



**Environmental criteria for sustainable public
procurement of**

Office Buildings Management and Maintenance

Version August 2017

1. Scope/definition

The Office Buildings Management and Maintenance product group comprises criteria for standard and major maintenance (i.e. "upkeep") of existing buildings, for the shell and the systems. The criteria apply to supplies as well as to contracts in various forms. This concerns interventions that are not subject to licensing requirements (standard and major maintenance, minor refurbishment work, replacing the fit-out package, etc. are included). The criteria are applicable insofar as they are appropriate to the nature and scale of the intervention. For example, no energy performance requirement is set for the relocation of partition walls.

The following products (and their corresponding CPV codes) form part of the Office Buildings Management and Maintenance product group. This list is not exhaustive.

Products	CPV code
Engineering design services for mechanical and electrical installations for buildings	71321000-4
Roof works and other special construction works	45260000-7
Roof repair and maintenance work	45261900-3
Floor laying and covering work	45432100-5
Floor-laying work	45432110-8
False floor installation work	45432120-1
Electrical installation work of heating and other electrical building-equipment	45315000-8
Repair and maintenance of plant	45259000-7
Partition walls	44112310-4
Installation of partition walls	45421152-4
Installation of suspended ceilings	45421146-9

The following activities fall outside the scope of this product group:

- minor repairs, complaints and defects. Such repairs usually take place on an ad hoc basis and concern the replacement of parts, such as locks. The make and type of materials are usually laid down;
- renovation. In accordance with the Buildings Decree, renovation means the "complete or partial renovation of a building". This involves interventions subject to a licensing requirement. In the case of renovation, all building elements are taken into account in the form of a comprehensive environmental performance requirement. Please see the "Renovation of office buildings" criteria document for details;
- monuments. Given the extremely diverse nature of the buildings and the necessary activities, these criteria do not apply to monuments;
- transport and use of equipment. Please see the "Transport services" criteria document for the details;
- office furnishings (upholstery, floor coverings, interior blinds, furniture). A separate criteria document is available for this;
- office equipment. A separate criteria document is available for this;
- facilities (catering, energy, cleaning). A separate criteria document is available for this.

If large-scale modifications of the building take place, account must be taken of the criteria for renovation; see the "Office Buildings Renovation" document for the definition.

Where possible, a performance-based approach (including threshold value) has been taken to the criteria in this document. It proved impossible to implement a performance-based approach for all criteria, owing to the complex nature of management and maintenance measures.

This document describes the environmental criteria. Information about the other components of sustainable public procurement, such as social conditions and social return, can be found on PIANOo's website, on the specific product group page: <https://www.pianoo.nl/document/14045/productgroep-kantoorgebouwen-beheer-onderhoud>.

2. Most significant environmental impacts

The following table lists the sustainability themes and describes the associated approach for the product group. The "Approach" column indicates how sustainable purchasing and its criteria can influence "sustainability" for that theme. This column also includes a reference to any requirements, award criteria or points of attention/suggestions that may be useful in implementing the approach. Management and maintenance may also have an impact on other environmental themes, but these are (at least at present) less relevant or of a much less significant level of concern, or do not as yet have a suitable set of criteria.

Themes:	Approach:	Requirement no./ criterion
<i>Energy and climate</i>	• energy performance in accordance with NEN 7120.	ME1
	• energy-conscious choices when replacing items.	ME1, GC1
	• performance of systems in accordance with ISSO 100-107.	ME1
<i>Supplies and raw materials</i>	• flexible fit-out package.	ME1
	• sustainable procurement of timber in accordance with the Timber Procurement Assessment System (TPAS).	ME1
<i>Health and welfare</i>	<ul style="list-style-type: none"> • noise, acoustics; • air quality and ventilation; • thermal comfort; • natural light incidence in the workspace. 	ME1, GC1

3. Points of attention/suggestions

Considering the opportunities and possibilities for the most sustainable procurement possible while still in the preparation phase will lead to specifications that are more ambitious or that differ from the standard technical specifications and award criteria set out in this document. The following table presents points for attention and suggestions for promoting sustainability in procurement within this product group.

No.	Points of attention/suggestions (AS)
AS1	Communication with users Ensure that there is good communication with the users concerning the planning of and approach taken with regard to activities. Provide users with information on the correct use of the facilities.
AS2	Initiation phase and process In large, complex projects, a contracting authority may opt to enter into discussion with the market during the pre-qualification phase. This way, better insight can be gained with regard to the feasibility of ambitions and possible problem-solving approaches. Sustainability may also be addressed. This could be done through market consultation or through a competitive dialogue procedure.
AS3	In-house design Design services are outsourced, but are often dealt with within the organisation as well. If design work, or some of it, is carried out in-house, the requirements and wishes included in this document can be used as a guide to ensure that the work is based on a sustainable approach.

4. Selection criteria

Not defined for this product group.

5. Technical specifications

No.	Technical specifications (ME)
ME1	Sustainability performance The tenderer will carry out management or maintenance work that is in compliance with level C for every sustainability category, as set out in the table in Annex 1 and described in more detail in the explanatory notes to that table. The tenderer will include a description of the performance offered with the tender and will substantiate this with corresponding calculations. These calculations must be carried out in accordance with the appropriate calculation methods, as described in the explanatory notes to the table in Annex 1. <i>Explanatory note</i> The text above could be incorporated into the schedule of requirements and the annex could be added to the schedule of requirements in its entirety. <i>Verification</i> For documentation for the handover, see Contract Provision 1.

6. Award criteria

No.	Award criteria (GC)
GC1	<p>Higher sustainability performance</p> <p>The higher the individual aspects of building performance, as described in the table in Annex 1, the higher the tender will be rated.</p> <p><i>Explanatory note</i></p> <p>This award criterion is a supplement to the standard technical specifications. See the table in Annex 1 and the accompanying explanatory notes. You must assign the rating yourself. The table identifies three different classes and suggests point allocations. The background to the breakdown into classes is included in Annex 1.</p> <p>Naturally, other methods of rating are also possible. If you expect tenders to score very close together, or if you expect a tender to score higher than the highest class on the table, one option would be to use a sliding scale. In this case, you would not be working with classes, but would rate a higher score with a percentage of the maximum number of points that you wish to assign to the building performance in question. For this, you must define a maximum score or compare tenders to each other. However you do this, you must describe your procedure clearly, in advance, in the tender documents.</p> <p><i>Verification</i></p> <p>For documentation for the handover, see Contract Provisions 1 and 2.</p>

7. Contract provisions

No.	Contract provisions (CB)
CB1	<p>Documentation of sustainability performance</p> <p>The performance promised in the tender becomes part of the contract. For the handover of the building, the contractor will supply documentation of the performance level achieved, with calculations and measurement data where relevant, in accordance with the methods set out in Annex 1.</p>
CB2	<p>Handover document</p> <p>The contractor will supply a handover document during the implementation or upon completion of the contract. The handover document will contain:</p> <ol style="list-style-type: none"> 1. a technical description of the parts that have been modified and replaced (for example, by entering data into the automated inventory system); 2. the most recent condition measurement, no more than one year old and carried out in accordance with NEN 2767 "Condition measurement for buildings and building installations"; 3. maintenance and operating instructions for the replaced parts or systems; 4. an update of the energy label, if maintenance work or measures that have led to an improvement of the energy label have been carried out; 5. certificates of guarantee.

Annex 1 Details of technical specifications and award criteria

	Energy		Materials	Health in buildings			
	Energy performance	Energy-conscious Replacement Plan	Environmental performance	Noise in occupation areas, workspaces	Indoor Air Quality, ventilation capacity	Thermal comfort,	Natural light incidence in workspaces for long-term occupancy > two hours
Level A	Two levels higher than the current label, or energy label B y points	two levels higher; in accordance with the Energy and Sustainability Classification y points	No level specified	Adjust in accordance with explanatory notes for classes A and B	No level specified	No level specified	No level specified
Level B	One level higher than the current label, or energy label C x points	one level higher; in accordance with the Energy and Sustainability Classification x points					
Level C	Retention of the current energy label (**) Best efforts requirement: anticipating the forthcoming obligation to have at least a C Label by 2023 (***) 0 points	Replacement should be at least at the "Green Line" level in the Energy and Sustainability Classification in accordance with the VPS (****), by means of the Government Building Agency's Fire, Maintenance, Energy and Information methodology (RgdBOEI) (see Annex 2) Performance of systems: FCIB (functional control, adjustment and testing), in accordance with ISSO 100-107	100% Sustainable Procurement of Timber Fit-out package: flexible (in accordance with the explanatory notes and if applicable) 0 points	Class C (in accordance with the explanatory notes) 0 points	8.3 dm ³ /s per person 0 points	Class A, in accordance with the new ISSO 74 0 points	100% of workspaces for long-term occupancy Min. DF > 1.0% 0 points

		0 points					
Basic level	The building must meet all statutory requirements set for existing buildings						

- * Where necessary, the terms appearing in the table are defined in the explanatory notes (Annex 1).
- ** Management and maintenance activities for office buildings must not result in a lower energy label.
- *** Applicable only if the management or maintenance work carried out affects the energy performance of the building in question.
- **** VPS = Property portfolio strategy

Explanatory notes to the table

With regard to Sustainable Public Procurement, the government opts for a performance-based approach. The table is based on the assumption that the effects can be quantified using generally accepted calculation methods, so that the level of performance achieved can be determined simply and in a verifiable manner. Wherever possible, this has been done using calculation methods stipulated in other legislation.

For the basic value, the table has adopted the legal standard for existing structures wherever one is available. For the purposes of Sustainable Public Procurement, a performance requirement exceeding this statutory basic value has been selected for a number of aspects. Level C in the table is the minimum requirement. Furthermore, the class breakdown presents a clear picture of the performance to be delivered in order for added value to be achieved. This relies on either the class breakdown as already used in practice (for example, thermal comfort) or an indication of the percentage of the basic value. Award criteria may be specified for level B2 and above.

Several levels are indicated to give the purchaser/user multiple options. To make it possible to compare the descriptions objectively, points may be assigned to the individual levels.

The individual themes are quantified using the following calculation methods:

	Theme	Calculation method for renovation
Energy	Energy performance	Energy label for existing construction in accordance with NEN 7120 (*)
	Energy-conscious replacement plan	Using the "green line" from the RgdBOEI – Energy and Sustainability Classification (see Annex 2)
Materials	Sustainable timber	www.inkoopduurzaamhout.nl and www.inkoopduurzaamhout.nl/bestektekst.pdf specifically
	Flexible fit-out package	See the explanatory notes in the text below
Health	Noise in occupation areas, workspaces	Quality levels in accordance with the NVBV (**) Handbook of Building Physics Quality of Office Space (<i>Handboek Bouwfysische Kwaliteit Kantoren</i>), with reference to NEN 5077
	Indoor Air Quality, ventilation capacity	NEN 1087 (*) and the NVBV Handbook of Building Physics Quality of Office Space
	Thermal comfort	In accordance with ISSO 74 and ISSO 32.
	Natural light incidence	Daylight factor [DF] = Eroom/Eopen field *100% Design phase: calculation using daylight simulation programmes with a CIE overcast sky

* For all standards, the version applicable at the moment of the announcement of the tendering procedure applies.

** Nederlands Vlaamse Bouwfysica Vereniging, the Netherlands-Flanders association of building physics

Further explanation of each theme is provided below. If no changes are made to a particular feature (for example, natural light openings), there is no need to provide substantiation showing that the requirements have been met. In that case, it should be stated explicitly that no changes have been made.

Energy performance

Objective of requirements

The goal of this requirement is to improve the energy performance of buildings with respect to the legal minimum standard.

Explanation of calculation method

Calculation method: NEN 7120, including NVN 7125: $EPC_{Cusi} Q (100\% - x\%) * EPC_{Cusi}$.
The requested performance is expressed in an energy label.

Explanation of the Sustainable Public Procurement threshold

The underlying goal is the reduction of the use of fossil fuels. For existing structures, the obligation to produce an energy label has been adopted. The minimum requirement involves maintaining the current energy label. According to the policy, all office buildings should have at least label C by 2023. Where possible, this should be taken into account (best-efforts requirement) when establishing the minimum requirement. A higher level of ambition may be set using the award criteria in this document (see Table 1).

Documentation (this must be included in the contract)

Upon handover and at any time specified by the contracting authority in the intervening period, the contractor must demonstrate that the agreed energy performance has been attained. This can be done by means of an energy label in accordance with the applicable standards. The contractor must also demonstrate that the building is constructed in accordance with the substantive content of the calculation (structurally and in terms of building engineering).

Energy: energy-conscious replacement plan

Objective of requirements

The goal of this requirement is to improve the energy performance of buildings.

Explanation of calculation method

Calculation method: RgdBOEI – Energy and Sustainability Classification (see Annex 2). The implementation of measures is described and laid down in a Long-term Implementation Plan (MUP) and/or Replacement Plan within the VPS (VPS = Property Portfolio Strategy).

Explanation of the Sustainable Public Procurement threshold

The underlying goal is the reduction of the use of fossil fuels.

The tenderer will carry out all activities as instructed in order to optimise, update, improve, safeguard and manage energy performance and maintenance, where relevant within the scope of the contract. The implementation of measures is described and laid down in a Long-term Implementation Plan (MUP) and/or Replacement Plan.

Account is taken in the replacement plan of technical and financial feasibility. **The return on investment of the measures will be indicated.** The measures to be implemented on planned replacement dates will also be indicated.

The so-called "green line" from RgdBOEI – Energy and Sustainability Classification is the minimum requirement (see Annex 2). The tenderer must indicate the minimum level for replacement dates by choosing the green line (or better). A higher level of ambition may be set using the award criteria in this document. The equivalence principle is applicable at all times.

Documentation (this must be included in the contract)

A replacement plan will be submitted periodically (depending on the contract term), but at least once every five years. The contractor must demonstrate in this plan that the elements replaced meet the criteria set, by means of (recognised) certificates and documentary evidence.

Sustainable Timber

Objective of requirements

Wood to be used in the building and in products to be delivered, where this wood remains in the work, must be wood that is demonstrably sustainably produced.

Explanation of the Sustainable Public Procurement threshold

Raw wood to be supplied, or wood incorporated into wood products or other products to be supplied, must meet the Dutch Procurement Criteria for Timber set out in the TPAS (Timber Procurement Assessment System). The wood must be in compliance with all 9 principles for sustainable forest management.

Documentation (this must be included in the contract)

Upon handover and at any time specified by the contracting authority in the intervening period, the contractor must demonstrate that the timber meets the criteria set, by means of certificates in accordance with a system approved by the TPAC (Timber Procurement Assessment Committee). A list of approved certification systems can be found on the website: <http://www.tpac.smk.nl/170/about/judgements.html>.

Explanatory notes

Timber used as a raw material or building material in construction and non-residential building means wood for:

- engineering structures;
- door frames and doors;
- external cladding;
- sheathing;
- profiles/moulding/skirting boards;
- stairs;
- floorboards/parquet flooring;
- wood-based panels.

More information on the procurement of sustainably produced wood can be found on: www.inkoopduurzaamhout.nl.

An example of specifications defined for sustainably produced wood can be found on: www.inkoopduurzaamhout.nl/bestektekst.pdf

General information on the prescription and verification of sustainably produced wood can be found on: www.houtdatabase.nl. The complete TPAS criteria can be found on the website: <http://www.tpac.smk.nl/Public/TPAC%20documents/DutchProcurementCriteriaMAR2014.pdf>

Flexible fit-out package (for modification or replacement of the fit-out package)

Objective of requirements

The goal of the requirement is to prevent and limit extra environmental impact from the use of materials that are not easily adaptable or replaceable.

Explanation of calculation method

N/A

Explanation of the Sustainable Public Procurement threshold

In applying a new fit-out package upon lease or purchase of a building, this package must be selected such that minor changes in layout (for example, in response to changing space needs) will not necessitate a large-scale renovation to make the space workable and orderly.

The tenderer must implement the requested modifications to the fit-out package in such a way that this can easily be moved or removed.

To this end, the following requirements must be met:

- Internal walls to be newly installed must not be load bearing.
- Cables and pipework must not be installed in fixed or load-bearing walls.

- It must be simple to reunify the floor and ceiling finishes upon removal of internal walls. For this reason:
 - There must be no height difference between the floor finishes on each side of a non-loading-bearing partition wall.
 - The ceiling finish on each side of a non-load-bearing partition wall must have the same ceiling height, grid size and final finish.

Documentation (this must be included in the contract)

The operation guide for the building must include procedures on how to remove non-load-bearing interior walls and finishing instructions for the floors and ceilings. Upon handover, this guide must demonstrate that these activities can be carried out with little effort.

Noise in occupation areas, workspaces

Objective of requirements

The goal of the requirement is to prevent and limit nuisance from noise, in order to promote a healthy and comfortable work environment.

Explanation of calculation method

NEN 5077 and the Further explanation of classes in the NVBV Handbook of Building Physics Quality of Office Space:

Class A: the office building is designed for a high level of acoustic comfort, with attention to speech intelligibility and conversational discretion at the relevant workspaces. Additionally, all furnished and unfurnished office spaces are in compliance with the requirements for echoes, all workspaces are in compliance with tables 34 – 38 of the Handbook of Building Physics Quality of Office Space and the noise nuisance from on-site systems is limited.

Class B: all workspaces are in compliance with tables 34 – 38 of the Handbook of Building Physics Quality of Office Space.

Class C: all furnished and unfurnished office spaces are in compliance with the requirements for echoes in the Handbook of Building Physics Quality of Office Space. At least 60% of the workspaces in all categories meet the acoustic quality requirements of tables 34 – 38 of the Handbook of Building Physics Quality of Office Space, and these spaces are identified as such.

Explanation of the Sustainable Public Procurement threshold

The Buildings Decree does not set requirements for the noise comfort level of a space. For Sustainable Public Procurement, the class breakdown is based on the quality levels defined in the NVBV Handbook of Building Physics Quality of Office Space. For further elaboration of the acoustic requirements in the building, see this Handbook. The minimum level for Sustainable Public Procurement is Class C. If desired, higher classes may be required or rated more highly in the tendering procedure.

If the modification of components of the anti-noise constructions (floors, walls, shell) is not part of the tender, the set requirements for these components may be departed from by agreement.

Documentation (this must be included in the contract)

Upon handover and at any time specified by the contracting authority in the intervening period, the contractor must demonstrate that the agreed performance levels for the prevention and limitation of noise nuisance are attained. This must be demonstrated based on measurements of the result.

Indoor Air Quality, ventilation capacity

Objective of requirements

The goal of the requirement is to improve air quality in work areas, in order to promote a healthy and comfortable work environment.

Explanation of calculation method

Calculation method NEN 1087.

The required volume of air circulation per person must be calculated based on the number of persons in the integrated environmental permit application.

Explanation of the Sustainable Public Procurement threshold

Sustainable Public Procurement assumes a volume of 8.3 dm³/s per person. This figure has been adopted from previous studies and quality levels maintained in other publications (including the Handbook of Building Physics Quality of Office Space). Increasing the ventilation capacity further is not included in the criteria for Sustainable Public Procurement. Other aspects, such as ventilation efficiency, draught-free air circulation, etc., play a more important role in further increasing the sustainability of this aspect. At present, these aspects cannot be easily and objectively quantified. For the time being, the higher levels will be left undefined.

Documentation (this must be included in the contract)

Upon handover and at any time specified by the contracting authority in the intervening period, the contractor must demonstrate that, in the present state of the building, the agreed performance level of ventilation capacity has been attained. This will be demonstrated by means of measurements coordinated for the maximum occupancy of the spaces.

Thermal comfort

Objective of requirements

The goal of the requirement is to improve thermal comfort in work areas, in order to promote a healthy and comfortable work environment.

Explanation of calculation method

ISSO 74 and ISSO 32.

Explanation of the Sustainable Public Procurement threshold

Sustainable Public Procurement assumes a minimum threshold of class A in accordance with ISSO 74. Use the flowchart of ISSO 74 to determine the applicable building/climate type for this calculation. ISSO 74 and ISSO 32 also provide basic principles for this calculation. See those publications for further elaboration of the thermal comfort requirements in the building. The requirements are set for all workspaces intended for long-term (more than two hours) use.

Documentation (this must be included in the contract)

Upon handover and at any time specified by the contracting authority in the intervening period, the contractor must demonstrate by means of calculations that the agreed performance level for thermal comfort has been attained. The contractor must also demonstrate that the building was constructed in accordance with the material content of the calculation.

Natural light incidence

Objective of requirements

The goal of the requirement is to improve natural light incidence in work areas, in order to promote a healthy and comfortable work environment.

Explanation of calculation method

The daylight factor (DF) is calculated using natural light simulation programmes with a CIE overcast sky. The daylight factor is the relationship between the illumination strength at a point in the room as compared to the horizontal illumination strength in open space under an overcast sky. The calculations for this requirement are based on workspaces at a horizontal plane 800 mm above the floor.

$$DF = E_{\text{room}}/E_{\text{open field}} * 100\%$$

Basic assumptions to be used in the calculations:

light reflection factors at maximum: walls: 0.5; ceiling: 0.7; floor: 0.1.

Explanation of the Sustainable Public Procurement threshold

For Sustainable Public Procurement, an additional requirement for a healthy and comfortable work environment is set above the natural light incidence requirement of the Buildings Decree. For all workspaces in an office function intended for long-term use (more than two hours), compliance with the set requirements for the daylight factor must be demonstrated.

Sustainable Public Procurement assumes a minimum daylight factor of 1% on the workspaces (horizontal plane at height of 800 mm above the floor) for 100% of the workspaces for long-term use (more than two consecutive hours).

If no changes are made to the outside wall openings, the requirement is that direct natural light incidence is mandatory. The new classification of the work areas must be such that at least 80% of the workspaces are located within three metres of an opening in the outside wall. If the distance to the outside wall is greater than three metres, the contractor must demonstrate that the minimum daylight factor at the workspaces is 1% (horizontal plane at 800 mm height).

Documentation (this must be included in the contract)

Upon handover and at any time specified by the contracting authority in the intervening period, the contractor must demonstrate that the agreed performance level on natural light incidence has been attained. Calculations must be used to demonstrate that the daylight factor is adequate. The contractor must also demonstrate that the agreed natural light features are actually present.

Annex 2: "green line" from RgdBOEI – Energy and Sustainability Classification

Please refer to the English text below the original table in Dutch

	Classification						Element-code ingedikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	n.v.t.
FCIB ("re"-commissioning) en monitoring	n.v.t.						
	jaarlijks optimaliseren (inregelen en beproeven) energiesystemen (opwekmodules en afgiftesystemen) of ISSO publicaties mbt inregelen van hydraulische schakelingen. tevens zijn de ISSO publicaties 100-107 van toepassing	Jaarlijks en bij wijzigingen optimaliseren (inregelen en beproeven) energiesysteem (opwekmodules en afgiftemodules of ISSO publicaties mbt inregelen van hydraulische schakelingen	cf EPBD inregelen opwekkers en incidenteel optimaliseren energiesystemen (opwekkers en afgiftesystemen)	Incidenteel optimaliseren energiesysteem (opwekkers en afgiftesystemen)	Geen optimalisering energiesysteem		858110
	koppeling GBS, monitoring en periodiek optimaliseren van de installaties	GBS aanwezig met monitoring	GBS aanwezig	geen GBS			867300
energie meting / monitoring	meet apparatuur met signaal naar energie monitoring installatie		meet apparatuur zonder signaal naar energie monitoring installatie			geen meetapparatuur	867300
windenergiemodule	windenergiemodule op het dak waarmee meer 15% van de elektrische energie wordt opgewekt	windenergiemodule op het dak waarmee minimaal 10% van de elektrische energie wordt opgewekt	windenergiemodule op het dak waarmee minder dan 10% van de benodigde elektrische energie wordt opgewekt				
Photovoltaic cells	Qelektrisch >= 15% van totaal elektrisch vermogen	15% < Qelektrisch <= 10% van totaal elektrisch vermogen	Qelektrisch > 10% van totaal elektrisch vermogen		geen Photovoltaic cells aanwezig		861114
omhulling							
gevel isolatie	Rc >= 8,0 [m2K/W] passiefhaus standaard	- 8,0 > Rc >= 5,0 [m2K/W] 260 mm > Isolatie >= 180 mm - laag primaire energie maar niet passief	- 5,0 > Rc >= 3,0 [m2K/W] 180 mm > Isolatie >= 110 mm - (bouwjaar >2012)	- 3,0 > Rc >= 1,3 [m2K/W] 110 > isolatie >= 40 mm (spouw) - (bouwjaar , 1982 -2012)	- 1,3 > Rc > 0,9 [m2K/W] 40 < isolatie <= 20 mm (met spouw) of 30 mm (zonder spouw) - (bouwjaar 1975-1982)	Rc < 0,9 [m2K/W] - isolatie <= 20 mm (spouw) - bouwjaar < 1975	210000, 281100, 310400
vloerisolatie	Rc >= 8,0 [m2K/W] passiefhaus standaard	- 8,0 > Rc >= 5,0 [m2K/W] 260 mm > Isolatie >= 180 mm - laag primaire energie maar niet passief	- 5,0 > Rc >= 3,0 [m2K/W] 180 mm > Isolatie >= 110 mm - (bouwjaar >2012)	- 3,0 > Rc >= 1,3 [m2K/W] 110 > isolatie >= 40 mm (spouw) - (bouwjaar , 1982 -2012)	- 1,3 > Rc > 0,9 [m2K/W] 40 < isolatie <= 20 mm (spouw)	Rc < 0,9 [m2K/W] - isolatie <= 20 mm (spouw) - bouwjaar < 1983	231100, 130100

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	N/A
Functional control, adjustment and testing (FCIB) ('re-commissioning') and monitoring	N/A Annual optimisation (adjustment and testing) of energy systems (generation modules and delivery systems) as per ISSO publications relating to adjusting hydraulic switches. In addition, ISSO publications 100-107 are applicable	Annual and on-changes optimisation (adjustment and testing) of energy systems (generation modules and delivery modules) as per ISSO publications relating to adjusting hydraulic switches	Consult EPBD on adjustment of generators and occasional optimisation of energy systems (generators and delivery systems)	Occasional optimisation of energy systems (generators and delivery systems)	No optimisation of energy system		858110
	BMS interface, monitoring and periodic optimisation of the systems	BMS installed with monitoring	BMS installed	No BMS			867300
Energy measurement/monitoring	Measuring equipment with signal to energy monitoring system		Measuring equipment without signal to energy monitoring system			No measuring equipment	867300
Wind energy module	Wind energy module on the roof, which generates more than 15% of the electrical energy	Wind energy module on the roof, which generates at least 10% of the electrical energy	Wind energy module on the roof, which generates less than 10% of the required electrical energy				
Photovoltaic cells	Q-electrical $\geq 15\%$ of the electrical power	$15\% < Q\text{-electrical} \leq 10\%$ of total electrical power	Q-electrical $> 10\%$ of the electrical power		No photovoltaic cells installed		861114
Encapsulation							
Façade insulation	$R_c \geq 8.0$ [m ² K/W] Passive house standard	- $8.0 > R_c \geq 5.0$ [m ² K/W] 260 mm > Insulation ≥ 180 mm - low primary energy but not passive	- $5.0 > R_c \geq 3.0$ [m ² K/W] 180 mm > Insulation ≥ 110 mm - (year of construction > 2012)	- $3.0 > R_c \geq 1.3$ [m ² K/W] 110 > insulation ≥ 40 mm (cavity) - (year of construction, 1982-2012)	- $1.3 > R_c > 0.9$ [m ² K/W] 40 < insulation ≤ 20 mm (with cavity) or 30 mm (without cavity) - (year of construction 1975-1982)	$R_c < 0.9$ [m ² K/W] - insulation ≤ 20 mm (cavity) - year of construction < 1975	210000, 281100, 310400
Floor insulation							

	Rc >= 8.0 [m2K/W] Passive house standard	- 8.0 > Rc >= 5.0 [m2K/W] 260 mm > Insulation >= 180 mm - low primary energy but not passive	- 5.0 > Rc >= 3.0 [m2K/W] 180 mm > Insulation >= 110 mm - (year of construction >2012)	- 3.0 > Rc >= 1.3 [m2K/W] 110 > insulation >= 40 mm (cavity) - (year of construction, 1982–2012)	- 1.3 > Rc > 0.9 [m2K/W] 40 < insulation =< 20 mm (cavity)	Rc < 0.9 [m2K/W] - insulation =< 20 mm (cavity) - year of construction < 1983	231100, 130100
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	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
dakisolatie							
	Rc >= 8,0 [m2K/W] passiefhaus standaard	- 8,0 > Rc >= 5,0 [m2K/W] 260 mm > Isolatie >= 180 mm - laag primaire energie maar niet passief	- 5,0 > Rc >= 3,0 [m2K/W] 180 mm > Isolatie >= 110 mm - (bouwjaar >2012)	- 3 > Rc > 1,3 [m2K/W] 110 > isolatie > 40 mm (gemiddeld ivm afschot) - (bouwjaar , 1982 -2012)	- 1,3 >= Rc > 0,9 [m2K/W] 40 >= isolatie =< 20 mm (spouw) of 30 mm (zonder spouw) - (bouwjaar 1975-1982)	Rc < 0,9 [m2K/W] - isolatie =< 20 mm (spouw) (gemiddeld ivm afschot) of 30 mm (zonder spouw) - bouwjaar < 1975	471100, 471200
dakbedekking	natuurlijke dakbedekking en/of zonnecellen geïntegreerd in de dakbedekking waarmee meer dan 15% van de benodigde elektrische energie wordt opgewekt	dekbedekking geïntegreerd met zonnecellen, waarmee minimaal 10% van de elektrische energie wordt opgewekt	dekbedekking geïntegreerd met zonnecellen, waarmee minder dan 10% van de elektrische energie wordt opgewekt		geen natuurlijke dakbedekking / geen zonnecellen geïntegreerd in de dakbedekking		471100, 471200
omhulling opening							
beglazing	Tripple glas - U(raam) =< 1,1 [W/m2K] - passiefhaus standaard	HR++ glas - 1,1 < U(raam) =< 1,8 [W/m2K]	HR - 1,9 < U(raam) =< 2,5 [W/m2K]	Dubbelglas, Enkel glas met voorzetraam - 2,5 < U(raam) =< 3,5 [W/m2K]		Enkel glas - U(glas) > 4,5 [W/m2K]	310500, 310520, 310530
		Hout of kunststofkozijn	Thermisch onderbroken metalen kozijn		Metalen kozijn		310500, 310520, 310530
	Voorzet- en klimaatgevel dicht	Voorzet- en klimaatgevel open	Standaardgevel met kierdichting (bewijs goede detaillering aanwezig)	Standaard gevel			310100
deuren							
	geïsoleerde deur met tochtsluis	deur (huidige bouw) met tochtsluis	ongeïsoleerde deur (groot % glas) met tochtsluis	geïsoleerde deur of deur (huidige bouw) zonder tochtsluis		ongeïsoleerde deur (groot % enkelglas) zonder tochtsluis	313000, 831354, 890347
vluchtdeur							
	geïsoleerde deur	geïsoleerde deur met veel dubbel of enkelglas (>65% deur en kozijn)		ongeïsoleerde deur	ongeïsoleerde deur (groot % glas)		313000, 831354, 890347
licht- en zonwering							
	buiten automatisch	Grote overstek	kleine overstek of buiten handmatig	coating/folie	coating/folie	binnen/geen	865310, 872120

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	
Roof insulation							
	Rc >= 8.0 [m2K/W]	- 8.0 > Rc >= 5.0	- 5.0 > Rc >= 3.0	- 3 > Rc > 1.3	- 1.3 >= Rc > 0.9	Rc < 0.9 [m2K/W]	471100,

	Passive house standard	[m2K/W] 260 mm > Insulation >= 180 mm - low primary energy but not passive	[m2K/W] 180 mm > Insulation >= 110 mm - (year of construction >2012)	[m2K/W] 110 > insulation > 40 mm (average in connection with pitch) - (year of construction, 1982–2012)	[m2K/W] 40 >= insulation =< 20 mm (cavity) or 30 mm (without cavity) - (year of construction 1975–1982)	- insulation =< 20 mm (cavity) (average in connection with pitch) or 30 mm (without cavity) - year of construction < 1975	471200
Roof covering	Natural roof covering and/or solar cells integrated into the roof covering which generate more than 15% of the required electrical energy	Roof covering with integrated solar cells which generate at least 10% of the electrical energy	Roof covering with integrated solar cells which generate less than 10% of the electrical energy		No natural roof covering/no solar cells integrated in the roof covering		471100, 471200
Opening in encapsulation							
Glazing	Triple glazing - U(window) =< 1.1 [W/m2K] - passive house standard	HR++ glass - 1.1 < U(window) =< 1.8 [W/m2K]	HR - 1.9 < U(window) =< 2.5 [W/m2K]	Double glazing, Single glazing with double window - 2.5 < U(window) =< 3.5 [W/m2K]		Single glazing - U(glass) > 4.5 [W/m2K]	310500, 310520, 310530
		Wood or plastic frame	Thermally broken metal frame		Metal frame		310500, 310520, 310530
	Façade cladding and adaptive climate façade sealed	Façade cladding and adaptive climate façade open	Standard façade with gap sealing (with evidence of high-quality detailing)	Standard façade			310100
Doors							
	Insulated door with draught lobby	Door (current building) with draught lobby	Uninsulated door (high % of glass) with draught lobby	Insulated door or door (current building) without draught lobby		Uninsulated door (high % of glass) without draught lobby	313000, 831354, 890347
Emergency exit door							
	Insulated door	Insulated door with large percentage double or single glazing (>65% door and frame)		Uninsulated door	Uninsulated door (high % of glass)		313000, 831354, 890347
Blinds and sun blinds							
	External, automatic	Large overhang	Small overhang or external manual	Coating/foil	Coating/foil	Internal/none	865310, 872120

	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
dakisolatie							
opwekken / omzetten							
	$\eta \geq 1,3$	$1,3 > \eta \geq 0,95$	$0,95 > \eta \geq 0,9$	$0,9 > \eta \geq 0,75$	$0,75 > \eta \geq 0,65$	$< 0,65$	851030, 851200, 851220, 851241, 851260, 851270, 851400, 851300,
	WP-systeem (afgifte < 35 oC)	WP-systeem (afgifte > 35 oC)	HR107-ketel i.c.m. ontwerptemperatuur < 55 oC - Elektrische WP - gas absorptie WP - (Micro) WKK - Warmtelevering (stadsverwarming)	HR107-ketel i.c.m. ontwerptemperatuur > 55 - HR104 of HR100-ketel - direct gestookt HR luchtverwarmer	VR-ketels - direct gestookte luchtverwarmer	Conventionele-ketel - elektrisch - stoomketel - lokaal gas - olieverwarming	851540
Distributie	lokaal WP (multisplit)	distributie water	distributie water en lucht	distributie lucht			856103
	kunststofleidingsystemen in grond geïsoleerd in gebouw ongeïsoleerd	geïsoleerde metalen (RVS of staal) leidingen				geen geïsoleerd leidingsystemen	856103
Afgifte	Thermisch Actief Bouwdeel Systeem geïntegreerd met luchtkanalen en elektra en data installatie	Thermisch Actief Bouwdeel Systeem niet geïntegreerd met luchtkanalen en elektra en data installatie	Thermisch Actief Bouwdeel Systeem met radiatoren voor naverwarming in de wintersituatie / vloerverwarming en /of klimaatplafond		Geen thermisch actief bouwdeel systeem		856108, 856117, 856202,
Verdeler verzamelaar	gescheiden verdeler/verzamelaar met 2-weg kleppen en toerengeregelde pompen	gescheiden verdeler/verzamelaar met 2-weg kleppen zonder toerengeregelde pompen		open verdeler/verzamelaar met 3-weg kleppen zonder toerengeregelde pompen			856101

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	
Roof insulation							
Generation/conversion							
	$\eta \geq 1.3$	$1.3 > \eta \geq 0.95$	$0.95 > \eta \geq 0.9$	$0.9 > \eta \geq 0.75$	$0.75 > \eta \geq 0.65$	< 0.65	851030, 851200, 851220, 851241, 851260, 851270, 851400, 851300,

	WP system (delivery < 35 °C)	WP system (delivery > 35 °C)	HE107 boiler combined with design temperature < 55 °C - electrical WP - gas absorption WP - (micro) CHP - heat delivery (district heating)	HE107 boiler combined with design temperature > 55 °C - HE104 or HE100 boiler - directly fired HE air heater	Improved efficiency boilers - directly fired air heater	Conventional boiler - electric - steam boiler - local gas - oil heating	851540
Distribution	local WP (multi split)	water distribution	water and air distribution	air distribution			856103
	Plastic pipe systems, insulated underground, uninsulated in building	Insulated metal (stainless steel or steel) pipes				Pipe systems not insulated	856103
Delivery	Thermally Active Building Section System integrated with air ducts and electrical and data system	Thermally Active Building Section System not integrated with air ducts and electrical and data system	Thermally Active Building Section System with radiators for after-heating in winter conditions/floor heating and/or climate ceiling		No thermally active building section system		856108, 856117, 856202,
Distributor/accumulator	Separate distributor/accumulator with 2-way valves and variable speed pumps	Separate distributor/accumulator with 2-way valves without variable speed pumps		Open distributor/accumulator with 3-way valves without variable speed pumps			856101

	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
Pompen							
pompen met separate motor conform EG640/2009 (motorvermogen 0,75 tot 7,5 kW)	IE3 (Premium Rendement) Verplicht vanaf 1-1-2017 (zie tab EG 640-2009)	IE 2 (Hoog rendement) verplicht vanaf 1-1-2011 toegestaan tot 1-1-2017 (Voorheen efficiëncyklasse EFF1) (zie tab EG 640-2009)	IE 1 (Standaard rendement) toegestaan tot 1-1-2011 (Voorheen efficiëncyklasse EFF2) (zie tab EG 640-2009)	IE 1 (Standaard rendement) toegestaan tot 1-1-2011 (Voorheen efficiëncyklasse EFF2) (zie tab EG 640-2009)	Voorheen efficiëncyklasse EFF3 toegestaan tot 1-1-2011 (zie tab EG 640-2009)	Voorheen efficiëncyklasse EFF3 toegestaan tot 1-1-2011 (zie tab EG 640-2009)	856102
pompen met separate motor conform EG640/2009 (motorvermogen 7,5 tot 375 kW)	IE3 (Premium Rendement) Verplicht vanaf 1-1-2015 (zie tab EG 640-2009)	IE 2 (Hoog rendement) verplicht vanaf 1-1-2011 toegestaan tot 1-1-2015 (Voorheen efficiëncyklasse EFF1) (zie tab EG 640-2009)	IE 1 (Standaard rendement) toegestaan tot 1-1-2011 (Voorheen efficiëncyklasse EFF2) (zie tab EG 640-2009)	IE 1 (Standaard rendement) toegestaan tot 1-1-2011 (Voorheen efficiëncyklasse EFF2) (zie tab EG 640-2009)	Voorheen efficiëncyklasse EFF3 toegestaan tot 1-1-2011 (zie tab EG 640-2009)	Voorheen efficiëncyklasse EFF3 toegestaan tot 1-1-2011 (zie tab EG 640-2009)	856102
Natlopers conform EG 641/2009. Pompen in installatie	EEI ≤ 0,23 verplicht vanaf 1-8-2015 (zie tab EG 641-2009)	EEI ≤ 0,27 verplicht vanaf 1-1-2013 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-1-2013 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-1-2013 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-1-2013 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-1-2013 (zie tab EG 641-2009)	856102
Natlopers conform EG 641/2009. Pompen in warmteopwekkers geïntegreerd	EEI ≤ 0,23 verplicht vanaf 1-8-2015 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-8-2015 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-8-2015 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-8-2015 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-8-2015 (zie tab EG 641-2009)	Geen EEI eis toegestaan tot 1-8-2015 (zie tab EG 641-2009)	856102
		Toerenregeling	Automatische aan/uit regeling		Geen regeling		
individuele regeling							
		ja		nee			867300
regeling							
		geoptimaliseerd weersafhankelijk	weersafhankelijk	geen			867300

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	
Pumps							
Pumps with separate motor in accordance with EC 640/2009 (motor output 0.75 to 7.5 kW)	IE3 (premium efficiency) Mandatory from 01/01/2017 (see table in EC 640-2009)	IE2 (high efficiency) mandatory from 01/01/2011, permitted until 01/01/2017 (Previously efficiency category EFF1) (see table in EC 640-2009)	IE1 (standard efficiency) permitted until 01/01/2011 (Previously efficiency category EFF2) (see table in EC 640-2009)	IE1 (standard efficiency) permitted until 01/01/2011 (Previously efficiency category EFF2) (see table in EC 640-2009)	Previously efficiency category EFF3 permitted until 01/01/2011 (see table in EC 640-2009)	Previously efficiency category EFF3 permitted until 01/01/2011 (see table in EC 640-2009)	856102
Pumps with	IE3 (premium efficiency)	IE2 (high efficiency)	IE1 (standard efficiency)	IE1 (standard	Previously	Previously	856102

separate motor in accordance with EC 640/2009 (motor output 7.5 to 375 kW)	Mandatory from 01/01/2015 (see table in EC 640-2009)	mandatory from 01/01/2011, permitted until 01/01/2015 (Previously efficiency category EFF1) (see table in EC 640-2009)	permitted until 01/01/2011 (Previously efficiency category EFF2) (see table in EC 640-2009)	efficiency) permitted until 01/01/2011 (Previously efficiency category EFF2) (see table in EC 640-2009)	efficiency category EFF3 permitted until 01/01/2011 (see table in EC 640-2009)	efficiency category EFF3 permitted until 01/01/2011 (see table in EC 640-2009)	
Glandless pumps as per EC 641/2009. Pumps in system	EEI ≤ 0.23 mandatory from 01/08/2015 (see table in EC 641-2009)	EEI ≤ 0.27 mandatory from 01/01/2013 (see table in EC 641-2009) (see table in EC 641-2009)	No EEI requirement permitted up to 01/01/2013 (see table in EC 641-2009)	No EEI requirement permitted up to 01/01/2013 (see table in EC 641-2009)	No EEI requirement permitted up to 01/01/2013 (see table in EC 641-2009)	No EEI requirement permitted up to 01/01/2013 (see table in EC 641-2009)	856102
Glandless pumps as per EC 641/2009. Pumps integrated into heat generators	EEI ≤ 0.23 mandatory from 01/08/2015 (see table in EC 641-2009)	No EEI requirement permitted up to 01/08/2015 (see table in EC 641-2009)	No EEI requirement permitted up to 01/08/2015 (see table in EC 641-2009)	No EEI requirement permitted up to 01/08/2015 (see table in EC 641-2009)	No EEI requirement permitted up to 01/08/2015 (see table in EC 641-2009)	No EEI requirement permitted up to 01/08/2015 (see table in EC 641-2009)	856102
		Speed control	Automatic on/off control		No control		
Individual control							
		Yes		No			867300
Control							
		Optimised, weather-dependent	Weather-dependent	None			867300

	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
Koeling							
opwekken / omzetten	Koudeopslag, of gebouw zonder koeling	Koudeopslag i.c.m. (gas of electrisch) warmtepomp in zomerbedrijf	Compressiekoelmachine HR (COP > 3)	Compressiekoelmachine	Absorptiekoelmachine op warmtelevering derden	Absorptiemachine op WKK/ketel combinatie	855100, 855200, 855205, 855207, 851500
Afgifte	Ontwerptoevoertemperatuur >18 °C (incl. mass)	Ontwerptoevoertemperatuur >18 °C excl. mass) (klimaatplafond)	12 °C => Ontwerptoevoertemperatuur > 18 °C	Ontwerptoevoertemperatuur < 12 °C			855303
	Thermisch Actief Bouwdeel Systeem geïntegreerd met luchtkanalen en elektra en data installatie	Thermisch Actief Bouwdeel Systeem niet geïntegreerd met luchtkanalen en elektra en data installatie	Thermisch Actief Bouwdeel Systeem met nakoeling		Geen thermisch actief bouwdeel systeem		
	kunststofleidingssystemen in grond geïsoleerd in gebouw ongeïsoleerd	geïsoleerde metalen (RVS of staal) leidingen				geen geïsoleerd leidingssystemen	855303
verdelers / verzamelaars	gescheiden verdelers/verzamelaars met 2-weg kleppen en toerengeregelde pompen	gescheiden verdelers/verzamelaars met 2-weg kleppen zonder toerengeregelde pompen		open verdelers/verzamelaars met 3-weg kleppen zonder toerengeregelde pompen			855301
ventilatie- en luchtbehandeling							
natuurlijke ventilatie openingen of unit	geen te openen delen	Zelfregelende ventilatieroosters		niet zelfregelende ventilatieroosters			
		Drukregelende ventilatieroosters	niet drukregelende ventilatieroosters	Draairamen Val/klepramen			
	Blowerdoor Qv50 test	Blowerdoor Qv50 test	Blowerdoor Qv10 test				
mechanische afvoer							
	warmterugwinning d.m.v. combinatie bodemwarmte en retourlucht	Warmterugwinning d.m.v. warmtepomp		Geen warmterugwinning			857200

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	
Cooling							
Generation/conversion	Cold storage, or building without cooling	Cold storage combined with (gas or electric) heat pump on summer programme	HE compression cooler (COP > 3)	Compression cooler	Absorption cooler on third-party heating supply	Absorber on CHP/combi boiler	855100, 855200, 855205, 855207, 851500

Delivery	Design supply temperature >18 °C (incl. mass)	Design supply temperature >18 °C excl. mass) (climate ceiling)	12 °C => Design supply temperature > 18 °C	Design supply temperature < 12 °C			855303
	Thermally Active Building Section System integrated with air ducts and electrical and data system	Thermally Active Building Section System not integrated with air ducts and electrical and data system	Thermally Active Building Section System with after-cooling		No thermally active building section system		
	Plastic pipe systems, insulated underground, uninsulated in building	Insulated metal (stainless steel or steel) pipes				Pipe systems not insulated	855303
Distributor/accumulator	Separate distributor/accumulator with 2-way valves and variable speed pumps	Separate distributor/accumulator with 2-way valves without variable speed pumps		Open distributor/accumulator with 3-way valves without variable speed pumps			855301
<i>Ventilation and air conditioning</i>							
Natural ventilation openings or unit	No parts that can be opened	Self-regulating ventilation grilles		Non self-regulating ventilation grilles			
		Pressure-regulating ventilation grilles	Non pressure-regulating ventilation grilles	Side hung windows Bottom hung/pivot windows			
	Blower door Qv50 test	Blower door Qv50 test	Blower door Qv10 test				
Mechanical exhaust							
	Heat recovery using combination of geothermal energy and return air	Heat recovery using heat pump		No heat recovery			857200

	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
centrale luchtbehandeling							
	$\eta \geq 0,75$	$0,75 > \eta \geq 0,65$	$0,65 > \eta \geq 0,50$	$\eta < 0,50$			857510
	HR-WTW in combinatie met bodemwisselaar luchttoevoer	- Platen- of buizenwarmtewisselaar - Roterende of intermitterende warmtewisselaar (warmtewiel) of kruisstroom	- Twee-elementen-systeem (twin coil) - Warmte-buisapparaten (heat-pipes)	Koude laden met luchtbehandelingskasten		Geen warmterugwinning	857510
	direct gedreven ventilator met traploze toerenregeling tbv winter en o.b.v. druk i.c.m. VAV-boxen	snaar gedreven ventilator met traploze toerenregeling tbv winter en o.b.v. druk i.c.m. VAV-boxen	ventilator met traploze toerenregeling tbv winter	Hoog/laag-regeling t.b.v. zomer/winter		zonder toerenregeling	857510
	toe- en afvoer geïsoleerd	toevoer geïsoleerd				geen geïsoleerd leidingsystemen	857714
regeling CO2							
	CO2-gestuurd	Toerenregeling	Inlaatklep/ waaierschoep	Geen regeling/smoorregering			867300
bevochtiging							
		Geen bevochtiging, warmtewiel met vochtabsorptie	Adiabatische (ultrasone) bevochtiging	Additionele, gas bevochtiging	Additionele, elektrische bevochtiging		857510
verlichting en aandrijving							
Type verlichting [W/m ²]	verm. ≤ 10 W/m ²	$10 < \text{verm.} \leq 12$ W/m ²	$12 < \text{verm.} \leq 14$ W/m ²	$14 < \text{verm.} \leq 16$ W/m ²	$16 < \text{verm.} \leq 20$ W/m ²	verm. > 20 W/m ²	863140, 890630
basisverlichting		T5 / IED	TL HF	TLD			863140, 890630
accent of niet zijnde verblijfsruimten	LED	Spaarlamp (PL)	TL HF	TLD	Halogeen	Gloeilampen	863140, 890630
Schakel-/regelsysteem							
		Daglicht	Veegpulsschakeling	(Dubbele) vertrekschakeling		Centraal aan/uit	863140, 890630
		Aanwezigheids-detectie		geen aanwezigheidsdetectie			863140, 890630

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	
Central air conditioning							
	$\eta \geq 0.75$	$0.75 > \eta \geq 0.65$	$0.65 > \eta \geq 0.50$	$\eta < 0.50$			857510
	HE HRS combined with geothermal	- fins or pipe heat exchanger - rotating or intermittent	- twin-element system (twin coil) - heating pipe	Cold charging with air-conditioning units		No heat recovery	857510

	storage air supply	heat exchanger (heat wheel) or cross flow	equipment (heat pipes)				
	Direct-drive fan with infinitely adjustable control for winter conditions and based on pressure combined with VAV boxes	Belt-driven fan with infinitely adjustable control for winter conditions and based on pressure combined with VAV boxes	Fan with infinitely adjustable control for winter conditions	High/low control for summer/winter conditions		Not variable speed	857510
	Insulated supply and exhaust	Insulated supply				Pipe systems not insulated	857714
CO2 regulation							
	CO2 controlled	Speed control	Inlet valve/impeller	No regulation/throttle regulation			867300
Humidification							
		No humidification, heat wheel with moisture absorption	Adiabatic (ultrasonic) humidification	Additional, gas humidification	Additional electrical humidification		857510
Lighting and drive							
Type of lighting [W/m2]	power <= 10 W/m2	10 < power <= 12 W/m2	- 12 < power <= 14 W/m2	14 < power <= 16 W/m2	- 16 < power <= 20 W/m2	power > 20 W/m2	863140, 890630
Basic lighting		T5 / IED	TL HF	TLD			863140, 890630
Accent, or not in residential areas	LED	Energy-saving lamp (PL)	TL HF	TLD	Halogen	Incandescent lamps	863140, 890630
Switching/regulation system		Daylight	Timed lighting sweep	(Dual) departure switching		Central on/off	863140, 890630
		Occupation detection		No occupation detection			863140, 890630

	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
(warm) water							
opwekken / omzetten	$\eta > 0,7$	$0,6 < \eta < 0,7$	$0,55 < \eta < 0,6$	$0,45 < \eta < 0,55$	$0,30 < \eta < 0,45$	$\eta < 0,30$	851200, 851030, 851200, 851220,
	elektrische doorstromer direct bij tappunt met laag warm water verbruik	Voor verwarming met warmtepomp - Geiser zonder waakvlam - HR combiketel	VR-combiketel	Gasboiler - Geiser met waakvlam - Indirect gestookte boiler - elektrische boiler icm laag tapwaterverbruik	Elektrische warmtepomp (volledig), Stoomketel, Gas WKK (Pwkk,el < 500 kW),	Electrische boiler icm hoog tapwater verbruik	851030, 851200, 851220, 851241, 851260, 851270, 851400, 851300, 851500, 862225
distributie	tappunten binnen straal van 3 meter van opwektoestel en leidingen geïsoleerd		tappunten binnen straal van 3 meter van opwektoestel en leidingen ongeïsoleerd	een of meer tappunten op meer dan 3 meter afstand van opwektoestel en leidingen ongeïsoleerd	Circulatieleiding geïsoleerd	Circulatieleiding ongeïsoleerd	853103, 853105
drukverhogingsinstallatie		Toerenregeling			Geen regeling		853140
		Automatische aan/uit regeling					853140
waterbesparingsmaatregelen		Waterbesparende maatregelen		Geen waterbesparende maatregelen			
zonnecollectoren	Zonnecollector kan voor comfort en tapwater verwarmen worden ingezet waarbij >30% van het opgesteld vermogen kan worden verminderd	Zonnecollector kan voor comfort en /of tapwater verwarmen worden ingezet waarbij >30% van het opgesteld vermogen kan worden verminderd	Zonnecollector kan voor comfort en /of tapwater verwarmen worden ingezet waarbij < 30% van het opgesteld vermogen kan worden verminderd		geen zonnecollector aanwezig		851200
vuilwater en hemelwater	HWA bufferen op sedumdak en overtollig bufferen in overloop vijvers of infiltreren	HWA ontkoppelen van riool en opslaan t.b.v. toiletspoeling	HWA ontkoppelen van riool en infiltreren in grond / bufferen in overslag vijvers		HWA niet ontkoppeld van riool		852110, 852120, 852130, 852400
		gescheiden vuil, HWA en grijs riool			gecombineerd riool		852110, 852120, 852130, 852400
Vuilwaterafvoer pomp		Toerenregeling			Geen regeling		852160
		Automatische aan/uit regeling					852160

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	

(Hot) water							
Generation/conversion	$\eta > 0.7$	$0.6 < \eta < 0.7$	$0.55 < \eta < 0.6$	$0.45 < \eta < 0.55$	$0.30 < \eta < 0.45$	$\eta < 0.30$	851200, 851030, 851200, 851220
	Electric instantaneous water heater at tapping point with low hot water consumption	For heating with a heat pump - Water heater without pilot light - HE combi boiler	- Improved efficiency combi boiler	Gas boiler - Water heater with pilot light - Indirectly fired boiler - Electric boiler combined with low tap water consumption	Electric heat pump (full), steam boiler, gas CHP (PCHP, el < 500 kW),	Electric boiler combined with high tap water consumption	851030, 851200, 851220, 851241, 851260, 851270, 851400, 851300, 851500, 862225
Distribution							
	Tapping points within a 3-metre radius of generating appliance and insulated pipes		Tapping points within a 3-metre radius of generating appliance and uninsulated pipes	One of more tapping points at a distance of more than 3 metres from the generating appliance and uninsulated pipes	Insulated circulation pipes	Uninsulated circulation pipes	853103, 853105
Pressure boosting system							
		Speed control			No control		853140
		Automatic on/off control					853140
Measures to save water							
		Water-saving measures		No water-saving measures			
Solar heating collectors							
	Solar heating collector can be used for comfort and tap water heating where >30% of the installed capacity can be reduced	Solar heating collector can be used for comfort and/or tap water heating where >30% of the installed capacity can be reduced	Solar heating collector can be used for comfort and/or tap water heating where <30% of the installed capacity can be reduced		No solar heating collector installed		851200
Wastewater and rainwater							
	Rainwater discharge buffers on sedum roof and excess buffers in overflow ponds or infiltration	Disconnect rainwater discharge from sewer and store for flushing toilets	Disconnect rainwater discharge from sewer and infiltrate into ground/buffers in storage ponds		Rainwater discharge not disconnected from sewer		852110, 852120, 852130, 852400
		Separate wastewater, rainwater discharge and			Combined sewer		852110, 852120, 852130, 852400

		grey water sewers					
Wastewater discharge pump							
		Speed control			No control		852160
		Automatic on/off control					852160

	Classification						Element-code ingediikt 2010
	1	2	3	4	5	6	
	zeer goed	goed	redelijk	matig	slecht	zeer slecht	
Transportinstallaties							
verlichting en aandrijving	Energiezuinige aandrijving, LED of aanwezigheidsdetectie	Energiezuinige aandrijving	LED of aanwezigheidsdetectie		Geen LED, aanwezigheidsdetectie en energiezuinige aandrijving		661100
lift, regeling	remote monitoring met energie terugwinning systeem	Frequentie regeling, onderlinge afstemming liften, automatische regelstrategie		Onderlinge afstemming liften en automatische regelstrategie	Geen frequentie regeling, onderlinge afstemming liften en automatische regelstrategie		661100, 661400, 663100, 663200, 663900, 751300
roltrap, aandrijving	Energiezuinige aandrijving en energiebesparende verlichting	Energiezuinige aandrijving	Energiebesparende verlichting		Geen energiebesparende verlichting en energiezuinige aandrijving		662100, 661300
roltrap, regeling	remote monitoring met energie terugwinning systeem	Frequentie regeling, standby systeem	Frequentie regeling of standby systeem		Geen frequentie regeling en standby systeem		662100, 661300
Minimale acceptatie lijn om in 2020 2% per jaar te behalen (Cramer -Lijn)							
Warmtapwater: Gekozen is een HR-combi hoger te waarderen dan NEN2916 en ISSO 75. Dit is gedaan op basis van ervaring en getallen uit Cijfers & Tabellen van SenterNovem (= 0,65).							
Duurzame energie: Voor zonnecollectoren en PV-panelen is ervoor gekozen afwezigheid te beoordelen met een klasse 4. Dit aangezien dergelijke systemen een lange tvt hebben en daarmee economisch gezien minder zinvol zijn.							
Bevochtigingsinstallatie: gekozen is onderscheid tussen wel of geen vochtterugwinning. Opwek verdampingswarmte is afhankelijk van warmteopwektoestel en dit wordt al beoordeeld bij verwarming. Geen vochtterugwinning niet negatiever dan 4. Meestal is vocht.							
Ventilatie warmteterugwinning: rendementen volgens NEN2916:2004, tabel 5							
Koeling: adaptieve koeling, aangepast aan type gebouw en buitentemperatuur kan wellicht meer energiebesparen. Dit is echter naar verwachting te lastig om te achterhalen door de inspecteur en is dus niet meegenomen.							
Daglichtoppervlak: te nauwkeurig om mee te nemen							
Verlichting: W/lux/m2 te lastig om mee te nemen voor inspecteur							
Individuele regeling: individuele regeling heeft bij verwarming een positieve invloed, bij koeling geen invloed.							
V_{v,inf,nom}: ventilatievoud door infiltratie [dm3/sm2]							

	Classification						Element-code condensed 2010
	1	2	3	4	5	6	
	Very good	Good	Satisfactory	Fair	Poor	Very poor	
Transport systems							
Lighting and	Energy-efficient power, LED	Energy-efficient	LED or motion sensors		No LED, motion sensors or		661100

power	or occupancy detection	power			energy-efficient power		
Lift, control	Remote monitoring with energy recovery system	Frequency regulation, mutual harmonisation of lifts, automatic control strategy		Mutual harmonisation of lifts and automatic control strategy	No frequency regulation, mutual harmonisation of lifts and automatic control strategy		661100, 661400, 663100, 663200, 663900, 751300
Escalator, power	Energy-efficient power and energy-saving lighting	Energy-efficient power	Energy-saving lighting		No energy-saving lighting and energy-efficient power		662100, 661300
Escalator, control	Remote monitoring with energy recovery system	Frequency regulation, standby system	Frequency regulation or standby system		No frequency regulation and standby system		662100, 661300
Minimum acceptance line to achieve 2% per annum in 2020 (Cramer-line)							
Hot tap water: it has been decided to assign an HE combi boiler a higher value than NEN 2916 and ISSO 75. This has been done based on experience and figures from the SenterNovem Figures & Tables (= 0.65).							
Sustainable energy: it has been decided to assess the absence of solar heating collectors and PV panels as category 4. This is because such systems have a long cost recuperation period and are therefore considered less meaningful economically.							
Humidification system: it has been decided to differentiate between having and not having moisture recovery. Generation evaporation heat depends on the heat generation appliance and this is assessed under heating. No moisture recovery is not more negative than 4. Moisture is usually							
Ventilation heat recovery: yields as per NEN 2916:2004, table 5							
Cooling: adaptive cooling tailored to the type of building and outdoor temperature could save more energy. We expect the inspector will find this too difficult to establish and it has therefore not been included.							
Natural light surface area: too accurate for inclusion							
Lighting: W/lux/m2 too difficult to be included for inspector							
Individual control: individual control does have a positive effect on heating but has no effect on cooling.							
vp;inf;nom: ventilation power by infiltration [dm3/sm2]							