do not transmit a lot of heat to the building because they reflect a large proportion of the sun rays.*		
CH.3.4 The finished ground around the building must be effectively protected from direct sunlight over at least three quarters of its periphery (excluding the party line), over a strip of at least 3 metres. This requirement can be met by:	HQE 2 pts	Design audit: Ground plans

• Vegetation of the ground around the building (lawn, deciduous shrubs); • Any solution such as a mineral or vegetal solar screen serving as vertical protection for the ground and protecting it from direct solar radiation (hedge, low wall, bank, etc.).		

5.6.4. Renovation

Renovation	Level	Method of proof
CH.4.1 At least one cooling system must be installed: • EER (Energy Efficiency Ratio) >3.5 for air conditioning • External sun protection; • Nocturnal over-ventilation; • Earth-to-air heat exchanger • A minimum of one fan in the living room with a manual control with two or three speeds.	HQE 2 pts	Design audit: Project specifications, Construction works contracts. Drawings Execution audit: Visual inspection. Technical data sheet of the air conditioning system.

Additional information:

EER (Energy Efficiency Ratio):
Coefficient of performance in cooling mode of the air conditioning system.

External sun protection:
External systems: mobile external protection such as roller shutters, shutters, blinds, external opaque blinds, adjustable sunshades or any other architectural device that protects the openings from the sun.

Fans:
The minimum height from the finished floor to the blades of the fan is set at 2.30 m, which can be reduced to 2.20 m if a safety device is used.

5.6.5. Active systems

Active systems	Level	Method of proof
CH.5.1 The living rooms are pre-equipped for air conditioning: • electrical outlet and drain, • location for the installation of an air conditioning unit.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit:

		Visual check

5.7. Acoustic quality

This section consists of specific requirements for both construction and renovation. In general, for new buildings or structural renovations in temperate climates, the objective is to achieve a minimum building sound quality of class C according to ISO/TS 19488: 2021.

In all cases, national regulatory requirements must be applied, regardless of the requirements in this section. Where national regulatory requirements exceed the level of class C, or where a quieter atmosphere than class C is required, it is advisable to retain the HQE 2 pts or HQE 3 pts levels which correspond to classes B and A respectively of the standard ISO/TS 19488: 2021.

Furthermore:

— In construction, different requirements apply depending on the location of the operation:

› **Countries geographically located between (or crossed by) the Tropic of Cancer and the Tropic of Capricorn:**
In view of the occupancy patterns of acommodations in tropical areas, with permanent window openings in particular, compliance with the PR prerequisites is requested and with the following as chosen by the property developer:
  › compliance with all performance requirements (class C of ISO/TS 19488, especially if the building is air-conditioned),
  or
  › compliance with all the resource requirements.

› **Other countries**:
compliance with the PR pre-requisites and compliance with the results required by the property developer (class C of ISO/TS 19488).

— for light renovation, resource requirements are requested for the construction elements and equipment that are replaced or newly installed in the building.

The building space categories are defined as follows:

Accommodations (including business premises)	Main rooms	Rooms intended for living or sleeping purposes, business premises included in accommodations. If a kitchen communicates with a main room through a doorway, then it is considered a main room.
	Outbuildings	Premises such as cellars, non-converted attics, woodsheds, greenhouses, verandas, bicycle/pram storage rooms, bin storage room, garbage chute rooms, individual garages.
Common corridors	Horizontal or vertical corridors serving all private, collective and service premises such as halls, corridors, stairways, landings, corridors.	
Commercial spaces	All noisy rooms in a building intended for shared services such as a boiler room, a communal kitchen or for commercial use such as shops, workshops, etc.	

5.7.1 Acoustics in construction and structural renovation

"Construction" refers to the construction of new buildings and new parts of existing buildings (raising works, extensions) and "structural renovation" means building renovations with a change of intended use and/or with a modification of the structure (walls/floors) and/or restructuring of the rooms.

Acoustics in construction and structural renovation	Level	Method of proof
QA.1.1 Where there are local acoustic regulations for new buildings or structural renovation, these must be complied with.	PR	Preliminary project and design audit: Regulatory reference + Special technical conditions + Acoustic data sheet Execution audit: Acoustic measurement report
Additional information: *A country with "acoustic regulations" means that there are requirements on residential premises at least on the acoustic categories of airborne sound insulation, impact noise level and equipment noise level, possibly described by international indices defined in ISO 140-4, ISO 140-5 and ISO 140-7 and calculated according to ISO 717-1 and ISO 717-2.*		
QA.1.2 The flights and low supports of private or communal stairways are uncoupled from the structure of the building. The uncoupling of high stairway supports is recommended.	PR	Preliminary project and design audit: Provisions taken specified in the written documents/technical specifications
QA.1.3 In the case of thin or thick acoustic underlay, the maintenance of their performance over time and their suitability for the intended purpose are justified.	PR	Preliminary project and design audit: Special technical conditions + test report or certification or technical opinion Execution audit: Technical data sheet

Additional information:

For underlay less than 5 mm thick, these may be QB-14 SCAM-certified underlays or insulation processes under tiles with French technical approval. Otherwise, the product must prove that its dynamic stiffness after creep does not increase by more than 60 % (according to French standard NF 52.10). In other words, this corresponds to an efficiency loss ΔLw of up to 3 dB after 10 years.

5.7.1.1 Performance requirements in construction and structural renovation (all geographical areas)

This section is accessible to any property developer, regardless of the location of the operation, whether it is a new construction or a structural renovation.
However, for new construction operations geographically located between (or crossed by) the Tropic of Cancer and the Tropic of Capricorn, it is possible to address the Acoustic Quality section only with the resource requirements described in §5.7.1.2.

For the requirements of this section, and unless otherwise specified in the country's regulations, the verification by measurement of the requirements is carried out in accordance with standards ISO 10052:2021 and ISO 3382-2:2010. To take account of measurement uncertainties, a value of 2 dB is set for airborne noise and impact noise, and 2 dB(A) for equipment noise. Nevertheless, the average results obtained for the justification of a category must comply with the threshold values of the said category.
Reverberation time should not exceed the requirement by more than 0.15 s if the average results for the selected spaces meet this requirement.
Therefore, this tolerance should not be taken into account in the studies, but only in the acoustic measurements conducted once the building is finished.

Performance requirements	Level	Method of proof
QA.2.1 For new construction and structural renovation (only in the absence of local regulations on “structural” renovations): The building complies with the following classification for each category in accordance with ISO/TS 19488:2021: › PR: class C › HQE 2 pts: class B › HQE 3 pts: class A *Note: Given the difficulty of achieving effective sound levels in structural renovation, it has been decided to comply with at least the regulatory level (QA.1.1). Where there are no regulations on this subject, then the levels of this requirement should be targeted.*	PR HQE 2 pts HQE 3 pts	Preliminary project and design audit: Special technical conditions + Acoustic data sheet Execution audit: Provision of the sound measurement report + presentation of the acoustic classification of the building

Additional information:
Acoustic categories and ISO 19488:2021 classification

Airborne sound insulation against outdoor sound

In collective housing buildings, adjoining single-family houses and student accommodation, this is the airborne sound received in an accommodation and emitted from outside the building.

External airborne sound insulation **DnT,w+Ctr**	Class A (dB)	Class B (dB)	Class C (dB)
Façades and roofs of the main rooms in accommodations, in a specific environment where the sound sources are characterised by Lden	DnT,w+Ctr ≥ Lden - 20	DnT,w+Ctr ≥ Lden - 24	DnT,w+Ctr ≥ Lden - 28

The Lden indicator (for day-evening-night sound level), defined in ISO 1996-1 and determined according to ISO 1996-2, represents the weighted average sound level during the day, giving greater weight to the sound produced in the evening (18-22h) (+ 5 dB(A)) and during the night (22h-6h) (+10 dB(A)), to take into account the increased sensitivity of individuals to noise annoyance during these two periods.

In all cases, the DnT,w+Ctr insulation of the main rooms from the outside must be greater than or equal to 30 dB.

Airborne sound from other rooms in the building in an accommodation

In collective housing buildings, adjoining houses and student accommodation, this is the airborne sound received in an accommodation and emitted in other accommodations inside the building.

Airborne sound insulation against indoor sound **$D_{nT,w}+C$**	Class A (dB)	Class B (dB)	Class C (dB)
Between two accommodations, including between an accommodation and an outbuilding (bicycle storage room, bin storage room, cellar, etc.), when the receiving area is a main room	$D_{nT,w}+C \geq 60$	$D_{nT,w}+C \geq 56$	$D_{nT,w}+C \geq 52$
Between common corridors inside the building (horizontal or vertical) and a room in an accommodation, with a single separating landing door	$D_{nT,w}+C \geq 48$	$D_{nT,w}+C \geq 42$	$D_{nT,w}+C \geq 38$
Between a commercial space and a main room of an accommodation	$D_{nT,w}+C \geq 66$	$D_{nT,w}+C \geq 62$	$D_{nT,w}+C \geq 58$

Impact sound insulation between spaces in the building in an accommodation

In collective buildings, adjoining single-family houses and student accommodation, this is the impact sound received.
in the main rooms of an accommodation and emitted inside the building premises outside this accommodation, including external walkways.

Impact sound pressure level **$L'_{nT,w}$**	Class A (dB)	Class B (dB)	Class C (dB)
Received in a main room of an accommodation, when the impacts are produced on the floor of another accommodation	$L'_{nT,w} \leq 46$ and $L'_{nT,w+CI,50-2500} \leq 50$	$L'_{nT,w} \leq 50$ and $L'_{nT,w+CI,50-2500} \leq 54$	$L'_{nT,w} \leq 54$
Received in a main room of an accommodation, when the impacts are	$L'_{nT,w} \leq 50$	$L'_{nT,w} \leq 54$	$L'_{nT,w} \leq 58$

produced on the floor of a common corridor (horizontal or vertical) or on the floor of balconies, terraces, bathrooms of more than 4 m² not belonging to the accommodation			
Received in a main room when impacts are produced on the floor of a commercial space	$L'_{nT,w} \leq 40$ and $L'_{nT,w+Cl,50-2500} \leq 44$	$L'_{nT,w} \leq 44$ and $L'_{nT,w+Cl,50-2500} \leq 48$	$L'_{nT,w} \leq 48$

Criterion $L'_{nT,w+Cl,50-2500}$ is the sound pressure level extended to low frequencies.

Sound levels due to individual and collective equipment

In collective buildings, adjoining single-family houses and student accommodation, this is the impact sound created by
individual heating and air-conditioning equipment installed in a room inside the accommodation under review.

- Individual equipment outside the accommodation under review includes the following facilities:
  - taps and sanitary equipment;
  - water pipes (water discharge pipes for sanitary water equipment and rainwater).

- Collective equipment outside the accommodation under review, include the following facilities:
  - lifts;
  - collective boiler room;
  - other collective equipment (electrical transformer, automatic collective garage door, garbage compactor, water softener, water suppressor, garbage chute, etc.).

- Individual or collective equipment, inside or outside the accommodation under review, includes the following facilities:
  - controlled mechanical ventilation (CMV) (possibly incorporating air heating system);
  - thermodynamic domestic hot water system (DHW).

Equipment sound	Index	Class A (dB)	Class B (dB)	Class C (dB)
Received in a main room of an accommodation and generated by technical equipment placed inside and outside and producing continuous sound	$L_{A,eq,nT}$	≤ 22	≤ 26	≤ 30
Received in a main room of an accommodation and generated by technical equipment placed inside and outside and producing intermittent or irregular sound from surrounding spaces	$L_{AF,max,nT}$	≤ 26	≤ 30	≤ 34

Acoustic treatment of common areas

This sub-category only concerns collective operations and student accommodation.
The aim is to ensure a minimum acoustic treatment in the common areas, in particular through the presence of wall coverings, floor coverings and/or

ceiling linings with a certain sound-absorbing performance.
This acoustic treatment in the common areas should reduce the ambient sound level and thus improve acoustic comfort in the accommodations served by these corridors.

Acoustic treatment of common areas	Class A (dB)	Class B (dB)	Class C (dB)
In common horizontal corridors (entrance, airlock, hall, landing, etc.)	$T \leq 0.6$ s	$T \leq 0.9$ s	$T \leq 1.2$ s
In common vertical corridors (stairwells)	$T \leq 0.9$ s or $\Sigma A \geq 0.45 \times S_{floor}$	$T \leq 1.2$ s or $\Sigma A \geq 0.35 \times S_{floor}$	$T \leq 1.5$ s or $\Sigma A \geq 0.25 \times S_{floor}$

Reverberation time is the time required for the sound pressure level to decrease by 60 dB after the sound source has stopped. It shall be measured in accordance with ISO 3382-2.

The equivalent absorption surface A of an absorbing covering is given by the following formula:
$A = S \times \alpha w$
where S is the surface area of the absorbing covering and αw is its sound-absorbing evaluation index (measured according to ISO 11654).
Only materials with an αw value greater than or equal to 0.2 are considered.
The index α_w of the open air surfaces of the corridors is considered to be 0.8.
The value of ΣA is the sum of the equivalent absorption surfaces of each of the absorbing coverings in the common corridors inside the building, expressed in m².

5.7.1.2 Resource requirements for construction (tropical areas)

This section is only available for operations geographically located between (or crossed by) the Tropic of Cancer and the Tropic of Capricorn that do not meet the performance requirements of §5.7.1.1.

Protection against indoor airborne sound Vertical separation walls	**Level**	**Method of proof**
QA.3.1 Vertical separation walls between different accommodations, with the exception of walls of outbuildings, when they are made of simple concrete or rendered masonry walls on at least one side, have a mass per unit area mA in kg/m2 such that: › HQE: mA is greater than or equal to 350 kg/m2, e.g. a minimum 16 cm concrete wall › HQE 2 pts: mA is greater than or equal to 400 kg/m2, e.g. a minimum 18 cm concrete wall › HQE 3 pts: mA is greater than or equal to 450 kg/m2, e.g. a minimum 20 cm concrete wall	HQE HQE 2 pts HQE 3 pts	<u>Preliminary project and design audit:</u> Technical specifications + drawings

Additional information:

In the case of linings on thermal-only façades, the mass per unit area must be increased by 50 kg/m2.

QA.3.2 Vertical partition walls between, an enclosed common corridor within the building and, a main room or kitchen or shower room, where they consist of single walls of concrete or rendered masonry on at least one face, shall have a mass per unit area mA in kg/m2 such that: › HQE: mA is greater than or equal to 350 kg/m2, e.g. a minimum 16 cm concrete wall. › HQE 2 pts: mA is greater than or equal to 400 kg/m2, e.g. a minimum 18 cm concrete wall. › HQE 3 pts: mA is greater than or equal to 450 kg/m2, e.g. a minimum 20 cm concrete wall.	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings

Additional information:

In the case of linings on thermal-only façades, the mass per unit area must be increased by 50 kg/m2.

QA.3.3 Vertical partition walls between the main rooms, kitchens or bathrooms of an accommodation and a commercial space, a collective garage or the outbuildings of another accommodation, when they are made up of simple concrete or rendered masonry walls coated on at least one side, have a mass per unit area mA in kg/m² such that: › HQE: mA is greater than or equal to 400 kg/m², e.g. a minimum 18 cm concrete wall. › HQE 2 pts: mA is greater than or equal to 450 kg/m², e.g. a minimum 20 cm concrete wall. › HQE 3 pts: mA is greater than or equal to 500 kg/m², e.g. a minimum 22 cm concrete wall.	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings

Additional information:

In the case of linings on thermal-only façades, the mass per unit area must be increased by 50 kg/m2.

QA.3.4 Vertical separation walls between different accommodations, with the exception of walls of outbuildings, when they are made of double concrete or rendered masonry walls on at least one side, have a mass per unit area mA in kg/m2 for each wall such that:	HQE HQE 2 pts	Preliminary project and design audit: Technical specifications + drawings

› HQE: mA is greater than or equal to 200 kg/m2, e.g. a double wall of hollow blocks of at least 15 cm with a minimum of 1 cm plaster on each wall. › HQE 2 pts: mA is greater than or equal to 250 kg/m2, e.g. a double wall of hollow blocks of at least 20 cm with a minimum of 1 cm plaster on each wall.		
QA.3.5 Vertical partition walls between, an enclosed common corridor within the building and, a main room or kitchen or shower room, where they consist of double walls of concrete or rendered masonry on at least one face, shall have a mass per unit area mA in kg/m2 for each wall such that: › HQE: mA is greater than or equal to 200 kg/m2, e.g. a double wall of hollow blocks of at least 15 cm with a minimum of 1 cm plaster on each wall. › HQE 2 pts: mA is greater than or equal to 250 kg/m2, e.g. a double wall of hollow blocks of at least 20 cm with a minimum of 1 cm plaster on each wall.	HQE HQE 2 pts	<u>Preliminary project and design audit:</u> Technical specifications + drawings
QA.3.6 Vertical partition walls between the main rooms, kitchens or bathrooms of an accommodation and a commercial space, a collective garage or the outbuildings of another accommodation, when they are made up of double concrete or rendered masonry walls coated on at least one side, have a mass per unit area mA in kg/m² for each wall such that: › HQE: mA is greater than or equal to 200 kg/m2, e.g. a double wall of hollow blocks of at least 15 cm with a minimum of 1 cm plaster on each wall. › HQE 2 pts: mA is greater than or equal to 250 kg/m2, e.g. a double wall of hollow blocks of at least 20 cm with a minimum of 1 cm plaster on each wall.	HQE HQE 2 pts	<u>Preliminary project and design audit:</u> Technical specifications + drawings
QA.3.7 Vertical separation walls between different accommodations, with the exception of walls in outbuildings, when they consist of walls clad with one or more linings or other walls, shall have a sound reduction index such that: › HQE: Rw+C greater than or equal to 54 dB › HQE 2 pts: Rw+C greater than or equal to 58 dB › HQE 3 pts: Rw+C greater than or equal to 60 dB	HQE HQE 2 pts HQE 3 pts	<u>Preliminary project and design audit:</u> Technical specifications + drawings

Additional information:

In the case of linings on thermal-only façades, the sound reduction index must be increased by 2 dB.

In the case of double walls consisting of two single walls with a low mass per unit area (e.g. plasterboard cladding) separated by an air gap cushioned by mineral wool, these must be installed on an independent double metal frame and have a Rw+C index greater than or equal to 64 dB.

QA.3.8 Vertical partition walls between an enclosed common corridor within the building and a main room or kitchen or shower room, where they consist of walls clad with one or more linings or other walls, shall have a sound reduction index such that: › HQE: Rw+C greater than or equal to 54 dB › HQE 2 pts: Rw+C greater than or equal to 58 dB › HQE 3 pts: Rw+C greater than or equal to 60 dB	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings

Additional information:

In the case of linings on thermal-only façades, the sound reduction index must be increased by 2 dB.

In the case of double walls consisting of two single walls with a low mass per unit area (e.g. plasterboard cladding) separated by an air gap cushioned by mineral wool, these must be installed on an independent double metal frame and have a Rw+C index greater than or equal to 64 dB.

QA.3.9 Vertical partition walls between the main rooms, kitchens or bathrooms of an accommodation and a commercial space, a collective garage or the outbuildings of another accommodation, when they are made up of walls covered with one or more linings or other walls, shall have a sound reduction index such that: › HQE: Rw+C greater than or equal to 57 dB › HQE 2 pts: Rw+C greater than or equal to 60 dB › HQE 3 pts: Rw+C greater than or equal to 62 dB	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings

Additional information:

In the case of linings on thermal-only façades, the sound reduction index must be increased by 2 dB.

In the case of double walls consisting of two single walls with a low mass per unit area (e.g. plasterboard cladding) separated by an air gap cushioned by mineral wool, these must be installed on an independent double metal frame and have a Rw+C index greater than or equal to 64 dB.

QA.3.10 The landing door is a solid core door with a mass per unit area of more than 25 kg/m² and is sealed on all four sides or has a Rw+C index of 28 dB or more.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Visual inspection to check the presence of seals on all 4 sides of the door.

Protection against indoor airborne sound Horizontal separation walls	**Level**	**Method of proof**
QA.3.11 Floors and floor coverings between different accommodations, have a total mass per unit area mA in kg/m² and a ΔLw index contributed by the floor covering, or have a sound reduction index Rw+C and a standardised impact sound weighted pressure level Ln,w such that: › HQE: mA is greater than or equal to 400 kg/m² (e.g. a 17 cm concrete slab) and ΔLw is greater than or equal to 9 dB or Rw+C greater than or equal to 58 dB and Ln,w less than or equal to 62 dB › HQE 2 pts: mA is greater than or equal to 400 kg/m² (e.g. a 17 cm concrete slab) and ΔLw is greater than or equal to 15 dB or Rw+C greater than or equal to 58 dB and Ln,w less than or equal to 56 dB › HQE 3 pts: mA is greater than or equal to 450 kg/m² (e.g. a 19 cm concrete slab) and ΔLw is greater than or equal to 18 dB or Rw+C greater than or equal to 60 dB and Ln,w less than or equal to 51 dB	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings Execution audit: Verification of the delivery notes for the floor coverings, and the consistency of the deltaLw with the values of the technical specifications. Check that they are present in the premises provided.

Additional information:

In the case of thermal-only linings and/or a thin sound insulation process (e.g. tiles, parquet or laminate laid on a resilient underlay laid or glued directly to the subfloor), the mass per unit area must be increased by 50 kg/m2 or the sound reduction index increased by 2 dB and the impact sound level reduced by 2 dB.

QA.3.12 Floors and floor coverings between accommodations (receiving areas) and commercial spaces, garages, common corridors excluding external walkways, household waste bin storage room (emitting areas), have a total mass per unit area mA in kg/m² and an index ΔLw provided by the floor	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings

covering, or have a sound reduction index Rw+C and a standardised impact sound pressure level Ln,w such that: › HQE: mA is greater than or equal to 450 kg/m2 (e.g. a 19 cm concrete slab) and ΔLw is greater than or equal to 7 dB or Rw+C greater than or equal to 60 dB and Ln,w less than or equal to 62 dB › HQE 2 pts: mA is greater than or equal to 450 kg/m2 (e.g. a 19 cm concrete slab) and ΔLw is greater than or equal to 13 dB or Rw+C greater than or equal to 60 dB and Ln,w less than or equal to 56 dB HQE 3 pts: mA is greater than or equal to 500 kg/m2 (e.g. a 21 cm concrete slab) and ΔLw is greater than or equal to 16 dB or Rw+C greater than or equal to 62 dB and Ln,w less than or equal to 51 dB		Execution audit: Verification of the delivery notes for the floor coverings, and the consistency of the deltaLw with the values of the technical specifications. Check that they are present in the premises provided.

Additional information:

In the case of thermal-only linings and/or a thin sound insulation process (e.g. tiles, parquet or laminate laid on a resilient underlay laid or glued directly to the subfloor), the mass per unit area must be increased by 50 kg/m2 or the sound reduction index increased by 2 dB and the impact sound level reduced by 2 dB.

QA.3.13 The floors and floor coverings of the external walkways have the following characteristics: › HQE: the mass per unit area mA is greater than or equal to 450 kg/m2, e.g. a 19 cm concrete slab or an 18 cm slab and 20 kg/m2 tiles. › HQE 2 pts: the mass per unit area mA is greater than or equal to 500 kg/m2, for example a 21 cm concrete slab or a 20 cm slab and 20 kg/m2 tiles. › HQE 3 pts: Total decoupling from vertical and horizontal walls or any provision that allows a level Ln,w less than or equal to 52 dB to be met	HQE HQE 2 pts HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings Execution audit: Check the thickness of the walkway or the absence of rigid contact if uncoupled

Additional information:

In the case of thermal-only linings and/or a thin sound insulation process (e.g. tiles, parquet or laminate laid on a resilient underlay laid or glued directly to the subfloor), the mass per unit area must be increased by 50 kg/m2 or the sound reduction index increased by 2 dB and the impact sound level reduced by 2 dB.

QA.3.14	HQE HQE 3 pts	Preliminary project and design audit:

Low floors with floor coverings have a total mass per unit area mA in kg/m2 and an index ΔLw provided by the floor covering, such as: › HQE: mA is greater than or equal to 400 kg/m2 (e.g. a 17 cm concrete slab) and ΔLw is greater than or equal to 9 dB › HQE 3 pts: mA is greater than or equal to 450 kg/m2 (e.g. a 19 cm concrete slab) and ΔLw is greater than or equal to 12 dB		Technical specifications + drawings Execution audit: Verification of the delivery notes for the floor coverings, and the consistency of the deltaLw with the values of the technical specifications. Check that they are present in the premises provided.

Additional information:

In the case of thermal-only linings and/or a thin sound insulation process (e.g. tiles, parquet or laminate laid on a resilient underlay laid or glued directly to the subfloor), the mass per unit area must be increased by 50 kg/m2 or the sound reduction index increased by 2 dB and the impact sound level reduced by 2 dB.

QA.3.15 Where terraces, loggias, verandas and balconies are not located above accommodations, but there is diagonal impact sound transmission to accommodations, the mass per unit area of their floor is greater than or equal to 400 kg/m² (e.g. a 17 cm concrete slab) and the index of the floor covering ΔLw is greater than or equal to 9 dB (external floor coverings, screed on draining underlay, slabs on studs, acoustic dowel, etc.).	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Verification of the delivery notes for the floor coverings, and the consistency of the deltaLw with the values of the technical specifications. Check that they are present in the premises provided.

Protection against indoor airborne sound Non-converted attic	**Level**	**Method of proof**

QA.3.16 In the case of walls separating two accommodations surmounted by non-converted attics: either these walls are extended to the full height of the attic, or the high floors of the last habitable level have a weighted sound reduction index Rw+C greater than 35 dB.	HQE	Preliminary project and design audit: Technical specifications + drawings

Protection against indoor airborne sound Façades	**Level**	**Method of proof**
QA.3.17 The opening parts of the windows of the main rooms of different accommodations are separated by an extended distance at least equal to the following values: › For openings located in the same plane of the façade or in different planes of the façade, whether parallel or not, with no vision from one opening to the other, the horizontal distance shall be at least 1.50 m the vertical distance shall be at least 1.20 m › For openings located on different planes of the façade or different façades with a view from one opening to the other, when the façades form an angle greater than or equal to 90°, the distance is at least 3.50 m when the façades form an angle less than 90°, the distance is at least 5.00 m.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Measuring the distance between two openings of different accommodations
QA.3.18 In the case of continuous façades between different accommodations, these must have sound insulation value in lateral transmission (according to ISO 140-12) $D_{n,f,w}$+C of at least 63 dB.	HQE	Preliminary project and design audit: Technical specifications + drawings
QA.3.19 The opening parts of the windows of the main rooms of air-conditioned accommodations have a weighted sound reduction index Rw + Ctr greater than or equal to 30 dB.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Rw+Ctr check in delivery notes or technical data sheets
QA.3.20 The air inlets of the main rooms of air-conditioned accommodations have a sound insulation Dn,e,w+Ctr greater than or equal to 36 dB.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit:

		Check Dn,e,w+Ctr in delivery notes or technical data sheets

Protection against indoor airborne sound Technical ducts	**Level**	**Method of proof**
QA.3.21 The drainage systems for waste water, black water and rain water are insulated from all the rooms in an accommodation, excluding outbuildings and external spaces, by a wall with a minimum sound reduction index Rw+C of 30 dB or a minimum mass per unit area of 40 kg/m². In addition, the stair openings are intersected at each floor.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Check that there are no visible waste water/sewage water/rain water pipes in the accommodations
QA.3.22 If there are access hatches, they must have a sound reduction index Rw+C greater than or equal to 30 dB, or have a mass per unit area greater than or equal to 25 kg/m2. In addition: they are equipped with a peripheral seal, the surface area of the hatch is less than or equal to 0.25 m², they are equipped with locking/unlocking levers and a clamping rail.	HQE	Preliminary project and design audit: Technical specifications + drawings
QA.3.23 In the case of ventilation ducts passing through a partition between accommodations, the walls of the technical ducts must have a Rw+C value of at least 30 dB or a minimum mass per unit area of 40 kg/m2.	HQE	Preliminary project and design audit: Technical specifications + drawings
QA.3.24 In the case of ventilation ducts passing through a partition wall between the accommodation and the garage, the walls of the technical ducts: › have a Rw+C value greater than or equal to 37 dB or a minimum mass per unit area of 60 kg/m2 when the partition wall intersects at the level of the service ducts; › have a Rw+C greater than or equal to 62 dB or a minimum mass per unit area of 450 kg/m2 when the partition wall does not intersect at the service ducts.	HQE	Preliminary project and design audit: Technical specifications + drawings
QA.3.25 In the case of ventilation ducts passing through a partition wall between an accommodation and a commercial space (excluding garages), the walls of the technical ducts: › have a Rw+C greater than or equal to 42 dB or a minimum mass per unit area of 100 kg/m2 when the partition wall intersects at the service ducts;	HQE	Preliminary project and design audit: Technical specifications + drawings

› have a Rw+C greater than or equal to 62 dB or a minimum mass per unit area of 450 kg/m2 when the partition wall does not intersect at the service ducts.		

Protection against equipment noise Controlled mechanical ventilation	**Level**	**Method of proof**
QA.4.1 The standardised sound pressure level, $L_{ASmax,n,T}$, of the noise generated by a mechanical ventilation system in the minimum airflow position, including extract units, shall not exceed the following values: › HQE: 35 dB(A) in main rooms and kitchens; › HQE 3 pts: 30 dB(A) in the main rooms and 35 dB(A) in the kitchens.	HQE HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings Execution audit: Provision of the acoustic measurement report.
QA.4.2 To limit interphony through the air vents: › stacked accommodations are equipped with extract unit with a minimum insulation value Dn,e,w+C according to the rooms › horizontal walls of adjoining accommodations are not connected to the same collective ventilation duct, unless the vents are 2.50 m apart and comply with the insulation values Dn,e,w+C.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Check Dn,e,w+C in delivery notes + consistency of technical specifications

Additional information:

The Dn,e,w+C value for the extract unit used is given by a laboratory sound test report. It is checked whether the Dn,e,w+C value of the examined extract units complies with the provisions of the following table:

Dn,e,w+C values in dB

Emitting room	Receiving room	Characteristics of the horizontal separation wall	Minimum sound insulation for extract units
Any room in the accommodation	Living room/kitchen	Slab 400 kg/m² or equivalent	Dn,e,w+C ≥ 60 dB
		Slab 450 kg/m² or equivalent	Dn,e,w+C ≥ 54 dB
	Kitchen	Slab 400 kg/m² or equivalent	Dn,e,w+C ≥ 61 dB
		Slab 450 kg/m² or equivalent	Dn,e,w+C ≥ 55 dB
	Shower room	Slab 400 kg/m² or equivalent	Dn,e,w+C ≥ 64 dB
		Slab 450 kg/m² or equivalent	Dn,e,w+C ≥ 58 dB

QA.4.3	HQE	Preliminary project and design audit:

The fan is mounted on anti-vibration mounts (in situ or by manufacture or suspended from the frame). It is also placed in a soundproof box or room.		Technical specifications + drawings
QA.4.4 For any individual ventilation system of double flow ventilation or for any individual air heating system (with or without additional cooling device), with air insufflation in the main rooms or in the kitchens, a design report shall be provided to justify the achievement of the requirements.	HQE	Preliminary project and design audit: Design report

Protection against equipment noise Heating and air conditioning	**Level**	**Method of proof**
QA.4.5 The standardised sound pressure level, $L_{ASmax,n,T}$, of the noise generated by individual heating or air-conditioning appliances must not exceed the following values: › For heating equipment: 35 dB(A) in closed main rooms, 40 dB(A) in main rooms opening onto a kitchen, and 50 dB(A) in closed kitchens. › For air conditioning equipment: 35 dB(A) in main rooms and 50 dB(A) in closed kitchens.	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Provisioning of the acoustic measurement report
QA.4.6 Convectors equipped with a fan have a sound power level Lw less than or equal to the following values: › 47 dB(A) in a living room open to a kitchen › 42 dB(A) in a living room open to a bedroom › 41 dB(A) in a closed living room › 38 dB(A) in a closed bedroom › 53 dB(A) in a closed kitchen	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Check Lw in delivery notes or technical data sheets in accordance with the technical specifications

Additional information:

If there is more than one equipment unit in a room, the overall Lw value for all the equipment is determined by applying the following rule:

Absolute value of $\lvert Lw(1) - Lw(2) \rvert$	$0 \leq \lvert Lw(1) - Lw(2) \rvert \leq 1$	$2 \leq \lvert Lw(1) - Lw(2) \rvert \leq 4$	$5 \leq \lvert Lw(1) - Lw(2) \rvert \leq 9$	$10 \leq \lvert Lw(1) - Lw(2) \rvert$
Value to be added to the maximum of (Lw (1) - Lw (2))	3	2	1	1

QA.4.7 If an air conditioner is installed entirely or partly outside the building, a design report is provided, based on the requirements for this equipment. If an air conditioner is installed entirely or partly inside the accommodation, the sound power level Lw of the equipment shall be less than or equal to the following values: › 42 dB(A) in a living room open to a kitchen or bedroom › 41 dB(A) in a closed living room › 38 dB(A) in a closed bedroom › 53 dB(A) in a closed kitchen	HQE	Preliminary project and design audit: Technical specifications + drawings Execution audit: Check Lw in delivery notes or technical data sheets in accordance with the technical specifications

Additional information:

If there is more than one equipment unit in a room, the overall Lw value for all the equipment is determined by applying the following rule:

Absolute value of |Lw(1) – Lw(2)|	$0 \leq \lvert Lw(1) - Lw(2) \rvert \leq 1$	$2 \leq \lvert Lw(1) - Lw(2) \rvert \leq 4$	$5 \leq \lvert Lw(1) - Lw(2) \rvert \leq 9$	$10 \leq \lvert Lw(1) - Lw(2) \rvert$
Value to be added to the maximum of (Lw (1) - Lw (2))	3	2	1	1

QA.4.8 The air conditioning units are decoupled from the building structure.	HQE	Preliminary project and design audit: Technical specifications + drawings
Protection against equipment noise Other individual and collective equipment	**Level**	**Method of proof**
QA.4.9 The standardised sound pressure level, $L_{ASmax,n,T}$, of the noise generated under normal operating conditions by individual equipment in an accommodation unit in the building shall not exceed the following values: › HQE: 35 dB(A) in main rooms and kitchens; › HQE 3 pts: 30 dB(A) in main rooms and 35 dB(A) in kitchens	HQE HQE 3 pts	Preliminary project and design audit: Technical specifications + drawings Execution audit: Provisioning of the acoustic measurement report
QA.4.10	HQE HQE 3 pts	Preliminary project and design audit:

The standardised sound pressure level, $L_{ASmax,n,T}$, of sound generated under normal operating conditions by collective building equipment, such as lifts, heating plants or substations, air-conditioning and ventilation units, transformers, water boosters, garbage chutes, must not exceed the following values: › HQE: 35 dB(A) in main rooms and kitchens; › HQE 3 pts: 30 dB(A) in main rooms and 35 dB(A) in kitchens		Special technical conditions Execution audit: Provisioning of the acoustic measurement report
QA.4.11 The bathtub and shower tray are separated from the vertical and horizontal walls. In addition, in the case of a floating screed, the following provisions are observed: › In the case of a floating screed in the bathroom, which is interrupted under the bathtub, it must also be separated from the low wall forming the apron, › In the case of a floating screed in the bathroom, which is not interrupted under the bathtub, the wall forming the bathtub apron must also be separated from the bathtub and from the vertical walls.	HQE	Preliminary project and design audit: Technical specifications + drawings
QA.4.12 The walls of the lift shafts and any machinery room, when they are adjacent to accommodations, have the characteristics defined in the annex in order to limit the noise transmitted into the accommodations. In addition, all the components of the installation are disconnected from the structure (winch, motor, pulleys, electrical cabinet, etc.).	HQE	Preliminary project and design audit: Technical specifications + drawings

5.7.2 Acoustics for light renovation

Light renovation means the replacement of one or more elements of the finishing work.

Light renovation	Level	Method of proof
QA.5.1 If there are local regulations on so-called “light” renovations, these are complied with.	PR	Preliminary project and design audit: Regulatory reference + Special technical conditions + Acoustic data sheet

Protection against indoor airborne sound	Level	Method of proof
QA.5.2 If internal thermal insulation is added to a façade, thermal and acoustic lining is installed so as not to degrade the acoustic insulation between accommodations. This thermal and acoustic lining is not laid on top of an existing lining.	PR	Preliminary project and design audit: Special technical conditions Execution audit: Technical data sheet on lining
QA.5.3 In case of replacement of landing doors: - in the case of an airlock entrance, a solid core door is provided with peripheral seals on 4 sides; - if there is no airlock entrance, a door with a Rw+C of 37 dB or more, with a Swiss doorway is provided.	PR	Preliminary project and design audit: Technical specifications + drawings Execution audit: Visual inspection to check the presence of seals, technical data sheet or delivery note specifying Rw+C consistent with technical specifications
QA.5.4 Holes, structural cracks or openings in walls or partitions between common corridors and accommodations are filled to the full thickness with the same material as the wall or with a mineral wool and plasterboard lining.	PR	Preliminary project and design audit: Special technical conditions Execution audit: Visual inspection to check the absence of holes, structural cracks or openings
QA.5.5 The added electrical networks, sockets and switches do not reduce the airborne noise insulation between accommodations. They are not embedded in the walls between the accommodations and can be fixed in the open or under the gutters or integrated in a plasterboard partition on a framework and mineral wool of at least 45 mm thickness.	PR	Preliminary project and design audit: Technical specifications + drawings Execution audit: Visual inspection to check the absence of holes, structural cracks or openings

QA.5.6 The building complies with class C in accordance with ISO/TS 19488:2021 for “insulation against internal airborne sound”.	HQE 3 pts	Preliminary project and design audit: Special technical conditions + Acoustic data sheet Execution audit: Provision of the sound measurement report + presentation of the acoustic classification of the building

Additional information:

The classification levels of the categories according to ISO 19488:2021 can be found in the “Acoustics for buildings under construction > Performance requirements” section

Protection against impact noises	Level	Method of proof
QA.6.1 In the case of thin or thick acoustic underlay, the maintenance of their performance over time and their suitability for the intended purpose are justified.	PR	Preliminary project and design audit: Special technical conditions + test report or certification or technical opinion Execution audit: Technical data sheet

Additional information:

These may be QB-14 SCAM-certified underlays or insulation processes under tiles with French technical approval. Otherwise, the product must prove that its dynamic stiffness after creep does not increase by more than 60 % (tests according to French standard NF DU 52.10). In other words, this corresponds to an efficiency loss ΔLw of up to 3 dB after 10 years.

QA.6.2 In the case of work on floor coverings in accommodations, the performance in reducing impact noise levels to accommodations is improved. However, if the existing covering already provides a highly effective performance, the existing performance is not downgraded. › If the existing covering is covered, the new covering shall have a ΔLw value of 19 dB or more. › When replacing the existing floor covering on an unmodified floor, the new floor covering shall have a ΔLw index greater than or equal	PR	Preliminary project and design audit: Technical specifications + drawings Execution audit: Technical data sheet of the floor covering

to the following values, depending on the nature of the floor being replaced: › Existing thick, new carpet: ΔLw of the new covering greater than or equal to 25 dB › Existing thin or used carpeting, resilient floor covering with acoustic underlay: ΔLw of the new covering greater than or equal to 20 dB › Other coatings: ΔLw of the new covering greater than or equal to 19 dB In all cases, it is possible to justify the installation of a covering by a specific acoustic study, including initial acoustic measurements.		
QA.6.3 In the case of work on floor coverings in common internal corridors, the performance in reducing impact noise levels towards the accommodations is improved. However, if the existing covering already provides a highly effective performance, the existing performance is not downgraded. › PR: If the existing covering is covered, the new cladding shall have a delta Lw index greater than or equal to the levels below. › PR: When replacing the existing floor covering on an unmodified floor, the new floor covering shall have a ΔLw index greater than or equal to the following values, depending on the nature of the floor being replaced: › Existing thick, new carpet: ΔLw of the new covering greater than or equal to 25 dB › Existing thin or used carpeting, resilient floor covering with acoustic underlay: ΔLw of the new covering greater than or equal to 20 dB › Other coatings: ΔLw of the new covering greater than or equal to 12 dB In all cases, it is possible to justify the use of a covering based on a specific acoustic study, including initial acoustic measurements. › HQE: ΔLw of the new covering greater than or equal to 19 dB	PR HQE	<u>Preliminary project and design audit:</u> Technical specifications + drawings <u>Execution audit</u>: Technical data sheet of the floor covering
QA.6.4 In the case of replacement of private or communal stairways, the flights and bottom supports of the stairways are separated from the structure of the building. The uncoupling of high stairway supports is recommended.	PR	<u>Preliminary project and design audit:</u> Special technical conditions <u>Execution audit:</u> Visual inspection to check the absence

		rigidity or the presence of resilient materials
QA.6.5 The building complies with class C according to ISO/TS 19488:2021 for the “impact sound pressure level”.	HQE 3 pts	Preliminary project and design audit: Regulatory reference + Special technical conditions + Acoustic data sheet Execution audit: Provision of the acoustic measurement report.

Additional information:

The classification levels of the categories according to ISO 19488:2021 can be found in the “Acoustics for buildings under construction > Performance requirements” section.

Protection against equipment noise	Level	Method of proof
QA.7.1 In case of replacement of technical equipment, for the “equipment sound level” category and in the sense of ISO/TS 19488:2021, the building shall comply with: › PR: class C › HQE 2 pts: class B	PR HQE 2 pts	Preliminary project and design audit: Special technical conditions + Acoustic data sheet Execution audit: Provisioning of the acoustic measurement report

Additional information:

The classification levels of the categories according to ISO 19488:2021 can be found in the “Acoustics for buildings under construction > Performance requirements” section

Internal room acoustics	Level	Method of proof
QA.8.1 In case of replacement of sound-absorbing materials in common corridors: › PR: the equivalent absorption surface is not decreased. If the level of performance of existing coverings is not known, the following default values are considered: › Thick carpet glued to concrete: alpha w = 0.2 › Needlepunched carpet alpha w = 0.1 › Sprayed fibre products (thickness 30 mm): alpha w = 0.6 › Suspended ceiling based on compact fibre tiles: alpha w = 0.5 › Suspended ceiling with perforated and absorbent materials in the plenum: alpha w = 0.5 › HQE: the building complies with class C for the “treatment of common areas” category and in the sense of the ISO/TS 19488:2021 standard, › HQE 2 pts: the building complies with class B for the “treatment of common areas” category and in the sense of the ISO/TS 19488:2021 standard.	PR HQE HQE 2 pts	Preliminary project and design audit: Special technical conditions Execution audit: Technical data sheet of the absorbent material

Additional information:

The equivalent absorption surface A of an absorbing cladding is given by the following formula:
$A = S \times \alpha_w$
where S is the surface area of the absorbing cladding and α_w is its sound-absorbing evaluation index (measured according to ISO 11654).
The value of ΣA is the sum of the equivalent absorption surfaces of each of the absorbing cladding in the common corridors inside the building, expressed in m².

The treatment concerns all the corridors from the outside to the accommodation: entrances, halls, landings, stairways if there is no lift.

The value of the sound-absorbing coefficient α_w must be greater than or equal to 0.2. The index α_w of the open air surfaces of the corridors is considered to be 0.8.

The classification levels of the categories according to ISO 19488:2021 can be found in the “Acoustics for buildings under construction > Performance requirements” section

Protection against airborne noise inside the accommodation	Level	Method of proof
QA.9.1 In case of replacement of light partition walls, they are made of plasterboard on frames with mineral wool.	PR	Preliminary project and design audit: Special technical conditions Execution audit: Visual inspection of the nature of the replaced partitions.

5.8. Visual comfort

Natural lighting in private areas	Level	Method of proof
CV.1 In each accommodation, at least one main room (living room/bedroom) has an openness index greater than or equal to 15 %.	PR	Design audit: Design report on opening indexes

Additional information:

The openness index is the ratio of the opening area (including joinery (frame) and glazing) to the floor area of the room.
The floor area is reduced by the area of the cupboards provided and the area of the parts of the room with a ceiling height of less than 1.80 m.

For a room with several openings, the sum of the opening areas is calculated.

Special cases:

- *for a window with an inclination ≤ 50° to the horizontal, the index must be multiplied by 1.5 to take into account the improvement brought about by the inclination of this opening;*
- *for a dormer window, the openness index must be multiplied by 0.75 to take into account the deterioration caused by the presence of side walls;*

Glazed or unglazed entrance doors are not included in the opening area.
The openness index must be complied with rounded to the nearest unit. (If the number after the decimal point is less than 5, round down. If the number after the decimal point is greater than or equal to 5, round up).

CV.2 The accommodations meet the following conditions: • Average calculated daylight factor ≥ 2 % in living room • Average calculated daylight factor ≥ 1.5 % for bedrooms (see additional information). A technical study could be carried out for each type of accommodation, justifying their representativeness in the project and giving priority to ground floor accommodations.	HQE 2 pts	Design audit: Design report for calculated daylight factors

Additional information:

Daylighting in a room can be quantified with the daylight factor at an interior point of the room in the accommodation concerned: this is the ratio of the daylight received at this point (Eint) to the simultaneous outdoor illuminance (Eext) on a horizontal surface, in a perfectly clear site, under a uniform overcast sky.

Flj = Eint / Eext (%)

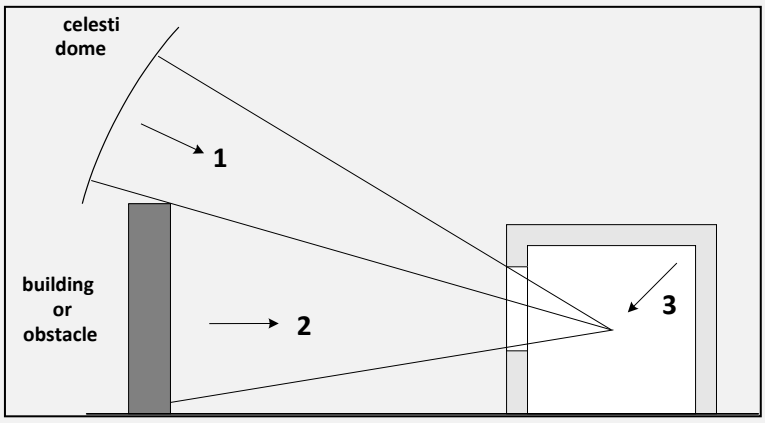


Figure - Definition of daylight factor (1: direct component, 2: external reflection component, 3: internal reflection component)

It is possible to evaluate the daylight factor of a room using dedicated software (DIALux, PHANIE).

Natural light in common areas	Level	Method of proof
CV.3 In apartment buildings: ➢ HQE 2 pts: natural lighting is present in the horizontal corridors OR stairways. ➢ HQE 3 pts: natural lighting is present in the horizontal corridors AND stairways.	HQE 2 pts HQE 3 pts	Design audit: Drawings Execution audit: Visual inspection to check the presence of natural lighting in the common corridors

5.9. Services and transport

5.9.1. Services

Shared space	Level	Method of proof
ST.1.1 An additional collective space is created. For example: shared garden, communal laundry, multi-purpose room, laundry room, drying room, custodian's office, outdoor play area, quiet recreation area, accessible roof terrace, bulky goods room, bartering area.	HQE 2 pts	Design audit: Ground plan Execution audit: Visual inspection of the equipment

5.9.2. Transport

Proximity to transport	Level	Method of proof
ST.2.1 An inventory of the various existing modes of transport around the operation (within a maximum radius of 5 km) is carried out (self-service bicycle, bus, metro, tram, car-sharing, station, airport, etc.). It specifies the types of transport and their distance from the main entrance to the site.	PR	Design audit: Location map of local transport (indicate scale and distances). Site analysis
Pathways and parking	**Level**	**Method of proof**
ST.2.2 The elements of the project that reduce transport-related impacts and/or nuisances are shown on the ground plans: • effective separation of pedestrian, bicycle and vehicle paths, • emergency vehicle parking, vehicle parking, bicycle parking, PRM parking, etc. Depending on the local and regulatory context, the inclusion or non-inclusion of the elements listed above will be justified.	HQE	Design audit: Ground plan, Descriptive note
Parking of vehicles	**Level**	**Method of proof**
ST.2.3 In the case of car parks, 10% of the spaces must be equipped with a normal recharging point for electric or rechargeable hybrid vehicles.	HQE 3 pts	Design audit: Project specifications, Construction works contracts Execution audit:

		Visual inspection of the equipment

5.10. Connected building

Building connectivity	Level	Method of proof
BC.1 A solution guaranteeing a very high speed connection such as ADSL or fibre is put in place, with a speed greater than or equal to 30 Mbit/s allowing access to: • Phone, • DTT, satellite and cable audiovisual communication services, • Internet.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Certificate of self-check from the company validating the operation of the installation.
Digital security	**Level**	**Method of proof**
BC.2 In the event of network failure, equipment items that are no longer connected, must continue to perform their main functions for the building and accommodation users.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Check the instructions for the connected equipment or demonstrate the equipment

Additional information:

Examples of connected equipment in common areas:
- *videophone*
- *connected mailboxes*
- *parking doors*
- *lift*

Examples of connected equipment in accommodations:
- *window opening detection*
- *water leakage detection*
- *connected roller shutters*
- *home automation lighting*
- *monitoring of energy or water consumption.*

6. Respect for the environment

6.1. Energy

6.1.1. Energy performance

Energy consumption	Level	Method of proof
EN.1.1 In the presence of energy consumption regulations, energy consumption is calculated: ➢ PR: compliance with the regulations of the country concerned ➢ HQE: -10 % compared to the regulations of the country concerned ➢ HQE 2 pts: -20 % compared to the regulations of the country concerned	PR HQE HQ 2 pts	Design audit: Energy consumption design report for the project
Additional information: *In the case of a new Construction operation, the reference text is the regulation of the country concerned for new constructions.* *In the case of a Renovation operation, the reference text is the regulation of the country concerned for renovation operations.*		
EN.1.2 In the absence of regulations on energy consumption: ➢ PR: calculate energy consumption for the following 5 items (if present): heating, cooling, lighting, domestic hot water (DHW), auxiliaries. ➢ HQE Construction: The energy consumption of the 5 items mentioned above are included between 80 kWh and 120 kWh in final energy/year.m² habitable floor area. ➢ HQE Renovation: The energy consumption of the 5 items mentioned above is less than or equal to the energy consumption of the 5 items before renovation -20 % (in final energy/year.m² habitable floor area). ➢ HQE 2 pts Construction: The energy consumption for the 5 items mentioned above is less than 80 kWh final energy/year.m² habitable floor area. ➢ HQE 2 pts Renovation: The energy consumption of the 5 items mentioned above is less than or equal to the energy consumption of the 5 items before renovation -40 % (in final energy/year.m² habitable floor area). ➢ HQE 3 pt: The energy consumption of the 5 items mentioned above is covered in full by renewable energy production.	PR HQE HQE 2 pts HQE 3 pts	Design audit: Energy consumption design report for the project

EN.1.3: For Construction projects: The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council. The energy performance is certified using an as built Energy Performance Certificate (EPC).	HQE 3 pts	Design audit: Energy consumption design report for the project
EN.1.4: For Construction projects: The Primary Energy Demand (PED) setting out the energy performance of the building resulting from the construction does not exceed the threshold set for the nearly zero-energy building (NZEB) requirements in national regulation implementing Directive 2010/31/EU. The energy performance is certified using an as built Energy Performance Certificate (EPC).	HQE 2 pts	Design audit: Energy consumption design report for the project
EN.1.5: For Renovation projects: The building renovation complies with the applicable requirements for major renovations. Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30 %.	HQE 3 pts	Design audit: Energy consumption design report for the project

Additional information:

Building renovation is compliant with the requirements for major renovation work as set out in the national and regional measures applicable for major renovation work designed to implement Directive 2010/31/EU. The improved energy performance of the building or its renovated part meets the energy performance of a cost-optimal level in accordance with the applicable directive.

6.1.2. Heating installations

Sizing	Level	Method of proof
EN.2.1 If a heating system is present, the heat emitters are sized according to the heat losses of the accommodation (according to local standards or by default according to EN 12831 for the calculation of heat losses and EN 14337 for the sizing of electric heating emitters and EN 12828 for the sizing of hot water heating emitters).	PR	Design audit: Project specifications, Construction works contracts + Justification of the dimensioning

		Execution audit: Visual inspections to check the presence of equipment in line with the studies.

Additional information:

- *Standard EN 12831: Heating systems in buildings - Method of calculation of basic heat losses.*
- *Standard EN 14337: Heating Systems in buildings - Design and installation of direct electrical room heating systems*
- *Standard EN 12828: Heating Systems in buildings - Design for water-based heating systems*

EN.2.2 An air-tightness test of the building envelope is carried out and measures to improve insulation are taken if necessary. Any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Air permeability ratio

Additional information:

The air permeability test shall be carried out in accordance with EN 13829 (Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurisation method) or equivalent standards accepted by the competent building inspection body for the area in which the building is located.

EN.2.3 For buildings larger than 5,000 m2, upon completion, the building undergoes testing for thermal integrity, and any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients. OR The Project Manager or the person in charge of monitoring the works draws up a control action plan for thermal works and keeps it up to date. OR The (construction or installation) companies for thermal works have qualifications or certifications adapted to their mission and the type of building.	HQE 3 pts	Design audit: Tender documents (Consultation rules / Special technical conditions) Execution audit: Thermal integrity report OR Inspection action plan completed. OR Company qualifications

Additional information:

Thermal integrity test OR thermography
Infrared thermography allows the temperature of a building to be measured without contact, using a thermal infrared camera system.

To carry out this thermal assessment, the technician photographs all the significant parts of the operation (windows, entrance doors, high and low floors, etc.) and identifies those that allow heat to escape.

Inspection plan:
The aim is to check the consistency between the elements indicated in the thermal study, in the project specifications or works contracts and the elements actually supplied and installed. The required checkpoints are listed below:

- *Envelope*
  - *Outer walls and insulation*
  - *Unheated and insulated walls*
  - *Floors and insulation*
  - *Crawl space floors and insulation*
  - *Floors on basement car park and insulation*
  - *High floors under the roof and insulation*
  - *Other floors*
  - *Thermal bridges*
  - *Flat roof*
  - *Insulation under the roof*
  - *External joinery*
  - *Occultations*
- *Ventilation*
  - *Extractor*
  - *Air inlets*
  - *Extract units*
- *Heating / DHW*
  - *Heat production*
  - *DHW production*
  - *DHW storage*
  - *Solar panels*
  - *Exchangers*
  - *Emitters*
  - *Control devices*

Action plan for inspection operations during the implementation phase:

Components	Lot	Action plan for maintenance operations			Company self-inspection sheet	Observations for the monitoring of inspection points
		Inspection points	Date of passage	Visual check	Date of delivery	
External thermal insulation		Presence of extruding ends of the insulation in transoms and lintels				
		Conformity of external insulation attachments with the technical notice (support and number)				
Windows		Compression of seals when closing windows				
		Composition of glazing (thickness, air spaces)				
Roller shutter boxes		Presence of insulation in roller shutter boxes				
Interior insulation		Continuity of interior facade insulation, especially in wall/wall and wall/ceiling corners				
		Continuity of insulation in ducts and soffits				
Landing doors		Homogeneous compression of the peripheral seal of landing doors				

Sprayed insulation		Regularity of the thickness of the sprayed insulation				
Thermal bridge breakers		Presence of breakers according to execution plans				
Central heating production		Control of fluid temperatures and fuel flow, water return flow, balancing of installations, by the installer company (facilitate performance monitoring)				
Collective DHW pipes		Presence, type and thickness of insulation on collective DHW pipes				
Solar thermal panels		Orientation, angle and absence of shading				
		Check the support for the panels integrated into the roof				
		Presence and connection of calorimetric and volumetric meters on the booster and solar systems				
Photovoltaic panels		Orientation, angle and absence of shading				
		Check the support for the panels integrated into the roof				
		Receipt of the panels on delivery by the installation company				
		Inspection of the electrical installations (earthing, inverter, batteries, etc.) by the installer company				
Consumption display panel		Where there are consumption display systems, verification of the compatibility of the metering devices by the installer company (communication protocols)				

Companies for companies for thermal works:
Structural work, facade cladding, partition walls and linings, roofing, structural waterproofing, exterior joinery, heating and DHW, plumbing and ventilation and electricity lots.

Regulation	Level	Method of proof
EN.2.4 If there is a heating system, each accommodation is equipped with a room thermostat.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections to check the presence of equipment
EN.2.5 If a heating system is present, a system for regulating the temperature according to the outdoor temperature is provided.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections to check the presence of equipment
Emitters	**Level**	**Method of proof**
EN.2.6 The heat emitters are integrated into the walls of the building (e.g. underfloor heating).	HQE 2 pts	Design audit: Project specifications, Construction works contracts

6.1.3. Domestic hot water installations

Domestic hot water	Level	Method of proof
EN.3.1 In the case of collective hot water production, the networks are insulated to limit heat loss in distribution.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections
EN.3.2 A hot water production system, individual or collective, is present and covers the daily volumetric needs of the occupants.	PR	Design audit: Design report, Project specifications, Construction works contracts

6.1.4. Renewable energy

Renewable energy	Level	Method of proof
EN.4.1 If solar panels are present, they are oriented and tilted for optimal operation.	PR	Design audit: Project specifications, Works contracts + Solar collector layout diagram Design audit: Visual inspection to check the presence of the collectors in accordance with the layout plan
EN.4.2 At least one renewable energy, energy recovery or cogeneration plant is installed: ➢ HQE: ○ Solar domestic hot water ○ OR Energy recovery ○ OR Photovoltaic ○ OR Cogeneration ○ OR system with Heat pump ➢ HQE 3 pts: ○ Solar domestic hot water AND heating ○ OR hybrid solar thermal and photovoltaic system	HQE HQE 3 pts	Design audit: Project specifications, Construction works contracts Design audit: Visual inspection to check the presence of a renewable energy, energy recovery or cogeneration installation

6.1.5. Controlling electricity consumption

Common areas	Level	Method of proof
EN.5.1 There is a device for automatically switching off light sources (excluding emergency lighting).	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections
EN.5.2 The time delay for the lighting of non-private areas is: - 2 to 3 minutes for LED and halogen lamps, - 3 to 5 minutes for discharge lamps.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections
EN.5.3 In the common areas, the lighting is controlled by a presence detector with overlapping zones and a programmable timer. In the case of natural lighting, the presence detector is coupled with a twilight detector	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections
EN.5.4 The luminous efficacy of lamps in common areas is greater than or equal to 80 lm/W.	HQE	Design audit: Project specifications, Construction works contracts
EN.5.5 The electrical circuits of the lighting system in the following rooms are independent of each other: • Waste bin storage rooms; • Bicycle/pram storage rooms; • Maintenance rooms; • Common vertical corridors; • Each common horizontal corridor.	HQE	Design audit: Project specifications, Construction works contracts Execution audit: Check the independence of the lighting circuits (by switching on, or by labelling the electrical circuits in the main low voltage switchboard).
EN.5.6 Standards for lighting levels are met. In the absence of a standard, the minimum illuminance levels to be complied with are the following: - 100 lux for entrances; - 100 lux for the horizontal corridor of the building, - 150 lux for stairways; - 20 lux for indoor car parks	PR	Design audit: Project specifications, Construction works contracts

EN.5.7 The lighting system covers the entire area concerned per level and in maximum areas of: - 100 m² for each common horizontal corridor, - 500 m² for indoor parking. For internal stairways, the lighting system shall cover the whole of the space concerned and shall not serve more than 3 levels operated simultaneously.	PR	Design audit: Project specifications, Construction works contracts
External corridors	**Level**	**Method of proof**
EN.5.8 Standards for lighting levels are met. In the absence of a standard, the minimum illuminance levels to be complied with are 20 lux for outdoor spaces and pathways.	PR	Design audit: Project specifications, Construction works contracts
EN.5.9 The lighting system covers the whole of the space concerned per level and in areas of up to 100 m² for open-air corridors and external stairways.	PR	Design audit: Project specifications, Construction works contracts
EN.5.10 In the presence of external corridors with permanent lighting at night, the level of illumination is reduced by 30 % between 23:00 and 5:00 at least, while remaining above 20 lux.	HQE	Design audit: Project specifications, Construction works contracts
EN.5.11 The lighting of the external walkways is not achieved by indirect lighting through facade illumination. The lighting system directs the light towards the ground and does not cause visual pollution for the accommodation and the environment.	HQE	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections
EN.5.12 The lighting of the external common corridors is provided by a system of autonomous light fixtures with photovoltaic sensors.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspections
Other	**Level**	**Method of proof**
EN.5.13 If there is a lift, it is matched to the traffic to limit the energy consumption of the lift. Non-permanent lighting is provided in the cab, excluding emergency lighting.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Lift technical data sheet

6.1.6. Consumption monitoring

Dashboard	Level	Method of proof
EN.6.1 A dashboard providing information on energy consumption per item is installed. - In other words, the items taken into account in the regulations of the country concerned, - Or the DTS items: • heating; • cooling; • domestic hot water production; • network of electrical outlets; • others.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspection to check the presence of the dashboard in the accommodation

Additional information:

Definition of items according to the French Energy Efficiency Standards:

- *"Heating" item: Includes the energy consumed and billed for heating the accommodation. In the case of an individual generator, consumption related to auxiliaries is recorded under this item; it may also be recorded under the item "other". In the case of a collective generator, auxiliaries are not counted.*

- *"Cooling" item (in the case of an accommodation with a cooling system): Includes the energy consumed and billed for cooling the accommodation. In the case of an individual generator, consumption related to auxiliaries is recorded under this item; it may also be recorded under the item "other". In the case of a collective generator, auxiliaries are not counted.*

- *"Domestic hot water production" item: Includes the energy consumed and billed for the production of domestic hot water in the accommodation. In the case of an individual generator, consumption related to auxiliaries is recorded under this item; it may also be recorded under the item "other". In the case of a collective generator, auxiliaries are not counted.*

- *"Electrical sockets network" item: Includes consumption by all appliances connected to electrical outlets: household appliances, computers, hi-fi, auxiliary lamps, free-standing electric cooking appliances (microwave oven, portable hotplates), etc., with the exception of specialised cooking circuits not connected to an outlet, whose consumption is counted under "other" (e.g. oven with dedicated electrical line).*

- *"Other" item: Includes consumption that is not included in the previous items: building lighting, specialised circuits for electric hobs and ovens, non-electric cooking, CMV, automatic systems, etc.*

6.2. Water consumption

6.2.1. Water savings

Water savings	Level	Method of proof
WATER.1.1 A dual flush toilet mechanism is present in each accommodation.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual check
WATER.1.2 Measures are implemented to limit the consumption of distributed water. The flow rate of sanitary fittings is: - Shower: 12L-16L/min - Washbasin, bidet, hand wash: 6L-9L/min - Sink: 9L-12L/min - Shower bath: 16L-20L / 12L-16L/min	HQE	Design audit: Descriptive note justifying the measures taken to reduce water consumption. Project specifications, Construction works contracts Execution audit: Technical data sheets for taps
WATER.1.3 - wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min; - showers have a maximum water flow of 8 litres/min. - WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres;	HQE 3 pts	Design audit: Project specifications, Construction works contracts Execution audit: Technical data sheets for taps
WATER.1.4 For interior and exterior common areas: Devices to reduce water consumption for common areas (surface area to be maintained/cleaned: m² and type, watering needs for outdoor areas - estimated consumption m³/m², description of water flow devices, etc.) are implemented.	HQE 2 pts	Design audit: Descriptive note justifying the measures taken to reduce water consumption
EAU.1.5 A rainwater harvesting system is installed with evidence that sanitary conditions are maintained for use within the project (in accordance with local applicable regulations, if any).	HQE 3 pts	Design audit: Draw up a full description of the rainwater harvesting system installed: Dimensional design report, Drawings, Technical details Execution audit: Visual inspection to check the presence of a rainwater harvesting system

6.2.2. Consumption monitoring

Monitoring of water consumption	Level	Method of proof
WATER.2.1 In the case of collective production of domestic hot water, hot water meters complying with the European MID measuring instruments directive and with R ≥ 100 or equivalent (see additional information) are provided on the supply lines to each accommodation.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Technical data sheet and visual inspection
Additional information: *European Measuring Instruments Directive - MID* *The European Measuring Instruments Directive 2004/22/EC (MID), applicable from 30 October 2006, aims to harmonise metering practices at European level. The meters meet EN 14154 and/or the OIML R49 recommendation.* *The meters are classified according to a flow rate Q3 (permanent flow rate) and a ratio R (ratio between the minimum flow rate Q1 and Q3). The higher the ratio, the more precisely the meter counts R500> R80.*		
WATER.2.2 A device for reading water consumption is present (cold and hot if collective DHW production) inside the accommodation (direct reading, report, etc.).	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspection to check the presence of the water consumption reading device in the accommodation

6.3. Land use

Topography of the site	Level	Method of proof
SOL.1 An analysis of the topography of the site (contour mapping) is carried out to assess and minimise the impact of the building layout on land excavation. The analysis should include at least one item on the cut and fill balance.	PR	Design audit: Topography analysis report

Soil sealing	Level	Method of proof
SOL.2 Local regulations are respected (land use coefficient, % of green spaces, % of vegetated surfaces, leakage rate, etc.). In the absence of regulations, the permeability coefficient of the plot is calculated and measures are taken to limit/reduce its value, i.e. to favour water infiltration on the plot.	HQE	Design audit: Project specifications, Construction works contracts or design report of the imperviousness coefficient

Additional information:

The overall permeability coefficient of the plot Cimp is defined by the ratio between the impervious surface Simp of a plot and its total surface St:

$$Cimp = Simp/St$$

The impervious surface at the plot level is calculated by summing all the "unit" surfaces, affected by their unit permeability coefficient.

$$Simp = C1 \times S1 + C2 \times S2 + ... + Cn \times Sn$$

Type of surface	*Details*	*Unit permeability coefficient*
Roofing	*Sloped or flat roof (gravel or not)*	*1*
	Extensive green roof (substrate thickness less than 15 cm)	*0.7*
	Semi-intensive green roof (substrate thickness between 15 cm and 30 cm)	*0.6*
	Intensive green roof (substrate thickness over 30 cm)	*0.4*
Roads, parking	*Roads or car parks in conventional waterproof asphalt*	*1*
	Green car park	*0.7*
	Pavement with permeable reservoir structure on predominantly silty or clayey soil	*0.7*
	Pavement with permeable reservoir structure on predominantly sandy soil	*0.4*
Pathway and pedestrian square	*Pathway or square with impermeable surface*	*1*
	Porous concrete, stabilised or wide-jointed paving path or square (except on slab)	*0.6*

	Green space on slab (or intensive vegetation) with a substrate thickness greater than 30 cm.	*0.4*
	Green space with grassed areas (excluding internal paths and roads)	*0.2*
	Wooded green space (more than 70 % tree coverage on the ground, excluding internal paths and roads)	*0.1*

SOL.3 The permeability coefficient of the plot is calculated: ➢ HQE 2 pts: And is less than 80 %. ➢ HQE 3 pts: And is less than 65 %.	HQE 2 pts HQE 3 pts	Design audit: Calculation of the permeability coefficient
SOL.4 The buildings are built on an area that has already been developed or does not have any ecological issues defined by the urban planning documents.	HQE 3 pts	Design audit: Existing plans and floor plans

Additional information:

Artificialised areas correspond to agricultural, natural or forest areas that have changed state and are no longer available for agriculture or as natural habitats.

Rainwater management	Level	Method of proof
SOL.5 An ecological rainwater harvesting system is installed. Its management mode is defined (maintenance, upkeep).	HQE 2 pts	Design audit: Project specifications, Works contracts and definition of the management programme. Execution audit: Check the presence of the management programme in the information document for managers.

Additional information:

Ecological harvesting system: For example, run-off water can be collected in ditches, particularly in outdoor car parks and around buildings. It is possible to connect a network of ditches to a phyto-purification basin. Ponds with soft sloping banks (10 to 20 %) facilitate the spontaneous growth of plants adapted to the banks.

6.4. Material resources

Recycled materials	Level	Method of proof
REM.1: The new construction products used incorporate a minimum of recycled material: At least 2 families of construction products containing at least 15 % recycled material are used.	HQE 3 pts	Design audit: Project specifications, Construction works contracts Execution audit: Product technical data sheets

Additional information:

A "family" is a group of products with the same function and nature (e.g. door, window, attic insulation, etc.).

Reuse of construction products	Level	Method of proof
REM.2: Some of the construction products or equipment used come from re-use or recycling: At least 1 product family.	HQE 3 pts	Design audit: Project specifications, Construction works contracts

6.5. Waste

6.5.1. Household waste management

Waste separation	Level	Method of proof
DEC.1.1 In the case of selective collection, specific equipment for the storage of household waste (supply of selective sorting bins, unit with integrated compartments, etc.) is provided on delivery. OR A waste composting system is provided (with instructions for use) for the occupants of the accommodation (internal or external to the building). In the case of a collective building, an operating procedure explaining the management of composting is provided.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspection to check the presence of the sorting equipment OR the composting device AND operating procedure
Storage of waste	**Level**	**Method of proof**
DEC.1.2 An internal collection in line with the external collection is planned.	PR	Design audit: Justification of the collection method, Descriptive note
DEC.1.3 The storage of waste is carried out according to one of the following arrangements: - Indoor waste bin storage room - Outdoor waste bin storage area - Package chutes - Bin shelters - Voluntary drop-off points - Pneumatic collection points	PR	Design audit: Drawings
DEC.1.4 The waste storage area is easily accessible from the accommodations on a regular route for residents. The route of the bins does not affect the common internal corridors serving the accommodations.	PR	Design audit: Drawings

Additional information:

A waste bin storage room is said to be accessible when it is located on a normal route for the occupants of the building and:

- *Inside the building with a maximum of three doors to pass through, in the basement only at "-1" and if there is a lift;*
- *Outside, at a distance of less than 70 m from the entrance hall or the furthest house (in the case of a residential area with a single exit, the distance is increased to 100 m).*

DEC.1.5 If one or more waste streams are collected by local voluntary collection, it is necessary to inform the occupants of the building by means of appropriate signage in the premises.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspection of the display
DEC.1.6 Where a waste bin storage room is present, the following provisions are observed: • door with a width adapted to the passage of the bins, • water point (with a stopcock) and a drain through a floor drain, • ventilated and/or vented, • covering adapted to the use (tiles, resin or equivalent), • room designed to prevent the intrusion of pests.	PR	Design audit: Project specifications, Works contracts, Plans Execution audit: Visual inspection to check the presence of the equipment
DEC.1.7 If the waste storage method includes bin shelters, they are provided with a supply tap to the cold water supply system and a drainage system with a siphon nearby.	PR	Design audit: Project specifications, Works contracts, Plans Execution audit: Visual inspection to check the presence of the equipment
DEC.1.8 Where there is an outdoor waste bin storage room, provisions are made to ensure protection from wind, rain, pests and to limit visual nuisances.	PR	Design audit: Project specifications, Works contracts, Plans Execution audit: Visual inspection to check the presence of the equipment
DEC.1.9 The indoor or outdoor waste bin storage room or area is sized to meet the requirements of the municipality. If the municipality does not impose a sizing requirement, the flat-rate or detailed calculation methods are followed.	HQE 2 pts	Design audit: Note on the size of the waste bin storage room

Additional information:

Sizing of the waste bin storage room or area:

- *Either the waste bin storage room meets the following dimensions:*
  - *Room area > 5.5 + (0.14 x number of residents) m², if number of residents < 50*
  - *Room area > 8 + (0.09 x number of residents) m², if number of residents ≥ 50*

- *Or in the case of a waste bin storage room or area, a bin shelter or underground/semi-underground containers, the Applicant sizes the storage area according to the specific characteristics of the project (number of residents, average waste production, collection frequency, etc.). In the case of a room, it must be ensured that the room allows free movement of each container.*

DEC.1.10 The manual handling of containers is limited - route from the storage point to the external collection point. Example of an area for improvement: • Distance to travel; • Possible gradients (increased difficulty when pushing a container uphill or holding a container downhill): the gradients must be less than 4 % at all points along the route in the case of manual traction; • Number and nature of obstacles (steps, doors, doorstops, posts, speed bumps, manhole covers, gullies, parked vehicles, pavement, landscape, route – 90° turn or hairpin turn).	HQ 2 pts	Design audit: Plans, Project specifications, Works contracts (motorised system)

6.5.2. Disassembly potential

Disassembly	Level	Method of proof
DEC.2.1 Provisions are made for construction techniques to limit the production of waste at source.	HQE 3 pts	Design audit: Drawings with elements which can be disassembled, technical data sheets, justification note.
DEC.2.2 Building designs and construction techniques support circularity with the possibility that components can be used for other purposes. The minimum provisions to be taken into account are those provided in the “Additional Information” section.	HQE 3 pts	Design audit: Disassembly/deconstruction plans including disassembly sequencing information according to ISO 20887:2020

Additional information:

With reference to ISO 20887:2020, the minimum provisions to be taken into account are the following:
- *Easy access to components and services*
- *Independence of the 4 lots (structure, envelope, systems, interior fittings)*
- *Avoidance of unnecessary treatments and finishes*
- *Simplicity and standardisation of assembly*
- *Safety during disassembly*
- *Supporting circular economy business models*

6.5.3. Deconstruction

Deconstruction	Level	Method of proof
DEC.3.1 In the case of prior deconstruction or heavy rehabilitation, a "product/waste diagnostic" of the works to be demolished is carried out and takes into account the following: • composition, location and estimation of waste and potentially reusable products; • recommendations for the careful removal, storage and transport of potentially reusable products and waste; • in the absence of reuse, the recycling and recovery and disposal of the waste concerned by the demolition or heavy rehabilitation. In the presence of asbestos, asbestos removal is carried out by a company qualified in the field by an independent third-party body.	HQE	<u>Design audit:</u> Waste diagnostic + Proof of future work by a specialised asbestos removal company if required

6.6. Climate change

Environmental impact	Level	Method of proof
CC.1 Where Carbon regulations require a building life cycle analysis, it must be complied with.	PR	Design audit: Environmental impact design report
CC.2 In the absence of Carbon regulations, the environmental impact of the building is calculated according to European standard EN 15978 or international standard ISO 21931.	HQE 2 pts	Design audit: Environmental impact design report

Additional information:

EN 15978: Sustainability of construction works - Assessment of the environmental performance of buildings

ISO 21931: Sustainability in building construction - Framework for methods of assessment of the environmental performance of construction works

CC.3 The products have environmental declarations in accordance with ISO 21930 or EN 15804 where available.	HQE	Design audit: Project specifications, Construction works contracts Execution audit: Environmental declaration sheets by sampling for 3 products of different technical lots.

Additional information:

ISO 21930:2017: Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services

EN 15804: Sustainability of construction works - Environmental product declarations.

Life cycle assessment	Level	Method of proof
CC.4 Based on the LCA results of several construction and/or energy system scenarios, solutions are selected to reduce the greenhouse gas emissions indicator.	HQE 3 pts	Design audit: LCA design report

6.7. Biodiversity

Ecological issues	Level	Method of proof
BDV.1 The ecological issues of the initial site are identified and the measures taken to preserve it are specified in the information document for managers and residents.	HQE	Design audit: Site analysis or census report Execution audit: Information document for residents and managers on site preservation measures

Additional information:

The inventory of ecological issues includes bibliographical and cartographic elements from sites of interest within a perimeter of at least 5 km, i.e. benefiting from regulatory protection (National Park, Biological and Natural Reserve, Regional Ecological Coherence Scheme), contractual protection (Regional Nature Park, Natura 2000 sites1, National Action Plan), international commitments (Biosphere Reserve, Wetland of International Importance) and heritage inventories (Natural zone of ecological interest, fauna and flora (ZNIEFF)) in order to identify any issues at stake on the site (ecological continuity, habitats, species).

*In addition to identifying ecological issues, operations under a **Taxonomy profile** must also carry out :*

- *An Environmental Impact Assessment (EIA) or screening has been completed in accordance with Directive 2011/92/EU.*
- *For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment*

The necessary mitigation and compensation measures are implemented.

BDV.2 The initial site is the subject of an ecological diagnostic carried out by an ecologist or competent person who also provides a report with recommendations. The design team is responsible for monitoring the implementation of the commitments made in the report.	HQE 3 pts	Design audit: Ecological diagnostic (check content) Execution audit: Ecology monitoring mission contract.

Additional information:

The main objective of the ecological diagnostic is to identify the issues specific to the site in order to strengthen the ecological potential of the operation, by identifying the obstacles and levers linked to the environmental, territorial and legal context and by defining the opportunities.

It consists of the following steps:

1- *The collection of information, studies, reports and data already existing on the territory or referenced in databases from the communal scale to the level of the plots concerned;*
2- *At least one on-site assessment of the habitats and species present in relation to the species at stake identified through the literature review (habitat, flora, avifauna, chiropterans, coleoptera, orthopterans, odonates, rhopalocerans, amphibians, etc.). The objective is to determine whether any of these species could potentially be present on the site and be impacted by the project;*
3- *Mapping of habitats according to available databases;*
4- *Determination of green and blue networks at the plot level with the identification of the condition of corridors and reservoirs (good condition, to be restored, etc.), remarkable elements and potentially invasive species;*
5- *Landscape analysis and determination of the surrounding conditions of rainfall, sunshine, soil and wind patterns will help in the choice of future planting and the installation of possible shelters for fauna (nesting boxes, insect hotels, etc.);*
6- *A proposal for measures favourable to biodiversity that are consistent with the species present and potential to be integrated into the project (buildings, green spaces, etc.);*
7- *Identification of opportunities to promote amenities on the site for (future) occupants in connection with the vegetated areas on the site (visible or accessible green spaces, plant containers, vegetable gardens, etc.).*

Greening	Level	Method of proof
BDV.3 In order to encourage greening, the project must include: ➢ PR: Green spaces (in the ground, on slabs, on roofs, on walls, plants in containers integrated into the architectural project). ➢ HQE 2 pts: At least 30 % of the surface of the plot as open green space (i.e. no construction underneath). In the case of an urban site where there is no open space on the plot, the minimum thickness of the substrate must be 1.5 m.	PR HQE 2 pts	<u>Design audit:</u> Plans showing the areas of vegetated areas with adult plants.
BDV.4 Existing plantations must be maintained OR The species planted are: • non-invasive; • low-allergenic; • adapted to the climate and terrain; • based on diversified plant strata.	HQE	<u>Design audit:</u> Plans of the existing layout and the project. Project specifications, Works contracts or specific instructions

6.8. low-nuisance construction site

6.8.1. Call for tenders for building sites with low-level noise nuisance

Environment correspondent	Level	Method of proof
CNF.1.1 It is specified in the contract for works that each company must designate an environmental contact person to represent it on the site. 0.7 vol/h from 3-bedroom unit. A person is designated in the field (see additional information), and will be in contact with the companies' environmental contact persons to relay environmental information about the site and to monitor the implementation of the companies' commitments.	HQE	Design audit: Contracts with companies, Project specifications, Works contracts, Note on the organisation of the project
Energy and water consumption	**Level**	**Method of proof**
CNF.1.2 The companies' contracts specify that they are committed to reducing their water and energy consumption through actions to raise workers' awareness, choice of equipment, site installation and construction methods.	HQE	Design audit: Contracts with companies, Project specifications, Works contracts, Note on the organisation of the project
Storage and sorting of waste	**Level**	**Method of proof**
CNF.1.3 The contractors' contracts specify that they must set up storage and/or sorting of construction waste so that recoverable waste can be sent to existing local channels.	HQE	Design audit: Contracts with companies, Project specifications, Works contracts, Note on the organisation of the project

6.8.2. Controlling environmental impacts

Controlling environmental impacts	Level	Method of proof
CNF.2.1 For the construction site, the following commitments are defined: • reduce the impact on the environment (soil, water and air pollution); • reduce the nuisance caused (acoustic, visual nuisance and cleanliness of the area around the site) for local residents;	PR	Design audit: Document presenting the commitments for the site + Proof of dissemination of these

• reduce the impact on biodiversity during construction; • reduce the consumption of water and energy resources on site; • optimise construction waste management; • define a suitable storage area for hazardous substances (insulation of the floor and spill collection) with signage; • respect the health and safety conditions of workers; • respect the fundamental principles and rights at work established by the International Labour Organisation (see additional information). These commitments are communicated to the project management teams.		commitments to all the stakeholders
CNF.2.2 In the absence of a communal waste water collection network, wastewater and black water from the site must be treated by an autonomous sanitation system before being discharged into the natural environment. Depending on the methodology used by the machine operators (drainage, etc.), it may be necessary to equip the site with a sludge trap and an oil separator.	HQE	Design audit: Document presenting the commitments for the construction site
CNF.2.3 The Applicant shall establish: • site and organisation plan with flows, boxes and storage areas; • health and safety regulations for workers; • environmental risk prevention plan; • nuisance prevention plan (noise, dust, fire, odours, etc.).	HQE	Design audit: Site plan + Health and safety regulations for workers + Environmental risk prevention plan + Nuisance prevention plan

6.8.3. Waste treatment

Waste treatment	Level	Method of proof
CFN.3.1 The Applicant establishes the list of waste produced on site and, as far as possible, the estimated quantities of waste produced according to the progress of the site (ratio approach possible).	PR	Design audit: List of waste types + Quantity of waste
CFN.3.2 Traceability of the waste is ensured by collecting tracking/deposit slips, or any other similar arrangement to justify processing of the waste.	PR	Design audit: Provision of proof of waste traceability
CFN.3.3 The quantity of construction site waste in material recovery, excluding earthwork waste and hazardous waste, is: ➢ HQE 2 pts: More than 40 % of the total weight of waste generated. ➢ HQE 3 pts: More than 70 % of the total weight of waste generated.	HQE 2 pts HQE 3 pts	Design audit: Project specifications, Construction works contracts Execution audit:

If the construction operation includes a demolition phase, the waste quantities reported should also include demolition waste.		Document certifying that the objectives of recovery of construction site waste have been reached (waste management plan, construction site balance sheet, waste tracking form, etc.).
CFN.3.4 Arrangements are made on the site to allow the sorting and separate collection of the following waste: paper/cardboard, metal, plastic, glass, wood, plaster and mineral fractions in dedicated containers.	HQE 3 pts	Design audit: Document presenting the commitments for the site + site organisation plans
CFN.3.5 Arrangements are made to reuse excavated soil on site during earthworks and thus avoid its removal from the site.	HQE 2 pts	Design audit: Descriptive note Execution audit: Proof of a neutral balance in terms of soil removed/restored

6.8.4. Monitoring of the construction site

Monitoring of the construction site	Level	Method of proof
CNF.4.1 A schedule of the noisy phases of the site is drawn up and measures are taken (organisational and/or on equipment and machinery) to limit the acoustic nuisance for local residents according to the schedule.	HQE	Design audit: Site planning, Site organisation note
CNF.4.2 The site is regularly monitored with regard to site safety, the impact of the site on the environment, any nuisance suffered by local residents and the objectives set.	HQE	Design audit: Applicant's commitment, note on the organisation of the work site
CNF.4.3 A report is drawn up at the end of the project to measure the environmental efforts and measures implemented. The statement should contain information on: • Incidents or any organisational difficulties on the site and their handling; • Possible complaints from local residents and their handling; • Where appropriate, the analysis and proposals on the remarks of the environmental control bodies (...) ; • Identified excess consumption of energy and fluids; • Cleaning expenses;	HQE 2 pts	Design audit: Commitment of the Applicant Execution audit: Provision of the site report

• Quantities of waste evacuated, with copies of the transport and delivery notes and the results of their management (recovery, treatment, disposal).		

7. Economic performance

7.1. Maintenance and upkeep

7.1.1. Equipment maintenance

	Level	Method of proof
E&M.1.1 A maintenance manual is provided to the future manager. It identifies the elements requiring regular maintenance and upkeep and the means to be implemented, on the envelope and the technical equipment.	PR	Design audit: Commitment of Applicant Execution audit: Provision of the maintenance manual to the future manager
E&M.1.2 Where there is a CMV, a maintenance contract for the CMV installations will be set up.	PR	Design audit: Commitment of Applicant Execution audit: CMV maintenance contract

7.1.2. Maintenance of private areas

Shut-off valves	Level	Method of proof
E&M.2.1 An accessible shut-off valve allows the isolation of each accommodation (cold and hot water).	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual check
E&M.2.2 Accessible shut-off valves allow the isolation of each wet room in the accommodation (cold and hot water).	HQE 3 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual check

7.1.3. Maintenance of common areas

Waste bin storage room	Level	Method of proof
E&M.3.1 The walls of the waste bin storage room must be covered with a surface that is easy to clean (tiles, resin-based paint or equivalent) at least 1.40 m high.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Visual inspection, technical data sheet of coverings
Easy access to equipment	**Level**	**Method of proof**
E&M.3.2 The location of all the elements of access to the collective ventilation networks and individual tappings allows them to be cleaned without having to dismantle the connections between the ducts.	PR	Design audit: Project specifications, Construction works contracts Execution audit: Visual check

Additional information:

NF EN 12097: The air distribution system must be designed, manufactured and installed in such a way as to allow all internal surfaces and components to be cleaned.
Sufficient free space must be provided around the ductwork to allow cleaning operations to be carried out without obstruction.
For ductwork whose dimensions do not allow mechanised cleaning and require human access, the type and location of access components must allow cleaning personnel to enter and leave the ductwork safely and unhindered.
Sufficient access components must be provided to ensure that the entire duct network can be cleaned. network can be cleaned.
For cleaning access, ducts must be provided with openings of dimensions in accordance with NF EN 12097. Unless they can be cleaned satisfactorily on site, flexible ducts must, if possible, be removed for inspection and cleaning. For on-site cleaning of a flexible duct network, access must be provided by rigid access components.

The ductwork must be fitted with a sufficient number of access panels to ensure that no part of the ductwork has:
a) more than one change in diameter from one access panel ;
b) more than one change of direction of more than 45° from an access panel;
c) more than 7.5 m of duct from an access panel.
Flexible duct systems must have rigid access components at least every 6 m.

E&M.3.3 Access to the common technical equipment (boiler, lighting system, lift, solar panels, etc.) is provided from the common areas. Information on the accessibility of technical equipment must be given in the notice to the future manager. Appropriate security systems are provided.	PR	Design audit: Project specifications, Works contracts + Floor plans Execution audit:

		Provision of a booklet for future occupants
E&M.3.4 All maintenance operations, including the replacement of all common equipment, can be carried out without damaging the building.	HQE 3 pts	Design audit: Descriptive note + Floor plans

7.1.5. Technical management

BMS	Level	Method of proof
E&M.5.1 An IP (Internet Protocol) network dedicated to the building and serving the common areas is set up, preferably with an Ethernet wired link or another protocol, otherwise with WiFi or another radio protocol.	HQE 2 pts	Design audit: Project specifications, Construction works contracts Execution audit: Supply of the installation diagrams for the routing infrastructure and cabling (ducts, cable trays and cables). Documentary justification of the different uses addressed by the IP network.
E&M.5.2 A BMS for the collective parts (heating, ventilation, lighting) is set up to control costs and energy consumption.	HQE 3 pts	Design audit: Project specifications, Works contracts, Descriptive note Execution audit: Visual inspections of the BMS or home automation functionalities

7.2. Responsible consumption and production

7.2.1. Controlling costs and expenses

Estimated operating costs	Level	Method of proof
CPR.1.1 A provisional estimate of the building's operating costs over one year is prepared. (See additional information)	HQE 2 pts	Design audit: Project specifications,

		Construction works contracts

Additional information:

In the case of renovation, the property developer draws up a comparison between the initial condition based on actual expenses and the renovated condition based on forecast expenses. This process must be carried out for each building in the operation, which is the subject of the certification.
This comparison should be made on an equivalent expense item. Indeed, the installation of new equipment that was not present before the works can lead to an increase in expenses and distort the before and after comparison. Conversely, the removal of a unit of equipment may lead to a reduction of expenses, which must be neutralised in the actual expenses of the initial condition.

The forecast table of operating expenses may include the following items (examples):
Common areas:

- *Heating and/or domestic hot water (collective)*
  - *Energy consumption*
  - *Equipment maintenance*
- *Cold water*
  - *Water consumption*
  - *Maintenance and reading of water meters*
- *Electricity in common areas*
  - *Electricity consumption of technical installations (lifts, ventilation, pumps, booster pumps, safety devices, etc.) and lighting of common areas*
- *Lift maintenance*
- *Maintenance of the ventilation system*
- *Maintenance of cleanliness*
  - *Cleaning of interior common areas*
  - *Household waste (excluding tax)*
  - *Maintenance of the surroundings and outdoor areas*
- *Other expenses*
  - *Guarding (in addition to the missions already listed; information, surveillance, etc.)*
- *Parking lots*
  - *Power consumption of technical equipment (motorised doors, automatic barriers, etc.) and lighting*
- *Photovoltaic / solar thermal energy production*
  - *Maintenance and cleaning*
  - *Maintenance (inverters, batteries, electrical switchboard, etc.)*

Private expenses:

- *Heating (individual production)*
  - *Energy consumption*
  - *Equipment maintenance*
- *Domestic hot water (individual production)*
  - *Energy consumption*
  - *Equipment maintenance*
- *Cold water*

- *Water consumption*

Overall cost	Level	Method of proof
CPR.1.2 A global cost study is carried out: ➢ HQE 2 pts: ○ if heating equipment is present: a global cost study is carried out on the heating and hot water production systems. ○ in the absence of heating equipment: a global cost study is carried out on: roofs OR facades. ➢ HQE 3 pts: ○ if heating equipment is present: a global cost study is carried out on the heat and hot water production systems AND on a subject of choice on the building envelope or finishing. ○ in the absence of heating equipment: a global cost study is carried out on: roofs AND facades.	HQE 2 pts HQE 3 pts	Design audit: Full cost studies

Additional information:

The concept of global cost takes into account the following:

- *design costs;*
- *construction costs of the operation;*
- *costs associated with its use;*
- *and the costs associated with the end-of-life of the operation.*

The purpose of the methodology is to enable a technical and economic choice to be made in relation to one or more solutions. It is therefore a matter of identifying and quantifying the most significant advantages that differentiate two solutions (at the very least) in order to determine which one will be more advantageous over a given period in relation to the criteria previously determined.

- *The relative overall cost analysis must cover at least 2 technical solutions per subject.*
- *For all solutions covered in the study:*
  - *The technical equipment being compared must have the same scope for the full cost calculation (ISO 15686-5).*
  - *The technical equipment being compared must have the same conditions of use and operation (define a common scenario).*
  - *The analysis period should be the same for the technical equipment being compared. It is recommended that the overall cost of a component be estimated over a period up to the limit of obsolescence of the building set by the property developer, and that the downgraded condition be taken into account in the residual value. Otherwise, the conventional analysis period will be 35 years.*
  - *The rates used (inflation, discounting, etc.) must be identical for the comparison of technical choices.*

7.2.2. Local resources

Local resources	Level	Method of proof
CPR.2.1 The use of a local resource in the construction methods is demonstrated.	HQE 2 pts	Design audit: Project specifications, Construction works contracts

Additional information:

The entire supply chain is local, from raw material extraction to final assembly, and located less than 300 km from the production site of the component to the project location.

Local contractors	Level	Method of proof
CPR.2.2 In design/build or operation contracts, at least 50 % are local contractors. The distance between the project and these contractors is less than 30 km.	HQE 2 pts	Design audit: Rules for the consultation of companies

8. Taxonomy Profile

Within the framework of the HQE certification scheme for Residential buildings under construction, the property developer has the possibility to value European taxonomy aligned projects. Delegated Regulation (EU) 2021/2139 of 4 June 2021 sets out the technical screening criteria (European taxonomy) for determining the conditions under which an economic activity (e.g. the construction of a building) qualifies as contributing substantially to climate change mitigation or climate change adaptation.

A building is taxonomy-aligned if all the technical criteria of one of the two objectives are met.

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
X	X	C	BDV.1 The ecological issues of the initial site are identified and the measures taken to preserve it are specified in the information document for managers and residents. *In addition to identifying ecological issues, operations under a **Taxonomy profile** must also carry out :* - *An Environmental Impact Assessment (EIA) or screening has been completed in accordance with Directive 2011/92/EU.* - *For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment* *The necessary mitigation and compensation measures are implemented.*	Design audit: Site analysis or census report *Where applicable, an Environmental Impact Assessment and an appropriate assessment* Execution audit: Information document for residents and managers on site preservation measures
X	X	C	SOL.4 The buildings are built on an area that has already been developed or does not have any ecological issues defined by the urban planning documents.	Design audit: Existing plans and floor plans
X	X	C/R	QAI.1.9 : The components and construction materials used comply with the criteria set	Design audit: Project specifications, Construction works contracts.

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
			out in Appendix C of the European Taxonomy Regulation.	Execution audit: Provide 5 attestations from manufacturers that they comply with the criteria in Appendix C (for example in the following areas: floor and wall coverings, paints and varnishes, heat pumps, lighting equipment, etc.).
X	X	C	QAI.1.1 If soil pollution is identified, the site is treated as part of the construction project.	Design audit: Site analysis. Project specifications, drawings, Construction works contracts.
X	X	C/R	QAI.1.8 The building components and materials used that are likely to come into contact with the occupants emit less than: • 0.06 mg formaldehyde per m3 of materials or components, based on tests carried out in accordance with the conditions specified in Annex XVII of Regulation (EC) No. 1907/2006. • 0.001 mg of volatile organic compounds classified as Category 1A and 1B carcinogens per m3 of material or component, based on tests carried out in accordance with CEN/EN 16516 and ISO 16000-3:2011 or other equivalent standardised test conditions and methods of determination.	Design audit: Project specifications, Construction works contracts. Execution audit: For at least 1 product per category, check the test reports
X	X	C/R	CNF.2.1 For the construction site, the following commitments are defined: • reduce the impact on the environment (soil, water and air pollution); • reduce the nuisance caused (acoustic, visual nuisance and cleanliness of the area around the site) for local residents;	Design audit: Document presenting the commitments for the site + Proof of dissemination of these commitments to all the stakeholders

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
			• reduce the impact on biodiversity during construction; • reduce the consumption of water and energy resources on site; • optimise construction waste management; • define a suitable storage area for hazardous substances (insulation of the floor and recovery of any spills) with signage • respect the health and safety conditions of workers; • respect the fundamental principles and rights at work established by the International Labour Organisation (see additional information). These commitments are communicated to the project management teams.	
X	X	C/R	CFN.3.4 The quantity of construction site waste in material recovery, excluding earthwork waste and hazardous waste, is: > More than 70 % of the total weight of waste generated. If the construction operation includes a demolition phase, the waste quantities reported should also include demolition waste.	<u>Design audit:</u> Project specifications, Construction works contracts <u>Execution audit:</u> Document certifying that the objectives of recovery of construction site waste have been reached (waste management plan, construction site balance sheet, waste tracking form, etc.).
X	X	C/R	100 % of the accommodations must meet at least one of the three requirements below. EF.1.4 The accommodations can be adapted by removing or adding partitions, without the need for operations on the water and electricity networks between: • 2 main rooms AND/OR the kitchen and living room (the closed kitchen must have a window).	<u>Design audit:</u> Drawings of the accommodations and drawings of the plumbing and electricity networks.

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
			If a kitchen is partitioned off to create a closed kitchen, it features a window. For studio apartments and single-bedroom accommodations, direct daylight is accepted. OR EF.1.5: The architectural, technical and regulatory provisions are designed to allow for the evolution of the building. It should be shown that the chosen structure potentially allows for changes of use through the following, for example: • Sufficient building thickness. • Sufficient height between levels. • Stabilisation of the structure (e.g. bracing) allowing a change of use. • Structural soundness and continuity, including foundations. • Structural frames allowing change of use. OR DEC.2.2 The building's construction techniques allow for end-of-life dismantling, and promote circularity with the possibility that components can be used for other purposes.	<u>Design audit:</u> Justification note of the building's development potential. <u>Design audit:</u> Disassembly/deconstruction plans including disassembly sequencing information according to ISO 20887:2020
X	X	C	CNF.2.2 In the absence of a communal waste water collection network, wastewater and black water from the site must be treated by an autonomous sanitation system before being discharged into the natural environment. Depending on the methodology used by the machine operators (drainage, etc.), it may be necessary to equip the site with a sludge trap and an oil separator.	<u>Design audit:</u> Document presenting the commitments for the construction site
X	X	C/R	RES.3	<u>Design audit:</u> Justification note including prioritisation of hazards and

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
			The climatic hazards with the most significant effects on the operation are identified. A note presents the constructive or organisational measures (or a justification by calculation of constructive provisions) planned on the operation to reduce one or more effects of each hazard identified as a priority.	measures taken on the operation.
	X	C/R	RES.4: Depending on the identification of the hazards, the adaptation solutions implemented are communicated to the future manager. Indicative follow-up indicators for these solutions are created and communicated to the future manager. The future manager is informed that he/she must follow-up the adaptation solutions implemented, with associated indicators (those transmitted or others), and take them into account in his/her maintenance and upkeep programme.	<u>Design audit:</u> Booklet given to the manager
X		C	EN.1.3. The Primary Energy Demand (PED), defining the energy performance of the building resulting from the construction, is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements in national measures implementing Directive 2010/31/EU of the European Parliament and of the Council. The energy performance is certified using an as built Energy Performance Certificate (EPC).	<u>Design audit:</u> Energy consumption design report for the project
	X	C	EN.1.4. The Primary Energy Demand (PED) setting out the energy performance of the building resulting from the construction does not exceed the threshold set for the nearly zero-energy building (NZEB) requirements in national regulation implementing Directive 2010/31/EU. The energy performance is certified using an as built Energy Performance Certificate (EPC).	<u>Design audit:</u> Energy consumption design report for the project

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
X		R	EN.1.5: For Renovation projects: The building renovation complies with the applicable requirements for major renovations. Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30 %.	Design audit: Energy consumption design report for the project
X		C	EN.2.2 An air permeability test of the building envelope is carried out and measures to improve insulation are taken if necessary. Any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients.	Design audit: Project specifications, Construction works contracts Execution audit: Air permeability ratio
X		C	EN.2.3 For buildings larger than 5,000 m2, upon completion, the building undergoes testing for thermal integrity, and any deviation in the levels of performance set at the design stage or defects in the building envelope are disclosed to investors and clients. OR The (construction or installation) companies for thermal works have qualifications or certifications adapted to their mission and the type of building.	Design audit: Tender documents (Consultation rules / Special technical conditions) Execution audit: Thermal integrity report OR Company qualifications
X		C	CC.1 The life-cycle Global Warming Potential (GWP) of the building resulting from the construction has been calculated for each stage in the life cycle.	Design audit: LCA design report
X	X	C/R	WATER.1.1 A dual flush toilet mechanism is present in each accommodation.	Design audit: Project specifications, Construction works contracts

Objective: Climate change mitigation	Objective: Climate change adaptation	Construction / Renovation	Requirements	Method of proof
				Execution audit: Visual check
X	X	C/R	WATER.1.3 - wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min; - showers have a maximum water flow of 8 litres/min. - WCs, including suites, bowls and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres	Design audit: Project specifications, Construction works contracts Execution audit: Technical data sheets for taps