



**Nordic Ecolabelling of
Houses, flats and pre-schools
Draft, 4 June 2009**



Nordic Ecolabelling

In November 1989, the Nordic Council of Ministers adopted a measure to implement an official voluntary ecolabelling scheme, the Nordic Ecolabel, also known as the Swan. The organizations/companies listed below administer the Nordic Ecolabelling scheme on assignment from their national governments.

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Nordic Ecolabelling of houses, flats and pre-schools

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What is a Nordic Ecolabelled building?	5
Why choose the Nordic Ecolabel?	5
What can carry the Nordic Ecolabel?	6
How to apply	7
What are the requirements for the Nordic Ecolabel?	9
1 Overall requirements for the licence applicant.....	9
2 Energy and indoor environment	10
3 Material requirements.....	15
3.1 Chemical building products	15
3.2 Chemical substances in permanent building products	18
3.3 Timber and fibre-based materials	20
3.1 Other requirements on building products, materials and interiors.....	22
4 Quality management and control for the construction process	23
4.1 Requirements on the construction process.....	23
4.2 Verification prior to moving in	25
4.3 Points score	26
4.4 Quality management	27
5 Instructions to residents/property managers	29
Marketing	30
Design of the Nordic Ecolabel	30
Sales in other Nordic countries.....	30

What is a Nordic Ecolabelled building?

Houses, flats in blocks of flats and pre-school buildings can be awarded the Nordic Ecolabel, the Swan. Nordic Ecolabelling requirements cover the construction process, materials and energy consumption. Consideration is paid to all environmental aspects, from the raw materials to the finished building. In addition to low environmental and climatic impact, the building must offer a good indoor environment. This is guaranteed by:

- the constituent materials.
- good ventilation.
- the construction process.
- material and quality controls to prohibit built-in damp damage.

To minimise environmental impact, Nordic Ecolabelling also requires:

- that the building is free from environmentally hazardous substances.
- that the building is energy efficient.
- the environmentally suitable disposal of construction waste.
- a service and maintenance plan for the building.

Why choose the Nordic Ecolabel?

- Building manufacturers may use the Swan trademark for marketing. The Nordic Ecolabel, the Swan, is a very well-known and well-reputed trademark in the Nordic region.
- The Nordic Ecolabel is a cost-effective and simple way of communicating environmental performance and commitment to the environment and producing healthy buildings to property buyers, suppliers and other interested parties.
- Environmentally suitable operations prepare the building manufacturer for future environmental legislation.
- Environmental issues are complex. It can take a long time and extensive resources to gain an understanding of a specific area. Nordic Ecolabelling is a valuable guide.
- The Nordic Ecolabel not only covers environmental issues but also quality requirements, since the environment and quality often go hand in hand.

What can carry the Nordic Ecolabel?

Three types of building can carry the Nordic Ecolabel:

- Houses.
- Flats in blocks of flats.
- Pre-school buildings.

For a definition of these building types, please refer to national building regulations. The majority of requirements are common to all three types of building but differ in some specific respects.

Regarding flats, the criteria apply to the entire body of the building excluding areas not designed for habitation, such as commercial premises, offices and school premises.

The basic rule is that the license applicant is responsible towards the customer for all parts of the construction of a Nordic Ecolabelled house, flat or pre-school. Some exemptions may be made to this single point responsibility regarding houses and flats if so wished by the licence applicant (see the list below). This option does not apply to pre-school buildings.

Exemptions from single point responsibility for houses and flats

5. Kitchen fittings and appliances. The building manufacturer must however recommend a kitchen fulfilling the Nordic Ecolabelling criteria for furniture and fitments and white goods as per O7.
1. Painting of interior walls (n/a wetrooms). Paint fulfilling EU Flower and/or Nordic Ecolabel requirements must be recommended.

Exemptions from single point responsibility for houses

0. Fitting-up the loft. If the loft is left bare, the manufacturer must provide proposals on how to fit this up in order to meet the material requirements. The building envelope must be finished so that the requirements regarding energy and airtightness are fulfilled.
1. Painting of façades. The licence holder must however make sure that the building is primed and able to withstand at least one year of outdoor exposure without being damaged. Paint fulfilling EU Flower and/or Nordic Ecolabel requirements must be recommended.

It is also possible for the purchaser themselves to perform work on the foundations in the same way as a subcontractor. The licensee continues to have single point responsibility for the entire construction process. The building envelope must be finished so that the requirements regarding energy and airtightness are fulfilled.

Nordic Ecolabelling may approve other exceptions if this is considered appropriate and does not compromise the quality of the building or the customer's position.

General requirements for the Nordic Ecolabelling of houses, flats and pre-schools

All areas that have not been exempted in the contract from Nordic Ecolabel requirements as specified above must fulfil the requirements described in this document. The license applicant must be able to provide Nordic Ecolabelling with documents showing fulfilment of the requirements laid down in this criteria document.

A license is awarded for a specific house type, flat type or pre-school. Certain modifications are permitted if these fulfil the requirements for Nordic Ecolabelling. Approval may be given to use a selection of different materials and solutions for one building type (e.g. different room layouts) if it can be guaranteed that the criteria are fulfilled.

Installations and services drawn up to the exterior of the building are not covered by the Nordic Ecolabel criteria.

The building becomes Nordic Ecolabelled when it is handed over from the licensee to the buyer. Nordic Ecolabelling is not liable for the fulfilment of the criteria at a later point in time, such as after extension work.

It is the requirements imposed by Nordic Ecolabelling at the time of sale (i.e. the ecolabelling criteria that are valid at that point in time) that the building must fulfil to be allowed to be marketed as Nordic Ecolabelled. If a new criteria document is issued after the time of sale, it is not necessary to adapt the building to the new criteria.

How to apply

The criteria for houses, flats and pre-schools comprise a combination of obligatory requirements and point score requirements. The letter "O" and a number indicate obligatory requirements, which must always be met. If a certain part of a requirement only applies to a house, flat or pre-school, this is specified. Environmental and quality management requirements are also mandatory and are marked with the letter "M" and a number.

The letter "P" and a number distinguish point score requirements. Each requirement of this type gives a points score. A minimum total score must be achieved to fulfil the constraints of the Nordic Ecolabel.

Icons in the text

The text describes how the applicant shall demonstrate fulfilment of each requirement. The following icons are used for clarity:



Enclose



Enclose procedures for environmental and quality assurance

Application

The application shall be sent to Nordic Ecolabelling in the country in which the building is sold. See page two for addresses. The application documents shall comprise a completed application form and the specified documentation to demonstrate fulfilment of the requirements.

If you require further information or assistance during application, please contact the Nordic Ecolabelling office in the country in question. Web addresses and contact details can be found on page 2.

Inspection

When granting a licence, Nordic Ecolabelling checks with the licence applicant that requirements are fulfilled.

Nordic Ecolabelling then processes the application and checks the applicant's work procedures, material lists and suchlike. For this inspection, data used for calculations, original copies of submitted certificates, test records, purchase statistics, and similar documents that support the application must be available for examination.

Costs

An application fee is charged to companies applying for a licence. There is an additional annual fee based on the sales revenues produced by the building manufacturer carrying the Nordic Ecolabel.

Enquiries

Please contact Nordic Ecolabelling if you have any queries or require further information. See page 2 for addresses.

What are the requirements for the Nordic Ecolabel?

The following is required for the Nordic Ecolabelling of a house, flat or pre-school:

- Fulfilment of all obligatory requirements (O).
- Fulfilment of all requirements regarding environmental and quality management (M).
- A minimum of 40% (10 of 24) of the total possible point score (P).

National requirements are used in several requirements in the criteria document.

1 Overall requirements for the licence applicant

01 General description of the building

The application shall include a general description of the entire building covering the interior living space, possible rented space, plans, load-bearing structure, facade, roof, foundations, ventilation system and heating system. If the building has a conjoined garage, lean-to or similar at the point of sale, this shall be included as part of the Nordic Ecolabelled building. Non-heated extensions are not subject to the requirements of Section 2 with the exception of O6 Permanent light sources. Heated extensions shall fulfil all requirements.

Describe the choice of layouts and materials that are offered.

Houses

The general description must clearly state which work the buyer may perform following conveyance, such as fitting-up the loft, interior and exterior paintwork and fitting the kitchen. It must also be clear that the house may not be handed over to the buyer before the wetrooms are sealed and the plumbing is complete.

Flats

The general description must clearly state which work the buyer may perform following conveyance, such as interior paintwork and fitting the kitchen.

Pre-school buildings

The general description shall include a description of the type of operations, the estimated number of children, etc.



Description as specified above.

02 Responsibility for the construction process

There must be a statement guaranteeing that the licensee holds full contractual obligation towards the buyer for the construction process up to completion of the conveyance of the property. Irrespective of who does work on the building prior to conveyance, the licensee is responsible for this work and its quality. If building contractors, for example, are engaged prior to conveyance, the licensee is responsible for ensuring that these are provided information about Nordic Ecolabel requirements for buildings and for ensuring that these are observed. The licensee must also deal with any complaints and claims between the buyer and possible building contractor.

The type of building contract offered as well as how to ensure that regular quality inspections are carried out until the building is ready for habitation must be specified. Reference can be made to Section 4 “Quality management and control for the construction process”.

Houses

Exemptions can be made for fitting-up the loft, interior and exterior painting and kitchen fittings and appliances, as described under “What can carry the Nordic Ecolabel?”.

Blocks of flats

Exemptions can be made for interior painting and kitchen fitting as described under “What can carry the Nordic Ecolabel?”.

Pre-school buildings

No exemptions are possible.

- Specification complying with the above.

O3 List of products/materials

All materials that are used in the construction of the building must be compiled in a list that specifies their name, type, material and producer. For ironmongery it is sufficient to specify the type of material.

All the product types that are covered by this requirement are specified in the material list in Appendix 1.

- List of products, manufacturers and materials.

P1 Use of ecolabelled/reused building products

Ecolabelled (Nordic Ecolabel or EU Flower) or reused building products (complete, post-consumer products, i.e. not material reuse) can gain a maximum of five points. One point is awarded for each product area within which a minimum of 10% of the product requirement is ecolabelled/recycled and two points for a minimum of 30%.

Appendix 2 provides examples of product areas.

- List of ecolabelled and/or reused products. Appendix 2 can be used.

2 Energy and indoor environment

O4 Airtightness

Flats

Leakage for the finished building must not exceed $0.50 \text{ l/s}\cdot\text{m}^2 A_{\text{sur}}$.

Houses and pre-school buildings

Leakage for the finished building must not exceed $0.40 \text{ l/s}\cdot\text{m}^2 A_{\text{sur}}$.

The licensee must have procedures to ensure compliance with this requirement. The procedures shall describe the method of pressure testing and who shall perform the tests. The procedures shall also specify which measures are to be taken if the results are unsatisfactory.

Each individual house and pre-school must be pressure tested. Regarding flats, a minimum sample of 10% of the total number of flats must be tested.

Test method EN 13829 or a simplified test method must be used. If a simplified test method is used, leakage must be tested at a minimum of 50 Pa. The tests can be performed as part of self-inspection.

A_{sur} is the total area in m^2 of building component surfaces enclosing heated indoor air. Such building components form the boundary of heated parts of the building to free air, ground or partially heated spaces.

- Procedures demonstrating how the requirement is fulfilled. The results of the tests performed on finished buildings must be kept by the building manufacturer for each building project for as long as the licence is valid.

P2 Superior airtightness

If air leakage is less than 75% of the value in O4 one point is awarded.

If air leakage is less than 50% of the value in O4, two points are awarded.



Refer to O4.

O5 Energy consumption

Denmark

Buildings in Denmark shall, at a minimum, fulfil the requirements for class 1 low energy buildings, in accordance with Danish building regulations for houses from 1998 with amendments.

Calculations shall comply with DS 418.

Norway

The annual energy consumption must not exceed:

105 kWh/m² + 1600 kWh/heated utility space for houses

100 kWh/m² for flats

115 kWh/m² for pre-school buildings

Calculations shall comply with NS 3031. 2007

Sweden

The annual energy consumption of residential buildings must not exceed:

88 Wh/m² exclusive of household electricity in the southern climate zone.

104 Wh/m² exclusive of household electricity in the northern climate zone.

The annual energy consumption of pre-school buildings must not exceed:

80 Wh/m² exclusive of household electricity in the southern climate zone.

96 kWh/m² exclusive of household electricity in the northern climate zone.

Higher figures are permitted for pre-schools if the airflow exceeds 0.35 l/s*m² in accordance with The National Board of Housing, Building and Planning, BFS 1993:57 with amendments up to and including BFS 2008:20.

Energy consumption calculations shall comply with The National Board of Housing, Building and Planning regulations BFS 1993:57 with amendments up to and including BFS 2008:20 Section 9.

Finland

Buildings in Finland must at a minimum fulfil the requirements of energy performance class A for houses, flats and pre-schools according to the Ministry of the Environment's regulations pursuant to energy certificates for buildings (Miljöministeriets förordning om energicertifikat för byggnader, Helsingfors 19 June 2007).

Calculations must comply with the Finish building regulations referenced in the Ministry of the Environment's regulations pursuant to energy certificates for buildings.



Calculations demonstrating that the building fulfils the requirements. If the energy use varies between different designs of the building, documented evidence must be provided that each design fulfils the requirements.

P3 Reduced energy consumption

Denmark

If the calculated energy consumption is lower than the limit value as per O5, one point is awarded for reduced consumption for each increment of 1.7 kWh/m² + 54 kWh/m².

Norway

If the calculated energy consumption is lower than the limit value for Norway as per O5, one point is awarded for reduced consumption for each increment of 2.9 kWh/m².

Sweden

If the energy consumption is lower than the limit value for Swedish buildings as per O5, one point is awarded for each 3.7 kWh/m² reduced consumption.

Finland

If the calculated energy consumption is lower than the limit value for Finnish buildings as per O5 (lower limit value for energy performance class A), one point is awarded for each 4.2 kWh/m² reduced consumption.

A maximum of 7 points are awarded under P3 for houses and flats and a maximum of 6 points for pre-schools.



Refer to O5.

P4 Energy from solar collectors and solar panels

If solar collectors are installed for hot water and/or heating, points are awarded according to Table 1.

Table 1. Overview of points for additional energy from solar collectors and solar panels

Energy collection system	Minimum estimated annual additional energy, kWh/år*m ² *	Houses and flats	Pre-school buildings
Solar collector	10	0 p	1 p
	14	1 p	2 p
	20	2 p	2 p
Solar panel	7	1 p	1 p
	10	2 p	2 p

* North of 66° North, the same scores are awarded for 70% of the values specified above.

A total of two points can be gained under P4.



Calculations showing the estimated additional solar energy in kWh/year*m² of heated utility space.

O6 Permanent light sources

Permanent light fittings, both indoors and outdoors, must have light sources of energy class B or better. Reflector lamps (directional light sources) must be LED (light emitting diode) or some other energy-efficient directional light source. For light sources greater than 6,500 lumens, the luminous efficiency must be greater than 60 lumen per watt.

Lighting that is supplied with kitchen fittings is exempted from this requirement.

Exterior lighting must be automatic if the total power requirement exceeds 30 watts.

The energy classes are according to Commission Directive 98/11/EC for lamps.



Specification of the types of light sources and, where applicable, the associated automatic control systems.

O7 Energy labelled white goods

If a refrigerator, freezer and/or washing machine is installed, this must be of energy class A+. Tumble dryers must be of energy class B or higher and be of condenser type. If an oven or dishwasher is installed, this must be of energy class A or higher.

Energy classes are defined in Commission Directives:

2003/66/EC for refrigerators and freezers.
95/12/EC for washing machines.
95/12/EC for washing machines.
2002/40/EC for ovens.
97/17/EC for dishwashers.

☒ Details of the number and type of white goods and associated energy labelling.

O8 Low-flow showers and taps

All showers (or shower mixers) and basin mixer taps must have flow reducers that are fitted and activated when the building is conveyed to the customer.

Low-flow means max 12 l/min at a normal flow rate (forced flow is permitted).

☒ Specification of data for showers and mixer taps (flow tables or similar).

O9 Individual measurement of hot water, heating and household electricity

A system for the individual measurement of electricity, hot water and heating consumption must be installed for each flat.

Systems for heating consumption allocation must be approved to EN 834 (electricity meters) or EN 835 (evaporation principle).

Systems for metering electricity and hot water must comply with Council Directive 2004/22/EC on measuring instruments.

☒ Description of the systems that are installed.

O10 Ventilation

Outdoor air

The licence applicant must have procedures in place to evaluate what measures are necessary based on the quality of the outside air, in accordance with pertinent national guidelines.

These procedures must describe the actions to be taken to limit air pollutants from entering the building via the ventilation system.

Regarding pre-schools, instructions for the caretaker must detail possible filter changes and service agreements. See also requirement O43.

Indoor air

The licence applicant must ensure that the air quality of indoor air fulfils pertinent national guidelines. A description of the ventilation system with an overview of the air volumes and pressure relationship of each individual room must be included.

Special requirements for pre-school buildings

The air flow must exceed 7 l/s (25 m³/h) per person when the building is occupied plus an additional 1 l/s per square metre of floor area. Kitchens, wet rooms, drying rooms and halls where clothes and shoes are kept must have negative pressure to ensure a through-flow of air.

Pre-schools must have automatic demand controlled ventilation. The control system must be described.

Special requirements for flats

If a common central unit is used for the flats, calibration shall be performed to ensure the correct air quantity to each flat. The calibration procedures must be documented.

National guidelines

The licence applicant must ensure that the air quality fulfils the following pertinent national guidelines.

Sweden

BFS 2006:12, Section 6.2 and guidelines published by the Swedish Work Environment Authority and The National Board of Health and Welfare..

Norway

The Norwegian Institute of Public Health (Statens institutt for folkehelse) (1998). Anbefalte faglige normer for inneklima (Recommended professional standards for indoor environments)

Norwegian Labour Inspection Authority (Arbeidstilsynet) (2003). Veiledning om klima og luftkvalitet på arbeidsplassen (Guidelines on climate and air quality in working environments)

Norwegian Board of Health Supervision (1994). Inneklima - en veileder for kommunehelsetjenesten (Indoor climate – guidelines for municipal health services)

Norwegian Board of Health Supervision (1998). Veileder til forskrift om miljørettet helsevern i barnehager og skoler m.v (Guidelines to environmental legislation applicable to pre-schools, schools and similar)

Veiledning 2007 til Teknisk forskrift § 8-3 Innemiljø (2007 Guidelines to Technical Regulations § 8-3 Indoor climate)

Denmark

Building regulations 2008, Chapter 6.3.1

Finland

The National Building Code of Finland, Indoor climate and ventilation of buildings, 2003

Description of how the requirement is fulfilled.

P5 Demand-controlled ventilation

Houses and flats

The installation of automatic demand-controlled ventilation is awarded one point.

Pre-school buildings

Obligatory requirements, see O10.

Description of the type of demand control and how this can be adjusted to differing needs.

O11 Noise

Houses and flats

Flats and houses must fulfil noise class B in accordance with national standards for sound transmission through walls and floors between housing units, such as between flats or adjacent terraced houses, according to SS025267 in Sweden, SFS 5907 in Finland, NS 8175 in Norway, and DS 490 in Denmark.

Pre-school buildings

Common rooms and rest rooms must fulfil noise class B in accordance with national standards for sound transmission (SS025267 in Sweden, SFS 5907 in Finland, NS 8175 in Norway, and DS 490 in Denmark).

Description of how the requirement is fulfilled.

O12 Daylight factor (requirement applicable to pre-school buildings only)

The average daylight factor for play rooms and common rooms for children must exceed 4%.

The minimum daylight factor for play rooms and common rooms must exceed 1%.

See Appendix 3 for methods of calculation. Manual calculations or computer simulations may be used.

Calculations demonstrating the fulfilment of the requirement.

O13 Illumination intensity (requirement applicable to pre-school buildings only)

The sum of electric lighting and daylight in common rooms shall provide a minimum illumination intensity at floor level of 300 lux.

Lighting plans with manual calculations of illumination intensity must be submitted.

Computer software such as Dialux and Relux can be used.

Lighting plan and calculations demonstrating the fulfilment of the requirement.

P6 Control of lighting (requirement applicable to pre-school buildings only)

The installation of system for the automatic, efficient control of lighting (e.g. daylight sensors or movement sensors/presence detectors) for:

- more than 50% of light sources is awarded one point
- more than 80% of light sources is awarded two points

Specification of the number of light sources, the percentage with control and the method of control.

3 Material requirements

The material requirements apply to all constituent chemical products and selected building materials used in the production of prefabricated elements and during on-site construction.

If an ecolabelled product (Nordic Ecolabel or EU-Flower) is used in an area specified under Section 3, the documentation requirement is lifted. I.e. the ecolabelled products fulfil all the requirements.

3.1 Chemical building products

Regarding classification in requirements O14, O15 and O16, substances shall be classified according to Nordic regulations for the classification and marking of dangerous chemicals and/or the European substance and preparation directives, 67/548/EEC and 1999/45/EEC (with amendments).

If Council Directive 76/769/EEC (Limitations Directive) including amendment 2008/0033/COD sets more stringent requirements during the validity of the criteria, the Limitations Directive shall apply.

Table 1 in Appendix 4 can be used for translation to the Globally Harmonised System (GHS).

Requirements O16, O17, and O19 refer to substances that are one or more of the following:

- added intentionally by the chemicals manufacturer.
- found on the material safety data sheet of used preparations.
- added through preparations regarding which the chemical producer, based on common knowledge and available information, knows are classified with one or several of the specified risk phrases.

O14 Material safety data sheets

Material safety data sheets shall be submitted for all chemical building products that are used.

The material safety data sheet shall comply with applicable legislation in the country of application, e.g. Annex II of REACH (Council Regulation 1907/2006/EEC) for all chemical products.

Material safety data sheets.

O15 Classification

Chemical building products (see O14) must not be classified according to the following table.

Table 2. Overview of classifications with associated symbols and risk phrases that are prohibited from chemical building products.

Danger class	Symbols and risk phrases
Dangerous for the environment	N with R50, R50/53 or R51/53
Carcinogenic	T with R45 and/or R49, or Xn with R40
Mutagenic	T with R46 or Xn with R68
Toxic for reproduction	T with R60 and/or R61, or Xn with R62 and/or R63
Very toxic	T+ with R26, R27, R28 and/or R39
Toxic	T with R23, R24, R25, R39 and/or R48

Documentation in accordance with 4 and item “a” in Appendix 5 for chemical products duly completed.

O16 CMR substances (category 1, 2 and 3)

Substances in chemical building products must not be classified according to the following table.

Table 3. Overview of classifications with associated symbols and risk phrases that are prohibited from substances in chemical building products.

Danger class	Symbols and risk phrases
Carcinogenic	T with R45 and/or R49, or Xn with R40
Mutagenic	T with R46 or Xn with R68
Toxic for reproduction	T with R60 and/or R61, or Xn with R62 and/or R63

An exception is made for paints, which may contain preservatives classified as R40 up to a level of 0.1%.

☒ Item “b” for chemical products in Appendix 5 duly completed.

O17 Prohibited substances

Chemical building products must not contain the following substances:

- Halogenated paraffins - highly-chlorinated, short-chain (C10-C13) and medium-chain (C14-C17)
- Fluorinated propellants
- Perfluorinated and polyfluorinated alkylated substances (PFAS)
- Alkylphenolethoxylates (APEO) and alkylphenol derivatives (APD)
- Halogenated flame retardants
- Phthalates
- Boron compounds
- Creosote
- Benzo(a)pyrene, benzo(b)pyrene
- Bisphenol A
- Antimony trioxide
- Heavy metals: lead, cadmium, arsenic, chromium, mercury or their compounds
- Organic tin compounds
- Monoacrylamide

An exception is made for the quantity of DBT and DOT organic tin compounds (TBT and TPT are prohibited) which are permitted to the specified limit values in the following three product types:

- 0.5% in MS polymers
- 0.2% in silicone products and PUR polymers with silanes replacing isocyanates.
- 0.03% in PUR polymers containing isocyanates.

☒ Items “f” to “s” in Appendix 5 duly completed.

O18 Substances with long-term effects

Substances that according to the the ESIS list (see below) are considered to have long-term negative effects on the environment must not be found in chemical building products. Examples include substances that are persistent, liable to bioaccumulate and toxic (PBT) and very persistent and very bioaccumulating substances (vPvB).

Substances falling under PBT and vPvB classification, or that may decompose to such, are listed on the ESIS (European chemical Substances Information System) website: <http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=pbt>. Substances that are "deferred" or "under evaluation" are not considered to have PBT or vPvB properties.

☒ Item “c” in Appendix 5 duly completed.

O19 Endocrine disrupters

Substances that according to the updated European Union priority list (see below) are considered endocrine disrupters must not be found in chemical building products. This includes the substances prioritised in the Community Strategy for Endocrine Disrupters.

See the updated European Union priority list over endocrine disruptors on the DG Environment-Chemicals website, found in Annex L of "The Final Report of the DHI-Study": http://ec.europa.eu/environment/endocrine/documents/sec_2007_1635_en.htm

Substances under categories 1, 2 and 3 are considered endocrine disrupters.

☒ Item "d" in Appendix 5 duly completed.

O20 Nanoparticles

Particular rules apply to the use of nanometals, nanominerals, nanocarbon compounds and/or nanofluorine compounds that are added actively to chemical building products. If used, the licence applicant must submit documentation that demonstrates that the use of such nanomaterials cannot cause environmental or health problems.

Nanoparticles are defined as microscopic particles that are less than 100 nm in dimension. Nanometals, for example, include nanosilver, nanogold and nanocopper. Traces of such materials that have not been added to achieve a certain function in the product are exempt from this requirement.

☒ Item "e" in Appendix 5 on the absence of nanomaterials duly completed. If nanomaterials are used, documentation must be submitted that demonstrates that the use of the nanomaterials in question cannot cause environmental or health problems.

O21 Handling

Applicants must specify how chemical building products classified according to the table below shall be handled to avoid personal injury.

Table 3. Overview of classifications with associated symbols and risk phrases.

Danger class	Symbols and risk phrases
Sensitising	Xn with R42 or Xi with R43
Harmful	Xn with R20, R21, R22, R48 or R65
Corrosive	C with R34 and R35

☒ Description of how chemicals are handled in a safe manner to prevent personal injury.
Description of the protective equipment that is suitable for handling. Specification of who is responsible for ensuring that the information regarding the handling of chemical building products on-site is correct.

3.2 Chemical substances in permanent building products

O22 Adverse chemical substances

The requirement applies to the following product groups:

- Permanent sealing products (e.g. tanking membranes, wetroom panels, vapour barriers, wind barriers, radon barriers and roofing membranes).
- Impregnated timber.
- Insulation materials (e.g. plastic, textiles and mineral materials).
- Plastic products such as ducting (for electrical wiring); high tension cables; waste water pipes; piping for a central vacuuming system (if applicable); and interior floor, ceiling and wall coverings (also applies to wetrooms).

The following substances are prohibited:

- Halogenated paraffins - highly-chlorinated, short-chain (C10-C13) and medium-chain (C14-C17)
- Fluorinated propellants
- Perfluorinated and polyfluorinated alkylated substances (PFAS)
- Alkylphenolethoxylates (APEO) and alkylphenol derivatives (APD)
- Halogenated flame retardants
- Phthalates
- Boron compounds
- Creosote
- Benzo(a)pyrene, benzo(b)pyrene
- Bisphenol A
- Antimony trioxide
- Heavy metals: lead, cadmium, arsenic, chromium, mercury or their compounds
- Organic tin compounds
- Monoacrylamide

Item “a” to “m” in Appendix 6 duly completed.

P7 Halogen-free plastic products

If halogen-free (fluorine, chlorine and bromine-free) plastic products are used for all products within the following product groups, one point is awarded per product group:

- Cable ducts (for electrical wiring e.g. in walls)
- Plastic piping for central vacuum system
- High-tension wiring
- Waste water pipes

A total of two points can be gained.

Declaration from the applicant and from the supplier of the plastic products.

O23 Nanoparticles in permanent building products and white goods

The building manufacturer must have a documented procedure describing how the company ensures that building products do not contain additives of nanometals, nanominerals, nanocarbon compounds and/or nanofluorine compounds if it cannot be demonstrated that the use of such does not cause environmental or health issues. If such nanomaterials are used, the licence applicant must submit documentation that demonstrates that the use of the nanomaterials in question cannot cause environmental or health problems.

Documentation must exist demonstrating that nanometals, nanominerals, nanocarbon compounds and/or nanofluorine compounds are not added to the following products:

- Flooring
- Kitchen and bathroom fittings (worktops, etc.)
- White goods
- Windows
- Ventilation systems

Nanoparticles are defined as microscopic particles that are less than 100 nm in dimension. Nanometals, for example, include nanosilver, nanogold and nanocopper. Traces of such materials that have not been added to achieve a certain function in the product are exempt from this requirement.

Item “o” in Appendix 6 with a declaration that nanomaterials are not used in flooring, kitchen and bathroom fittings, white goods, windows or ventilation systems. If nanomaterials are used, documentation must be submitted that demonstrates that the use of the nanomaterial in question cannot cause environmental or health problems.

A documented procedure describing how the company ensures that building products do not contain additives of nanomaterials if it cannot be demonstrated that the use of such does not cause environmental or health issues.

3.3 Timber and fibre-based materials

These requirements apply to wood fibre and bamboo. Other natural fibres may be included following approval from Nordic Ecolabelling.

O24 Controlled origin

This requirement applies to all products that contain timber, wood chip or bamboo chip.

The licence applicant must ensure that wood raw materials do not originate from forest, natural or agricultural environments meriting protection due to their high biological and/or social value. Nordic Ecolabelling may revoke the license if it is found that wood raw materials are derived from forest environments of this type.

The name (Nordic) and geographic origin (country) of the raw material must be specified for solid wood, glulam, wood veneer and bamboo parts of a product.

The building manufacturer must have a documented procedure or policy as how best to ensure that wood and bamboo raw materials are not derived from forest, natural or agricultural environments that:

- Are felled illegally; and/or
- Have a high biological and/or social value.

Nordic Ecolabelled products, such as windows, building boards, doors, flooring, kitchens, furniture, and durable timber fulfil these requirements.

If a product comes from forest that is certified to an approved forestry standard and has been documented in O25, documentation according to this requirement is not necessary.

The procedure may require a Chain of Custody certificate to document that wood and bamboo raw materials is not derived from areas meriting protection due to their high biological and/or social value.



The name and geographical origin (country) of raw materials for products containing solid wood, glulam, veneer and bamboo parts. Appendix 7 can be used.

Documented procedures/policy as how best to ensure that wood and bamboo raw materials are not derived from areas meriting protection due to their high biological and/or social value. Appendix 8 may be used.

Nordic Ecolabelling may request further documentation if there is any cause to suspect that wood raw materials are derived from forest environments meriting protection due to their high biological and/or social value.

O25 Raw materials from certified forests or organic farming

A minimum of 50% of raw materials in solid wood, glulam, veneer or bamboo products must come from certified forests or organic farming.

The percentage calculations can be based on either weight or volume.

The requirement applies to the following parts of a building:

- Timber in the roof trusses.
- Timber in the framework and joists.
- Timber in interior panels and exterior facades (including balconies, terraces and porches).

Certification must be administered by a third party in accordance with a forestry standard or standard for organic farming that fulfils the requirements of Nordic Ecolabelling in Appendix 9 on standards and certification systems.

The licence applicant may of course include other building parts (such as flooring or building boards). Nordic Ecolabelled wood products are considered as wood from certified forests.

A Chain of Custody certificate is insufficient proof. To qualify as certified forestry, the forestry standard that is used in the area in question must be approved by Nordic Ecolabelling.

- The amount of timber derived from certified forest or bamboo from organic farming must be stated and the basis for calculations must be shown. In addition, a certificate of certified forestry or organic farming, signed and approved by the certification body.

Appendix 10 can be used by the supplier and Appendix 11 can be used for the summary of percentages of certified raw material.

Nordic Ecolabelling is entitled to require submission of copies of forest certification certificates. The name of the certification system must be clear.

Nordic Ecolabelling may request further documents to examine whether the requirements of the forestry standard and certification system in question can be approved. Such documentation can, for example, comprise copies of the certification body's final report, a copy of the forestry standard (including the name, address and phone number of the organisation that established the standard) as well as references to individuals representing parties and interest groups who have been involved in the standard.

P8 Higher proportion of timber from certified forests

If the amount of certified timber (as per O25) is between 55% and 65% of the total amount of timber, one point is awarded.

If the amount of certified timber (as per O25) is more than 65% of the total amount of timber, two points are awarded.

- Documentation as per O25.

O26 Pressure impregnated timber

Pressure impregnated timber (Class M, A and AB according to Nordic Wood Preservation Council classification) may not, with certain exceptions, be used in Nordic Ecolabelled buildings. Exceptions are made for wood parts in contact with the ground or moisture sources such as concrete (e.g. floor battens and sills or parts that require impregnation for safety reasons).

Pressure impregnated wood parts must fulfil requirement O22 Adverse chemical substances Nordic Ecolabelled durable timber fulfils the requirement and may be used.

- Items "a" to "m" in Appendix 6 from the licence applicant and a specification of the possible need for pressure impregnated timber.

O27 Formaldehyde emissions

This requirement applies to wood and bamboo based materials such as boards, flooring and furniture containing more than 3% by weight formaldehyde-based additives and that are used in the building itself (irrespective of location) or permanent interior fittings such as wardrobes and kitchens.

Up to 31 December 2001, the limit value specified in Appendix 12a applies. The requirement limit specified in Appendix 12b applies as of 1 January 2012.

Products with the Nordic Ecolabel fulfil the requirement. Analysis methods and requirements on test laboratories for formaldehyde can be found in Appendix 12c.

- Documentation from the supplier of the wood-based board that verifies fulfilment of the requirement or the declaration in Appendix 13.

3.4 Other requirements on building products, materials and interiors

O28 Cladding and roofing

Cladding and roofing must not contain lead or more than 10% by weight solid copper or zinc.

Appendix 14 duly completed.

O29 Plastic coverings for interior floors, walls and ceilings

Chlorinated plastics may not be used for interior flooring, wall coverings (wetrooms and technical areas exempt) or ceilings.

Appendix 14 duly completed.

P9 Chlorine-free coverings in wet rooms

The sole use of chlorine-free coverings in wetrooms (walls, ceiling, floor) is awarded one point.

Appendix 14 duly completed.

O30 Windows

Components of a window or exterior door such as the frame, casements or door leaf that are made of non-renewable polymer materials must comprise at least 30% by weight recycled material.

This requirement does not apply to parts that constitute less than 3% by weight of the total product.

Windows with the Nordic Ecolabel fulfil the requirement.

Recycled material is defined as post-consumer recycled material and waste from manufacturing such as plastic production.

Non-renewable polymer materials: specify the proportion of recycled materials used. Declaration from the supplier that the material is recycled.

O31 Low-flush toilets

All toilets (WCs) installed must be low-flush toilets with two flush modes for max. 3 and 6 litres.

Technical data sheet for the toilets.

O32 Containers for sorting household waste


Containers for sorting household waste (at least 3 fractions) must be installed in the kitchen.

Documentation of the sorting containers.

O33 Waste and recycling stations for flats and pre-schools

Pre-schools and buildings with more than eight flats must have a close-by waste and recycling station for at least six fractions to enable the sorting of for example:

- Paper
- Environmentally dangerous waste
- Glass
- Metal
- Electronic waste
- Unsorted waste
- Cardboard
- Compostable waste

 Description of the waste and recycling station.

4 Quality management and control for the construction process

4.1 Requirements on the construction process

O34 Radon


Measures must be taken during construction to ensure that the radon level adheres to national limits or requirements.

Houses and pre-schools

Houses and pre-schools must be fitted with a radon shield unless it can be documented that radon does not enter the building.

Flats

Any measures taken to prevent radon in flats must not increase the energy consumption through increased ventilation.

 Documentation demonstrating how the requirement is fulfilled.

O35 Material requirements

The building manufacturer must be able to ensure that the material requirements in Section 3 are observed. If the licence applicant engages subcontractors for the entire or part of the construction project, it must be documented that the subcontractor is acquainted with and observes the material requirements.

The material and chemical products that are used in the building must also be controlled, e.g. through agreements or inspections.



Procedures demonstrating how the material requirements in Section 3 are fulfilled for the entire construction process.. If subcontractors are engaged, the subcontractor's procedures for this must also be submitted.

O36 Waste management on the building site

There must be a waste management plan and procedures for waste management during the construction process that fulfil national and local regulations. If the licence applicant engages subcontractors for the entire or part of the construction project, it must be documented that the subcontractor also observes these regulations.



Waste management plan and procedures. If subcontractors are engaged, their waste management plans and procedures must also be submitted.

P10 Measurement of waste fractions

One point is awarded if at least three waste fractions (including unsorted waste) from the building site are measured and documented. Two points are awarded if at least five waste fractions (including unsorted waste) from the building site are measured and documented.



Documentation demonstrating how the requirement is fulfilled.

O37 Protecting materials from damp

Materials and structures that are sensitive to moisture, such as wood, plasterboard, insulation and concrete, must fulfil national regulations for low moisture content. This is to avoid the risk of damp-related problems in the finished building. The licence applicant must describe the provisions taken. The handling and storage of materials on the building site must be considered.

If the building has solid slab raft foundations (concrete), the moisture content of the slab must not cause damp problems for the above material. If subcontractors are engaged for work that may affect the damp-proofing, the licence applicant must either ensure that such subcontractors follow the licence applicant's procedures or have their own procedures.

Moisture measurement is one method that can be used to ensure that the damp-proofing is sufficient. Additionally, the calculation of the concrete's moisture level and reference to proven, problem-free solutions may be acceptable if this can be verified by an independent third party.



Procedures demonstrating how the requirement is fulfilled. If subcontractors are engaged for work that may affect the damp-proofing, their procedures must also be submitted.

Description of the method of checking the moisture level of the concrete slab.

Documentation demonstrating that a possible third party is independent and competent.

O38 Moisture-inhibiting building design

The design of the building and ventilation must prevent moisture problems from arising. For example, condensation in structural components must be verified by a competent inspector.



Documentation as specified above.

O39 Approved water installations

The licence applicant must describe how they ensure that water installations and wetrooms are fitted according to national trade regulations and their method of self-inspection and documentation.

Reference can be made to:

Sweden

Trade standards for water installations compiled by the Swedish accreditation body for water, waste and sanitation (VVS Auktorisation). Bygghermyndighetens BBV (construction chemical council's trade regulations for wetrooms) and GVK's trade standards for tanking for walls and floors.

Norway
Wetrooms standard, Technical Approval from SINTEF Building and Infrastructure

Denmark

Building Regulations 2008, Chapter 8.4.3 and Chapter 4.6

Finland

Building regulations and D1 for water and waste installations



Description of how the requirement is fulfilled and self-inspection procedures.

O40 Inspection during construction

There must be one or several quality inspectors to ensure that quality management and assurance procedures are followed and that the necessary inspection plans are drawn up and inspections are carried out. The quality inspector(s) may be internal or external but must be certified or in some other credible way be able to demonstrate the necessary expertise. The quality inspector must be able to present an inspection plan for the Nordic Ecolabelled building in which requirements O34, O35, O37, O38 and O39 are covered. The inspection plan must also cover all other pertinent aspects (such as electrical installations, ventilation and heating systems) to ensure that Nordic Ecolabelling criteria and regulatory requirements are fulfilled during the construction process.

The building manufacturer must have implemented a certified quality system or equivalent that assures quality as specified above.

The inspection plan for the Nordic Ecolabelled building must be presented on request.

If the licence applicant is not also the building manufacturer, there must be a contract between the licence applicant and the building manufacturer and the required documentation drawn up.



Description of the building manufacturer's quality system, how the quality inspector(s) is (are) appointed, a copy of the inspection plan, procedures for agreements with subcontractors regarding work carried out, etc. If suitable, examples of previous building projects that have employed the quality management system may be submitted.

O41 Pre-inspection and final inspection

Once construction of the building is complete, the quality inspector shall perform a pre-inspection. Any defects found shall, where possible, be corrected before the final inspection. If any defects are found at the final inspection, a correction plan must be drawn up and the defects corrected in agreement with the buyer.



Procedures demonstrating the fulfilment of the requirement.

1.1 Verification prior to moving in

This requirement applies to the first Nordic Ecolabelled building and a subsequent 5% of the building stock.

O42 Quality control

The following points shall be checked in the finished building:

- General condition of the building and an assessment of the constructional quality.
- Evident building faults.

The inspection shall be performed by an independent third party holding the requisite expertise. The licence applicant must have procedures to handle and correct possible faults and defects that are detected during this inspection.

The following documents must be submitted to Nordic Ecolabelling:

- Results of pressure testing demonstrating fulfilment of airtightness requirements (O3).
- A specification of how the material requirements of O35 are fulfilled.
- A completed inspection plan as per O40.

- ☒ Agreement with the inspector and documentation affirming that the inspector is an independent party with the relevant qualifications. The inspector's report shall be submitted to Nordic Ecolabelling.

Procedures for handling and correcting faults and defects that are detected during the inspection of the finished building.

Copy of pressure testing results, material inspections and inspection plan.

Nordic Ecolabelling may revoke a licence if it becomes apparent that observance of quality requirements cannot be verified.

1.2 Points score

O43 Scores

The licence applicant must gain at least 40% (10 of 24) of the available points to be eligible for a Nordic Ecolabel licence.

Use Table 4 to calculate the points score. Fill in the points awarded under each requirement to see whether the building meets the set standard.

Table 5. Overview of available points.

P no.	Parameter	Applicant's score	Max. score Houses	Max. score Flat	Max. score Pre-school
P1	Use of ecolabelled/reused building products		5	5	5
P2	Superior airtightness		2	2	2
P3	Reduced energy consumption		7	7	6
P4	Energy from solar collectors and solar panels		2	2	2
P5	Demand-controlled ventilation		1	1	0
P6	Control of lighting (requirement applicable to pre-school buildings only)		0	0	2
P7	Halogen-free plastic products		2	2	2
P8	Higher proportion of timber from certified forests		2	2	2
P9	Chlorine-free coverings in wet rooms		1	1	1
P10	Measurement of waste fractions		2	2	2
	Total		24	24	24

- ☒ Calculation showing the achieved scores.

1.3 Quality management

There must be a documented quality management system implementing the following procedures in order to ensure that Nordic Ecolabel requirements are fulfilled:

M9 Information to parties involved in the construction process

Employees, including foremen and subcontractors, who are involved in the construction process must be fully briefed to ensure that the requirements in the Nordic Ecolabel licence are fulfilled. Briefing shall take place prior to construction starting on the Nordic Ecolabelled building.



Quality management system procedure.

M11 Laws and regulations

The building manufacturer must ensure that all regulations concerning working conditions, environmental legislation and other appropriate conditions are followed in all production areas for the Nordic Ecolabelled building.



Signed application.

M13 Organisation and responsibility

There must be an organizational chart for the section of the business involved in the construction of Nordic Ecolabelled buildings. This shall include contacts for Nordic Ecolabelling, the construction process, building quality, marketing and training.



Quality management system procedure.

M15 Changes and nonconformities

Planned changes affecting Nordic Ecolabel requirements must be reported to and approved by Nordic Ecolabelling. New materials that are introduced following the issue of a licence must be approved if they are subject to the requirements of Section 3 (see O35). Unforeseen nonconformities that have a bearing on Nordic Ecolabel requirements must be reported to Nordic Ecolabelling. If subcontractors are engaged for the entire or part of the construction project, it must be documented that these understand the Nordic Ecolabelling requirements regarding changes and nonconformities and that they have been informed as to which materials may be used.



Quality management system procedure.

M17 Complaints

There must be procedures in place for documenting, reporting and dealing with claims and complaints regarding Nordic Ecolabelled buildings. It must be made clear that the licence applicant is responsible to the customer and that the customer shall turn to the licence applicant in case of complaints and claims.



Quality management system procedure.

M19 Documentation of completed buildings

The licence applicant shall keep a list of completed Nordic Ecolabelled buildings (for at least five years following conveyance) and documentation of how the airtightness requirement in Section 2 (2.12), the material requirements in Sections 3 and the requirements on the construction process in Section 4.1 have been observed.

Each year, the licensee shall submit a summary with addresses and property unit designations of its constructed Nordic Ecolabelled buildings.



Quality management system procedure.

M21 Application documentation

The licence applicant must keep a copy of the application complete with all factual and calculation data supporting the documents submitted on application (including test reports, documents from suppliers and suchlike). The material list with the materials subject to Section 3 must be updated continually as new materials are approved. See M4. This requirement applies to the entire period of validity of the licence.



Requirement checked at the licence applicant's premises.

M23 Marketing

The marketing of Nordic Ecolabelled buildings must follow regulations in the "Marketing" section.



Appendix 15 and examples of marketing material for the Nordic Ecolabelled building.

1 Instructions to residents/property managers

O44 General information and maintenance plan

The purchaser must be furnished with general information and a maintenance plan for the building so that the purchaser is aware of maintenance needs and which actions are most suitable from an environmental perspective.

The general information and maintenance plan shall contain information on how regularly parts require maintenance and whether special products need to be used. If special products are recommended, these must be ecolabelled with the Nordic Ecolabel or EU-Flower or fulfil the material requirements in Section 3.

It must also be stated whether external qualified (certified) services are required, or whether a layman can carry out the maintenance.

The general information and maintenance plan must contain the following sections:

- Heating, water and sanitation installations: A clear and easy to understand manual for the heating and ventilation system must be provided. This shall describe how the system can be set to achieve the best possible energy efficiency and indoor environment. The manual shall also specify the recommended time intervals for servicing and possible adjustment of the system.
- The façade including exterior wooden structures e.g. porch and railings, with regard to the surface treatment.
- Windows including sun screens
- Roofing and cleaning guttering, maintenance and surface treatment
- Electrics
- Flooring
- Other equipment included in the contract (e.g. white goods).
- A service booklet, that makes reference to the maintenance plan, must also be provided.
- Recommendations to use fluorescent tubes and low-energy bulbs rather than traditional tungsten-filament bulbs in order to save energy.



General information, maintenance plan and list of possible service books.

Marketing

The Nordic Ecolabel must be used in such a way that there is no doubt as to what the label refers and so that it is clear that the building holds the Nordic Ecolabel at the time of sale. It must be clearly stated that extensions such as a garage or outhouse are subject to Nordic Ecolabelling's material requirements if they are connected to the Nordic Ecolabelled building.

The licensee may provide the purchaser of the building with a certificate as proof of the building being Nordic Ecolabelled at the time of purchase. The certificate shall include the date of sale and the licensee's licence number.

More information on marketing can be found in "Regulations for Nordic Ecolabelling".

Design of the Nordic Ecolabel

Design of the Nordic Ecolabel:



Each licence has a unique, six-digit licence number that must be displayed along with the label.

More information on the design of the label can be found in "Regulations for Nordic Ecolabelling".

Sales in other Nordic countries

Registering a licence in another Nordic country allows the Nordic Ecolabel to be used on a larger market. The following must be submitted to Nordic Ecolabelling:

- Form for sales in other Nordic countries.
- Instructions to residents.
- Documentation demonstrating the fulfilment of national regulations.
- Documentation demonstrating fulfilment of requirements 0, P3, O10 and O11 in the applicable country.

Registration is free of charge but an annual fee shall be paid in accordance with the national regulations.

Appendix 1 Bill of materials

List of products and materials. Use appropriate units of quantity. Table B1.1 gives examples of products that should be included.

Table B1.1: List of suggested products and materials.

Material	Name	Type	Material	Producer	Volume
Miscellaneous materials subject to requirements					
Ventilation filters					
White goods					
Permanent sealants					
Low-flow taps					
Toilets					
Chemical building products					
Chemical building products					
Wood products					
All products subject to catch requirement					
Timber for certified forest					
Pressure impregnated timber					
Wood-based building board					
Plastic products					
Plastic for floors, walls and ceilings					
Windows					
Electrics					
Other materials					
Facade material					
Roofing					
Supporting structure					
Foundations					
Other					

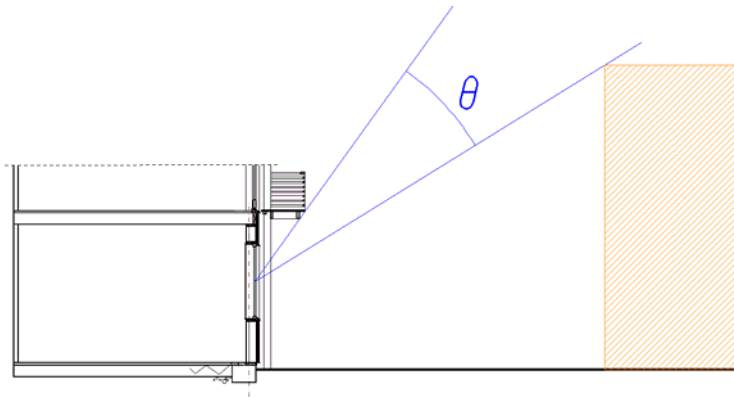
Appendix 3 Calculation of daylight factor (applicable to pre-school buildings only)

Given below is an empirical formula, developed by P. J. Littlefair (1991) in Great Britain, for calculating the average daylight factor in rooms with vertical windows:

$$DF = \frac{LT \cdot \theta \cdot A_{win}}{A_{tot} \cdot (1 - R^2)}$$

Where:

- LT* Diffuse light transmittance of the glazing material including correction for possible thin curtains. For clear double glazing a value of 0.7 can be used.
- θ Vertical angle of the sky as seen from the centre of each window in degrees (°).
- A_{win} Area of window (m²).
- A_{tot} Total area of all surfaces in the room, including windows (m²).
- R* Area weighted average reflectance of all surfaces in the room. For a room painted in a light shade, a value of 0.5 can be used.



The figure above shows the vertical angle θ of sky visible from the centre of the window.

There is unfortunately no simple formula for calculating a minimum value of the daylight factor. Accordingly, the following computer programs can be used. They are listed in descending order of accuracy and ease of use (i.e. best first):

RADIANCE
RELUX
SUPERLITE
LESO-DIAL

Nordic Ecolabelling

Houses 089/2.0

Draft for comment, 4 June 2009

A formula for calculating the daylight factor of rooms with skylights can be found in “Dagslys i bygninger” Lyskultur, 1998, page 35 (“Daylight in buildings”, The Norwegian Lighting Institute, article in Norwegian).

Appendix 4 Translation key to Globally Harmonised System (GHS)

The classification in requirements O15, O16 and O21 follows substance directive 67/548/EEC (with amendments to REACH following directive 2006/121/EC) and the preparations directive 1999/45/EC. All directives apply with subsequent amendments. For the transition to the Globally Harmonised System (GHS), the classification of products and substances can be converted using the following table.

Note that the producer of chemical products and constituent substances is responsible for classification.

Table B4.1: Translation of O15 to GHS

Classification	Danger class and risk phrases as per Council Directive 1999/45/EC	GHS
Dangerous for the environment	N with R50, R50/53 or R51/53	Ecotoxicity Acute Category 1, H400 Ecotoxicity Chronic Category 1, H410 Ecotoxicity Chronic Category 2, H411
Carcinogenic	T with R45 and/or R49, or Xn with R40	Carcinogenicity Category 1A, H350 Carcinogenicity Category 1B, H350 Carcinogenicity Category 2, H351
Mutagenic	T with R46 or Xn with R68	Germ Cell Mutagenicity Category 1A, H340 Germ Cell Mutagenicity Category 1B, H340 Germ Cell Mutagenicity Category 2, H341
Toxic for reproduction	T with R60 or R61; Xn with R62 or R63	Reproductive Toxicity Category 1A, H360 Reproductive Toxicity Category 1B, H360 Reproductive Toxicity Category 2, H361
Very toxic	T+ with R26, R27, R28 or R39	Acute Toxicity Category 1 H330 Acute Toxicity Category 2, H330 Acute Toxicity Category 1, H310 Acute Toxicity Category 2, H310 Acute Toxicity Category 1, H300 Acute Toxicity Category 2, H300 Specific Target Organ Toxicity after Single Exposure Category 1, H370
Toxic	T with R23, R24, R25, R39 or R48	Acute Toxicity Category 3, H331 Acute Toxicity Category 3, H311 Acute Toxicity Category 3, H301 Specific Target Organ Toxicity after Single Exposure Category 1, H371 Specific Target Organ Toxicity after Repeated Exposure Category 1, H372

Table B4.2: Translation of O16 to GHS

Classification	Danger class and risk phrases as per Council Directive 67/548/EEC	GHS
Carcinogenic	T with R45 and/or R49, or Xn with R40	Carcinogenicity Category 1A, H350 Carcinogenicity Category 1B, H350 Carcinogenicity Category 2, H351
Mutagenic	T with R46 or Xn with R68	Germ Cell Mutagenicity Category 1A, H340 Germ Cell Mutagenicity Category 1B, H340 Germ Cell Mutagenicity Category 2, H341
Toxic for reproduction	T with R60 or R61; Xn with R62 or R63	Reproductive Toxicity Category 1A, H360 Reproductive Toxicity Category 1B, H360 Reproductive Toxicity Category 2, H361

Table B4.3: Translation of O21 to GHS

Classification	Danger class and risk phrases as per Council Directive 1999/45/EC	GHS
Sensitising	Xn with R42 or Xi with R43	Respiratory Sensitisation Category 1, H334 Skin Sensitisation Category 1, H317
Harmful	Xn with R20, R21, R22, R48, R60 or R68	Acute Toxicity Category 4, H332 Acute Toxicity Category 4, H312 Acute Toxicity Category 4, H302 Specific Target Organ Toxicity after Repeated Exposure Category 2, H373 Specific Target Organ Toxicity after Single Exposure Category 3, H335 Aspiration Hazard Category 1, H304
Corrosive	C with R34 and R35	Skin Corrosive 1B, H314 Skin Corrosive 1A, H314

Appendix 5 Declaration regarding chemical building products

(Wood preservatives, paint, adhesive, sealants, putty, etc.)

Name of the product
Manufacturer/supplier

Table B5.1:

Wood preservative	<input type="checkbox"/>	Sealant	<input type="checkbox"/>
Undercoat	<input type="checkbox"/>	Adhesive	<input type="checkbox"/>
Topcoat	<input type="checkbox"/>	Filler	<input type="checkbox"/>
Other	<input type="checkbox"/>		
Please specify:			

- a. Is the product classified with one of the following risk phrases according to the Council Directive 67/548/EEC on substances or Council Directive 1999/45/EG on preparations (with amendments)? Dangerous for the environment (N with R50, F50/53 or R51/53); Carcinogenic (T with R454 and/or R49, or Xn with R40); Mutagenic (T with R46, or Xn with R68); Toxic for reproduction (T with R60 and/or R61, or Xn with R62 and/or R63); Very toxic (T+ with R26, R27, R28 and/or R39); Toxic (T with R23, R24, R25, R39 and/or R48). Yes No
- Have any of the following substances been actively added* to the product?
- b. CMR substances Yes No
Carcinogenic (Carc with R40, R45 and/or R49)
Mutagenic (Mut with R46 and/or R68)
Toxic for reproduction (Rep with R60, R61, R62 and/or R63)
- c. PBT or vPvB substances Yes No
(persistent, bioaccumulating and toxic organic/very persistent and very bioaccumulating)
- d. Endocrine disrupters Yes No
- e. Nanometals, nanomineral, nanocarbon compounds Yes No
and/or nanofluorine compounds **
- f. Halogenated paraffins Yes No
Highly-chlorinated, medium-chain (C14-C17) or short-chain (C10-C13)
- g. Fluorinated propellants Yes No
- h. Perfluorinated or polyfluorinated alkylated substances (PFAS) Yes No
Yes No
- i. Alkylphenolethoxylates (APEO) or alkylphenol derivatives (APD) Yes No
- j. Halogenated flame retardants Yes No
- k. Phthalates Yes No
- l. Boron compounds Yes No

(continued on next leaf)

*** Actively added**

“Actively added” refers to a substance that is added to the product by the producer for a purpose. This includes substances that are stated on the material safety data sheet of a used preparation or that are added through preparations regarding which the chemical producer, based on common knowledge and available information, knows that it contains.

**** Nanoparticles**

Nanoparticles are defined as microscopic particles that are less than 100 nm in dimension. Nanometals, for example, include nanosilver, nanogold and nanocopper.

(Continued from previous page)

- | | | |
|--|------------------------------|-----------------------------|
| m. Creosote | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| n. Benzo(a)pyrene or benzo(b)pyrene | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| o. Bisphenol A | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| p. Antimony trioxide | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| q. Heavy metals: lead, cadmium, arsenic, chromium
mercury and their compounds | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| r. Monoacrylamide | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| s. Organic tin compounds *** | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

*** If organic tin compounds have been actively added to the product, specify the product type and concentration:

Type of product _____

Concentration of organic tin compounds %

Skills requirement for declaration in Appendix 5

The person or persons who handle the details that provide the basis for the declaration in Appendix 5 must be suitably qualified. The necessary skills may be held by several employees, by individuals at suppliers to the company, and/or by an external consultant. The company must have the following expertise:

- Thorough knowledge of the health and environmental assessment of chemical substances (toxicology and ecotoxicology).
- Thorough knowledge of the substances a product contains and how it is produced.
- Thorough knowledge of national regulations for chemical inspection.
- Thorough knowledge of the classification and labelling of chemical substances (ability to prepare/interpret material safety data sheets including risk phrases, danger classes, etc.).

We hereby declare the above based on our best knowledge and available information.

Manufacturer's/supplier's signature:

(Date)

(Company name)

(Administrated by)

(E-mail)

(Telephone)

Appendix 6 Declaration on unwanted chemical substances in permanent building products

Building products such as tanking, impregnated timber, insulating material and plastics.

Name of the product
Manufacturer/supplier

Table B6.1: Product

Permanent sealant <input type="checkbox"/>	Plastic product <input type="checkbox"/>
Impregnated timber <input type="checkbox"/>	Insulation <input type="checkbox"/>
Other <input type="checkbox"/>	
Please specify:	

Have any of the following substances been actively added* to the product?

- | | | |
|--|------------------------------|-----------------------------|
| a. Halogenated paraffins
<i>Highly-chlorinated, medium-chain (C14-C17) or short-chain (C10-C13)</i> | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| b. Fluorinated propellants | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Perfluorinated or polyfluorinated alkylated substances (PFAS) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Alkylphenolethoxylates (APEO) or alkylphenol derivatives (APD) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| c. Halogenated flame retardants | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| d. Phthalates | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| e. Boron compounds | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| f. Creosote | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| g. Benzo(a)pyrene or benzo(b)pyrene | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| h. Bisphenol A | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| i. Antimony trioxide | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| j. Heavy metals: lead, cadmium, arsenic, chromium
mercury and their compounds | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| k. Organic tin compounds | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| l. Monoacrylamide | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| m. Nanometals, nanominerals, nanocarbon compounds and/or
nanofluorine compounds ** | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

*** Actively added**

“Actively added” refers to a substance that is added to the product by the producer for a purpose. This includes substances that are stated on the material safety data sheet of a used preparation or that are added through preparations regarding which the chemical producer, based on common knowledge and available information, knows that it contains.

** Nanoparticles are defined as microscopic particles that are less than 100 nm in dimension. Nanometals, for example, include nanosilver, nanogold and nanocopper.

Nordic Ecolabelling

Houses 089/2.0

Draft for comment, 4 June 2009

We hereby declare the above based on our best knowledge and available information.

Manufacturer's/supplier's signature:

(Date)

(Company name)

(Administrated by)

(E-mail)

(Telephone)

Appendix 7 Declaration on the geographic origin of wood/bamboo

Manufacturer or supplier:

The name and country/region of origin of the raw material must be submitted for products containing solid wood, glulam, veneer and bamboo parts.

Table B6.1: Product

Product	Type of wood/bamboo	Country/Region

Manufacturer's/supplier's signature:

(Date)

(Company name)

(Administrated by)

(E-mail)

(Telephone)

Appendix 8 Declaration on procedures for the controlled origin of raw materials

Licensee/building manufacturer

The building manufacturer must describe how requirement O24 on sustainable forestry/organic farming is observed.

Procedures or agreements with suppliers can be submitted.

Description:

.....

.....

.....

.....

.....

.....

Signature of licensee/building manufacturer

(Date) (Company name)

(Administrated by) (E-mail) (Telephone)

Appendix 9 Nordic Ecolabelling requirements on forest certification

Wood used in the product must be certified by a third party to comply with an applicable forest standard that fulfils the requirements on standards and certification systems. The following requirements apply to standards and certification systems that are approved by Nordic Ecolabelling.

Standards

The standard must balance economic, ecological and social interests and comply with the Rio Declaration's forestry principles, Agenda 21 and the Forest Principles, and respect relevant international conventions and agreements.

The standard must contain absolute requirements. It must promote and be directed towards sustainable forestry.

The standard must be generally available. The standard must have been developed in an open process in which stakeholders with ecological, economic and social interests have been invited to participate.

Certification system

The certification system must be transparent, have broad national and international credibility and be capable of verifying that the requirements of the forestry standard (see above) have been met.

Certification body

The certification body must be independent, credible and capable of verifying that the requirements of the standard have been fulfilled. It must be able to communicate the results and to facilitate the effective implementation of the standard.

Nordic Ecolabelling has a procedure for approving standards and certification systems. Please contact Nordic Ecolabelling for information on which standards have already been approved.

Appendix 10 Raw materials from certified forests or organic farming

Manufacturer or supplier:
Product:

Product	Type of wood	Geographical origin	Forest standard	Quantity (%) of timber from certified forests used in the product

The forest standard, certification system and certification body must be approved by Nordic Ecolabelling.

Chain of custody certificate

Many suppliers use a chain of custody certificate (CoC) complying with the standards of the international systems, such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification schemes (PEFC). A chain of custody certificate is not by itself sufficient documentation for requirement O25 since the wood may come from a forest environment with a local forest standard that is not approved by Nordic Ecolabelling. To fulfil requirement O25, besides a chain of custody certificate, the origin of the timber and proportion of timber from that area must be specified.

Signature of licensee/building manufacturer

(Date)

(Company name)

(Administrated by)

(E-mail)

(Telephone)

Appendix 11 Specification of wood raw materials (summary)

Licensee/building manufacturer

Timber from certified forests

Product	Supplier	Quantity (weight or volume)	Quantity (%) of timber from certified forests used in the product	Total quantity of timber from certified forests
Total				

Percentage of timber from certified forests = _____

Quantity of timber from certified forests/total amount of timber used in the products
= _____

Signature of manufacturer:

(Date) (Company name)

(Administrated by) (E-mail) (Telephone)

Appendix 12a Formaldehyde in wood-based products (applicable until 31 December 2011)

Wood-based board used for building boards, flooring or furniture that contains more than 3% formaldehyde-based additives must fulfil either a) or b) below:

a) The content of free formaldehyde must not be in excess of the following limit values as determined in accordance with the current version of EN 120, the perforator method:

The requirement is identical to the Swedish and Danish regulations specified in EN 120 and is more stringent than the general wording that is adopted in other countries.

Single values: 8 mg formaldehyde/100 g dry product

The requirement must be met by the 95%-quartile of all measurement values.

Half year mean value: 6.5 mg formaldehyde/100 g dry product

The requirements apply to wood board with a moisture content of $H = 6.5\%$.

If the moisture content of the board is different from the figure stated above, but falls within the range of 3% to 10%, the perforator value must be multiplied by a factor F which is derived from the following formula:

Chipboard: $F = -0.133H + 1.86$. MDF: $F = -0.121 H + 1.78$

b) The board must satisfy the requirement of formaldehyde emissions of 0.13 mg formaldehyde/m³ air when tested in accordance with Appendix 12 c.

Producers of plywood board may choose to document the fulfilment of requirement according to the Finnish classification system: Emission Classification of Building Materials:

Emission: = 0.125 mg/formaldehyde/m² h.

Documentation

If alternative b is chosen, documentation must be submitted with the control measures taken to ensure that board with prohibited formaldehyde levels is not used.

Alternatively the following documentation may be used:

- For products approved by Danish or Norwegian indoor climate labelling: copy of valid licence/certificate.
- For products approved by the Finnish classification system "Emission Classification of Building Materials", class M2: copy of valid licence/certificate.
- For products approved by Danish Pladekontrol class E1: copy of valid licence/certificate.
- For products approved by P-labelling in Sweden: copy of valid licence/certificate.

Appendix 12b Formaldehyde in wood-based products (obligatory as of 1 January 2012)

Wood-based board used for building boards, flooring or furniture that contains more than 3% formaldehyde-based additives must fulfil either a) or b) below:

a) The content of free formaldehyde must not be in excess of the following limit values as determined in accordance with the current version of EN 120, the perforator method:

The requirement is identical to the Swedish and Danish regulations specified in EN 120 and is more stringent than the general wording that is adopted in other countries.

Single values: ≤ 5 mg formaldehyde/100 g dry matter for MDF board and ≤ 4 mg formaldehyde/100 g dry matter for all other boards.

The requirement must be met by the 95%-quartile of all measurement values.

The requirements apply to wood board with a moisture content of $H = 6.5\%$.

If the moisture content of the board is different from the figure stated above, but falls within the range of 3% to 10%, the perforator value must be multiplied by a factor F which is derived from the following formula:

Chipboard: $F = -0.133H + 1.86$. MDF: $F = -0.121 H + 1.78$

b) The board must satisfy the requirement of formaldehyde emissions of 0.065 mg formaldehyde/m³ air when tested in accordance with the method described below.

Documentation

If alternative b is chosen, documentation must be submitted with the control measures taken to ensure that board with prohibited formaldehyde levels is not used.

Alternatively the following documentation may be used:

- For products approved by the Finnish classification system "Emission Classification of Building Materials", class M1: copy of valid licence/certificate.

Appendix 12c Formaldehyde in wood-based products – test methods and requirements on test laboratories

Test methods (applies to both 12 a and 12 b)

To determine the content of free formaldehyde, the most recent applicable Europanorm for the perforator method is to be used. The current version of EN 120 must be followed, unless it is replaced by a different EN method. A suitable chamber method is to be used for the correlation of emission potential (EN 120) expressed as mg/100g, with emission level expressed in ppm or mg/m³. Draft European standard: Draft ENV 717 – 1 is recommended as a suitable chamber method for wood board, followed by the current EN norm for the reference determination of emission value. Specify which method has been used.

The sampling method for the analysis of emissions for classification M1 and M2 is given in “Emission Classification of Building Materials” (http://www.rts.fi/emission_classification_of_building_materials.htm). Sampling frequency is given in the standard (Perforator method), regulations in the respective Nordic countries (Climate Chamber method, ENV-717-1) and in the regulations of the Finnish classification system.

Requirements on test laboratories (applies to both 12 a and 12 b)

Sampling for testing must be performed in a competent manner. The laboratory/test institution must be impartial and competent. The unprocessed data must be available for verification by the ecolabelling organization.

The laboratory performing the analysis must fulfil the general requirements contained in standard EN 45001 or DS/EN ISO/IEC 17025 or be an official GLP approved laboratory. The applicant is liable for costs in connection with documentation and analyses. The manufacturer’s own laboratory may be approved to perform analyses and tests if:

- sampling and testing are monitored by the authorities,

or if

- the manufacturer has a quality management system encompassing sampling and analysis and has been certified to ISO 9001 or ISO 9002,

or if

- the manufacturer can demonstrate agreement between a first-time test conducted at the manufacturer's own laboratory and testing carried out in parallel at an independent test institute, and the manufacturer takes samples in accordance with a fixed sampling schedule.

Appendix 13 Declaration on formaldehyde in wood-based building board

Product name:
Description of product:
Manufacturer/supplier:

Does the wood board contain more than 3% by weight of formaldehyde-based additives?

Yes No

Are the requirements of Appendix 12a regarding the emission of formaldehyde fulfilled?

Yes No

Are the requirements of Appendix 12b regarding the emission of formaldehyde fulfilled?

Yes No

Is the product certified regarding its content of formaldehyde?

Yes No

If yes, what certification is held? _____

Signature of manufacturer:

(Date)

(Company name)

(Administrated by)

(Telephone)

(E-mail)

Appendix 14 Cladding, roofing and coverings

1) O28 Does the cladding or roofing contain lead or more than 10% solid copper or zinc?

Yes No

2) O29 Are chlorinated plastics used for interior flooring, wall coverings or ceilings? (n/a wetrooms and technical areas)

Yes No

3) P9 Are chlorinated plastics used for interior flooring, wall coverings or ceilings in wetrooms or technical areas?

Yes No

Signature of licence applicant:

(Date)

(Company name)

(Administrated by)

(Telephone)

(E-mail)

Appendix 15 Marketing of Nordic Ecolabelled houses, flats and pre-schools

We hereby certify that we are well acquainted with the regulations governing the use of the Nordic Ecolabel, as detailed in "Regulations for Nordic Ecolabelling" of 12 December 2001 or later version. We agree to follow these regulations in our marketing.

Further, we confirm that we are familiar with the criteria document regarding the Nordic Ecolabelling of houses, flats and pre-schools.

We undertake to advise those individuals within the company involved in marketing the Nordic Ecolabelled building of the criteria for the Nordic Ecolabelling of houses, flats and pre-schools and "Regulations for Nordic Ecolabelling" of 12 December 2001 or later version.

(Date)

(Company name)

(Administrated by)

(E-mail)

(Telephone)

In case of a change in personnel, a new declaration must be submitted to Nordic Ecolabelling.