

Technical Guideline CasaClima Nature



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1 CASACLIMA NATURE – SUSTAINABILITY ASSESSMENT

1.1 Assessment criteria

The sustainability of a building is assessed with the **CasaClima Nature** certification. These guidelines may change over time due to technical necessities or in relation to reference standards.

The following criteria are taken into consideration:

- A. Environmental impacts of the materials used for the construction of the building**
- B. Water management of the building**
- C. Indoor air quality**
- D. Measures to protect against radon**
- E. Natural lighting**
- F. Sound insulation**

1.2 Requirements

Binding minimum requirements for a **CasaClima Nature** certification are

- **Energy efficiency of the building envelope: according to the Technical Guidelines for New Buildings**
- **Overall energy efficiency of the building: according to the Technical Guidelines for New Buildings**

In order to qualify for the **CasaClima Nature** standard, a total primary energy requirement of at least 60 percent or alternatively an electrical energy requirement of at least 30 W/m² of the built-up area must be covered by renewable energy sources.

The **CasaClima Nature** certification can be applied for new (residential and non-residential) buildings.

The guidelines of the relevant sustainability protocols must be applied to those buildings that match the category for sustainability certification (such as ClimaHotel, **CasaClima Work&Life**, **CasaClima Wine**, **CasaClima School**, etc.).

If it can be demonstrated that a requirement in assessment areas A and B cannot be met in full or in part for technical reasons, compensatory ecological offsetting measures may be applied in consultation with and at the discretion of the KlimaHaus Agentur - CasaClima Agency.

The KlimaHaus Agentur - CasaClima Agency is hereinafter referred to as the CasaClima Agency.

2 ENVIRONMENTAL IMPACTS OF BUILDING MATERIALS

2.1 Requirements

The maximum permitted environmental impact score of the materials used (ICC) for **CasaClima Nature** certification is **300 points** (for residential and non-residential buildings).

2.2 Calculation procedure

The **latest version of the calculation program** from the CasaClima Agency is required for the CasaClima Nature certification.

The environmental impact score of the materials used (ICC) is automatically determined by the calculation program. The results of the environmental compatibility of the materials used are recorded on the **"Nature"** spreadsheet in the calculation program.

2.3 Calculation data

The ICC indicator or Nature environmental impact score is calculated for the materials/products of the opaque and transparent components of the building envelope, taking into account the following information:

Table N1: Data for the assessment of the environmental impacts of building materials

Components	All components that are also to be entered in the CasaClima energy calculation must be input.
Exceptions	The following components are NOT to be included in the calculation: <ul style="list-style-type: none"> - Components outside the heated gross floor area - Internal walls and internal ceilings - Internal and external stairs of any design - Foundations (e.g. pile foundations) - Terraces, parapets, balconies and other projections (such as the roof overhang)
Surface materials and coverings	Deviating from the energy calculation, all surface materials inside and outside and all claddings (e.g. rainscreen cladding) outside the ventilation level (walls and roofs) must be factored into the calculation for the "Nature" certification. Furthermore, all materials/products that are part of the wall or roof structure and do not have an impact on energy efficiency (e.g. foils) must be factored into the calculation for the "Nature" certification.

In the case of materials outside the ventilation level, a box is provided in the calculation program below the input field for the material layer thickness. By clicking the "ventilated" box, the material is disregarded in the energy calculation.

2.4 Parameters for the assessment of the environmental impacts of building materials

The assessment of the environmental impacts of the building materials is carried out by a quantitative calculation of the CasaClima Nature Indicator (ICC). The balance takes the following parameters into consideration:

- **Non-renewable primary energy content (PEC)**
- **Acidification potential (AP)**
- **Global warming potential (GWP100)**
- **Durability of building materials (t_u)**

All materials/products available on the market can be used with the CasaClima "Nature" certification, apart from the materials/products listed in section 2.7.

If the materials/products used are not included in the database of the calculation program, a similar material (by density and properties) must be selected for them (within ecological parameters) in the calculation program.

2.5 Environmental Product Declaration EPD

If a product is selected that has an Environmental Product Declaration (EPD) in accordance with ISO 14025 and EN 15804, the certified environmental parameters of the EPD can be entered in the calculation software.

Notes on entering the environmental parameters of the EPD into the calculation software:

- The units of measurement used in the calculation program for stating **building materials** are **kg**, **insulating glass and window frames** are stated in **m²**, **spacers** are stated in **m**: if the product parameters of the EPD are declared in another unit, they must be adjusted accordingly. The conversion factors stated in the EPD shall apply.
- The EPD's calculation software supports the use of the environmental parameters **GWP** (global warming potential), **AP** (acidification potential of soil and water), **PENRT** (total use of non-renewable primary energy resources) from the EPD. They only refer to the **production phase** (module A1 + module A2 + module A3).
- The *GWP process* parameter always corresponds to the *GWP* parameter except for materials that can store CO₂ during their lifetime. **The *GWP process* parameter from the material database of the CasaClima Agency** must be used for all those materials that store CO₂ during their lifetime; the *GWP* parameter can be used by the EPD.

If the environmental parameters of an Environmental Product Declaration (EPD) are used in the calculation, the complete certificate for the product in question must be enclosed. The Environmental Product Declaration (EPD) must always be issued by an independent institution.

2.6 Bonus points

Up to 100 bonus points can be claimed for the assessment of the environmental impacts of the materials/products if they come from a regional source and/or have an ecological certification and/or have been produced in a production facility with the ClimaFactory label.

“Bonus points” are given for the following materials:

- **Natural stone** materials, production within a **radius of 200 km** from the construction site (extraction site, processing and delivery)
- **Brick** materials, production within a **radius of 500 km** from the construction site (origin of the clay, production, processing and delivery)
- **Wood** materials with an **FSC/PEFC certificate** or wood production within a **radius of 500 km** from the construction site (place of felling, processing and delivery, from certified forestry)
- **Materials with environmental certificate** issued by an independent institute (label type 1 according to ISO 14024). For example, Ecolabel, natureplus®, Blue Angel, etc.
- Materials produced in a business with the "ClimaFactory" label

The “**certified**” or “**regional**” boxes in the tables of the component layers in the ProCasaClima calculation program must be ticked for all materials/products that receive bonus points according to the above criteria.

In addition, the relevant evidence, declarations or delivery papers and site photos of the products used must be enclosed.

2.7 Prohibited substances, materials, products

The following materials and products are not allowed in the entire building (heated rooms, unheated rooms including the inner and outer component seals),:

- Products that contain substances that contribute to the depletion of the ozone layer (e.g. chlorofluorocarbons (CFCs), bromofluorocarbons (BFCs), hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs)). These substances are defined in Groups I, II, III, IV, V, VI, VII, VIII, IX and "New Substances" Annexes 1 and 2 of EC Regulation No 1005/2009 and subsequent amendments.
- Plastics containing heavy metals such as lead, cadmium, chrome VI, mercury
- Plastics containing organotin compounds such as TBT, TPT, DBT
- Plastics containing phthalates with a low molecular weight (LMW or low molecular weight phthalates) or with a high molecular weight (HMW or high molecular weight phthalates)
- Lead foils and sheets
- Tropical woods without FSC or PEFC certification

3 WATER MANAGEMENT

3.1 Requirements

The assessment of sustainable water management is expressed with an index that reflects the improvement of the building compared to a standard building. The index takes the following factors into consideration:

- Efficiency of the building's sanitary facilities
- Sealing surface degree
- Any existing plants for rainwater utilization and/or for infiltration of rainwater
- Any existing plants for reuse of grey water or disposal of wastewater on site

The minimum requirement for “Nature” certification is a **water management index** of $W_{KW} \geq 30\%$.

3.2 Calculation data

The calculation of the water management index is carried out with **the latest version of the calculation program** from the CasaClima Agency.

The “ W_{KW} ” spreadsheet must be filled in completely (all green hatched cells):

- Surface type and area (projected area in floor plan) according to Table N2
- Information on the runoff/seepage of rainwater on the existing surfaces
- Use of the building in days/year (350 days for residential buildings), average number of inhabitants and precipitation data of the site (mm/m²a)
- Heated net floor area and glazed area of the building (according to energy calculation)
- Data from possible plants for rainwater utilization (m³/a), infiltration of rainwater or service water treatment
- Number and type of sanitary facilities installed in the building according to Table N3

Either the detailed calculation method or **the simplified calculation method** can be used for the assessment of the index. This is integrated in the software provided by the CasaClima Agency.

The following documents are necessary:

- **Property plan** with details of all surface qualities and the corresponding area in m²
- **Technical data sheets of the sanitary facilities** with the flow rates in l/min

Reference range for the calculation:

The entire area (plot) belonging to the relevant structural intervention is taken into account (i.e. large surrounding green zones, forests, etc. do not have to be considered).

All areas that are exposed to rain are taken into account. The areas to be entered in the calculation correspond for each surface type to the horizontal projection (area in the floor plan).

Table N2: Sealing coefficient of different surfaces

AREA TYPE	SURFACE CONDITION	DEGREE OF SEALING
Surface type	Asphalt, concrete	0.95
	Paving stones	0.80
	Gravel fills on an impermeable substratum (such as a roof)	0.70
	Paving or drainage stones in a sand bed, wooden pavement on a permeable substratum	0.50
	Gravel and crushed stone surface on a permeable substratum	0.30
Roofing	Roof tiles, metal roof	0.95
Roof greening (e.g. roof, underground car park)	Vegetation layer 8 - 15 cm	0.45
	Vegetation layer 16 - 25 cm	0.35
	Vegetation layer 26 - 35 cm	0.25
	Vegetation layer 36 - 50 cm	0.20
	Vegetation layer > 50 cm	0.10
Wild green spaces, cultivated green spaces	Forest, agricultural land, garden, natural areas, natural water areas	0.10

Table N3: Water consumption of sanitary facilities

SANITARY FITTINGS	LOW CONSUMPTION	STANDARD CONSUMPTION
Bidet	7 l/min	12 l/min
Shower	12 l/min	18 l/min
Bathroom washbasin	7 l/min	12 l/min
Kitchen sink	9 l/min	12 l/min
WC	6 l/full rinse (dual flush system)	12 l/full rinse (single flush system)

4 INDOOR AIR QUALITY

4.1 Requirements

At least one of the following requirements must be met to ensure the indoor air quality in the building:

- a) There must be a mechanical **ventilation system** installed

or

- b) the **products and materials** used in interiors (including interior cladding: floors, wall coverings, paintwork, etc.) **must comply with the requirements of points 4.2.1, 4.2.2 and 4.2.3.**

Point a) can be fulfilled with centralized or decentralized ventilation systems. However, **an air exchange rate of at least 0.4 vol/h must be guaranteed by the mechanical ventilation system** in all residential units. A ventilation unit with a volume flow $q_{v,d} \leq 0.7 q_{v,max}$ is recommended. At least two units must be installed for decentralized ventilation systems; if possible, at least one ventilation unit in the living area and at least one in the sleeping area.

Relating to point b), the CasaClima Nature certificate can only be issued **when the finishing works in all housing units have been completed** (i.e. floors and ceilings have been completely laid, interior wall coverings have been completely installed, painting works have been completed, etc.).

In case neither of the two points a) or b) are complied with, a measurement of the indoor air quality is necessary (at the expense of the applicant) (see point 4.3).

4.2 Verification of materials/products

Compliance with the emission limits is to be demonstrated for the following products/materials:

- **Glued wood and wood products**, such as wood building boards, laminated wood, beams, cladding, floors
- **Interior insulation materials and/or sound insulation materials for interiors** (see point 4.2.2)
- **Liquid products** for application on interior surfaces (except window frames), varnishes, paints, impregnating agents, primers, etc.

Compliance with the emission ceilings and the criteria set out in points 4.2.1, 4.2.2, 4.2.3 of these guidelines will apply to all internal elements within the building envelope (beams, load-bearing or non-load-bearing wood-based panels, cladding, floors, internal and acoustic insulation) which are located within the airtight layer (room side). This includes the materials of the airtight layer itself.

4.2.1 Glued wood and wood products

The following maximum emission value for formaldehyde applies for glued wood and wood products:

EMISSION LIMIT FOR FORMALDEHYDE [50-00-0] HCHO	
Parameters according to EN 717-1 (test method: test chamber) Panels with or without cladding	0.05 ppm (0.062 mg/m ³)
Parameters according to EN ISO 12460-3:2015 (test method: gas analysis) Laminated wood, wood building boards, cladding	1.5 mg/h m ²
Parameters according to EN ISO 12460-5:2016 (test method: perforator) Chipboard, MDF, OSB	4 mg/100 g
Parameters according to JIS A1460 (desiccator test)	F**** 0.3 mg/l

In all non-EU countries, other equivalent sample methods can be referred to.

All products with the following labelling **meet the above mentioned requirements**:

- **natureplus®** (guideline RL0200ff for products made of wood and wood-based materials)
- **Austrian Ecolabel** (guideline UZ 07 "Wood and wood-based materials")
- **Blue Angel** (guideline RAL UZ 38 "Low-emission products made from wood and wood-based materials /RAL UZ 76 Low-emission wood-based panels/RAL UZ 176 Low-emission floor coverings, panels and doors made from wood and wood-based materials for interiors)
- **ANAB ICEA** standard
- **Ecolabel** for the product group "wooden floor coverings" (2010/18/EC and subsequent amendments)
- **Class A or class A+ French label** "Indoor air emissions" according to Decree No 2011-321 from the Ministry of Ecology, Sustainable Development, Transport and Housing
- **Finnish emission classification M1** Building Information Foundation RTS

These product certifications are not mandatory for CasaClima Nature certification.

4.2.2 Interior insulation materials and/or sound insulation materials for interiors

All insulation materials used within the airtight layer (room side) must comply with the following emission limits:

EMISSION LIMIT FOR FORMALDEHYDE [50-00-0] HCHO	
EN 717-1 EN ISO 16000-3	0.05 ppm (0.062 mg/m ³)
MAXIMUM EMISSION VALUE FOR TVOC (28 d)	
EN ISO 16000-6 EN ISO 16000-9 EN ISO 16000-11	300 µg/m ³ (0.3 mg/m ³)

In all non-EU countries, other equivalent sample methods can be referred to.

All products with the following labelling **meet the above mentioned requirements**:

- **natureplus®** (guideline RL0100ff for insulation materials made from renewable raw materials and guideline RL0400ff for insulation materials made from expanded, blown or foamed mineral raw materials)
- **Blue Angel** (guideline RAL UZ 132 Low-emission thermal insulation materials and suspended ceilings)
- **ANAB ICEA** standard
- **Finnish emission classification** M1-Building Information Foundation RTS

These product certifications are not mandatory for CasaClima Nature certification.

4.2.3 Liquid products

Liquid products intended for application **to interior surfaces** meet the requirements if:

- **the maximum value of the contained VOC is not exceeded** (see Table N4)
- **the criteria for the H-phrases, heavy metals, formaldehyde and organic substances are met** (see Tables N5, N6, N7).

Table N4: Maximum VOC values according to test method ASTM D 2369

MAXIMUM VOC CONTENT according to EU Directive 2004/42/EC (maximum value in g/l for the ready-to-use product)		
Liquid products for application on interior surfaces	Solvent base	Max. value [g/l]
a) Indoor paints for walls and ceilings (matt)	WB	10
	LB	10
b) Indoor paints for walls and ceilings (gloss)	WB	40
	LB	40
c) Wood, metal or plastic paints for building decoration and cladding (indoor)	WB	80
	LB	140
d) Varnishes and wood stains for building decoration and cladding (indoor)	WB	65
	LB	190
e) Wood stains with minimum layer thickness (indoor and outdoor)	WB	50
	LB	325
f) Primers	WB	15
	LB	175
g) Binding primers	WB	15
	LB	375
h) Single-component - special lacquers	WB	80
	LB	230
i) Two-component reactive coatings for specific applications such as floor treatment	WB	80
	LB	230
j) Multicolor varnishes	WB	50
	LB	50
k) Varnishes for decorative effects	WB	80
	LB	90

WB = paints, varnishes and other liquid products for WATER-BASED surface treatment.

LB = paints, varnishes and other liquid products for SOLVENT-BASED surface treatment.

Table N5: Exclusion of H-statements according to GHG (Globally Harmonized System of Classification and Labelling of Chemicals)

H-STATEMENTS: the following H-statements must not be on the product	
H-statements according to EC Regulation No 1272/2008	
H330 Fatal if inhaled	H341 Suspected of causing genetic defects
H331 Toxic if inhaled	H372 Causes damage to organs
H373 May cause damage to organs through prolonged or repeated exposure	H350i May cause cancer if inhaled
H370 Causes damage to organs	H360 May damage fertility or the unborn child
H351 Suspected of causing cancer	H361 Suspected of damaging fertility or the unborn child
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled	H362 May cause harm to breast-fed children
H350 May cause cancer	H371 May cause damage to organs
H340 May cause genetic defects	

Table N6: Exclusion of heavy metals and limit values for formaldehyde content

HEAVY METALS		These heavy metals must not be present
[CAS]		
[7440-43-9]		Cadmium
[7439-92-1]		Lead
[7440-47-3]		Chromium VI (hexavalent)
[7439-97-6]		Mercury
[7440-38-2]		Arsenic
[7440-39-3]		Barium (except for barium sulfate)
[7782-49-2]		Selenium
[7440-36-0]		Antimony
The products may contain traces and impurities of heavy metals (< 5 ppm).		
FORMALDEHYDE		
The total content of free formaldehyde [50-00-0] may not exceed 10 ppm.		

Table N7: Exclusion of organic substances

ORGANIC SUBSTANCES** These organic substances must not be present			
[CAS]			
[71-43-2]	Benzene	[95-50-1]	1,2-Dichlorobenzene
[71-55-6]	1,1,1-Trichloroethane	[100-41-4]	Ethylbenzene
[75-01-4]	Vinyl chloride	[107-02-8]	Acrolein
[75-09-2]	Dichloromethane	[107-13-1]	Acrylonitrile
[78-59-1]	Isophorone	[108-10-1]	Methyl isobutyl ketone
[78-93-3]	Methyl ethyl ketone	[108-88-3]	Toluene
[79-01-6]	Trichloroethylene	[117-81-7]	Di-ethylhexyl phthalate
[84-74-2]	Dibutyl phthalate (DBP)	[117-84-0]	(DEHP)
[85-68-7]	Butyl benzyl phthalate	[131-11-3]	Di-octyl phthalate (DNOP)
[91-20-3]	(BBP)	[68987-90-6]	Di-methyl phthalate (DMP)
	Naphthalene		Alkylphenol ethoxylate (APEO)*

* Reference: 2014/312/UE

** Reference: EPA Environmental Protection Agency

The following product labelling may **replace the above requirements**:

- **natureplus®** (guideline RL0600ff for wall paints and guideline RL0700ff for surface coatings made from renewable raw materials)
- **Austrian Ecolabel** (guideline UZ 01 "varnishes, glazes and wood sealing lacquers" and guideline UZ 17 "wall paints")
- **Blue Angel** (guideline RAL UZ 102 Low-emission wall paints, RAL UZ 12a Low-emission paints)
- **ANAB ICEA** standard
- **Ecolabel** for the product group "indoor paints and varnishes" (2014/312/EU)
- **GEV Emicode EC1- EC1plus**
- **Class A French label** "Indoor air emissions" according to Decree No 2011-321 from the Ministry of Ecology, Sustainable Development, Transport and Housing

These product certifications are not mandatory for CasaClima Nature certification.

4.2.4 Documentation of the products/materials used

The application must be accompanied by the technical data sheets, the safety data sheets and the certificates of the measured emission values. The date of issue of the certificates must not be any more than three years previous. A declaration of conformity signed by the manufacturer is also required for liquid products. The respective construction site photos of the products used must be enclosed.

4.3 Measurement of indoor air quality

If no mechanical ventilation system is available and if it is not possible to check the materials/products or only incompletely (e.g. lack of the necessary documentation and/or site photos), or if materials/products do not comply with the specified limit values, a measurement of the indoor air quality must be carried out. **The pollutants to be tested are determined by the CasaClima Agency, which are taken from Table N8.** Table N8 also lists the limit values to be complied with.

The measurement of indoor air quality is carried out according to the specifications of the following standards:

- EN ISO 16000: active method
- EN 14412: passive method

In all non-EU countries, other equivalent sample methods can be referred to.

Table N8: List of substances to be analyzed

CAS	SUBSTANCE	CONCENTRATION LIMITS ($\mu\text{g}/\text{m}^3$)
[71-43-2]	Benzene	<1
[71-55-6]	1,1,1-Trichloroethane	<1000
[75-01-4]	Vinyl chloride	<100
[75-09-2]	Dichloromethane	<400
[78-93-3]	Methyl ethyl ketone	<2600
[79-01-6]	Trichloroethylene	<1
[84-74-2]	Dibutyl phthalate (DBP)	<1
[91-20-3]	Naphthalene	<4
[100-41-4]	Ethylbenzene	<100
[107-02-8]	Acrolein	<1
[107-13-1]	Acrylonitrile	<1
[108-10-1]	Methyl isobutyl ketone	<830
[108-88-3]	Toluene	<210
[117-81-7]	Di-ethylhexyl phthalate (DEHP)	<1
[131-11-3]	Di-methyl phthalate (DMP)	<50
[50-00-0] HCHO	Formaldehyde	<60

5 MEASURES TO PROTECT AGAINST RADON

5.1 Requirements

A preventive assessment of the risk of harmful radon concentrations is necessary for new buildings. The following sources are to be consulted for this purpose:

- **Radon map or similar documentation**
- **Geomorphological analysis of the site** (signed by a geologist), where the possible exposure to radon at the described site is determined. For areas already identified as risk zones in the radon map (mean annual exposure > 200 Bq/m³), a geomorphological analysis of the site is not required.

If a geomorphological analysis of the site or a classification of risk areas (zoning) is missing, measures according to point 5.2 must be taken.

Information can be obtained from the regional environmental agencies.

Table N9: Maximum or guide values for radon gas

	METHOD OF EVALUATION	MAXIMUM RADON CONCENTRATIONS Rn-222 (annual average) If this limit is exceeded, structural measures have to be taken	GUIDELINE VALUE Directive 2013/59 EURATOM
New building or extension	Preventive risk assessment	200 Bq/m³	100 Bq/m³

Residential buildings **with controlled mechanical ventilation** automatically meet the requirements if the following criteria are met:

- The buildings are not located in the risk areas with an average annual load of over 400 Bq/m³
- Mechanical ventilation systems are installed in all the residential units in the building, and they meet the requirements according to point 4.1 of the guidelines
- The exhaust air and supply air volume flows of the ventilation system must be balanced equally or with slight overpressure
- The fresh air intake must be at least 80 cm above the ground
- The building has no heated rooms (even those that are not constantly heated) which are bounded by vertical building elements against the ground

5.2 Measures

If the radon concentrations in the risk zone exceed the maximum values of Table N9 or if the geomorphological analysis proves a possible exposure, **appropriate measures for protection against radon** must be taken in the design and construction phase.

The measures taken are to be documented as follows:

- Development of the project
- Photo documentation of the construction work
- Technical data sheets/documentation of the applied measures
- Measurement of the radon concentration of the inhabited building if there is an increased risk (>400 Bq/m³)

6 NATURAL LIGHTING

6.1 Requirements

At least one of the following requirements must be met to demonstrate the natural lighting of the interior spaces:

- a) **Average daylight factor FLDm** according to Table N10. The documentation of the calculation/simulation is required for checking compliance with the specifications.

Table N10: Assessment of the average daylight factor

BUILDING USE	REQUIREMENT	ROOM in which the measurement is to be performed
Residential building	FLDm ≥ 2%	Main room of the housing unit (living room)
Non-residential building	FLDm ≥ 2%	Premises to be defined with the CasaClima Agency

- b) **Window to Floor Area Ratio (WFR) of rooms** according to Table N10 of **1/5**. The ratio for the minimum lighting area is calculated from the ratio between the transparent glass area and the net floor area of the living room. The documentation of the calculation is required for checking compliance with the specifications.

- c) **At least 70% of the vertical external surfaces** that define the space according to Table N10 must be glazed. The technical documentation is required for checking compliance with the specifications.

7 SOUND INSULATION

7.1 Requirements

The following table contains the sound insulation requirements:

Table N11: Sound insulation requirements for the different building categories

			Residential buildings and commercial accommodation	Offices, stores, sports and leisure facilities	Hospitals, sanatoriums
			Cat. A, C	Cat. B, F, G	Cat. D
Weighted standardized sound level difference of the facade		$D_{2m,nT,w}$	≥ 40 dB	≥ 42 dB	≥ 45 dB
Weighted apparent sound reduction index	Measure of vertical and horizontal elements between various real estate units	R'_w	≥ 50 dB ≥ 55 dB*	≥ 50 dB	≥ 55 dB
Normalized impact sound pressure level	Standard impact sound level of the ceiling between various real estate units	L'_{nw}	≤ 58 dB	≤ 55 dB	≤ 58 dB
Service equipment sound pressure level	continuous	L_{ic}	≤ 32 dB (A)	≤ 32 dB (A)	≤ 25 dB (A)
	discontinuous	L_{id}	≤ 35 dB (A) ≤ 32 dB (A)*	≤ 35 dB (A)	≤ 35 dB (A)

* Requirements for commercial accommodation

7.2 Notes for on-site measurements

Compliance with the sound insulation requirements of the accommodation unit/building must be verified by means of a building acoustic measurement in order to qualify for **CasaClima Nature** certification.

The building acoustic measurement is to be carried out at the expense of the applicant. The technical report of the acoustic measurement is to be written by a qualified technician in the field of acoustics. The CasaClima Agency reserves the right to request verification of conformity of the acoustic measurement equipment and the type of measurement.

Single family houses, town houses, Cat. A

Measurement of the weighted standardized sound level difference of the facade $D_{2m,nT,w}$. The measurement is carried out exclusively in the bedrooms.

Multi-dwelling buildings, cat. A

All requirements regarding the sound reduction index according to Table N10 must be met. The weighted standardized sound level difference of the facade $D_{2m,nT,w}$ must only be carried out once for the whole building, regardless of the number of dwelling units. This measurement is to be carried out exclusively in the bedrooms.

- In multi-dwelling buildings with **≤ 5 dwelling units** the sound insulation verification must be carried out in **at least 1 unit**, regardless of the number of floors.
- In multi-dwelling buildings with **6 to 10 dwelling units** the sound insulation verification must be carried out in **at least 2 units**, whereby these units must be on different floors.
- In multi-dwelling buildings with **≥ 11 dwelling units** the sound insulation verification must be carried out in **at least 20% of the units** with at least one unit on each floor.
- The engineer in charge **identifies the dwelling units that are exposed to the greatest source of noise**. In these units, the separating components between the bedroom and the adjacent room of the adjacent unit with the largest noise source must be verified.

Non-residential building

The method and the number of building acoustic measurements are determined in coordination with the CasaClima Agency.