About Nordic Swan Ecolabelled

Renovation of buildings

Residential, educational, office and hotel buildings

Version 2.0 • 13 September 2023 – 29 October 2023

Consultation

Nordic Ecolabelling

Content

Addresses

In 1989, the Nordic Council of Ministers decided to introduce a voluntary official ecolabel, the Nordic Swan Ecolabel. These organisations/companies operate the Nordic Ecolabelling system on behalf of their own country's government. For more information, see the websites:

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1 Summary

In 2023 the criteria for Renovation of buildings (previously Renovation) have been revised. As from this revision, renovations of hotels and associated conference facilities can also be Nordic Swan Ecolabelled. Renovation of holiday homes have been removed from the criteria.

The main focus has been on implementing requirements for climate impact and circular economy where substantial changes have been made compared to criteria generation 1. There has also been a focus on creating a clearer section on the processes prior to construction (e.g., environmental survey and deconstruction). The criteria have been aligned with the technical screening criteria for the EU Taxonomy section 7.2.

The number of obligatory requirements is unchanged at 42. There is no point system in this criteria document.

Overall, the criteria have been aligned with the requirements for the EU Taxonomy wherever possible, see the section "Alignment with the EU Taxonomy framework" for details.

The most important changes within this revision are presented below:

- A new section on climate, including requirements concerning materials with high climate impact such as concrete, steel and aluminium. Furthermore, requirements for climate adaptation are included in the requirement for green initiatives.

- A new section on the circular economy includes areas such as increased focus on the handling of construction waste and its preparation for reuse, recycling, and material recovery. The section on the EU Taxonomy also includes requirements concerning design for disassembly and adaptability.

- Alignment with the material requirements for Nordic Swan Ecolabelled buildings, generation 4 of New Buildings 089.

- Hotels and associated conference facilities are now covered by the criteria.

- Alignment with the technical screening criteria for substantial contribution to climate change mitigation in the EU Taxonomy Annex 1* for Renovation of existing buildings.

** Except for Iceland and Norway which has not yet implemented Directive 2010/31/EU and Regulation (EU) 2020/852.*

2 Definitions

Definition	Description
Chemical products	A chemical product is a substance or a mixture of two or more substances, in liquid, gaseous or solid form, which are used on a construction site or by a manufacturer of prefabricated building components. Chemical products both for indoor and outdoor use are covered by the requirements. Nordic Ecolabelling does not set chemical requirements for cement or concrete, nor for metal alloys such as steel or brass.
Construction products	Products used in the construction of buildings, for example wall elements, flooring, power cables, doors, thermal insulation etc. In EU regulation No 305/2011, a construction product is defined as “any product or kit which is produced and placed on the market for incorporation in a permanent manner in construction works or parts thereof and the performance of which has an effect on the performance of the construction works with respect to the basic requirements for construction works”.
EPD	A product specific EPD according to the standard ISO 14025 and EN 15804 is a third-party verified document based on product category rules (PCR) and life cycle assessment (LCA). A daughter EPD is based on a third-party verified EPD but can be adapted to small variations in the composition of the product.
EU Taxonomy	In these criteria, references to the "EU Taxonomy" means the Delegated Act on the objective climate change mitigation (Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021). Specifically, reference is made to the activity 7.2 " Renovation of existing buildings".
Facade	The principal front of a building, that faces on to a street or open space.
Heavy current cables	Heavy current cables/Electricity cables for nominal voltage equivalent to or more than 50 V AC voltage or 120 V DC voltage. This means that the requirement includes electricity wires/cables for plugs and for apparatus such as fittings with 230 V, white goods, heat pumps, etc.
Homes for persons with disabilities	In order to be covered by the criteria for Renovation of buildings, the building must be classified as a residential building in the national building legislation. Shared areas for the home’s residents and staff areas are also covered by the Nordic Swan Ecolabel and must fulfil the requirements.
Homes for the elderly	In order to be covered by the criteria for Renovation of buildings, the building must be classified as a residential building in the national building legislation. Shared areas for the home’s residents and staff areas are also covered by the Nordic Swan Ecolabel and must fulfil the requirements.
Impurities in chemical products	Residuals, pollutants, contaminants etc. from production, incl. production of raw materials that remain in the raw material/ingredient and/or in the chemical product in concentrations of less than 1000 ppm (0.100 w-%, 1000 mg/kg) in the chemical product. Examples of impurities are residues of the following: Residues or reagents incl. residues of monomers, catalysts, by-products, scavengers, and detergents for production equipment and carry-over from other or previous production lines.
Ingoing substances	Chemical products: All substances in the chemical product, including additives (e.g., preservatives and stabilisers) in the raw materials. Substances known to be released from ingoing substances (e.g., formaldehyde, arylamine, in situ-generated preservatives) are also regarded as ingoing substances. Construction products: All substances in the construction product that are present in concentrations higher than 100 ppm (0.010 w-%, 100 mg/kg).
Nanomaterial	Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01): 'Nanomaterial' means a natural, incidental or manufactured material consisting of solid particles that are present, either on their own or as identifiable constituent particles in aggregates or agglomerates, and where 50% or more of these particles in the number-based size distribution fulfil at least one of the following conditions: (a) one or more external dimensions of the particle are in the size range 1 nm to 100 nm; (b) the particle has an elongated shape, such as a rod, fibre or tube, where two external dimensions are smaller than 1 nm and the other dimension is larger than 100 nm; (c) the particle has a plate-like shape, where one external dimension is smaller than 1 nm and the other dimensions are larger than 100 nm.

PED (Primary Energy Demand)	Defined according to the national implementation of the EU Directive 2010/31/EU.
Post-consumer/commercial recycled material	"Post-consumer" is defined as material generated by households or commercial, industrial or institutional facilities in their role as end-users of a product that can no longer be used for its intended purpose. This includes materials from the distribution chain.
Pre-consumer/commercial recycled material	Material that is reclaimed from the waste stream during a manufacturing process. Production waste (scrap, rework, regrind) that can be returned directly to the same process in which it was generated is not counted as recycled pre-consumer material. Nordic Ecolabelling defines rework, regrind or scrap, that cannot be reused directly in the same process, but requires reprocessing (e.g., sorting, reclamation and granulation) before it can be reused, to be pre-consumer material. This is regardless of whether it is produced in-house or externally.
Recycled material	Recycled material is defined according to ISO14021 in the categories of pre-consumer and post-consumer and includes both mechanical and chemical recycling.
Reused materials	Reuse of a material means using it again for the same purpose for which it was originally made. The original product is usually not altered in any significant way before being used again. These criteria also include use of a certain material again, but in a manner different to what it was originally intended for. The original product is left mostly intact, utilising its shape, form and material for a different purpose.
Supplementary buildings	Supplementary buildings are refuse depots, bicycle sheds, garages (both as a separate structure or connected to the building) and similar constructions.
Take back systems	An initiative organized by the manufacturer or retailer, to collect used products or materials from the construction sites and module manufacturers and reintroduce them to the original processing and manufacturing cycle. A company may implement this program in collaboration with end-of-life logistics and material processing firms.
Technical service areas	Technical service areas are fan rooms, substations, lift shafts, machine rooms, electrical rooms, and other areas to which unauthorised persons do not have access. The following are not service areas: all living areas and communal areas such as dressing rooms, shower rooms, stairways, entrance areas, storerooms, corridors in basements/galleries, pram rooms and bicycle rooms. Installation shafts.

3 Environmental impact of renovation of buildings

The criteria for Nordic Swan Ecolabelled Renovation of buildings are based on the principles of life cycle assessment and RPS (Relevance, Potential and Steerability) analysis. The following table sums up the overall output of the RPS analysis, which aims to maximise the total environmental benefit of the criteria.

RPS Analysis for Renovation of buildings

Area	RPS level (high-medium-low)	Comment
Climate impact and energy demand of the building	R= High P= High S= Medium	Buildings are associated with high energy and resource/material consumption during both construction and the use phase. The potential to improve on relevant parameters is considered high. The Nordic Swan Ecolabel contributes to reduced climate gas emissions through different pathways: reduced energy demand, specific climate requirements for materials with high climate impact (cement, steel and aluminium), renewable raw materials and reduced construction waste.
Circular economy	R= High P= High S= Medium	The construction sector produces a large amount of construction waste and consumes substantial resources. When possible, materials should stay in closed loops and be reused or recycled into new construction products instead of ending up as waste. The Nordic Swan Ecolabel focuses on setting requirements so that virgin materials of today can be reused or recycled in the future.

		This is ensured, for instance, through strict chemicals requirements that minimise harmful substances in construction materials and waste. Existing materials in the building must by inventoried and surveyed to ensure the mitigation of any potential risks to the environment and indoor climate posed by harmful substances. Furthermore, requirements are set in order to improve the handling of construction waste and set up the framework for using secondary materials in the current market.
Chemical products and construction products	R= High P= High S= Medium	Chemicals that are hazardous to health and the environment are found in many construction products and chemical products. In many cases alternatives are available, where the content of hazardous substances has been limited or completely phased out. Through its requirements for chemical content in materials and products, Nordic Ecolabelling contributes to the use of chemicals that are less damaging to health and the environment, thereby ensuring that materials of today can be reused or recycled in the future.
Indoor environment	R= High P= Medium S= Medium	We spend a large part of our time in our homes and educational buildings. A Nordic Swan Ecolabelled building contributes to a good indoor environment and good health. Identified indoor environmental factors that are critical for achieving a good indoor environment are: problematic chemical substances, acoustics, moisture prevention control and radon.

3.1 Alignment with the EU Taxonomy framework

Disclaimer

There are many uncertainties on how EU Taxonomy compliance can be documented as well as uncertainties in the interpretation. Therefore, Nordic Ecolabelling cannot guarantee EU taxonomy alignment through our criteria for Renovation of buildings.

Nordic Swan Ecolabel do not take any legal responsibility for the (degree of) alignment, nor can a building project or a building material ecolabelled with the Nordic Swan Ecolabel (or listed in the SCDP) be claimed as taxonomy aligned based on the ecolabelling criteria.

The responsibility for documentation of EU taxonomy compliance solely belongs to the company who is claiming it.

This section describes how the Delegated Act on the objective climate change mitigation (Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021) is handled in these criteria for Renovation of buildings Specifically, reference is made to the activity 7.2 "Renovation of existing buildings". From here on it will be referred to as "the EU Taxonomy".

The following two tables display how Nordic Ecolabelling assume the EU Taxonomy can be interpreted in relation the criteria for Renovation of buildings. This assessment is done to the best of our knowledge and no responsibility is taken on these interpretations.

Nordic Ecolabelling closely follow interpretations of the EU Taxonomy criteria in both the Nordic countries and from EU. In the end, the interpretation is a task for national authorities or other officially appointed bodies.

Implementation strategy

The overall implementation strategy for Nordic Ecolabelling is to:

- Implement the technical screening criteria for significant contribution to climate change mitigation as mandatory requirements in this Nordic Swan Ecolabelling criteria generation 2 in all countries where it is feasible.
- Implement mandatory requirements for those Do-No-significant-harm criteria in generation 2, that are considered relevant and reasonable, and where the delegated act is relatively clear on what is required to fulfil the requirement.
- Do-No-significant-harm criteria that are handled as point requirements in the criteria for New Buildings (gen. 4) are not implemented in these criteria.
- Social minimum guarantees as defined in the EU Taxonomy are not evaluated or covered by these criteria.
- In generation 3 of the criteria (next generation) Nordic Ecolabel aims to become a tool for documentation of alignment with The EU Taxonomy Climate change mitigation.

The Technical screening criteria are according to the internal assessment done by Nordic Ecolabelling assumed to be handled in the following way (please note the disclaimer in the beginning of this section):

Technical screening criteria in the EU Taxonomy	**Nordic Ecolabelling's evaluation of the screening criteria compared to the criteria for Nordic Swan Ecolabelled Renovation of buildings, generation 2**
7.2.1: "Energy demand" a) The building renovation complies with the applicable requirements for major renovations (298). b) Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30 % (299). (298) As set in the applicable national and regional building regulations for 'major renovation' implementing Directive 2010/31/EU. The energy performance of the building or the renovated part that is upgraded meets cost-optimal minimum energy performance requirements in accordance with the respective directive. (299) The initial primary energy demand and the estimated improvement is based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method and validated through an Energy Performance Certificate. The 30 % improvement	The energy performance of the Nordic Swan Ecolabelled building is regulated in requirement O14. DK/SE/FI: Options a) and b) in this requirement are aligned with the two alternatives a and b in the EU Taxonomy in the criteria for Nordic Swan Ecolabelled Renovation of buildings. NO/IS are currently not aligned with the EU Taxonomy. Alternative c) in O14 regarding protected buildings and buildings worthy of preservation is not aligned with the EU Taxonomy. See national details below: Denmark: has implemented Directive 2010/31/EU but is not directly using the definition of major renovation in the legislation. Correspondence with the Danish building legislation authorities indicates that the renovated building must fulfil renovation class 2 (BR18) in order to be aligned with a) in the EU Taxonomy.

results from an actual reduction in primary energy demand (where the reductions in net primary energy demand through renewable energy so	Alternative b) can be employed using the system of EPCs, see requirement for details. Finland: has implemented Directive 2010/31/EU and adopted the definition of major renovation. It is interpreted that alignment with alternative a) in the EU Taxonomy is achieved by fulfilling the Ministry of the Environment's regulation (4/2013) on improving the energy efficiency of buildings in conjunction with repair and modification works, for the building category in question. Alternative b) can be employed using the system of EPCs, see requirement for details. Sweden: has implemented Directive 2010/31/EU but is not directly using the definition of major renovation in the legislation. It is interpreted that the renovated building must fulfil the energy use equivalent to the maximum permitted in accordance with BBR for new buildings in order to be aligned with alternative a) in the EU Taxonomy. Alternative b) can be employed using the system of EPCs, see requirement for details. Norway: The authorities are currently working on how the EU Taxonomy can be implemented in Norway. We are following this closely. Norway has not implemented Directive 2010/31/EU. Iceland: has not implemented Directive 2010/31/EU and EPCs are not implemented. EU Taxonomy alignment cannot be done at the moment. In conclusion, it is assessed that the documentation required to verify O14 a) or b) for DK, FI and SE can be used as documentation to verify taxonomy compliance. Calculation methods and documentation can be seen in O14.

The Do No Significant Harm criteria are, according to the internal assessment done by Nordic Ecolabelling, handled in the following way (please note the disclaimer in the beginning of this section):

DNSH criteria in the EU Taxonomy	**Nordic Ecolabelling evaluation of the criteria compared to the Nordic Swan Ecolabel criteria for Renovation of buildings generation 2**
7.2.2.1: Climate Change adaption The activity complies with the criteria set out in Appendix A to this Annex.	The requirement is not covered by these criteria. The uncertainties related to the interpretation of the requirement is currently considered too high for a mandatory requirement. No point requirements are available in these criteria. Please refer to the criteria for New Buildings for further information on this EU Taxonomy requirement.
7.2.3.1: Sustainable use and protection of water and marine resources Where installed, except for installations in residential building units, the specified water use for the following water appliances is attested by product datasheets, a building certification, or an existing product label in the Union, in accordance with the technical specifications laid down in Appendix E to this Annex: (a) wash hand basin taps and kitchen taps have a maximum water flow of 6 litres/min. (b) showers have a maximum water flow of 8 litres In. (c) WCs, including suites, bowls, and flushing cisterns, have a full flush volume of a maximum of 6 litres and a maximum average flush volume of 3,5 litres.	The requirements are not covered by these criteria. Nordic Swan Ecolabel does not see it as relevant to implement on all renovation projects as the scope varies greatly for each project, Please refer to the criteria for New Buildings for further information on this EU Taxonomy requirement.

(d) urinals use a maximum of 2 litres/bowl/hour. Flushing urinals have a maximum full flush volume of 1 litre.	
7.2.4.1: Transition to a circular economy At least 70% (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material referred to in category 17 05 04 in the European List of Waste established by Decision 2000/532/EC) generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol (300). Operators limit waste generation in processes related to construction and demolition, in accordance with the EU Construction and Demolition Waste Management Protocol and taking into account best available techniques and using selective demolition to enable removal and safe handling of hazardous substances and facilitate reuse and high-quality recycling by selective removal of materials, using available sorting systems for construction and demolition waste. (300) EU Construction and Demolition Waste Protocol (version of 4.6.2021: https://ec.europa.eu/growth/content/eu-construction-anddemolition-waste-protocol-0_en).	The requirement is covered by "O13 Construction waste management" that requires a waste management plan in accordance with the EU Construction and Demolition Waste Management Protocol. Construction and demolition waste must be accounted for by reports from the waste management company showing the amounts of relevant waste fractions collected in relation to the total volume of the project's construction waste. The treatment form of the waste fractions and the receiver of the fractions must be stated. Both construction site and module/prefabricated element factories must be accounted for. The mandatory level is in alignment with the requirement in the EU Taxonomy. Selective demolition must specifically be accounted for in O13. In conclusion, it is assessed that the documentation required to verify O13 can be used as documentation to verify taxonomy alignment.
7.2.4.2: Transition to a circular economy Building designs and construction techniques support circularity and in particular demonstrate, with reference to ISO 20887 (301) or other standards for assessing the disassembly or adaptability of buildings, how they are designed to be more resource efficient, adaptable, flexible and dismantlable to enable reuse and recycling. (301) ISO 20887:2020, Sustainability in buildings and civil engineering works - Design for disassembly and adaptability - Principles, requirements, and guidance (version of 4.6.2021: https://www.iso.org/standard/69370.html).	The requirement is not covered by these criteria. The uncertainties related to the interpretation of the requirement is currently considered too high for a mandatory requirement. No point requirements are available in these criteria. Please refer to the criteria for New Buildings for further information on this EU Taxonomy requirement.
7.1.5.1: Pollution and prevention control Building components and materials used in the construction comply with the criteria set out in Appendix C to this Annex. Annex C: The activity does not lead to the manufacture, placing on the market or use of: (a) substances, whether on their own, in mixtures or in articles, listed in Annexes I or II to Regulation (EU) 2019/1021, except in the case of substances present as an unintentional trace contaminant. (b) mercury and mercury compounds, their mixtures and mercury-added products as defined in Article 2 of Regulation (EU) 2017/852. (c) substances, whether on their own, in mixture or in articles, listed in Annex I or II to Regulation (EC) No 1005/2009. (d) substances, whether on their own, in mixtures or in an article, listed in Annex II to Directive 2011/65/EU, except where there is full compliance with Article 4(1) of that Directive.	Evaluation of the requirements in annex C: a) It is considered that the requirements in the EU taxonomy and the national legislations are the same. Applicants must always fulfil the current regulatory requirements in relation to their activities. No further documentation is therefore needed. b) The EU Taxonomy do not refer either to the annexes or to the exemptions in the directive and are therefore stricter than the regulation. These criteria regulate the content of mercury in all chemical products O18 and in buildings products covered by O25. For these product types, the criteria are aligned with this EU Taxonomy requirement. Products or materials that are not covered by these requirements must be evaluated by the applicant for alignment with this requirement. c) The EU Taxonomy refers to Annexes I and II, but no reference is made to any exemptions, it is therefore stricter than the general regulation. However, the exemptions in question (e.g. (substances used as feedstock, process agents, destruction essential laboratory and analytical uses, hydrochlorofluoro-carbons, methyl bromide and halons) do not seem relevant for the products in question. d) The EU Taxonomy refers to Annex II and Article 4(1). EEE placed on the market shall not contain the

(e) substances, whether on their own, in mixtures or in an article, listed in Annex XVII to Regulation (EC) 1907/2006, except where there is full compliance with the conditions specified in that Annex. (f1) substances, whether on their own, or in mixtures or in an article, in a concentration above 0,1 % weight by weight (w/w), and meeting the criteria laid down in Article 57 of Regulation (EC) 1907/2006 and that were identified in accordance with Article 59(1) of that Regulation for a period of at least eighteen months, except if it is assessed and documented by the operators that no other suitable alternative substances or technologies are available on the market, and that they are used under controlled conditions* (f2) In addition, the activity does not lead to the manufacture, presence in the final product or output, or placing on the market, of other substances, whether on their own, or in mixtures or in an article, in a concentration above 0,1% weight by weight (w/w), that meet the criteria of Regulation (EC) No 1272/2008 in one of the hazard classes or hazard categories mentioned in Article 57 of Regulation (EC) 1907/2006, except if it is assessed and documented by the operators that no other suitable alternative substances or technologies are available on the market, and that they are used under controlled conditions. ** The Commission will review the exceptions from the prohibition from manufacturing, placing on the market or use of the substances referred to in point (f) once it will have published horizontal principles on essential use of chemicals*	substances listed in Annex II. RoHS do however have exemptions in Annex III and IV (probably not relevant) which are not mentioned in the taxonomy. The EU taxonomy is therefore stricter than the legislation. In general, electronic equipment is not regulated in these criteria. The applicant should be aware if any exemptions in annex III are relevant as they are not covered by these criteria. e) The EU Taxonomy refers to Annex XVII in REACH. The EU Taxonomy and the national legislations have the same criteria. Applicants must always fulfil the current regulatory requirements in relation to their activities. No further documentation is therefore needed. f1) The EU Taxonomy refers to Article 57 and identified in accordance with 59(1), the Candidate List in REACH. This is a list for eventual inclusion in Annex XIV. The EU Taxonomy prohibit the manufacture, placing on the market or use of these substances and is therefore stricter than the national legislation. These criteria restrict the use of substances on the Candidate List for chemical products (O18) and specific listed construction products/materials specific (O25). Products or materials that are not covered by these requirements must be evaluated by the applicant for alignment with this requirement. f2) The EU Taxonomy refers other substances, whether on their own, or in mixtures or in an article, in a concentration above 0,1% weight by weight (w/w), that meet the criteria of Regulation (EC) No 1272/2008 in one of the hazard classes or hazard categories mentioned in Article 57 of Regulation (EC) 1907/2006. This means substances not yet on the Candidate List. This criteria for renovation of buildings restrict the use of the relevant hazard classes and categories (CMRs, PBT, vPvB and endocrine disruptors) for all chemical products and construction products/materials covered by O29. Overall conclusion: Products that are covered by O17-O21 or O29 are aligned with the requirements in Appendix C in the EU Taxonomy. Products that are not covered by O17-O21 or O29 must be evaluated by the applicant for EU Taxonomy alignment. In addition, please note the following: • Electronic equipment is not regulated in these criteria. - • The applicant should be aware if any exemptions in annex III are relevant as they are not covered by these criteria.
7.1.5.2: Pollution and prevention control Building components and materials used in the building renovation that may come into contact with occupiers (302) emit less than 0,06 mg of formaldehyde per m3 of test chamber air upon testing in accordance with the conditions specified in Annex XVII to Regulation (EC) No 1907/2006 and less than 0,001 mg of other categories 1A and 1B carcinogenic volatile organic compounds per m3 of test chamber air, upon testing in accordance with CEN/EN 16516 or ISO 16000-3:2011 (303) or other equivalent standardised test conditions and determination methods (304). (302) Applying to paints and varnishes, ceiling tiles, floor coverings, including associated adhesives and sealants, internal insulation, and interior surface treatments, such as those to treat damp and mould. (303) ISO 16000-3:2011, Indoor air — Part 3: Determination of formaldehyde and other carbonyl compounds in indoor air and test chamber air —	These requirements are not covered by the Nordic. Ecolabel criteria for Renovation of buildings. We do not require emission testing for individual building products but set chemical requirements on ingoing chemical substances. The uncertainties related to the interpretation of which materials are specifically covered by the requirement is currently considered too high for a mandatory requirement. No point requirements are available in these criteria. Please refer to the criteria for New Buildings for further information on this EU Taxonomy requirement.

Active sampling method (version of 4.6.2021: https://www.iso.org/standard/51812.html). (304) The emissions thresholds for carcinogenic volatile organic compounds relate to a 28-day test period.	
7.2.5.3: Pollution and prevention control Measures are taken to reduce noise, dust and pollutant emissions during construction or maintenance works.	Handling of noise, dust and pollutant emissions during construction or maintenance work is considered to be covered by national legislation on working environment and environment.

4 Product group definition

Nordic Swan Ecolabelled renovation of buildings is the result of an active renovation process. It is not possible for existing buildings to be Nordic Swan Ecolabelled without an ongoing renovation process. Only changing the energy system is not considered an active renovation process.

The size and scope of the renovation:

The renovation project must fulfil at least one of the following three options:

1. The total cost of the renovation relating to the building envelope* or the technical building systems is higher than 25% of the value of the building, excluding the value of the land upon which the building is situated**.

2. More than 25 % of the surface of the building envelope* undergoes renovation.

3. Renovation leads to a reduction of primary energy demand (PED) of at least 30%. Documentation must be done according to the principles in O7 alternative 2.

Documentation for compliance with 1, 2 or 3 must be done in O1.

** The building envelope is the outer structure of the building, i.e., the physical barriers that separate the inside from the outside, land or unheated space. The building envelope is usually walls, floors/foundation, roof, windows, and external doors.*

*** The value of the building should be understood as the cost that a reconstruction of the existing building would amount to.*

Building types that can be subject to Nordic Swan Ecolabelled renovation of buildings

The following building types can be certified as Nordic Swan Ecolabelled renovation according to the criteria for Renovation of buildings:

- Buildings classified as residential buildings, including student housing, homes for the elderly and homes for persons with disabilities.

- Educational buildings, including preschool buildings, kindergartens and day-care centres, schools, universities, and other schools for higher education.
- Office buildings, including all associated facilities in the building.
- Hotels and associated conference facilities.
- Buildings that are converted into any of these types of buildings.

Building types that cannot be Nordic Swan Ecolabelled

- Holiday homes and cottages.
- Permanent supplementary buildings, such as garages, refuse depots, bicycle storage rooms, and sheds constructed as separate projects. Supplementary buildings are included in the licence when planned and constructed along with the renovation of main building.
- Separate educational buildings that primarily accommodate laboratories, workshops and similar.
- Ice skating halls, public and private swimming pools.
- Gymnastics halls and sports halls constructed as separate projects.
- Hospitals, hospices, and other care facilities that are not used as permanent residential buildings or classified as premises according to the national legislation.
- Commercial buildings, shops and shopping centres.
- Factories and other industrial buildings.

Background

Renovation projects vary greatly in size and complexity. Nordic Ecolabelling focuses on building types where the complexity of technical installations and specialised functions is not too great. Buildings with very specialised use typically have very specific requirements concerning technical installation and materials. This can make it more difficult for these building types to fulfil e.g., the material requirements. Nordic Ecolabelling continuously evaluates the possibility of extending the scope of the criteria.

In the EU Taxonomy on renovations of existing buildings, the technical screening criteria for substantial contribution to climate change mitigation are as follows: a) The building renovation complies with the applicable requirements for major renovations. b) Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30%.

Directive 2010/31/EU defines major renovations as: "the renovation of a building where: (a) the total cost of the renovation relating to the building envelope or the technical building systems is higher than 25% of the value of the building, excluding the value of the land upon which the building is situated; or (b) more than 25% of the surface of the building envelope undergoes renovation; Member States may choose to apply option (a) or (b)."

Nordic Ecolabelling has decided to limit the size of the renovations in relation to the EU Taxonomy's technical screening criteria. This is relatively similar to the approach used in generation 1 of the criteria, where reference was also made to the definition of major renovation.

5 What is subject to the requirements?

Buildings, supplementary buildings, and outdoor areas

The Nordic Swan Ecolabel renovated building, remodelled outdoor areas on the plot and any permanent supplementary buildings that are part of the renovation project and that are constructed, renovated, or marketed with the Nordic Swan Ecolabelled renovated main building must fulfil all relevant requirements. Supplementary buildings are refuse depots, bicycle sheds, storage buildings, garages (both as a separate structure or connected to the building), carports and similar constructions. Communal/shared areas for residents or occupants are included, e.g., gyms and hobby rooms in the building.

Commercial areas such as shop premises, hairdressers, restaurants etc. are exempt from the requirements. Please see the section "What can carry the Nordic Swan Ecolabel?".

Any bomb shelters in the building must only comply with requirement O2, O4, O5 and O37.

General scope of the material requirements

- The requirements include all materials and products that are incorporated as a part of the renovation and extensions in the Nordic Swan Ecolabel renovated buildings and supplementary buildings included in the renovation project.

- The material requirements apply to all structures above the capillary layer. This includes materials used for insulation of the base plate (above or below the plate) and any radon barrier wherever it is placed.

- Materials used on outdoor areas that are included in the renovation project are covered by relevant requirements. This includes products and construction materials such as decking, fences, pergolas, permanently installed outdoor furniture, playground and park equipment and similar items.

- Installations up to the building are not included. This means, for example, that electrical cables up to the main fuse box are not included.

- Requirements apply to permanently installed fittings, furniture, and trimmings as well as loose fittings and furniture (e.g., wardrobes and lockers) that are included in the renovation project and sold/let with the residential unit or premise.

Exempted areas, materials and products

The following are not subject to any requirement:

- New Materials installed in technical service areas including lift cabins and lift shafts.

- Garage floors and floors in bicycle rooms where there is a need for waterproofing due to a dry level below the floors in question.

- Control units for water, ventilation, and heating.

- Marking paint, marking tape that is removed, cable/pipe lubricant and cleaning agents.

- Sealing foam, formwork oil, etc. used to seal or lubricate casting moulds.

- Touch-up paint for damage to white goods and fittings.

- Products and materials for minor repairs of existing surfaces or other construction components in the building. Each case must be approved by Nordic Ecolabelling.

- Rust protection paint to restore railings and beams after welding and when screw holes have been drilled or similar work.

- Builders' hardware (e.g., locks, handles, hole plates and hinges).

- Nails, screws, nuts, bolts, washers and similar fixings and fasteners.

- Palletising trays, plastic spacers, ground spacers, inflow and outflow pipes for white goods and similar items.

- Temporary products and structures used in the construction but later removed. Examples of temporary products and structures are moulds, struts, tarpaulins, or plastic film temporarily used for weather protection or sealing. However, wooden products are always covered by O29 such as wood in casting moulds.

Any other exemption must be communicated to Nordic Ecolabelling for approval.

Prefabrication

When anything that would normally have been built on site is built in a module/construction element factory the same chemical and material requirements apply. This for instance includes:

- Prefabricated bathroom modules.
- Sandwich elements and other modules for wall, floor, roof or similar.
- Concrete elements (incorporated building products and surface treatment).

Chemical curing products can be used in prefabrication if mixing and application takes place in designated areas and/or with methods and systems protecting from exposure (in accordance with national work environment legislation).

Curing is a chemical process that produces the hardening of a polymer material by cross-linking of polymer chains. One- or two-component products, where the curing can depend on various factors such as reactive substances, UV light, heat, humidity.

Industrial surface treatments

Examples where chemical requirements (chapter 11.2) apply:

- Primed and final-coated outdoor wooden panels and boards that are not covered by the bullet below.

Examples where chemical requirements (chapter 11.2) do not apply, but where material requirements on construction products (chapter 11.3 and 11.4) still apply:

- Outdoor wooden facade panels and boards that are primed with a biocidal product (PT8) according to Regulation (EU) 528/2012, if all other coatings (including products used at the construction site) are ecolabelled.

Examples where chemical requirements (chapter 11.2) do not apply, but where material requirements on construction products (chapter 11.3 and 11.4) still apply:

- Pre-painted windows, doors, and interiors (mouldings, kitchen and bathroom fittings, indoor stairs).
- Primed and final-coated indoor wooden panels, boards and ceilings.
- Fire retardant-treated wood for indoor and outdoor use where the only purpose is to achieve a certain fire protection class.
- Surface-treated steel.

Complete renovations where only the load bearing structure remains

Since it is resource-efficient to reuse the load bearing structure, Nordic Ecolabelling shall not contribute to its demolition if it can be retained. Nordic

Ecolabelling leans towards the national regulations for building and construction and the definitions for those regulations. If the construction regulations define a project as being a new-build project, the criteria for new production must be used. If the construction regulations define a project as a renovation project instead, the criteria for renovations must be used.

Demolition is a substantial part of complete renovations and it is therefore reasonable that Nordic Ecolabelling sets requirements for environmental survey/analysis and remediation, regardless of definition. The requirements in the section on environmental survey/analysis and remediation for renovations must be met, regardless of how the rest of the renovation is defined (as new construction or renovation).

Renovations that result in increased area (extension)

If the floor space of the building is increased, i.e. the building is extended while it is being renovated, the project is a combination of two criteria documents and will be treated accordingly:

1. The renovated section of the building must comply with the requirements in the criteria for Nordic Swan Ecolabelled renovation of buildings.

2. The extension section must in addition to relevant requirements in the criteria for renovation of buildings (e.g., material- and quality requirements) meet the following requirements in the criteria for Nordic Swan Ecolabelled New buildings (O89):

    O2 Points achieved (and related P-requirements)
    O3 Energy demand of the building
    O4 Lighting management
    O5 Energy efficient white goods
    O6 Climate calculation of the building
    O7 Cement and concrete
    O8 Steel Production
    O9 Aluminium production
    O11 Waste sorting inside the building
    O31 Assessment of the biodiversity on the plot*
    O32 Measures to preserve and improve the biodiversity*
    O33 Management plan for the biodiversity*
    O34 Acoustics
    O35 Daylight provision
    O36 Thermal comfort and overheating
    O37 Radon (applies only in Finland)
    O38 Air permeability

Extensions smaller than 50 m2 heated area must only comply with the requirements in the criteria for renovation of buildings (e.g., material- and quality requirements).

* *Only applies when the extension is built at ground level and affects the land use. Only the area affected by construction must be evaluated.*

6 General requirements

O1 Outline description of the renovation project

The application must include a description that includes the following elements for the renovation project and for the renovated building:

a) Documentation that the renovation project complies with the building types and the size and scope of the renovation in the product group definition, section 4.

b) A description of the existing building's carcass/load bearing structure, façade, roof, foundations, heating system, ventilation system and other essential installation systems.

c) An outline description of the extent, purpose, and objectives of the renovation. The description must show which parts of the building are to be renovated and clearly state if a story, buildings, or parts of buildings are not included in the renovation work. The description must also include any supplementary buildings that are part of the renovation project, or which are to be newly constructed/erected.

d) Heated areas before and after the renovation must be specified.

e) Floor plans with details of the number of storeys, number of square metres of living space or premises (NO: BRA, SE: BOA,LOA, FI: A (netto), DK: Brutto and Netto, IS: A (brutto)),. It must be clearly stated if, during renovation, the floor space of the building is increased (extension) or if the building category is changed (e.g., an office is converted into housing).

f) Number of residential units. For offices and educational buildings: intended number of users of the building.

g) Commercial spaces or other supplementary activities (canteen, gym etc.) in the building.

h) Outdoor areas including playgrounds and courtyards affected by the renovation project: layout and materials.

i) Option catalogue for the tenant/owner to choose from various layouts, materials, or fittings.

j) System to ensure that office buildings have individual metering of electricity for each residential/rentable unit or each floor.

✉ Documented description of the aforementioned items. Drawings, designs, illustrations, and other project documentation can constitute the basis.

✉ The extent of the renovation (excluding demolition) either reported as a proportion of the building envelope being renovated or in relation to the building's value (excluding the land value).

Background to requirement O1

The purpose of the requirement is to give an overview of the building project that is to be Nordic Swan Ecolabelled and the immediate surroundings. The

information is relevant to ensure efficient and correct certification in relation to the rest of the criteria document.

7 Prior to the renovation phase

Prior to the construction/renovation phase, the project must assess the existing building. The following requirements must be documented in the early phase of the project. Requirements O2, O4 and O5 must also be met by any bomb shelters belonging to the building.

O2 Environmental survey and remediation plan

Before the renovation work starts, an environmental survey must be performed by an expert*. The survey must at least cover the parts of the building that are to be renovated and where there is suspicion of hazardous waste or hazardous substances.

The environmental survey must as a minimum comply with national legislation. In addition, building components that are retained in the building must comply with the threshold limits stated in Appendix 1.

If there is suspicion of hazardous substances in building components, analysis of representative material samples must be performed to establish the concentration of hazardous substances. This is relevant for identifying both hazardous waste and compliance with Appendix 1.

Building parts that are suspected to contain asbestos must be marked with asbestos tape.

If a previously performed survey is more than three years old, the person/firm responsible for writing the report must assess whether or not there is a need to update the report.

The environmental survey must be documented in a remediation plan that accounts for all the findings and results of representative material samples and analyses. The remediation plan must at least include the following:

1. Responsible for the plan*.
2. When the plan is written.
3. Age of the building, year of major renovations and previous use of the building if known.
4. If only parts of the building are surveyed, it must be argued why there is no suspicion of hazardous substances in non-surveyed parts and surveyed parts must be clearly marked on drawings.
5. Results of performed material samples and analyses, for both materials for demolition and materials that are retained in the building.
6. Identification of the different types of hazardous substance/waste, must include the following:
    a. The location identified by description, photographs, or drawings.
    b. Amounts.
    c. A description of measures for protecting the environment, human health and the risk of damage and theft during the remediation process.

d. A list of building parts and materials where hazardous substances are retained in the building. The following must in addition be documented:
e. Compliance with Appendix 1 and/or national threshold limits for hazardous waste.
f. When a material/building part contains hazardous substances that are not compliant with the threshold limits above, they can only be retained in the building if a risk assessment is performed. The risk assessment must contain a description of the relevant encapsulating method.

The follow-up of the remediation plan must be documented according to O5.

* *The person performing the environmental survey must be qualified to conduct an environmental survey and have at least three years of relevant experience within the field of environmental surveys for the type of building in question.*

In cases where PCBs are identified in the building during the environmental survey, or in another stage, PCBs must be measured in the indoor air after remediation. For more information, see requirement O37.

✉ CV of the expert documenting relevant competence.

✉ Documented remediation plan that covers a) to h) above.

Background

Older buildings may have been constructed using materials that contain various hazardous substances. During a renovation, it is critical that the risk related to these substances is eliminated. Depending on the substances, they may pose a risk to the environment and/or human health.

The environmental survey must be performed before contracting the remediation contractor, since the results will affect the remediation process. Due to the rapid changes in regulations and knowledge within the field of environmental surveys, a previous survey may not be more than three years old.

The survey must include the substances that are harmful to human health and the environment, according to the requirements/recommendations of the national authorities and industry standards. The national legislation must have implemented Commission Decision 2000/532/EC establishing a list of hazardous waste, Commission Regulations (EU)1357/2014 replacing Annex III to Directive 2008/98/EC and (EU)2017/997 amending Annex III to Directive 2008/98/EC.

If the environmental surveyor has reason to believe that asbestos may be present (e.g., a broken or cracked pipe elbow), these elements must be marked with asbestos tape (warning tape with the word “Asbestos” written along it) as asbestos can pose a serious risk to the human health.

The industry standard has been to recommend the removal of hazardous waste during a renovation. Everything below the limits for hazardous waste can, in principle, be retained in the building. Nordic Ecolabelling therefore requires a risk assessment when substances are above the threshold limits in Appendix 1 and/or national threshold limits for hazardous waste, to minimise harmful indoor environments or other adverse health or environmental impacts.

It is technically feasible and desirable to retain a building part or material with hazardous substances that exceed the threshold limits – it is possible to encapsulate/enclose or render them harmless to prevent direct exposure. The method of choice must be justified in a risk assessment.

O3 Mapping of components and materials suitable for reuse

Before the demolition work takes place, the building must be mapped by an expert* to identify building parts and materials that are suitable for reuse. As a minimum the building parts and materials that will be removed during the demolition must be accounted for**.

The mapping must as a minimum result in a report containing the following information:

1. Person responsible for writing the plan.
2. When the plan is written.
3. Age of the building, year of major renovations and previous use of the building if known.
4. Building parts and materials* suitable for reuse must be summarised in a table providing the following information:
    a. Description of product, e.g., dimensions, sound class, fire characteristics.
    b. Estimated remaining lifetime.
    c. Estimated amounts.
    d. Deconstruction method based on the intended use of the material. Selective demolition must be used to facilitate reuse by selective removal of materials.
    e. Recommended method of storage after deconstruction.
    f. Existing documentation of the building parts and materials if it exists.
    g. The technical documentation required, based on the intended use.

✉ If any products or materials are covered by a take-back system, specify the type of material, receiving facility and approximate quantities.

Identified components and materials that are reused in the building at a later stage must fulfil O2.

** The expert must be trained in documenting building parts and materials suitable for reuse and have at least 3 years' experience in the field. This can be either an internal or an external person.*

*** The mapping must at least include carcass, technical installations, stairs, floors, interior and exterior doors, windows, building panels, roof covering, façades, bricks, concrete, structural timber, stone material, fixtures, and sanitary ware.*

✉ A report of components and materials for reuse that includes all the bullet points above.

✉ CV of the expert documenting relevant competence.

Background

Production of new components and materials is a demanding process in terms of both resources and energy. Avoiding this is therefore a fundamental concept that supports a circular economy. Reusing products instead of manufacturing new ones, it directly reduces the need for new resources, cuts energy usage and avoids accumulation of waste.

It is generally considered that there is huge potential for increasing the reuse of building materials in construction projects from present-day levels. There may be several reasons why reuse does not take place very often in the demolition process today. It may be due to a lack of expertise when it comes to identifying valuable materials in the building, the expense of reuse compared to buying new products, or time constraints related to the demolition resulting in damaging the materials. The project therefore has to follow-up this report in O6.

The foremost aim of the requirement has been to raise awareness and initiate systems that will ensure increased reuse.

It is not possible to set an absolute requirement for the amount of construction material that must be reused directly in a Nordic Swan Ecolabelled renovation, as the projects vary greatly. The market for reused materials is small and for this reason, a potential has been identified for each renovation project to undertake an in-depth analysis of the opportunities for reusing construction materials for a similar or new purpose.

O4 Moisture survey

Before the actual work of renovating the building has begins, a survey should be carried out to assess moisture damage, fungal growth, dry rot fungus, odours and water damage in the building that is to be renovated. The moisture survey must be performed by a competent moisture technician*.

The moisture survey must cover the entire building, as well as areas exempted from other requirements such as retail spaces and restaurants, and must at least include the following**:

- Foundation/base, cellar or corresponding.
- The building envelope (including roof).
- Moisture-sensitive elements indoors and outdoors.
- Technical installations.
- Interior surfaces that were exposed to moisture before the renovation (wet rooms, kitchens, showers, and washrooms).

The survey is initially, to be performed visually and non-destructively.

If the initial survey reveals a risk of moisture damage in the building, a detailed survey must be performed. The detailed survey must be carried out using destructive sampling, visual inspection with tape, analysis of material samples by microscopy, collection of air samples or another appropriate method. The choice of method must be justified in the survey.

If moisture or water damage is identified, it must be remedied/treated during the renovation process.

If any building components are identified as being at risk of moisture damage, they must be addressed during the planning stage and remedied during the renovation process.

If mould removal is necessary, the work must be carried out in compliance with national occupational health and safety guidelines and performed by a licensed/authorised contractor.

** The competent moisture expert technician must have documented knowledge and experience in building techniques, along with knowledge of moisture in materials and constructions and the consequences. Furthermore, the expert technician must have at least 2 years' experience in moisture prevention work or moisture damage assessment work and at least 2 years' experience in working on building projects, project planning and/or the management of buildings.*

*** If the whole building cannot be surveyed (e.g., technical installations in all residential units) a representative selection of areas must be surveyed, and the selection must be justified to Nordic Ecolabelling.*

✉ A report from the moisture survey stating whether harmful moisture or water damage has been found, whether structures are considered to be well designed and an assessment of the design of any wet rooms.

✉ Planned corrective actions to remediate moisture damage that has been found and building components that are at risk of moisture damage.

✉ CV of the expert documenting relevant competence.

✉ Report of any remediation conducted.

Background

Material that has been damaged by moisture or biological fouling can affect the indoor environment, the local environment or the strength and durability of the building. The negative effect of moisture damage can be lasting, in some cases, even if corrective actions are taken to reduce the moisture level. If mould grows on interior surfaces or in the framework of the building and spores or fungal fragments spread to the indoor environment, it can cause unpleasant odours while exposure to these spores can have an adverse effect on human health.

A material may become damaged if it is exposed to a higher than intended moisture level. The release of chemical substances may increase, leading to abnormally high levels of chemical substances in the air. Moisture can also cause components in adjacent materials to react with one another and give rise to new, possibly harmful substances.

Not all moisture, damp and water damage affect the indoor environment and human health, but the risk exists. If a building is to be renovated anyway, it is cost-effective to repair damage and take measures against the risk of damage to building components. This is why Nordic Ecolabelling requires a moisture survey to be undertaken before the renovation work begins.

The moisture survey is normally performed in two stages. Stage one involves a visual, non-destructive inspection. A more detailed inspection is performed based on the knowledge and experience of the building surveyor, the building components that are identified as being at risk and the findings of the initial

inspection. The methods used in the more detailed inspection vary, but several methods for collecting data are described in the requirement. Destructive (material) sampling is required at this stage.

If mould removal is necessary, the work must be carried out by a licensed contractor and in compliance with national occupational health and safety guidelines. This includes fulfilment of that any national requirements on authorisation.

O5 Follow-up of remediation plan

The remediation contractors* must prepare a report on management of the hazardous waste. The report must include the hazardous waste identified and documented in the remediation plan, and any new findings during the remediation/demolition. The report must contain at least the following:

- Information on the type and amount of hazardous waste, using the waste codes set out in Commission Decision 2000/532/EC. Deviations from the remediation plan must be described with proper cause.
- Description of an appropriate method of removal of the hazardous waste, including how it will be stored and transported.
- Information to show that the remediation contractor has followed the procedures to safeguard human health and the environment, according to the remediation plan.
- Details of carrier(s) and receivers of the hazardous waste.

** Remediation contractors must be qualified to conduct remediation work within the parameters of the building type and the complexity in question.*

The total amounts of waste generated during the demolition/deconstruction phase and the handling must be documented in O13.

☒ A report from the completed remediation process that includes the above points.

☒ Receipts from hazardous waste recipients must be available upon request.

☒ Documentation of the remediation contractor showing relevant competence.

Background

Remediation is the removal of hazardous materials, and Nordic Ecolabelling seeks to ensure a common minimum standard for Nordic Swan Ecolabelled renovations.

The environmental survey aims to identify all hazardous waste for demolition, as well as hazardous substances retained in the building. It is not uncommon to discover previously unidentified waste/substances during the demolition process, regardless of the competence of the surveyor. Its detection depends in most cases, on the contractor having expertise in this area or on the type of contract in use. This requires employees in a remediation company to be familiar with the responsibilities and that any newly identified hazardous waste and undesirable substances are managed correctly during the demolition phase. Based on experience from the demolition industry, there is reason to believe that, at this stage of the process, some hazardous waste and undesirable substances go

undetected, and are therefore incorrectly managed after demolition, i.e., they are not transferred correctly.

The remediation firm is responsible for choosing the method for the removal, storage and transport of the hazardous waste. There may be multiple removal methods available, but the choice of most appropriate method often depends on the equipment available to the remediation firm.

Nordic Ecolabelling considers it extremely important to hire professional environmental surveyors and remediation contractors to ensure that the processes are performed in a manner that prevents environmentally hazardous substances from going undetected.

O6 Follow-up of mapping of components and materials for reuse

The potential use of components and materials listed as suitable for reuse in O3 must be followed-up during the early phases of the project.

All identified components and materials from O3 must be considered for reuse in the project or elsewhere (e.g., other projects or handing over to a platform specialised in reuse). The project's deliberations must result in a report.

Components and materials that are reused in the project must document compliance with threshold limits presented in O3.

✉ A report with all identified components and materials from O3, their intended use and compliance with threshold limits presented in O3 for relevant materials/components.

Background

Establishing better ways of managing the resources in today's buildings is a key factor in achieving a more circular material flow. The first step in a circular material flow is to identify components and materials in existing buildings, but performing an inventory for reuse is by no means a guarantee of actual reuse today.

To gain the full potential related to reuse, the inventories and reports must be taken into consideration early on in the project. This reduces the time and cost required to design with reused components and materials. Reuse internally in the project requires less logistics and should always be considered. As the identified components and materials are not always suitable for reuse in the project, they may also be reused elsewhere. Either directly in another project, through a platform specialised in reuse, or similar.

As the process of reusing components and materials is still maturing in the construction industry, Nordic Ecolabelling sets no requirements regarding how much of the identified components and materials must be reused. This requirement seeks to encourage reuse and guide the projects as to when these considerations should take place.

When reused components and materials are introduced to the project, it is important to ensure that they do not contain hazardous substances that negatively affect the indoor environment. This means that they cannot contain hazardous substances above the national threshold limits for hazardous waste and/or the threshold limits in Appendix 1. Similar to the limits introduced in O2.

8 Energy

O7 The energy use of the building after renovation

The building must comply with one of the following three alternatives:

Alternative 1

Denmark:

- All requirements for renovation class 1 or 2 in BR18 are fulfilled.

Calculation method: BE18 or equivalent.

Finland:

Energy demand equivalent to maximum 80% of the Ministry of the Environment's regulation (4/2013) on improving the energy efficiency of buildings in conjunction with repair and modification works, for the building category in question.

Calculation method: The Ministry of the Environment's regulation on the energy performance of buildings or the equivalent.

Iceland:

All building types: 5% better than BRG.

For the building to be EU Taxonomy compliant, the energy demand must meet the requirement for DK, SE, or FI.

Calculation method: In accordance with BRG.

Norway:

Energy use equivalent to maximum permitted in accordance with the TEK 17 for new buildings.

Calculation method: NS 3031 or with a programme validated in accordance with the NS EN 15265 standard.

Sweden:

Energy use (EP_{pet}) equivalent to maximum permitted in accordance with BBR for new buildings.

Calculation method: BBR, BEN and national practice in the sector for Sweden, see Appendix 2.

The following applies to all countries.

New national regulations: If new national regulations and thresholds for energy consumption of buildings are introduced during the term of validity of the criteria, Nordic Ecolabelling will perform a new assessment of the energy requirement and may adjust the requirement. The adjustment may involve a national consultation round.

Any exemptions or reliefs for e.g., timber frame houses, temporary buildings, or buildings which, due to their size, are exempted from the energy requirements in the building regulations of the countries may not be used.

Alternative 2

(Applies for SE, FI, and DK):

Renovation of the building must lead to a reduction of primary energy demand (PED) of at least 30%. In addition, the renovated building must as a minimum have energy class E (SE, FI,) or D (DK).

The improvement must result from an actual reduction of primary energy demand, meaning that the reductions in net primary energy demand through installation of renewable energy sources are not taken into account.

The initial primary energy demand and the estimated improvement are based on a detailed building survey/energy audit conducted by an accredited independent expert with minimum 5 years' experience. The results must be validated through an Energy Performance Certificate and report.

Calculation method: according to the national implementation of the EU Directive 2010/31/EU.

If the building directive is renewed during the validity of these criteria, Nordic Ecolabelling will perform a new assessment of this energy requirement and may adjust the requirement. The adjustment may involve a national consultation round.

Alternative 3

Protected buildings and buildings worthy of preservation

The following building types are covered by this alternative:

- **DK:** Protected buildings and buildings worthy of preservation with high conservation value (class 1-4 in the SAVE method [1)].
- **FI:** Protected buildings and buildings worthy of preservation that are defined in the law on built heritage or in town plans.
- **NO:** Protected buildings, as defined in the act kulturminneloven or svalbardmiljøloven, and buildings worthy of protection, as defined in the act plan- og bygningsloven, kirkeloven or naturmangfoldloven.
- **SE:** Protected buildings and buildings worthy of preservation are defined by Country administrative Board (Länstyrelsen). In addition, buildings q-marked by the municipalities in the local/zone plan, or alternatively buildings that are part of a municipality cultural environment programme or conservation programme.
- **IS:** Protected buildings and structures that are defined as protected by the Cultural Heritage Agency of Iceland, see here: Friðuð hús og mannvirki | Minjastofnun

The following must be documented in alternative 3:

a) It must be documented that the building is covered by the building types above. Documentation from the relevant national authority must be sent to Nordic Ecolabelling.

1 https://www.bygningsbevaring.dk/uploads/files/SAVE_Analyse_og_vaerdisaetning/SVAD_ny_SAVE_Metode_2017.pdf

b) It must be described how the building as a whole or the renovated building parts fulfil the requirements in the national legislation. Documentation used for the building permit can be used.

Please note: When using alternative 3 the renovation will not be aligned with the EU Taxonomy.

☒ Alternative 1: Energy calculation according to the requirement.

☒ Alternative 2: Energy Performance Certificate and report documenting the initial primary energy demand of the building.

☒ Alternative 2: Energy calculation verifying that the planned measures will result in a 30 % reduction of the primary energy demand.

☒ Alternative 2: Energy Performance Certificate and report documenting the primary energy demand of the renovated building.

☒ Alternative 3: Documentation for bullets a) and b).

Background

Large parts of the building stock in the Nordic are due for renovation in the coming years. Energy efficiency of the building envelope and technology is important to achieve a more energy-efficient building stock with a lower climate impact. There is huge potential for energy efficiency improvements.

This requirement aims at reducing the overall energy demand for buildings. Either by attaining relatively ambitious levels for the final building (alternative 1) or by making large reductions in the energy demand (alternative 2).

Alternative 3 is introduced to make it possible to Nordic Swan Ecolabel protected buildings and buildings worthy of preservation. It is often not possible to achieve a large reduction of energy demand in these buildings, but we see considerable potential for many other environmental benefits covered by these criteria. Therefore, they only need to document compliance with the national building legislation when renovation is performed. The definition of what is covered by this exemption in alternative 3 is determined nationally.

The EU Taxonomy (on climate mitigation) for renovation of buildings has the following technical screening criterion:

a) The building renovation complies with the applicable requirements for major renovations.

   As set out in the applicable national and regional building regulations for 'major renovation' implementing Directive 2010/31/EU. The energy performance of the building or the renovated part that is upgraded meets cost-optimal minimum energy performance requirements in accordance with the respective directive.

b) Alternatively, it leads to a reduction of primary energy demand (PED) of at least 30% (299).

   The initial primary energy demand and the estimated improvement are based on a detailed building survey, an energy audit conducted by an accredited independent expert or any other transparent and proportionate method and validated through an Energy Performance Certificate. The 30% improvement results from an actual reduction of primary energy demand (where the reductions in net primary energy demand through renewable energy sources are not

taken into account) and can be achieved through a succession of measures within a maximum of three years.

Nordic Ecolabelling sees this as a good baseline for a reasonable level with regard to an energy requirement for renovation of buildings.

Denmark: has implemented Directive 2010/31/EU but is not directly using the definition of major renovation in the legislation. Correspondence with the Danish building legislation authorities indicates that the renovated building must fulfil renovation class 2 (BR18) in order to be aligned with a) in the EU Taxonomy.

Finland has implemented Directive 2010/31/EU and the definition of major renovation. It is interpreted that alignment with alternative a) in the EU Taxonomy is achieved by fulfilling the Ministry of the Environment's regulation (4/2013) on improving the energy efficiency of buildings in conjunction with repair and modification works, for the building category in question.

Sweden: has implemented Directive 2010/31/EU but is not directly using the definition of major renovation in the legislation. It is interpreted that the renovated building must fulfil the energy use equivalent to the maximum permitted in accordance with BBR for new buildings in order to be aligned with alternative a) in the EU Taxonomy.

NO/IS has not yet implemented Directive 2010/31/EU and are therefore not aligned with the EU Taxonomy. Instead, the level is defined relative to the energy demand for new buildings. If the Directive 2010/31/EU is implemented during the current criteria, the requirement will be updated by Nordic Ecolabelling after a national consultation. There will be a notification period before the requirement is changed.

Alternative 3 regarding protected buildings and buildings worthy of preservation is not aligned with the EU Taxonomy.

The EU is working on revision of the building directive. Among other things it is suggested that all public and commercial buildings must as a minimum have energy label F I 2027 and E in 2030. For residential buildings, energy label F and E must be achieved in 2040 and 2033 respectively. Based on this, a minimum level of energy class E for SE/FI and D for DK is introduced in the requirement in alternative 2.

O8 Lighting management

Lighting systems that are changed as a part of the renovation project must fulfil the following:

A: Outdoor lighting

All building types

All outdoor lighting must have automatic demand control installed, that at least turns lighting off when there's sufficient daylight. The lighting control must be connected to the fixture and not only to/in the light source. This applies to

lighting in all common areas, including shared courtyards, shared roof terraces and playgrounds, façade lighting, entrance areas and parking spaces.

All luminaires must be well shielded from the sky with <0.5% light above the horizontal line of the light fixture.

Lighting on private terraces and balconies is exempted from the requirement on automatic demand control.

B: Indoor lighting

Residential buildings

- Automatic demand control must be installed in all communal areas such as entrance halls, stairwells, laundry rooms, storage rooms, hobby rooms, meeting rooms, communal kitchens, communal living rooms and communal dining areas.

Educational buildings

- Automatic demand control must be installed in all rooms.
- In rooms with access to daylight, the artificial lighting must dim in response to daylight levels.

Office

- Automatic demand control must be installed in all rooms.
- In rooms with access to daylight, the artificial lighting must dim in response to daylight levels.

Hotels and associated conference facilities

- Automatic demand control must be installed in all rooms.
- In rooms with access to daylight, the artificial lighting must dim in response to daylight levels.

General exemptions

- Dormitories in preschools.
- Technical service areas including lifts.
- Lighting for works of art.
- Workplace lighting, worktop lighting and lighting fitted into technical installations and equipment.
- Emergency lighting and lighting in bomb shelters.
- Rooms or spaces in homes for the elderly or persons with disabilities, where lighting for safety reasons cannot switch off.
- For classrooms, rooms for group working and studying as well as common areas in e.g., student housing, co-living apartments, homes for the elderly or persons with disabilities: The lighting should switch off automatically when the room is not in use. However, manual light switches can be used to control the lighting during use of the room.

✉ Description of the automatic demand control for indoor and outdoor lighting in accordance with the requirement.

✉ Product sheet or other product information stating that the outdoor light fixtures are well shielded from the sky with <0.5% light above the horizontal line of the light fixture.

Background

Even with the use of energy efficient lighting products, it is important to use automated lighting management to control the use of electricity. Automatic demand control based on daylight could be a daylight sensor or an astronomical timer. Automatic demand control based on presence could be motion detectors, acoustic detection, or presence sensors.

For safety and security reasons, outdoor lighting in educational buildings may need to be on throughout the dark and gloomy part of the day. School premises are often used in the evening for various organised activities, which requires illuminated schoolyards and entrances. Nordic Ecolabelling wants to emphasise that the requirement for automatic lighting management is not in opposition to these needs. The same reasoning applies to areas around residential buildings where lighting is necessary for safety and security reasons, such as parking spaces, entrances, or walkways.

Light pollution disturbs birds, bats and insects. All luminaires must be well shielded from the sky with <0.5% light above the horizontal line of the light fixture. This level is defined by the International Dark-sky Association as sufficient to achieve the desired effect.

O9 Energy efficient white goods

Household appliances and professional kitchen appliances installed as a part of the renovation project must fulfil the energy class requirements in accordance with Tables 1 and 2 below.

If new legislation comes into force during the validity period of the criteria, Nordic Ecolabelling will assess the requirement and an adjustment may be implemented.

Table 1 Requirements for household white goods.

Product type	Energy labelling according to Energy Label Regulation 2017/1369 (including supplements)	Energy label in accordance with the Energy Labelling Directive 2010/30/EC (including supplements)
Washing machine	B	
Refrigerator	E	
Freezer	E	
Combined refrigerator and freezer	E	
Refrigerator for mini kitchen and minibars (height ≤80 cm)	F	
Drying cabinets	Must have an energy consumption of no more than 0.4 kWh/kg of laundry	
Tumble dryers		A+++

Combined wash and tumble dryer	D	
Dishwasher	C	
Integrated oven		A+
Oven in free standing stove		A
Electric water heater installed in individual apartments or single-family houses		C

Table 2 Requirements for professional kitchen appliances.

Product type	Requirement
Boiling pans	At least 90% energy efficiency according to EFCEM's Energy Efficiency Standard for boiling pans or equivalent.
Refrigerators	Class B or better*
Freezers	Class D or better*
Combined freezer/refrigerator cabinets	D or better*

** Energy class according to Energy Labelling Directive 2010/30/EC (1094/2015/EU)*

Refrigerators and freezers with central cooling systems are not covered by the requirement.

✉ Household appliances: Overview of all household appliances installed in the Nordic Ecolabel building, which includes name/product specification, product type and energy label. For drying cabinets, additional documentation showing the drying cabinet's energy use.

✉ Product sheet or manual showing the energy class.

✉ For professional kitchen appliances: Overview of all products stating the type of product, product sheet, technical manual or similar document showing fulfilment of the requirement.

✉ For boiling pans: Results from tests performed in accordance with EFCEM's Energy Efficiency Standard for boiling pans or equivalent.

Background

Energy classification of household appliances and professional kitchen appliances is an important tool for reducing energy use during the use phase of the building. The requirement on energy efficiency is based on both Energy Labelling Directive 2010/30/EC and Energy Labelling Regulation 2017/1369 with later supplements. The specific requirement concerning the energy label for each product group is set in accordance with the market supply in the Nordic countries.

Household appliances

Electric water heaters are introduced in the requirement since this product group can now be energy labelled. Since there is no energy labelling or eco-design requirement for dryer cabinets often used in preschools and primary schools to dry the children's outerwear, a requirement is expressed in kWh/kg instead.

Professional kitchens

Cooking equipment, freezers, refrigerators and dishwashers use the most energy in the kitchen. Nordic Ecolabelling sets requirements for refrigerators, freezers, and boiling pans.

The Energy Labelling Regulation only covers refrigerators and freezers with built-in refrigeration units. Refrigerators and freezers with central cooling systems are not covered and are thus not subject to this requirement.

Boiling pans are large-capacity cooking vessels that stand on the floor. Nordic Ecolabelling requires a boiling pan to be at least 90% energy efficient in accordance with EFCEM's Energy Efficiency Standard for boiling pans.

Nordic Ecolabelling does not set any performance requirements for professional kitchen cookers or dishwashers, as there are no recognised standards for assessing the energy performance of these products.

9 Climate

O10 Cement and concrete

The climate impact originating from newly installed concrete elements and ready-mix concrete used at the construction site must be accounted for according to the national requirements below.

EPDs must be produced in accordance with ISO 15804/ EN 16757:2017 and ISO 14025 and must either be:

- Third-party verified according to ISO 14025, or
- produced using a third-party reviewed EPD tool for cement or concrete according to ISO 14025.

The requirements for prefabricated elements can alternatively be met by using a minimum of 30% reused elements. The reused concrete must be assessed according to requirement O15.

Denmark:

Minimum 90% (weight or volume) of the ready-mix concrete used at the construction site must as a minimum have a GWP 15% lower than the GWP level in the corresponding industry EPD published by Dansk beton: https://www.epddanmark.dk/epd-databasen/dansk-beton-fabriksbetonforeningen/. Only the phases A1-A3 must be accounted for.

The specific products must be documented by a product specific EPD.

EPD-generator from Dansk Beton can be used.

Finland:

Minimum 70% (weight or volume) of the ready-mixed concrete used at the construction site must document compliance with the concrete class GWP.85* or

better in BY Low Carbon Classification, Finish concrete association. (https://vahahiilinenbetoni.fi/in-english/)

Minimum 70% (weight or volume) of the concrete used in prefabricated elements** must document compliance with the concrete class GWP.85 or better in BY Low Carbon Classification, Finish concrete association. (https://vahahiilinenbetoni.fi/in-english/)

The Finnish Concrete Associations Low-carbon calculator can be used.

** Alternatively, other concrete classes within the system may be used and weighted together if it can be shown that it will give the same result in global warming potential (GWP).*

*** Prefabricated elements include xlabs between floors and roof slabs, walls between flats, outer or inner walls, lift shafts, stairs, facade elements and balconies.*

Iceland:

Minimum 90% (weight or volume) of the ready-mix concrete used at the construction site and 90% (weight or volume) of the concrete elements must be documented by a product specific EPD.

Norway:

Minimum 70 % (weight or volume) of the ready-mixed concrete used at the construction site must comply with Low carbon concrete A* or better in the Norwegian Concrete Association's publication no. 37 Low carbon concrete (NB37).

Minimum 70% (weight or volume) of the concrete used in prefabricated elements** must document compliance with low carbon concrete A* or better in the Norwegian Concrete Association's publication no. 37 Low carbon concrete (NB37).

EPD generator provided through membership in Betongfokus and Betong Norge - Betongelementforeningen can be used.

** Alternatively, other concrete classes within the system may be used and weighted together if it can be shown that it will give the same result in global warming potential (GWP).*

*** Prefabricated elements include slabs between floors and roof slabs, walls between flats, outer or inner walls, lift shafts, stairs, facade elements and balconies.*

Sweden:

Minimum 70% (weight or volume) of the ready-mixed concrete used at the construction site must comply with level 2* of "Vägledning Klimatförbättrad betong", published by Svensk Betong.

Minimum 70% (weight or volume) of the concrete used in prefabricated elements** must document compliance level 2 of "Vägledning Klimatförbättrad betong", published by Svensk Betong.

** Alternatively, other concrete levels within the system may be used and weighted together if it can be shown that it will give the same result in global warming potential (GWP).*

*** Prefabricated elements include slabs between floors and roof slabs, walls between flats, outer or inner walls, lift shafts, stairs, facade elements and balconies.*

☒ FI/NO/SE: Product specific EPD from the concrete manufacturer showing that the relevant concrete products meet the requirement of the national concrete classification system for greenhouse gas emissions for the required strength class.

☒ DK/IS: Product specific EPD from the concrete manufacturer documenting the requirement.

☒ IS: Overview of the concrete construction part types that fulfil <70% of cement clinker and a calculation showing that the construction parts constitute at least 50 % of the need in the building.

☒ IS: Product data sheet, eBVD or EPD stating the cement clinker content for the cement/concrete construction parts.

☒ All countries: Total amount of delivered ready-mixed concrete and prefabricated elements and amount of delivered concrete that fulfils the required concrete class.

Background

Cement-based materials are often used in large quantities in a building[2],[3],[4] and they are produced in energy intensive and CO_2 emitting processes. Concrete typically accounts for 34–40% of the GHG emissions of office buildings, educational buildings, apartment blocks and homes for the elderly.[5] Nordic Ecolabelling has defined an obligatory requirement in order to help lower the GHG emissions associated with these structures and processes.

The requirements are based on the national concrete classification systems in SE, NO and FI. The classification systems provide guidelines on how to calculate the emissions. This is important because inconsistencies in data for EPDs for cement, aggregates and concrete have been found in individual EPDs.[6] The industry reference, which is used to estimate savings in GHG emissions, uses national generic values. The threshold limits and concrete classes for each country are defined in dialogue with the manufactures and the national concrete association. Documentation must be done according to national EPD-tools.

In Denmark there is no classification system for concrete. Nordic Ecolabelling has assessed the possibility to define its own concrete class system for Denmark.

[2] Life cycle assessment of MiniCO2 houses in Nyborg, Danish Building Research Institute, 2013.
[3] A. Dodoo, Life Cycle Primary Energy Use and Carbon Emission of Residential Buildings, 2011.
[4] Solem, Bård: Bærekraftige materialvalg (2018) Preeentasjon på Samling 1 i prosjektet Fra ide til realisering - bærekraftig bygg under Innovative anskaffelser - Nasjonalt program for leverandørutvikling. Available at: https://innovativeanskaffelser.no/wp-content/uploads/2018/10/181023-baerekraftig-materialvalg-bard-solem-eggen-arktitekter.pdf
[5] Fuglseth, M., et al. (2020) Studie potensial og barrierer for bruk av klimavennlige materialer - Potensial og barrierer klimavennlige materialer. Utarbeidet for Enova. Available at https://www.enova.no/bedrift/bygg-og-eiendom/tema/klimavennlige-byggematerialer/
[6] Anderson, J. and Moncaster, A.: Embodied carbon of concrete in buildings, Part 1: analysis of published EPD (2020). Available at: https://www.researchgate.net/publication/341943113_Embodied_carbon_of_concrete_in_buildings_Part_1_analysis_of_published_EPD

The conclusion was however that there is not sufficient reliable data available to define a fair concrete classification system. The data available is very limited for both ready mixed concrete and especially for elements, piles etc.

In Denmark the specific concrete products/materials used must be verified by product specific EPDs for ready mixed concrete. Due to the lack of a classification system only the ready mixed concrete must be accounted for. The requirement for the GWP is set to 15% below the level in the corresponding industry EPD published by Dansk beton. This level is considered realistic based on dialogue with the market, available EPDs for ready mixed concrete and the possibilities available to lower the total GWP of the product.

Iceland has no classification system, but the producers must provide product specific EPDs.

O11 Steel production

The requirement applies to the following newly installed construction materials/building parts:

- New facade panels in steel >20% of the total façade area (excluding window/door area).
- New load bearing constructions in steel >20% by weight of the total buildings loadbearing system.

Steel rebars are not covered by this requirement.

✉ Calculation showing that facade panels and load bearing constructions consist of <20% steel.

The relevant building parts must fulfil A, B, or C

A) High proportion of recycled content

A minimum of 75% by weight of the steel must be recycled.

Recycled is defined as both pre- and post-consumer, according to definitions in ISO 14021.

Fulfilment is shown through either:

- A signed agreement between the steel supplier and the applicant stating that the requirement is met, the declaration from the steel supplier can be based on purchase records/average data from several steel sub suppliers/manufacturers, or
- eBVD or EPD based on product-specific data/data from the steel producer´s own production stating the content of recycled steel in the product.

✉ Signed agreement as described above.

✉ eBVD or EPD as described above.

B) Reused steel parts

At least 50% of the façade panels or load-bearing steel construction must be reused building parts. Traceability back to the parts' most recent use in construction must be documented.

The reused steel parts must comply with requirement O15.

✉ Reused steel products must be accounted for and the traceability back to the parts' most recent use in construction must be documented.

C) Virgin steel production

The requirement can be verified using either: Direct traceability through the supply chain or mass balance approach[7].

The requirement can be met by fulfilling one the three alternatives (1-3) below.

1. Steel produced from traditional methods

The steel origins from a steel producer who has:

1. Implemented at least 2 of the energy efficiency measures stated as BAT in the BREF document for iron and steel production (2013 or later version). The energy efficiency measures are listed in Appendix 3, and
2. an active sustainability strategy focusing on reducing energy consumption and greenhouse gas emissions. The strategy for reducing energy consumption and greenhouse gas emissions shall be quantitative and time-based and must be determined by the company management.

✉ Enclose latest sustainability strategy report or equivalent documentation from the steel producer showing fulfilment of the requirement. The steel producer can also present specific targets from annual business report with reference to specific numbers and assumptions. Average numbers from steel producers with several steel melting plants is accepted.

✉ Description of which energy efficiency measures stated as BAT have been implemented at the production site.

✉ Information on type of traceability used to document the requirement.

2. Responsible steel certified production site

A minimum of 50% by weight of the steel covered by the requirement comes from a production site that is certified according to the standard Responsible Steel[8], version 1.0, 2019 or later versions.

✉ Enclose valid Responsible Steel certificate from the steel producer.

[7] In case of several potential steel producers, the supplier of the metal components can verify the requirement by using a mass balance approach if there is an account documenting the annual volumes purchased from the individuals steel producers. The volumes must correspond to volumes sold to the applicant (e.g., cannot sell a larger volume than the corresponding quantity purchased from the individual steel producers)

[8] Overview of certified steel producers, https://www.responsiblesteel.org/certification/issued-certificates/

☒ Information from the supplier/manufacturer of the constituent steel part about which metal parts are from certified metal production (purchase records).

☒ Information from the supplier/manufacturer of the constituent steel parts on the type of traceability used to document the requirement.

☒ Documentation from the applicant that the requirement for share of purchased steel from certified steel producers is fulfilled – e.g., invoices or other documentation from suppliers.

3. Steel production based on new technologies with reduced greenhouse gas emissions

The steel origins from steel production sites that have implemented one of the following technologies:

- direct electrolysis of iron ore.
- blast furnace top gas recycling with carbon capture and storage.
- direct smelting reduction processes.
- hydrogen steelmaking in shaft furnaces using green H2.

☒ State the name of the steel producer and production site where the steel comes from, as well as a brief description of which technology is used.

☒ Information on type of traceability used to document the requirement.

Background

Using recycled metal can reduce the environmental impact and provides a significant climate benefit. Among other things, this is highlighted in the taxonomy work in the EU[9]. Nordic Ecolabelling is aware that the availability of recycled metal and traceability can be a challenge. Traceability in the production chain is also a value in itself, and is important for several aspects, e.g., it provides opportunities to select suppliers based on environmental work, working conditions, quality etc.

Among the most common building materials, steel is the only material that can be recycled 100% without losing its quality.[10] It is also a material that is suitable for reuse, and compared to recycled steel, reused steel has 80% lower climate gas emissions. Hence, both recycling and reuse of steel should be encouraged to reduce the carbon footprint of buildings. The two steel production processes are Basic Oxygen Furnace (BOF) for which the input is iron ore, and Electric Arc Furnace (EAF) for which the input is mainly scrap steel. It is necessary to have an ambitious requirement to promote the use of recycled steel and traceability. In practice, this means that steel that should contain more than 20% recycled steel and must be produced at plants that use EAF technology. There are steel producers using the EAF process across the whole of Europe.[11] According to the World Steel Association[12] the EU produces 58% of steel using BOF and 41%

[9] Taxonomy report, technical annex, EU technical expert group on sustainable finance, March 2020.
[10] https://www.stalforbund.no/miljo/
[11] http://www.eurofer.org/About%20us/About%20Steel/EuropeanSteelMap.fhtml
[12] https://www.worldsteel.org/en/dam/jcr:96d7a585-e6b2-4d63-b943-4cd9ab621a91/World%2520Steel%2520in%2520Figures%25202019.pdf

using EAF technology. Globally, approx. 70% is produced using BOF and 30% using EAF technology.

Nordic Ecolabelling has introduced requirements for iron ore-based steel production. Requirements for metal can therefore be met either by including a high proportion of recycled, or by fulfilling several requirements for primary metal production. The requirement model is based on an obligatory requirement for the producer to have an energy and greenhouse gas calculation with defined reduction targets.

Certification with Responsible Steel is something that Nordic Ecolabelling sees as a positive initiative, since it focuses on economic, social and environmental aspects. Production of steel also produces emissions to air and water, and Nordic Ecolabelling wishes to limit this by requiring that the emissions are within the BAT-AEL values specified in the BREF documents. The requirement can also be met if the steel comes from a manufacturer who has adopted new technologies that significantly reduce the climate impact from production. The technologies are like those stated in the EU's technical annex to the taxonomy report.[13]

Nordic Ecolabelling do not set requirements for steel rebars as the consultation for 089 New buildings has clearly shown that these are almost always made of high proportions of recycled steel. The work with documenting the recycled content and addressing the issues of traceability are not considered to be reasonable when the environmental benefit that can be achieved is limited. Therefore, this requirement is only activated when large amounts of steel is used for applications where more climate friendly alternatives (such as wood) are available, in façade and load bearing systems. Roof panels are not covered by the requirement.

O12 Aluminium production

The requirement applies to the following newly installed construction materials/building parts:

- New façade panels in aluminium > 20 % of the total façade area (excluding window/door area)
- New profiles for windows and doors in aluminium (external cladding of outer wood components for the sole purpose of weather proofing is exempted). A Nordic Swan Ecolabel window, patio door or exterior door will fulfil the requirement and must only verify the requirement with the product name and licence number.
- New aluminium profiles in glass facade systems when the system covers more than 20 % of the total façade area (excluding window/door area)

Mouldings around doors and windows are exempt from the requirement.

Skylights and roof domes regulated by product standard EN 1873 and windows and exterior doors that are resistant to fire pursuant to standard EN 16034 are not included in the requirement.

[13] EU technical expert group on sustainable finance, Taxonomy Report: Technical Annex, March 2020: https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf

The requirement can be met by documenting alternative A or B.

A) High proportion recycled aluminium

A minimum of 75% by weight of aluminium must be recycled*.

However, profiles for windows and doors must minimum contain 40% recycled aluminium.

** Recycled is defined as both pre- and post-consumed, cf. definition in ISO 14021.*

The requirement can be verified either by:

1. A signed agreement between the producer/supplier of aluminium and the applicant stating that the requirement is met. The declaration from the supplier of aluminium can be based on purchase records/average data from several aluminium suppliers, or
2. eBVD or EPD based on product-specific data or data from the aluminium producer´s own production that specifically states the content of recycled aluminium in the product, or Valid Hydro Circal certificate.

☒ Signed agreement as described above, or

☒ eBVD or EPD as described above, or

☒ Valid Hydro Circal certificate.

B) Primary aluminium production

The requirement can be met by one of the four alternatives (1-4) below.

The requirement can be verified using either direct traceability through the supply chain or mass balance approach[14].

1. Aluminium production – active sustainability strategy

Aluminium origins from a primary aluminium producer with an active sustainability strategy focusing on reducing energy consumption and greenhouse gas emissions. The strategy for reducing energy consumption and greenhouse gas emissions shall be quantitative and time-based and must be determined by the company management.

☒ Enclose latest sustainability strategy report or equivalent documentation from the producer of primary aluminium showing fulfilment of the requirement. The producer of primary aluminium can also present specific targets from annual business report with reference to specific numbers and assumptions. Average numbers from the producer of primary aluminium with several steel melting plants is accepted.

[14] In case of several potential aluminium producers, the supplier of the metal components can verify the requirement by using a mass balance approach if there is an account documenting the annual volumes purchased from the individual aluminium producers. The volumes must correspond to volumes sold to the applicant (e.g., cannot sell a larger volume than the corresponding quantity purchased from the individual aluminium producers)

☒ Information on type of traceability used to document the requirement.

2. Aluminium production – low direct climate effecting emissions

Aluminium origins from a primary aluminium producer whose direct climate-affecting emissions from primary aluminium production does not exceed 1,5 tonnes of CO_{2e}/ton of aluminium produced.

☒ Declaration that the requirement is met, as well as calculation and indication of direct emissions in tons of CO2e/ton of aluminium produced.

☒ Information on type of traceability used to document the requirement.

3. Aluminium production – low electricity consumption for electrolysis

Aluminium origins from a primary aluminium producer whose electricity consumption for electrolysis does not exceed 15.3 MWh/ton produced aluminium.

☒ Declaration that the requirement is met, as well as calculation and indication of electricity consumption in MWh/ton produced aluminium.

☒ Information on type of traceability used to document the requirement.

4. Aluminium production – ASI certified site

A minimum of 50% by weight of aluminium origins from an ASI Performance standard[15] certified production site.

☒ Enclose valid ASI Performance certificate from the primary aluminium producer.

☒ Information from the supplier/manufacturer of the constituent aluminium part about which aluminium parts are from certified aluminium production (purchase records).

☒ Information from the supplier/manufacturer of the constituent aluminium parts on type of traceability used to document the requirement.

☒ Documentation from the applicant that the requirement for share of purchased aluminium from certified aluminium producers is fulfilled – e.g., invoices or other documentation from suppliers.

Background

Using recycled metal can reduce the environmental impact and provides a significant climate benefit. Among other things, this is highlighted in the taxonomy work in the EU.[16] Nordic Ecolabelling is aware that the availability of recycled metal and traceability can be a challenge. Traceability in the production chain is also a value in itself, and is important for several aspects, e.g., it

[15] https://aluminium-stewardship.org/asi-standards/asi-performance-standard (visited November 2022)
[16] Taxonomy report, technical annex, EU technical expert group on sustainable finance, March 2020.

provides opportunities to select suppliers based on environmental work, working conditions, quality etc.

For aluminium, Hydro has launched its own traceability certification with a minimum of 75% recycled Aluminium, Hydro Circal. Currently, there is a small plant in Luxembourg that can supply this, but from 2020, the Azuqueca plant in Spain will be able to supply Hydro Circal with a production capacity of 25,000 tonnes. The industry average for EU-produced Al is approx. 50% recycled, while for Al outside the EU it is approx. 40%. The major environmental benefit comes from the use of post-consumer recycled aluminium. Nordic Ecolabelling therefore requires that a certain proportion of the recycled material must be post-consumer.

In this version of the criteria, Nordic Ecolabelling has for the first time introduced requirements concerning primary aluminium production. Requirements can therefore be met either by including a high proportion of recycled material, or by fulfilling several requirements for primary aluminium production. The requirement model is based on an obligatory requirement for the producer to have an energy and greenhouse gas calculation with defined reduction targets.

Certification by the Aluminium Stewardship Initiative (ASI) is something that Nordic Ecolabelling sees as a positive initiative, as it focuses on economic, social, and environmental aspects. For aluminium, the requirement can also be fulfilled by documenting direct emissions of greenhouse gases and energy efficiency in the electrolysis process, where the limits are based on values stated in the EU Taxonomy report. Direct emissions are to be calculated according to the methodology used for EU-ETS benchmarks. Please note that these values may change based on the outcome of the EU Taxonomy work.

The requirement is limited to handling the most significant parts of aluminium in buildings; façade panels, profiles for windows and doors in aluminium (external cladding of outer wood components for the sole purpose of weather proofing is exempted) and aluminium profiles in glass facade systems when the system covers more than 20% of the façade area (excluding windows/doors).

Direct reuse of aluminium is difficult due to properties of the material and is therefore not included as an option for documentation.

In this criteria document, windows and exterior doors are defined as:

- Windows and exterior doors between the interior climate and exterior climate, according to the EN 14351-1 standard: 2006.

- Other types of exterior doors such as entry hall doors/apartment doors, exterior corridor doors, window-walls in school and office buildings, warm storage room doors, cold storage room doors etc.

The recycled share is similar to the criteria of new buildings gen. 4 as Nordic Ecolabelling.

10 Resource efficiency and circular economy

O13 Waste management

This requirement applies to waste generated during both the demolition/deconstruction process and the construction process. The requirement can be documented for the processes individually or as a joint waste management plan.

At least 70% by weight of the non-hazardous construction and demolition waste generated on the construction site*, must be prepared for reuse, recycling and other material recovery including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol.

Selective demolition must be used to facilitate reuse and high-quality recycling by selective removal of materials, using available sorting systems for construction and demolition waste.

The percentage excludes naturally occurring material referred to in category 17 05 04 in the European List of Waste established by Decision 2000/532/EC.

Untreated wood, wood treated with hazardous substances (wood classified as hazardous waste) and wood treated with non-hazardous substances, must always be sorted separately.

Unsorted/mixed construction waste cannot be counted as recycling/material recovery unless it is documented to be separated subsequently by the waste contractor.

The waste management plan(s) for the project must be sent to Nordic Ecolabelling before the demolition or construction work begins. The plan must contain information about waste fractions, chosen waste management company and the receiver's** intended treatment form of the fractions. The plan must be made in accordance with the EU Construction and Demolition Waste Management Protocol.

After finished project, a report documenting the requirement threshold limit (70%) and the following information must be sent to Nordic Ecolabelling:

1. The total amount of construction waste produced at the construction site, including demolition.
2. The amounts of all waste fractions, the company name of the respective receiver(s)** and their intended treatment form.
3. Calculation of material recovery degree based on the bullets above.

** If parts of the building are constructed as a module/prefabricated element the waste generated in the factory must in addition comply with the requirement on a yearly basis or be accounted for as a part of the total waste calculation. As a minimum the following must be accounted for when relevant: modules, bathroom modules and roof/wall elements consisting of multiple building products.*

*** Receivers can be both treatment facilities that carry out material recovery or receivers of waste fractions that sort and distribute it to relevant treatment facilities. A company that only transports construction waste is not regarded as a receiver.*

☒ Before demolition work begins a plan must be delivered to Nordic Ecolabelling to account for how selective demolition will be used.

☒ The waste management plan for the project must be delivered before the demolition or construction work starts.

☒ Report from the waste management company in accordance with the bullets 1-3 in the requirement.

Background

EU waste directives and national plans have identified the material recovery of construction waste for recycling or reuse as a core issue in the transition to a circular economy. This obligatory requirement for all ecolabelled renovations will ensure that construction companies contribute towards this goal, by delivering demolition and construction waste that is prepared for reuse, recycling, or other material recovery to the established recovery systems in each country.

Nordic Ecolabelling has identified waste handling as an area with a great potential for improvement in the building sector. The delivery of the waste management plan before the start of demolition/construction will help identify any possible issues with sorting and handling in the building project. In addition, it will ensure that the waste management is in alignment with the situation at the construction site and the local possibilities for handling of the waste. Any issues can be addressed before start of the construction/demolition, while in later phases of the project it might be too late.

After finalized project the following must be accounted for: The total amount of construction waste produced at the construction site; the amounts of all waste fractions, the company name of the respective receiver(s)** and their intended treatment form and a calculation of material recovery degree based on the bullets above. Nordic Ecolabelling do not require documentation for traceability of the waste fractions after the receiver as we have no steerability of the handling from this point.

This requirement is in alignment with the level in the EU Taxonomy's "Do No Significant Harm" criteria that require at least 70 % of non-hazardous demolition and construction waste to be prepared for reuse, recycling, and other material recovery. For details on the EU Taxonomy please refer to the section on the EU Taxonomy in this criterion.

If parts of the building are constructed as a module/prefabricated element the waste generated in the factory must in addition comply with the requirement on a yearly basis or be accounted for as a part of the total waste calculation. As a minimum the following must be accounted for when relevant: modules, bathroom modules and roof/wall elements consisting of multiple building products.

O14 Waste sorting inside the building

When the renovation project involves replacement or significant changes in the kitchen facilities, there must be facilities for waste sorting available in the Nordic Swan Ecolabelled renovated building. The number of sorting vessels is stated for each building type below.

Residential buildings

- Sorting vessels for minimum four fractions in all residential units*.
- Communal kitchens: Sorting vessels for minimum four fractions must be installed in or in the vicinity of the kitchen (e.g., in homes for the elderly and student housing).

** Kitchenettes without cooking facilities such as oven and stove (e.g., homes for the elderly) are exempted from the requirement.*

Educational buildings

- Sorting vessels for minimum four fractions must be installed in or in the vicinity of the main kitchen and in all other permanent kitchen facilities.
- Sorting vessels for minimum two fractions must be installed in all classrooms and common rooms.

Office buildings and Hotels

- Sorting vessels for minimum four fractions must be installed in canteen facilities.
- Sorting vessels for minimum two fractions must be installed in all kitchenettes.

✉ Description of sorting vessels for waste sorting. Documentation can be description, pictures, or datasheet.

Background

To support extensive recycling of waste, a Nordic Swan Ecolabel renovated building must be equipped with vessels for sorting at source. The number of fractions in residential units is set at four sorting fractions, which could be: residual waste, food waste, plastic, metal, glass, or paper. The last four fractions, apart from the residual and food waste, are also the minimum fractions required by the revised European Directive 2008/98/EC on waste. However, Nordic Ecolabelling will not set requirements concerning which specific fractions must be sorted, due to variations in the collection systems of the countries and municipalities. Some fractions are often collected mixed and then sorted afterwards.

In educational buildings, every room with kitchen facilities, where appliances are permanently installed for cooking and preparing meals, should have four fractions for sorting of waste. That includes small kitchens attached to sports facilities.

In elderly homes every room with kitchen facilities, where appliances are permanently installed for cooking and preparing meals, should have four fractions for sorting of waste. Tea kitchens are exempted.

O15 Hazardous substances in reused construction products and materials

When reused construction products, fittings and materials are used, a risk analysis documenting the presence of hazardous substances must be conducted

by an expert*. Hazardous substances must be evaluated and documented according to all relevant national legislation and Appendix 1. This requirement is aimed at products, fittings and materials identified in the mapping of components and materials for reuse and from other projects.

The risk analysis must, as a minimum, be based on the age of the building/construction, the renovation history of the building, the durability/lifetime of the materials, the state and cleansing of the material and knowledge and experience with the materials used at the time the building of origin was first constructed and renovated. This includes content of problematic substances in the material itself and in surrounding materials if substances found have migratory properties.

If the expert identifies any risk of undesirable substances (according to Appendix 1 and relevant national legislation), analyses must be performed by an accredited laboratory to verify the content in relation to relevant threshold limits in Appendix 1 and national legislation. Nordic Ecolabelling always have the right to require laboratory analysis for reused products.

Reused materials must be documented in the logbook (O16).

** The expert conducting the risk analysis must be trained in documenting hazardous substances and have at least 3 years' experience in the field of environmental mapping/surveys of buildings. This can be either an internal or an external person.*

✉ Overview of the reused materials used.

✉ Risk analysis from expert that documents the presence of undesirable substances listed in Appendix 1 and relevant national legislation.

✉ Where relevant, an analysis report from an accredited laboratory on the substances listed in Appendix 1 and relevant national legislation.

✉ Documentation of the expert's competence, e.g., a CV.

Background

Reusing products instead of manufacturing new ones is a fundamental concept in a circular economy. The requirement ensures that no harmful substances are introduced in new buildings from old materials.

A risk analysis of the materials made by an expert must be performed as an assessment based on the age of the building/construction, the renovation history of the building, and the state and cleansing of the material can verify any risks in relation to the material in question. In addition, knowledge and experience with the materials used at the time the building of origin was first constructed and renovated must be included in the assessment. This includes content of problematic substances in the material itself and in surrounding materials if substances found have migratory properties.

When an expert cannot verify the lack of harmful substances in reused products, it is necessary to perform a laboratory analysis to ensure that any contaminated products will be taken out of the circular loop.

Appendix 1 specifies relevant substances that must be investigated for. In addition, any national threshold limits must be fulfilled.

The requirement contains a list of materials that are considered safe to use and are therefore exempt from further documentation in this requirement. The list is based in a project undertaken in partnership by IVL (Swedish Environmental Research Institute), Kompanjonen, Folksam and Vasakronan.

11 Chemical products, construction products, construction goods and materials

This section defines the requirements for new materials. Other products and materials are handled by the environmental survey (O2) or the requirements for reused products (O15).

This chapter consists of three sections of requirements:

1. Product list and logbook.
2. Chemical products.
3. Construction products, goods, and materials.

Reference is made to the individual requirements, the section "Definitions" and the section “What is subject to the requirements?” for an explanation of what is included in the requirements.

Nordic Swan Ecolabel products automatically fulfil the requirements in this chapter.

11.1 Product information and logbook

O16 Logbook

The Nordic Swan Ecolabel building project must have a digital logbook (e.g., PDF, Word, or Excel) that includes all the construction products, goods, materials and chemical products used in the construction of the project. Reused products must also be registered in the logbook.

The logbook may be created using a verified third-party logbook service after approval by Nordic Ecolabelling.

The logbook must as a minimum provide the following information:

- Product name
- Product type
- Name of producer
- The location of the product in the building(s)*

Before the construction begins the logbook must be initiated and account for materials and products used in the initial stages** of the building project. The logbook must always be updated with materials and products according to the current state of the construction. The final version of the logbook must be handed in when the building is handed over. There must be routines in place to

ensure that the digital logbook is accessible to the owner of the building and to Nordic Ecolabelling.

Technical instruments and electrical installations should not be described in detail but must be represented on a system level. Products subject to general exemptions, as described in the section "What is subject to the requirements", are not necessary to include in the logbook.

The GTIN number or the ID number in a national product registry should be included in the information if available.

** Minimum level of description: ceiling, walls and floor, building's roof, facade, cellar, stairwell, slab, building's frame, terrace, bathroom, kitchen, balconies, garage, sports halls, garden, entrance hall, technical installation rooms, waste sorting room, laundry room, lift shaft.*

*** The initial stages are normally considered to be 'construction of the foundation' and 'sealing of the building envelope'. Depending on the size of the project, the construction techniques and whether parts of the building is constructed in a module factory the specific phases included must be approved by Nordic Ecolabelling. As a minimum the materials for the construction of the foundation must always be accounted for.*

- ✉ The digital logbook before the construction begins covering the initial stages of the project.
- ✉ Procedure for updating the logbook during the construction period (reference can be made to O40).
- ✉ The final digital logbook when the building is handed over.
- ✉ Description of how the logbook is made available to the building owner.

Background

The purpose of a logbook is to act as an inventory of materials and products used today to ensure the best possible reusability or recyclability in the future. It is an important tool for the transition to a circular economy and for the concept of buildings as material banks. The logbook can also contribute to proper maintenance of the building during its life cycle and to the identification of hazardous substances prior to renovation and demolition.

To ensure that the logbook serves all the aforementioned purposes, it must include not only the names of products and a product description to report the content, but also where it is located in the building. The location can be stated on a uniform basis, like in other building-related documentation and drawings. This can be as detailed as possible but there is a minimum level of description based on the following definitions: ceiling, walls and floor, building's roof, facade, cellar, stairwell, slab, building's frame, terrace, balconies, garage, sports halls, garden, entrance hall, technical installation rooms, waste sorting room, laundry room, lift shaft.

To ensure compliance with the materials in this criterion the logbook must be dynamic and be updated according to the building process. Problematic products and materials, especially if discovered in the late stages of the project, can lead to measures that will be costly and will take time to undertake, even leading to the

denial of certification. It is also a waste of resources and an environmental burden to replace materials and products already used in the construction. For those reasons, the logbook also offers a good basis of control, preventing unwanted situations and potential negative environmental and financial effects.

11.2 Chemical products

A chemical product is a substance or a mixture of two or more substances, in liquid, gaseous or solid form, which are used on a construction site or by a manufacturer of prefabricated building components.

Chemical products for both indoor and outdoor use are covered by the requirements. The requirements in the criteria document and accompanying appendices apply to all ingoing substances in the chemical product. Impurities are not regarded as ingoing substances and are exempt from the requirements. Ingoing substances and impurities are defined in the Definitions section.

For details on what is subject to the requirements, reference is made to the section “What is subject to the requirements?”

O17 Classification of chemical products

Chemical products must not be classified according to Table 3.

Table 3 Requirements for the classification of chemical products.

Classification of chemical products CLP Regulation 1272/2008		
Classification	**Hazard class and category**	**Hazard code**
Hazardous to the aquatic environment	Aquatic Acute 1 Aquatic Chronic 1 Aquatic Chronic 2	H400 H410 H411
Hazardous to the ozone layer	Ozone	H420
Acute toxicity	Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 1 or 2 Acute Tox. 3 Acute Tox. 3 Acute Tox. 3	H300 H310 H330 H301 H311 H331
Specific target organ toxicity: single or repeated exposure	STOT SE 1 STOT RE 1	H370 H372
Carcinogenicity	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenicity	Muta. 1A or 1B Muta. 2	H340 H341
Reproductive toxicity	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also covers classification H350i.

Exemptions:

- Chemical anchors classified H400, H410, and H411 due to dibenzoyl peroxide (CAS no. 94-36-0) are allowed.
- Hardener for acrylic floor coatings classified H400, H410, and H411 due to dibenzoyl peroxide (CAS no. 94-36-0) are allowed for use in professional kitchens. In Nordic countries with an authorisation system, the flooring contractor must be authorised.
- Biocide-containing wood primers classified H411 used for treatment of cut surfaces and end timbers are allowed.
- Naphtha-based primers and adhesives classified H411 for outdoor use.
- Naphtha-based adhesives classified H411 for cellular rubber insulation intended for cooling pipes and ventilation ducts indoors.
- Finland: Classifications H351 and H362 for spray polyurethane foams used in element factories and at construction sites for sealing of windows when temperature is below 5 °C.
- Finland: Two-component injection resin based on epoxy, classified H411, for repair of individual cracks in indoor concrete decks.

✉ Declaration from the manufacturer of the chemical product, in accordance with Appendix 4

✉ Safety data sheet in accordance with Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

Background

Nordic Ecolabelling seeks to ensure that the health and environmental effects of chemical products are as low as possible. The requirements therefore specify that products classified as environmentally hazardous, highly toxic, toxic, carcinogenic, mutagenic or reprotoxic must not to be used to construct Nordic Swan Ecolabel buildings.

The requirement concerns the classification of the actual chemical products and not the individual compounds in the products, which are governed by subsequent requirements.

There are a few exemptions from the prohibited classifications of chemical products where the functionality requires substances for which unclassified alternatives are not available. The Finnish construction industry has a specific need for repairing concrete cracks using epoxy injection resins. This is an indirect consequence of Finnish building regulations and standards, where shuttering slab elements are not commonly used.

The commission regulation EU 2020/1149 will be implemented during the summer 2023 according to our information. For the PU products exempted this means that no additional working environment requirements will be implemented. This should be handled satisfactory according to this new legislation of 3 August 2020

O18 CMR substances

Chemical products, used in the production of Nordic Swan Ecolabel buildings, must not contain any ingoing substances classified as carcinogenic, mutagenic or reprotoxic according to CLP Regulation 1272/2008, see Table 4 below.

Table 4 Non-approved classifications of ingoing substances in chemical products according to CLP Regulation 1272/2008.

Classification of ingoing substances CLP Regulation 1272/2008		
Classification	**Hazard class and category**	**Hazard code**
Carcinogenicity	Carc. 1A or 1B Carc. 2	H350 H351
Germ cell mutagenicity	Muta. 1A or 1B Muta. 2	H340 H341
Reproductive toxicity	Repr. 1A or 1B Repr. 2 Lact.	H360 H361 H362

The classifications in the table concern all classification variants. For example, H350 also covers classification H350i.

Exemptions:

- Glyoxal (CAS no. 107-22-2) classified H341 ≤100 ppm (0.01% by weight) in the final product if the pH value in the final product is higher than pH 8.
- TiO_2 (CAS no. 13463-67-7) classified H351 inhalation.
- Trimethylolpropane (CAS no. 77-99-6) self-classified H361 up to ≤5000 ppm (0.5% by weight) in the final product.
- Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds in sealing products ≤5000 ppm (0.5% by weight) in the final product.
- Zinc pyrithione (CAS no. 13463-41-7) classified as H360D, is exempted for a transition period until 2024-01-01 for tinting pastes/tinting systems.
- Biocide-containing wood primers containing substances classified H361d used for treatment of cut surfaces and end timbers are allowed.
- FI: 4,4´-methylenediphenyl diisocyanate, isomers and homologues (CAS no. 9016-87-9) classified as Carc. 2; H351 in spray polyurethane foams used in element factories and at construction site for sealing of windows when temperature is below 5 ˚C.
- FI: Two-component injection resin based on epoxy, for repair of individual cracks in indoor concrete decks.

✉ Declaration from the manufacturer of the chemical product, in accordance with Appendix 4.

✉ Safety data sheet in accordance with Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

Background

In addition to the requirement concerning the classification of the chemical products, it is also required that chemical products cannot contain substances that are carcinogenic, mutagenic or reprotoxic (CMR substances cat 1A and 1B). Nor may chemical products contain substances that are suspected to be carcinogenic, mutagenic or reprotoxic (category 2).

Substances that may cause cancer, change genetic material, or interfere with reproduction are prioritised substances within the EU's chemical legislation, due to their inherently dangerous properties. It is therefore of central importance to considerably reduce, and in the long term move away entirely from, the use of CMR substances.

There are a few exemptions from the prohibited classifications of chemical products where the functionality requires substances for which unclassified alternatives are not available.

The exemption for zinc pyrithione has been set to correspond with the time limitations in criteria for Nordic Swan ecolabelled paint.

The commission regulation EU 2020/1149 will be implemented during the summer 2023 according to our information. For the PU products exempted this means that no additional working environment requirements will be implemented. This should be handled satisfactory according to this new legislation.

O19 Preservatives in indoor paint and indoor varnish

Only preservatives compliant with PT 6 (in-can) and PT 7 (dry-film) according to Regulation (EU)528/2012 (The Biocidal Products Regulation) can be used.

The amount of preservative/combination of preservatives is in indoor paint and indoor varnish is limited according to Table 5 and Table 6.

If the specific concentrations limit (SCL) is changed in accordance with CLP Regulation 1272/2008 Annex VI the limits below will also change accordingly.

For tinting systems, a worst-case calculation must be performed for the colour with most tinting paste and the base paint with highest content of preservative and isothiazolinone compounds.

Table 5 Concentration limits for preservatives totally.

Product type	Preservatives total
Paints, varnishes, base paints with tinting paints etc. for indoor use.	900 ppm (0.09% w/w)
Wet room paint specifically	1600 ppm (0.16% w/w)

Table 6 Concentration limits for specific compounds.

Preservatives	Concentration limit
Isothiazolinone compounds in total*	600 ppm (0.06% w/w)
BIT (CAS no. 2634-33-5)	500 ppm (0.05% w/w)
CIT/MIT (CAS no. 55965-84-9)	15 ppm (0.0015% w/w)
MIT (CAS no. 2682-20-4)	15 ppm (0.0015% w/w)
OIT (CAS no. 26530-20-1)	15 ppm (0.0015% w/w)

** Note that dithio-2,2'-bis-benzmethylamide (DTBMA) is to be included in the total amount of isothiazolinones.*

✉ Declaration from the manufacturer of the chemical product, in accordance with Appendix 4.

O20 Preservatives in other chemical products intended for indoor use

Only preservatives compliant with PT 6 (in-can) and PT 7 (dry-film) according to Regulation (EU)528/2012 (The Biocidal Products Regulation) can be used.

The amount of preservative/combination of preservatives in other chemical products for indoor use is limited according to Table 7.

If the specific concentrations limit (SCL) is changed in accordance with CLP Regulation 1272/2008 Annex VI the limits below will also change accordingly.

Table 7 Concentration limits for preservatives in other chemical products for indoor use.

Preservatives	Concentration limit
Isothiazolinone compounds in total*	600 ppm (0.06% w/w)
BIT (CAS no. 2634-33-5)	500 ppm (0.05% w/w)
CIT/MIT (CAS no. 55965-84-9)	15 ppm (0.0015% w/w)
MIT (CAS no. 2682-20-4)	15 ppm (0.0015% w/w)
OIT (CAS no. 26530-20-1)	15 ppm (0.0015% w/w)
IPBC (CAS no. 55406-53-6)	2000 ppm (0.2% w/w)
Bronopol (CAS no. 52-51-7)	500 ppm (0.05% w/w)

** Note that dithio-2,2'-bis-benzmethylamide (DTBMA) is to be included in the total amount of isothiazolinones.*

✉ Declaration from the manufacturer of the chemical product, in accordance with Appendix 4.

Background O19 and O20

The requirement and the levels for highest permitted preservatives are partly harmonised with equivalent requirements in the criteria for Nordic Swan Ecolabel indoor paints and varnishes and for products for indoor use in the criteria for Nordic Swan Ecolabel chemical building products respectively. Levels for the highest permitted concentrations of the respective preservatives are partly the same as those that apply to Nordic Swan Ecolabel indoor paints and varnished. For all other chemical products for indoor use, the levels are the same as for Nordic Swan Ecolabel fillers, which is considered reasonable for a Nordic Swan Ecolabel building.

Updates for total preservatives and total isothiazolinone compounds in indoor paint and indoor varnish have been updated to 900 ppm and 600 ppm respectively, in accordance with corresponding updates for Nordic Swan Ecolabel indoor paints and varnishes.

O21 Prohibited substances

The following substances must not be an ingoing substance in chemical products used in the production of Nordic Swan Ecolabel buildings:

- Substances categorised as Substances of Very High Concern (SVHC) and included on the EU Candidate List.
- Substances evaluated by the EU to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB), in accordance with the criteria in Annex XIII of REACH.
- Endocrine disruptors: Substances on the EU member state initiative "Endocrine Disruptor Lists", List I, II and III, see the following links.
- https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu
- https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption
- https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities

A substance that is transferred to one of the corresponding sublists called “Substances no longer on list”, and no longer appears on any of Lists I–III, is no longer excluded. The exception is those substances on sublist II which were evaluated under a regulation or directive that does not have provisions for identifying EDs (e.g., the Cosmetics Regulation, etc.). For those substances, ED properties may still have been confirmed or suspected. Nordic Ecolabelling will evaluate the circumstances case-by-case, based on the background information indicated in sublist II.

In addition, the following individual substances and substance groups are prohibited or restricted. There may be an overlap between the substances listed below and substances categorised above.

- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).
- Perfluoroalkyl and polyfluoroalkyl substances (PFASs)
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD).
- Brominated flame retardants.
- Phthalates (Esters of phthalic acid (orthophthalic acid/phthalic acid /1,2-benzene dicarboxylic acid).
- Bisphenol A (CAS no. 80-05-7), bisphenol S (CAS no. 80-09-1) and bisphenol F (CAS no. 620-92-8).
- The heavy metals lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Volatile aromatic hydrocarbons (VAH) >1% by weight.
- Organotin compounds.

Exemptions:

- Naphtha-based primers and adhesives classified H411 for outdoor use may contain up to 20% by weight of VAH.
- Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds in sealing products ≤5000 ppm (0.5% by weight) in the final product.
- FI: Bisphenols in two-component injection resin based on epoxy, for repair of individual cracks in indoor concrete decks.

✉ Declaration from the manufacturer of the chemical product, in accordance with Appendix 4.

✉ Safety data sheet in accordance with Annex II to REACH (Council Regulation (EC) no. 1907/2006) for all chemical products.

Background

Several harmful substances are banned in products used for Nordic Swan Ecolabelled renovation. This is to ensure a minimum impact on both health and environment but also to ensure the best possible potential in future reuse of building products.

The Candidate List identifies substances of very high concern which fulfil the criteria in article 57 of the REACH Regulation (EC 1907/2006). The list includes carcinogenic; mutagenic; and reprotoxic substances (CMR, categories 1A and 1B in accordance with the CLP Regulation); and PBT (persistent, bioaccumulative and toxic) and vPvB (very persistent and very bioaccumulative) substances (as defined in REACH Annex XIII). In addition, two more substance groups are included if they are of equivalent level of concern (ELoC) as the ones previously mentioned. These are endocrine disruptors and substances which are environmentally hazardous without fulfilling the requirements for PBT or vPvB. Based on these adverse characteristics, Nordic Ecolabelling prohibits substances on the Candidate List. This means that we take action ahead of the legislation and ban the substances before they are subject to authorisation and restriction in accordance with REACH.

PBT and vPvB are abbreviations for substances that are persistent, bioaccumulative and toxic, and very persistent and very bioaccumulative, respectively, in accordance with REACH Annex XIII. This means that they are not biodegradable and that they accumulate in living organisms. Based on these adverse characteristics they pose a threat to the environment and human health. They are prohibited in all Nordic Swan Ecolabel products.

Endocrine disruptors (EDs) are chemicals that alter the functioning of the endocrine (hormone) system and consequently cause adverse health effects. Theterm potential EDs is used for chemicals with properties that make them suspected to be EDs. The hormone system regulates many vital processes in living organisms and when normal signalling is disturbed, adverse effects may result. EDs raise high concern for their risk of causing serious negative impact on the environment as well as on human health specifically. Special concern is raised for effects on reproduction and development and about possible links to increases in public health diseases. While effects in wildlife populations have been confirmed, evidence is pointing to effects also in humans.

Per- and polyfluoroalkyl substances (PFAS) are used in many types of products due to their water and dirt repellent properties. These compounds constitute a group of substances that have highly problematic intrinsic hazardous properties. They are extremely persistent and accumulate in the body. They are spread all over the globe, from the large oceans to the Arctic, and are found in e.g., wild birds and fish and their eggs. Also, shorter chain compounds (2–6 carbon atoms) have been discovered in nature. The substances in this group are suspected to be endocrine disruptors, carcinogenic and to have a negative impact on the human immune system. PFOA, APFO (ammoniumpentadecafluorooctanoate) and certain fluoro acids are included in the Candidate List due to being reprotoxic, as well as having PBT properties.

The non-ionic APEO group of surfactants are produced in large volumes and their uses lead to widespread release to the aquatic environment. APEOs are highly toxic to aquatic organisms and degrade to more environmentally persistent compounds (APDs). Ethoxylated nonylphenol and several other alkylphenols are included in the Candidate List due to endocrine disrupting properties.

Flame retardants are suspected of contributing to a number of unwanted health effects. Several of the substances are suspected of causing birth defects, cancer, and endocrine disrupting effects. Many of them are on the EU candidate list under REACH.

Many brominated flame retardants are persistent and bio accumulative chemicals that can now be found dispersed in nature. The focus on phasing out brominated flame retardants has led to the use of alternatives such as phosphorus and nitrogen-based flame retardants.

A number of phthalates are identified as endocrine disruptors and some of them are classified as reprotoxic. For these reasons several phthalates are included in the Candidate list. Based on their hazardous property's phthalates pose a threat to the environment and human health and there is a ban on this group of substances.

Bisphenol A, CAS no. 80-05-7, is used as a monomer in, inter alia, the following relevant areas and products: Various plastic and epoxy mixes, various building parts, paint, varnish, glue (binding agents, hardeners) and polyol in the production of polyurethane. Bisphenol A can be released into the environment from the production process. Bisphenol A (BPA) is on the Candidate List of substances that may have serious effects on human health and the environment, and the goal is to eliminate emissions by 2020.[17] BPA is identified as damaging to the eyes, irritating to the respiratory tract, skin sensitizing and may also affect reproductive performance. The substance may be endocrine disrupting and is toxic to aquatic organisms. Bisphenol F and S can be used as substitutes for bisphenol A. A screening programme conducted to determine the occurrence of environmental toxins in surface water, sediment and biota in Norway found

[17] https://tema.miljodirektoratet.no/no/Tema/Kjemikalier/Miljogifter/Bisfenol-A/

bisphenols A, F and S in the samples that were taken[18]. These are substances with the same properties as bisphenol A26.

Nordic Ecolabelling restricts heavy metals because they are toxic to humans and other organisms, both on land and in the aquatic environment. Mercury, cadmium, and lead are toxic to the human nervous system, kidneys and other organs, and the metals can accumulate in living organisms. Chromium (VI) is classified as very toxic, CMR and harmful to the environment.

Volatile aromatic hydrocarbons (VAH) are volatile organic compounds where one or more benzene rings are contained within the molecule, e.g., toluene, benzene, and xylene. VAHs are very stable and have a specific impact on the environment and human health, including damage to DNA28. Exposure to these products should be minimised. For this reason, no more than 1% by weight is permitted in the chemical product.[19]

Organotin compounds mainly originated from antifouling paints, but more commonly used as catalysts in industrial production, stabilizers, biocides and surface disinfectants. Organotin compounds are harmful and toxic to the aquatic organisms at low concentration and have been linked to adverse effects in humans, such as reproductive toxicity and therefore many of these compounds are listed as substances of very high concern.

An exemption is given for the use of naphtha-based primers and adhesives classified H411 for outdoor use (containing up to 20% by weight of VAH). This is needed to ensure proper attachment. No alternatives have been found.

Dibutyltin (DBT) compounds and dioctyltin (DOT) compounds is allowed in sealing products ≤5000 ppm (0.5% by weight) in the final product as no alternatives are currently available.

O22 Nanoparticles in chemical products

Nanomaterials/-particles (see Definitions) must not be added or be present in chemical products. Nanomaterials/-particles are defined according to the EU Commission Recommendation on the Definition of Nanomaterial (2022/C 229/01) (see Definitions).

The following are exempted from the requirement:

- Pigments*
- Naturally occurring inorganic fillers**
- Synthetic amorphous silica***
- Ground Calcium Carbonate (GCC) and unmodified precipitated Calcium Carbonate (PCC)
- Polymer dispersions

[18] Screening programme 2013: New bisphenols, organic peroxides, fluorinated siloxanes, organic UV filters and selected PBT substances, The Norwegian Environment Agency, Report M-176/2014
[19] 8 Environ Health Perspect. 2002 June; 110 (Suppl 3): 451-488.

** This exemption does not apply to pigments added for other purposes than imparting colour. Nano-titanium dioxide is not considered to be a pigment and is therefore not exempted from the requirement.*

*** This exemption applies to fillers covered by Annex V, item 7 of REACH.*

**** This applies to unmodified synthetic amorphous silica. Chemically modified colloidal silica can be included in the products if the silica particles form aggregates in the final product. Any surface treatment of nanoparticles must fulfil requirement O17 (Classification of chemical products) and requirement O21 (Prohibited substances).*

✉ Declaration from the manufacturer of the chemical product, in accordance with Appendix 4.

Background

There is still uncertainty related to how nanoparticles affect health and the environment.[20] Nordic Ecolabelling wishes to take a restrictive approach to the use of nanoparticles and the requirement is based on the environmental consequences when nanoparticles are released to the surroundings (indoor environment or the surrounding environment, seen over the entire life cycle). The requirement concerns chemical products that are used for the production of Nordic Swan Ecolabel buildings and is in line with equivalent requirements concerning Nordic Swan Ecolabel chemical building products.

The definition of nanomaterials follows the European Commission's definition of nanoparticles[21], see Definitions.

The requirement means that newer nanomaterials produced with the intention of containing nanoparticles must not be used. Examples of such nanoparticles are fullerenes, carbon nanotubes, nano-silver, nano-copper, and nano-titanium dioxide.

11.3 Construction products – restricted material

O23 Epoxy relining

Bisfenol-based epoxy must not be used for casting new plastic piping inside existing pipes, so called relining. This ban applies to relining of water pipes and wastewater pipes.

✉ Technical description of a relining method that verifies that the method is epoxy-free.

[20] European Council, Recommendation 2017 (2013), Provisional version, Nanotechnology: balancing benefits and risks to public health and the environment. Available on page: (21/5-13).
[21] COMMISSION RECOMMENDATION of 18 October 2011 on the definition of nanomaterial (2011/696/EU).

Background

Relining may be an option if the piping system is in poor condition, but the outer layer is in good condition, in spaces that are difficult to access or where a change of pipes would be too disruptive to the business, for example in a hospital.

Epoxy, which can contain and emit Bisphenol A (BPA), is or has been used for relining domestic water pipes and wastewater pipes. 3,000 apartments in Sweden whose domestic water pipes have been relined with epoxy have been inspected and the findings show that BPA is present in both drinking water and hot water. The highest levels of BPA were found in the hot water [22].

BPA has hormone disrupting properties and is on the EU candidate list. Nordic Ecolabelling prohibits the use of both one and two component epoxy as there are alternative non-epoxy methods on the market. The ban by Swedish law only applies to relining of domestic water pipes. The ban by Nordic Ecolabelling also applies to relining of wastewater pipes. Nordic Ecolabelling does not take a stance through its requirement on whether pipes for domestic water or wastewater should be replaced with new ones or if relining is an acceptable alternative. On the other hand, Nordic Ecolabelling prohibits the use of epoxy for relining as it poses a risk of increasing the spread of the endocrine-disrupting substance BPA. Subsequently, other forms of bisphenol (e.g., bisphenol S and F) are also prohibited.

Other materials used for relining domestic water pipes include silicon-based materials, which are the most common, and cement-based materials. These do not have the negative environmental and health properties that epoxy has.

Nordic Swan Ecolabelled renovated buildings protect human health and the environment by ensuring that endocrine-disrupting bisphenol from epoxy cannot migrate to drinking water or through wastewater to sewage treatment plants from relined pipes.

O24 Halogen free cables

All heavy current cables must be documented as halogen-free according to EN 60754-1 and EN 60754-2.

The requirement does not include data, telephone, and TV cables. Cables that arrive at the construction site together with electric appliances, such as lifts, white goods, pumps, and fans are not subject to this requirement.

Mandatory requirement O29 must also be met.

✉ Documentation from the manufacturer such as technical datasheet stating compliance with relevant standard.

[22] Release of bisphenol A (BPA) in the renovation of domestic water pipes. Report from a government commission. Report no. 7/13. Swedish Chemicals Agency (Kemkalieinspektionen) 2013.

Background

Nordic Ecolabel wishes to limit the use of PVC cables to reduce the harmful environmental and health risks related to them. This requirement focuses on cables that can affect the indoor environment due to the content of plasticisers.

The market for and use of PVC-free cables have been accessed and the products are widely available in all Nordic countries. Halogen-free cables are often put as a requirement for larger private investors and in public projects.

The cables must be documented as halogen-free according to EN 60754-1 or EN 60754-2. An obligatory requirement for sewage pipes and electrical cable conduits has not been introduced, since these products are made from hard PVC and can be handled in the existing waste system. Furthermore, electrical cable conduits, which are not made of PVC, contain varying concentrations of brominated flame retardants, which are also problematic in relation to the indoor environment.

This requirement applies to cables used both on site and in construction module factories. Cables that arrive at the construction site together with electric appliances, such as lifts, white goods, pumps, and fans are not subject to this requirement. Cables used on site, to connect the end of the appliance cable, must fulfil the requirement.

O25 Surface layers on floors, ceilings, walls, doors, and windows.

Doors, windows and interior surface layers on floors, ceilings and walls may not contain chlorinated plastics (e.g., PVC). This includes watertight layers, wall film, acoustic dampening foams and other products used directly underneath the surface layer. Mouldings, skirtings, and surface wall films are included.

The following are exempted from the requirement:

- Mouldings, skirting boards and baseboards in bathrooms, professional kitchens, and stairwells.
- Floorings in professional kitchens with floor drain.
- Floorings in wet rooms with floor drain in educational buildings, homes for the elderly and homes for persons with disabilities.
- Plastic details ≤50 grams on windows and doors.

Products covered by the exemption must fulfil O29.

✉ Documentation to show how the requirement is fulfilled, for example floor plans, product data sheets, construction product declarations or similar.

Background

The requirement covers interior doors and surface layers on floors, ceilings and walls including both PVC and PVDC as a material or component. The latter may involve cork flooring coated with a thin outer layer of PVC or textile flooring with a PVC backing.

PVC (polyvinyl chloride) is one of the most widely used thermoplastic materials. Nordic Ecolabelling has traditionally been taking a restrictive position in relation to PVC due to emissions of harmful organic chemicals from manufacturing and

waste management, as well as emissions of potential endocrine disrupters such as phthalates in the use stage.

It is worth noticing that PVC products today can be produced in a much more circular way as additives such as phthalates and lead/cadmium-based stabilisers can be replaced by non-hazardous alternatives. Issues associated to PVC products end-of-use are being addressed, as both techniques to safely incinerate PVC waste and handle neutralisation residues in a responsible manner exist, while take-back, collection, identification, and separation processes to increase the amount of PVC which is recycled, already exist or are being developed. It will however require a relatively extensive list of requirements to regulate the PVC used in buildings according to this. Nordic Ecolabelling will follow the development closely but do not currently see the possibility to allow PVC more generally without overcomplicating the criteria for New Buildings. Exemptions are made for areas or surfaces with specific needs for high durability or slip resistance (related to working environment legislation) and for smaller details.

When Nordic Ecolabelling's criteria for floor coverings (gen. 7) are revised and published, requirements for surface layers on floors may be adjusted according to these requirements.

O26 Durable wood for outdoor use

The requirements for durable wood for outdoor use is described in the sections below according to the type of wood treatment.

The use of preservative-treated, chemically modified or thermally modified wood must be documented in drawings showing that the relevant use classes are fulfilled according to EN 335.

Untreated wood with natural durability is not subject to any requirements.

Preservative-treated wood for outdoor use

The use of preservative-treated wood containing heavy metals and/or biocides is not permitted in the use classes below (use classes according to EN 335):

- Use class 1.
- Use class 2.
- Use class 3 (for example vertical structures in use class 3.2 such as cladding, fences, partition walls and acoustic barriers).

Exemptions:

- Windows and doors in Use class 3.1.
- Horizontal structures in Use class 3.2.
- Load bearing structures with specific demands on strength: Weather exposed structural timber which is strength classed in accordance with EN 338.
- Time limited exemption until 31-12-2025: Preservative treated wood, that would not be classified as hazardous waste and only contain organic PT8 biocides up to maximum 300 ppm and no heavy metals, is allowed on facades (including supplementary buildings). A chemical analysis performed by an accredited laboratory is required to document that the amount of organic PT8 biocides in the wood is below 300 ppm. The preservative treated wood must fulfil requirements for quality testing in accordance with UC 3.2.

For preservative-treated wood in allowed applications the wood must meet the requirement on prohibited substances in in construction products, construction goods and materials in O29 and meet the requirement of durability in Table 8 below.

Table 8 For preservative-treated wood the following documentation of durability applies.

Wood protection method	Use class as per EN 335	Required documentation of durability
Preservative-treated Wood in accordance with NTR	UC 3.1 (only allowed for windows and doors)	NTR B
	UC 3.2	NTR AB NTR GRAN
	UC 4	NTR A
Preservative-treated wood not classified in accordance with NTR	UC 3.2	Testing by accredited laboratory: - EN 113-2 excluding testing with Coriolus versicolor after separate accelerated ageing in line with EN 73 and EN 84. - CEN/TS 12037
	UC 4	Testing by accredited laboratory: - EN 113-2 including testing with Coriolus versicolor after separate accelerated ageing in line with EN 73 and EN 84. - ENV 807 - EN 252 for at least five years in three locations, two of which are in a Nordic country.

Chemically modified or thermally modified wood for outdoor use

The use of chemically modified or thermally modified wood must meet the requirement of durability specified in Table 9, use classes in accordance with EN 335. Requirement O29 must be fulfilled.

Table 9 For chemically modified or thermally modified wood, the following documentation of durability applies.

Wood protection method	Use class as per EN 335	Required documentation of durability
Thermally and chemically modified wood classified in accordance with NTR	UC 3.1 (only allowed for windows and doors)	NTR Bmod
	UC 3.2	NTR ABmod
	UC 4	NTR Amod
Thermally and chemically modified wood not classified in accordance with NTR	UC 3.2	Testing by accredited laboratory: - EN 113-2 excluding testing with Coriolus versicolor after separate accelerated ageing in line with EN 73 and EN 84. - CEN/TS 12037
	UC 4	Testing by accredited laboratory: - EN 113-2 including testing with Coriolus versicolor after separate accelerated ageing in line with EN 73 and EN 84. - ENV 807 - EN 252 for at least five years in three locations, two of which are in a Nordic country.

☒ Description and drawings of the relevant constructions where preservative-treated, chemically modified or thermally modified wood is used, incl. use class according to EN 335.

☒ Documentation / certificate in accordance with table 8 or table 9.

☒ Preservative-treated wood in allowed applications must meet the requirement O29 Excluded substances in construction products, construction goods and materials.

Background

The purpose of the requirement is to limit the use of chemical wood preservative containing heavy metals and biocides and to document the durability of treated wood. Nordic Ecolabelling recognises that it can be a challenge to use untreated wood where the exposure to weather is high. The requirement contains a list of non-permitted areas where preservative-treated, such as pressure impregnated, wood cannot be used since these areas are less exposed to weather. Also use class 5 according to EN 335, which is when wood is permanently or regular submerged in salt water, is not allowed because of the amount and types of biocides that are used.

All preservative-treated or chemically modified wood must meet the requirements for chemical substances in accordance with O29, also wood that is NTR-certified.

When preservative-treated, chemically modified or thermally modified wood is used the durability must be documented. Wood treated through impregnation with wood preservative is divided by the Nordic Wood Preservation Council (NTR) into four classes: NTR M, NTR A, NTR AB and NTR B. The classification is based on EN 351-1 and is linked to the use classes defined in EN 335. Wood protection classes NTR A, NTR B and NTR AB may be accepted, if only used for certain parts that are judged to be particularly exposed. NTR A is allowed for wooden parts with ground contact, i.e., use class UC 4 according to EN 335. NTR B is only permitted for windows which belong to the use sub-class UC 3.1 according to EN 335. NTR AB is only permitted for specific wooden parts that belong to the use sub-class UC 3.2 according to EN 335 and as described in the requirement, i.e., parts that remain wet for long periods or where water can accumulate.

NTR's system for modified wood (thermal and chemical) is similar to its system for wood treated with chemical wood preservative. Here, the wood protection classes are NTR Mmod, NTR Amod, NTR ABmod and NTR Bmod, in line with the use classes defined in EN 335. Since 2017, it has been possible to produce thermally or chemically modified wood according to the NTR standard. However, there is still no producer who is certified (2022). Therefore, for modified wood it is also possible to test the wood in line with established EN standards for the appropriate user class as described in the requirement.

O27 Copper

Newly installed copper is restricted in Nordic Swan Ecolabelled buildings in the following way:

A. Tap water pipes must not contain >1% weight of copper.

B. Roof and facade cladding materials and products for roofs and facades (roof drainage products, gutters, exhaust hoods, eaves nets, cover profiles and the like) must not contain more than 10% by weight of copper.

Exemptions:

- Visible pipelines in bathrooms.
- Water fittings connecting pipes, such as couplings or manifolds.
- Installation cabinets, such as manifold or water meter cabinets.
- Pipelines that due to national fire protection legislation must be made of copper and where alternatives are not available.
- Pipes through the wall for an outdoor tap

Closed pipe systems such as heating or cooling circuits are not covered by the requirement.

✉ Declaration from applicant, Appendix 5.

✉ If relevant, description of the use of copper in the project. Where relevant, supplementary documentation for roof and facade cladding, such as product data sheet, construction product declaration or information from producer.

Background

The largest sources of copper spreading into the environment are via tap water and road traffic. Sheet metal on the outside of buildings (roofs and facades) and contact cables for the railway are also relatively large sources. The primary recipients of the copper differ. For water mains, it is the sewage treatment plant, while the distribution of copper in road traffic primarily ends up in stormwater and soil. A predominant percentage (60–80%) of the copper entering the treatment plants originates from tap water pipes in properties.

A large part of the copper that reaches the treatment plants via wastewater ends up in the sludge. Unfortunately, the general positive trend for reduced levels of metals in the sludge does not apply to copper and zinc. One reason is that copper is largely built into the infrastructure and it is therefore not as easy to reduce the supply of copper as it is for other metals that should be reduced in the cycle. The Swedish Environmental Protection Agency states that the copper levels found in arable land do not show negative microbiological effects, but that the margin is small. Both the background content of copper and local factors varies across the country. To provide general protection against the effects of copper, it is therefore justified to have stricter requirements regarding copper for the return of sludge. The Swedish Environmental Protection Agency further states that the supply of copper must specifically be reduced for sludge to be recycled in a manner that is sustainable in the long term. This is important as increased recycling of phosphorus from sludge is desirable from a resource efficiency and recycling point of view. This is the primary reason why Nordic Ecolabelling wants to limit copper as a material in tap water pipes and as a roof and facade material.

A study carried out by SYKES[23] on behalf of the Finnish Ministry of Employment and Economic Affairs concludes that the negative effects of the supply of copper to the environment through sludge returned to agricultural land are not a general Nordic problem. This is correct. However, the problem is not limited to the Stockholm area, which is incorrectly pointed out in the investigation. On the contrary, copper is a limiting factor for returning sludge to arable land in large parts of Sweden. Nordic Ecolabelling has concluded that it is not relevant to write geographically adapted requirements. Therefore, a general Nordic restriction requirement remains in the criteria.

O28 Plastic and rubber surfaces on playgrounds and outdoor areas

The use of impact attenuating ground cover materials with synthetic components is restricted on outdoor areas in connection with the Nordic Swan Ecolabelled building by a) and b) below.

Examples of these materials are artificial turf, mats, tiles or in situ cast surfaces made from plastic or rubber. Fibres, chips, or granules of renewable materials with a synthetic binding agent or cover are also subject to the requirement.

Materials in artificial turf, mats, tiles and granulate must be declared according to O29 and Appendix 6. Binding agents and glue used outdoors for installation are exempt from the chemical requirements.

a) Synthetic ground cover materials must not contain material from recycled tyres (SBR).
b) Surfaces must not consist of material with loose infill of plastic or rubber granules.

Exemption:

Ground cover materials with synthetic/plastic components may be installed on areas subject to accessibility requirements*. In addition, it can only be installed in the fall zone according to EN 1176 and EN 1177 and in small enclosed** multisport pitches that are part of a school yard. Granule catchers or other systems for microplastic retention must be installed in drains adjacent to the materials.

** Due to legislation, municipal requirements, or requirements from the procurer.*

*** The enclosure must have openings accessible for persons with disabilities.*

✉ Situation plan showing the use of impact attenuating and accessible surfaces on playgrounds and outdoor areas.

✉ Drawings where the fall zone is defined according to EN 1176 and EN 1177.

✉ For football/multisport pitch in a school yard: Reference to accessibility requirements: legislation, requirements from municipality or procurer. Product sheet for the small enclosed/multisport pitch.

✉ Product sheets for microplastic retention systems installed.

[23] Jyrki Laitinen and Riikka Malila, Finish Environment Institute, Sustainable Water Management, Assessment of pipe material used in buildings, Carbon footprint and health and toxicity effects, November 2020.

☒ Product sheets or other documentation showing compliance with parts a) and b).

Background

Nordic Ecolabelling wishes to minimise the use of plastic and rubber ground cover materials but recognises the need for impact attenuating surfaces accessible to people with disabilities and therefore work with restrictions rather than prohibitions.

Artificial turfs with loose infill of granules and mulches have been identified as major sources of microplastic pollution.[24],[25]. Granules and mulches are often made from recycled tyres (SBR) and can contain several potentially hazardous substances, including polycyclic aromatic hydrocarbons (PAHs), metals and phthalates.[26] REACH sets limit values for eight PAHs which cannot be exceeded by granules and mulches put on the market[27]. These eight are however only a small part of the over 300 identified substances found in SBR rubber granules. ECHA recommends further investigation into the effects on health and environment for some of these substances[27]. Nordic Ecolabelling has prohibited the use of rubber from recycled tyres (SBR) to reduce undesired substances.

Plastic- and rubber-based ground cover also comes in the form of granules held together by polymer-based binders. These materials are cast on the site using isocyanate binding agents or delivered as prefabricated mats or tiles that are screwed or glued to the underlay and sometimes covered by a layer of artificial turf glued on top. Although the granules are bound together, there will be spread of microplastics due to wear on the surfaces[28]. Alternative products containing cork or other natural materials instead of synthetic rubber granules are potentially less severe sources of microplastic, since only the binding agent is plastic. The materials also reduce the spread of undesired substances that can still be present in plastic and rubber materials even if they are free from recycled SBR. Wood chips or bark covered with rubber or plastic materials may not be used since they contain synthetic components but are not suitable for accessibility reasons.

Nordic Ecolabelling wishes to minimise the use of isocyanates on the construction site. The isocyanate binding agents and glues used for installation of the impact attenuating surfaces typically do not comply with the chemical requirements O17 and O18 and they are only accepted in this application, with restrictions, since there is a lack of alternatives for accessible surfaces. The commission regulation EU 2020/1149 will be implemented during the summer 2023 according to our information. For the PU products exempted this means that no additional working environment requirements will be implemented. This should be handled satisfactory according to this new legislation.

[24] https://www.ivl.se/download/18.34244ba71728fcb3f3f9f0/1591705616592/C183.pdf
[25] https://www.miljodirektoratet.no/globalassets/publikasjoner/m954/m954.pdf
[26] Granules and mulches on sports pitches and playgrounds – ECHA (europa.eu)
[27] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1199&from=EN
[28] https://www.ivl.se/download/18.57581b9b167ee95ab9919a1/1552466299144/C359.pdf

11.4 Construction products – ingoing substances and emissions

O29 Excluded substances in construction products, construction goods and materials

The requirement applies to the following product categories:

1. Sealing products, including membranes, tape and sealing collars on walls, foundation, and roofing, which are not classified as chemical products.
2. Thermal, acoustic, and technical insulation.
3. Interior and exterior building panels. Does not include panels of solid wood, laminated timber, veneer, OSB, plywood, MDF/HDF, chipboard, HPL, CPL and compact laminates, which are regulated in requirement O31.
4. Heavy current cables and electrical conduits*
5. Wood that is preservative-treated or chemically modified as protection from rot, blue stain, and mould (see O26 for restrictions on use)
6. Wood plastic composite (WPC)
7. Plastic coverings for floors, ceilings, and walls for interior use.
8. Textile coverings for floors, ceilings, and walls.
9. Artificial turf, mats, tiles and granulate used in impact attenuating outdoor surfaces as defined in O28.

In the construction products and materials mentioned above, the following substances must not be an ingoing substance in the product. Ingoing substance means all substances in the construction product that are present in concentrations higher than 100 ppm (0.010 w%, 100 mg/kg).

- Substances on the REACH Candidate list of SVHC
- Substances evaluated by the EU to be persistent, bioaccumulative, and toxic (PBT) or very persistent and very bioaccumulative (vPvB), in accordance with the criteria in Annex XIII of REACH.
- Substances classified as carcinogenic, mutagenic, or toxic for reproduction (CMR) Category 1A or 1B.
- Endocrine disruptors: Substances on the EU member state initiative "Endocrine Disruptor Lists", List I, II and III, see the following links.
- https://edlists.org/the-ed-lists/list-i-substances-identified-as-endocrine-disruptors-by-the-eu
- https://edlists.org/the-ed-lists/list-ii-substances-under-eu-investigation-endocrine-disruption
- https://edlists.org/the-ed-lists/list-iii-substances-identified-as-endocrine-disruptors-by-participating-national-authorities

A substance that is transferred to one of the corresponding sublists called "Substances no longer on list" and no longer appears on any of Lists I–III, is no longer excluded. The exception is those substances on sublist II that were evaluated under a regulation or directive that does not have provisions for identifying EDs (e.g., the Cosmetics Regulation, etc.). For those substances, ED properties may still have been confirmed or suspected. Nordic Ecolabelling will evaluate the circumstances case-by-case, based on the background information indicated in sublist III. In addition, the following individual substances and substance groups are prohibited or restricted. There may be an overlap between the substances listed below and substances categorised above.

- Short-chain chlorinated paraffins (C10-C13) and medium-chain chlorinated paraffins (C14-C17).

- Perfluoroalkyl and polyfluoroalkyl substances (PFASs)
- Alkylphenols, alkylphenol ethoxylates (APEO) and other alkylphenol derivates (APD).
- Brominated flame retardants.
- Phthalates (Esters of phthalic acid (orthophthalic acid/phthalic acid/1,2-benzene dicarboxylic acid).
- The heavy metals lead, cadmium, arsenic, chromium (VI), mercury and their compounds.
- Bisphenol A (CAS no. 80-05-7), bisphenol S (CAS no. 80-09-1) and bisphenol F(CAS no. 620-92-8).
- Boric acid, sodium perborate, per boric acid, sodium borate (borax) and any other boron compounds classed as carcinogenic, mutagenic or reprotoxic in category 1A/1B/2/Lact.
- Organotin compounds.

Exemption:

The material in (electrical) conduits may contain brominated flame retardants provided that the following limits are fulfilled:

- Bromine content (Br) ≤0.15%
- Chlorine content (Cl) ≤0.15%
- Total content: bromine content (Br) + chlorine content (Cl) ≤0.2%

The content must be verified using ion chromatography (IC) according to the methods in EN 14582 or modified IC methods according to EN50642.

☒ Declaration from the manufacturer of the construction product, construction goods or construction material in accordance with Appendix 6.

☒ Construction product declaration or corresponding if available for the product.

Background

The requirement comprises two parts. First comes a description of which construction products are included, i.e., those for which the chemical content must be verified. The purpose is to focus on the most important construction supplies and thereby the material within the vapour barrier (moisture barrier), supplemented with known problematic material outside the vapour barrier. The second part of the requirement concerns a list of the substances/groups of substances that may not be contained in these construction supplies in quantities of 100 ppm or more.

The list is based on the general principles from Nordic Swan Ecolabelling regarding undesirable compounds in combination with corresponding requirements for other Nordic Swan Ecolabelled construction products. Please see background for O21 for details on the substances banned in this requirement. A few exemptions are made when deemed necessary for the quality and technical performance of the product.

Textile coverings for floors, ceilings and walls are added as a new product type since they are highly relevant in offices. Textile flooring may contain chemical substances from production that can affect the indoor environment – this is

especially relevant due to the large surface areas of textile flooring and because the products are not washed before usage. Textile flooring is often produced outside the EU and there is no regulation specifically for these products, meaning that the general rules in REACH apply. Relevant substances are phthalates, PFAS, aldehydes and a range of other VOC[29]. Nordic Ecolabelling focuses on setting strict chemical requirements for the known problematic substances in the textile flooring, thereby limiting exposure to these substances for the end-user. Emission testing is not a requirement as the main environmental and health effects in relation to the relevant chemicals are considered to be handled in the general chemical requirements. All products used on floors, ceilings or walls are covered by the requirement.

Drainage pipes are no longer covered by the requirement as the materials used (PP, PE and (hard) PVC) are found to have little relevance with regard to the chemical substances regulated in the requirement. Plastic pipes for drinking water are not regulated by Nordic Ecolabelling, as national legislation and certification systems already set requirements for these products (e.g., GDV in DK and Rise/Kiwa in SE).

O30 Antimicrobial surface treatments

The applicant must ensure that nanoparticles (see definitions) and biocide treatments are not used in production of the following goods and materials, with the purpose to create an antibacterial or antiviral surface or effect.

The requirement applies to the following construction products, construction goods or materials:

- Flooring and floor coverings.
- Wall coverings in ceramic material or stone.
- Kitchen and bathroom fittings such as worktops, splashbacks, cabinet fronts, kitchen sinks, mirrors, shower walls, sanitary appliances (WC, urinal, bath, shower, washbasin, sink, bidet etc.)
- White goods* (air filters and door gaskets are exempted).
- Ventilation filters and textile ducts/diffusers.
- Waste disposal units.

** The white goods covered by this requirement are the same types that are subject to requirements in O9 Energy efficient white goods.*

✉ Declaration from the applicant confirming compliance with the requirement concerning antibacterial/antiviral surfaces. Appendix 7 must be used. Verification of this requirement is not done in the Supply Chain Declaration Portal (SCDP).

Background

Antimicrobial (e.g., antibacterial, or antiviral) treated products are often marketed as preventing bacteria or viral formation, growth, and odours. Yet antimicrobial treatment is often not needed, and many of its methods must be

[29] Kortlægning og risikovurdering af kemiske stoffer i gulvtæpper til børn, Kortlægning af kemiske stoffer i forbrugerprodukter nr. 147, 2016.

used with caution, since they can be hazardous to human health and the environment. Antimicrobial substances are biocides. Increased use of biocides can lead to bacteria becoming resistant to agents that are necessary for hygiene and health in other contexts.

The general requirement in generation three of the criteria regulating nanotreatment of construction products has been removed. By assessing the licensing data and the general state of the market, it has been concluded that the primary effect of the nano requirement was to regulate antimicrobial treatments. This is handled in this new requirement. Furthermore, the work from the Swedish National Platform for Nanosafety concludes in their report "Nanomaterial i byggbranschen" that nanomaterials have a limited use within the building sector today. Nordic Ecolabelling will consider regulating this area again if the situation changes over time.

The applicant must gather the necessary information from suppliers of the relevant construction products to ensure that the requirement is met, e.g., by requiring in contracts with suppliers that the requirement is met.

O31 Formaldehyde emissions

The requirement covers all wood-based or laminate panels and boards for indoor use, containing formaldehyde-based additives, such as building panels (raw or surface treated), panels in floors, panels in doors* or other fitments as well as mouldings, baseboards, and frames. Permanently installed fittings, furniture, and trimmings as well as loose fittings and furniture (e.g., wardrobes and lockers) that are included in the construction project are subject to this requirement.

The requirement does not apply to panels solely marketed as facade panels, solid wooden worktops or fixture details present in a very limited extent such as an individual hat or shoe shelf.

The average emission of formaldehyde must not exceed the limit values for the relevant test method according to Table 10.

** For Finland, apartment doors that are fire-protected according to EN16034 instead of the emission limit value in the table above must comply with M1.*

Table 10 Threshold limits for formaldehyde emissions.

Test method	EN 717-1	EN 16516
MDF	0.09 mg/m^3	-
Other panels/boards/mouldings/beams/columns (including glulam, CLT, particle boards, chipboards, fibreboards OSB etc.)	0.07 mg/m^3	-
Other panels/mouldings/fitments than wood Including high pressure laminates (HPL), continuous pressure laminates (CPL) and compact laminates	**NA**	**0.03 mg/m^3**

If the panel is covered by e.g., melamine or laminate, it is the complete product with covering that should be tested. If a fitment consists of more than one panel, the complete product can be tested, or the panels can be tested separately.

Analysis methods other than those stated in the above table can be used, provided that the correlation between the testing methods can be verified by an independent third party.

If legislation is introduced or tightened and becomes tighter than Nordic Ecolabelling's requirement levels for formaldehyde during the term of validity of these criteria, this requirement will be adjusted.

✉ Analysis report including measurement methods, measurement results and measurement frequency. It must be clearly stated which method has been used, who carried out the analyses and that the testing institution is an independent third party. Test methods other than those specified may be used if there is correlation between test methods and this can be confirmed by a competent third party.

Background

The requirement is harmonised with Nordic Swan Ecolabelled building panels where reference is made to EN 717-1 and EN 16516. Threshold limits are at the same level in this criterion. Other test methods may be approved if an independent third party (e.g., a test institute) has made a correlation to these methods.

Adhesive systems containing formaldehyde are often used in the manufacture of wood-based panels. The development shows reduced emissions of formaldehyde from the finished panel. Formaldehyde is a toxic, sensitising, and carcinogenic substance that Nordic Ecolabelling wants to limit as far as possible from a work environment point of view in manufacturing, but also to reduce emissions in the use phase.

Formaldehyde emissions from wood-based panels are communicated in the EU with a classification system, defined in the harmonised standard EN 13986. The current lowest emission class is E1, where the limit values are a maximum of 0.124 mg/m3 according to test method EN 717-1. In the summer 2023 entry 77 in Annex XVII to REACH has been published. It defines a general threshold limit of 0,062 mg/m3 for furniture and wood-based articles that applies from august 2026. Nordic Ecolabelling do not believe the market is ready for this limit to be mandatory for all products at the moment. We will evaluate this closely and ensure correspondence between all relevant product groups within Nordic Ecolabelling.

11.5 Ecolabelled products

O32 Ecolabelled products

Nordic Swan Ecolabelled or EU Ecolabelled products must be used in the renovation project. The following applies:

1. It must be identified which of the product categories listed in table 11 that are used in the specific renovation project.

2. Half of the product categories identified in 1) must fulfil the following*: >50% of the amount of products (within the product category) must be covered by ecolabelled products**.

Table 11 Product categories for ecolabelled products.

Product category
Construction and facade panels for outdoor use
Construction panels, wall covers, mouldings and panels for indoor use.
Flooring (visible layer, excluding tiles)
Tiles (floors and walls)
Bathroom fittings (front, frames and countertops)
Wardrobes (including coat racks/hat shelves and similar)
Kitchens (front, frames and countertops)
Windows
Exterior doors
Indoor doors
Outdoor furniture
Playground and park equipment
Stove/fireplace
Durable wood
Indoor paint
Indoor fillers
Outdoor paint
Sealants
Adhesives for glass felt and microdispenser
Other chemical building products
Other products

** A maximum of 4 product categories must be accounted for regardless of the total number of product categories used.*

*** The products and amounts used can be documented by e.g., invoices and documentation/calculations of the amounts of products needed in the project.*

✉ List of the product categories used in the specific renovation project (based on the list in table 11).

✉ Documentation that minimum half of the product need in the relevant product categories is covered by ecolabelled products.

Background

In their life cycles, construction materials have been shown to contribute to environmental impacts such as energy and resource consumption, undesirable chemical risks, and negative effects on biodiversity. The criteria for ecolabelled construction materials set requirements for environmental parameters throughout the product's life cycle, having a relevant environmental impact that can be reduced and documented in relation to ecolabelling. To be able to make a

difference, it is important that a Nordic Swan Ecolabelled building uses a certain amount of the building products with a reduced environmental impact that are available in the market. Construction materials, in a variety of product categories with the Nordic Swan Ecolabel and the EU Ecolabel are available in all Nordic markets, which makes it easier to promote their use in Nordic Swan Ecolabelled buildings. The building materials represent an increasingly larger share of the environmental burden, and the product decisions in a project give a significant environmental effect. This is the main reason for our decision to change the requirement (from version 1 to 2 of the criteria document), to an obligatory one, thereby encouraging projects to buy more ecolabelled products in Nordic Swan Ecolabelled renovation projects.

12 Wood raw materials

O33 Prohibited and restricted tree species

This requirement applies to all wood-based products used in the construction of the Nordic Swan Ecolabelled building, supplementary buildings and outdoor areas. The requirement also applies to wood-based products used in construction but not incorporated in the building, such as wood in casting moulds.

Nordic Ecolabelling's list of restricted tree species* consists of virgin tree species listed on:

a) CITES (Appendices I, II and III)

b) IUCN red list, categorised as CR, EN and VU

c) Rainforest Foundation Norway's tree list

d) Siberian larch (originated in forests outside the EU)

Tree species listed on a) CITES (Appendices I, II and III) **are not permitted.**

Tree species listed on either b), c) or d) **may be used** if they meet all the following requirements:

- The tree species do not originate from an area/region where it is IUCN red listed, categorised as CR, EN or VU.
- The tree species do not originate from an Intact Forest Landscape (IFL), defined in the World's IFL 2000 map in Google Earth http://www.intactforests.org/world.map.html.
- The tree species shall originate from an FSC or PEFC certified forest/plantation and shall be covered by a valid FSC/PEFC Chain of Custody certificate documented/controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.
- Tree species grown in plantations shall also originate from a FSC or PEFC certified forest/plantation established before 1994.

** The list of restricted tree species is located on the website: https://www.nordic-ecolabel.org/declare-items/pulp-and-paper/forestry-requirements/forestry-requirements-2020/*

The applicant makes the declaration for the whole project.

The supplier makes the declaration if the wood-based products are subject to declaration in the Supply Chain Declaration Portal.

☒ A declaration that tree species listed in a–d are not used in the Nordic Swan Ecolabelled building. Appendix 8 must be used.

If species from the lists b, c or d are used:

☒ If a tree species is listed in either b, c or d, the supplier is required to present a valid FSC/PEFC Chain of Custody certificate that covers the specific tree species and demonstrates that the tree is controlled as FSC or PEFC 100% through the FSC transfer method or PEFC physical separation method.

☒ If a tree species is listed in either b, c or d, the supplier is required to document full traceability back to the forest/certified forest unit, thereby demonstrating that:

- The tree species do not originate from an area/region where it is IUCN red listed, categorised as CR, EN or VU.
- The tree species do not originate from Intact Forest Landscape (IFL), defined in the World's IFL 2000 map in Google Earth http://www.intactforests.org/world.webmap.html.
- For plantations, the applicant/manufacturer/supplier is required to document that the tree species does not originate from FSC or PEFC certified plantations established after 1994.

Background

A number of tree species are restricted or not permitted for use in Nordic Swan Ecolabelled buildings. The requirement applies only to virgin forest tree species and not tree species defined as recycled material according to ISO 14021. The list of restricted tree species is based on the wood species that are relevant to Nordic Ecolabelling's criteria, i.e., tree species that have the potential to be included in Nordic Swan Ecolabelled products. Listed tree species are indicated by the scientific name and the most common trade names.

The criteria for tree species found in the list relate to wood originating from:

- Tree species listed on CITES[30] Appendices I, II and III.
- IUCN red list[31], categorised as critically endangered (CR), endangered (EN) and vulnerable (VU).
- Regnskogsfondet[32] (Rainforest Foundation Norway) tree list
- Siberian larch (originating in forests outside the EU)

Many of the tree species on the list are grown in countries which still have large areas of Intact Forest Landscapes (IFLs). Protecting these is important for biodiversity and climate. Many of these countries also have a high risk of corruption and the national legislation related to the environment, human rights and land ownership are weak and/or not controlled by the authorities. There are

[30] https://www.cites.org/ (visited January 2020)
[31] http://www.iucnredlist.org/ (visited January 2020)
[32] https://www.regnskog.no/no/hva-du-kan-gjore/unnga-tropisk-tommer/tropiske-treslag (visited January 2020)

different views on whether certification is good enough to meet the challenges of forest management in countries with a high risk of corruption and illegal logging. Due to the uncertainty about whether FSC and PEFC certification systems are good enough in protecting important areas of biodiversity and ethical aspects such as human rights and land ownership in areas with a high risk of corruption, Nordic Ecolabelling takes a precautionary approach and wants further documentation about the tree species and its origin.

Nordic Swan Ecolabelling is aware that tree species originating from b, c or d can originate from legal and sustainable forestry. Therefore, it is possible to use tree species listed in b, c or d if the applicant/manufacturer/supplier can demonstrate compliance with a number of strict requirements regarding certification and traceability.

O34 Wood and bamboo, traceability, and certification

This requirement applies to the following construction elements of solid wood, glulam, LVL, bamboo, plywood, veneer, or particle/fibre board used in the construction of the Nordic Swan Ecolabelled building and supplementary buildings:

- Frames, trusses, studs and joists used in the wooden structure of the building (roof, walls and floors)
- Underlay on roofs, walls and floors such as plywood, particle boards, MDF, OSB, tongue-and-groove and rafters
- Interior panels
- Exterior cladding and facade panels
- Timber for balcony, terrace, decking, veranda and fences
- Wooden floors

If the applicant wants to include other building parts than the above listed in the calculation of certified wood raw materials, e.g., windows, this includes the total volume of wood used in that building part throughout the building. Nordic Swan Ecolabelled construction and façade panels comply with the certified wood raw material requirement.

Chain of Custody certification

All the above mentioned construction elements of wood raw materials and bamboo used in the Nordic Swan Ecolabel building must be covered by chain of custody certificates issued by FSC or PEFC.

The supplier of wood raw materials/bamboo materials must have valid Chain of Custody (CoC) certification under the FSC/PEFC schemes.

Suppliers who only deliver non-certified recycled material in the Nordic Swan Ecolabelled buildings are exempted from the requirement for Chain of Custody certification. For a definition of recycled material, see below*.

As an exemption to the above, a supplier (e.g., a joinery workshop) of the applicant that does not have FSC/PEFC CoC certification may also be approved. This is subject to a guarantee from the supplier that the wood raw materials are purchased from a CoC certified supplier of wood that can prove that the wood raw materials comply with the requirements stated here. The supplier must guarantee that the certified wood is sold to the applicant of the Nordic Swan Ecolabelled building. The applicant must have an agreement with the supplier

which describes how the supplier guarantees that the certified timber will be delivered to the applicant. The agreement shall state that the supplier is obliged to report to the applicant when changing wood supplier.

Certified wood raw materials and bamboo

A minimum of 70% by weight of above mentioned construction elements from wood raw materials and bamboo used in the Nordic Swan Ecolabelled building must originate from forests managed according to sustainable forest management principles issued by FSC or PEFC and meet the requirements set out by the FSC or PEFC Chain of Custody schemes or be recycled material*.

The remaining uncertified proportion of wood raw material must be covered by the FSC/PEFC control schemes regarding FSC controlled wood/PEFC controlled or be recycled material*

Nordic Ecolabelling considers products from primary wood processing industries (sawdust, wood chips, bark, etc.) or residues from forestry (bark, branches, roots, etc.) as recycled material*.

** Recycled material is defined according to ISO 14021 in the categories of pre-consumer and post-consumer.*

✉ The names (species names) of the wood raw materials and bamboo that are used.

✉ Valid FSC/PEFC Chain of Custody certificate from all suppliers of wood-based products, covering all wood materials and bamboo used in the Nordic Swan Ecolabelled building. Alternatively, a link to the certificate holder's valid certificate information in the FSC/PEFC certificate database.

✉ Documentation alternative 1: A summary showing i) the total quantity of wood raw materials and ii) the total percentage of certified wood raw material or recycled material used in the project. Copy of invoice(s) which confirms the FSC/PEFC status of the products and the FSC/PEFC certificate number of the immediate supplier to confirm the proportion of certified wood raw materials or recycled materials purchased for the project.

✉ Documentation alternative 2: An aggregated signed list from each supplier (compilation of all wood raw material deliveries to the project containing information on: CoC code, name of tree species, type of product items, FSC/PEFC claims for each product item, quantities of wood raw materials and percentage of certified/recycled wood and the invoice number (reference)) can be used as a basis for the summary. Nordic Ecolabelling may ask for copies of invoices to confirm the proportion of certified timber purchased for the Nordic Swan Ecolabelled building.

✉ If the applicant does not use a CoC certified supplier, the supplier shall present i) invoices for the wood raw materials in question from the CoC certified supplier and ii) a valid certificate which must be in accordance with the invoice(s). The invoice must state the volume of certified wood raw material and certification number. The applicant must have a documented agreement with the supplier which describes how the supplier guarantees that the specified, certified wood raw material on the invoice is delivered to the project. The agreement shall also state that the supplier is obliged to report any change in the source of the wood raw material. Nordic Ecolabelling may ask for further information.

Background

The intention is to include wood products used in the largest volumes in the construction of the building. Nordic Ecolabelling requires that wooden construction elements must come from sustainable forestry through requirements to traceability and certification. The requirement for Chain of Custody certification contributes to traceability in the supply chain within FSC and PEFC's control systems for traceability. Both the FSC and PEFC schemes allow several methods to verify the traceability: physical separation method, percentage-based method, and volume credit method. Nordic Ecolabelling accepts all FSC and PEFC's methods to verify traceability and the share of certified and controlled wood/sources. Suppliers of recycled material are exempted from the requirement regarding Chain of Custody certification.

It is possible to use a supplier that is not CoC-certified as not all small/local suppliers are certified. In such cases, it should be documented that wood raw materials are purchased from certified areas.

Applicants must document that at least 70% by weight or volume of all wood raw materials and bamboo used in the Nordic Swan Ecolabelled building comes from forestry certified under the FSC or PEFC schemes or is recycled material. The remaining proportion of wood must meet the requirements of FSC controlled wood or PEFC controlled sources or be recycled. The requirement limit, a minimum of 70% of all wood raw material (virgin or recycled), correspond to the FSC and PEFC's requirement limits for use of the respective labels on products, such as "FSC Mix" and "PEFC certified".

The applicant must demonstrate that the quantity of certified wood raw material or recycled material is met. The certification shall be documented through invoices/delivery notes from suppliers or an aggregated signed list from suppliers. The invoices/aggregated signed list must contain information on: CoC codes, name of tree species, type of product items, FSC/PEFC claims such as FSC MIX 70% or FSC 100% for each product item and quantities of wood raw materials. In the case of an aggregated signed list, Nordic Ecolabelling may ask for copies of invoices to confirm the proportion of certified timber purchased.

13 Indoor environment

O35 Plan for the indoor air quality

A plan for the indoor air quality must be produced by an indoor environment expert*. The plan for indoor air quality must as a minimum, describe procedures, responsibilities, and necessary measures for:

a) Identification and risk assessment of pollution sources, including particulate matter.

b) Description of necessary measures to handle the pollution sources found in a), e.g., dilution, filtration, ventilation system design or other relevant strategies. This includes the protection of heating, ventilation, and air conditioning systems during renovation and remediation.

c) Cleaning of the ventilation system before the building is taken into use.

d) A self-monitoring checklist accounting for a) to c) must be created. Follow up on the checklist must be available for Nordic Ecolabelling upon request.

An already established IAQ plan in accordance with Greenguard, LEED or BREEAM can be used as documentation.

* *The indoor environment expert must have proven expertise and experience of construction technology, as well as knowledge of indoor environment-related problems and effects of pollutants in the indoor environment. The person must have at least two 'years' experience of indoor environment work or indoor environment assessments.*

✉ The plan for indoor air quality with procedures and measures that show how a) to c) are met.

✉ Description of the indoor environment expert's expertise and experience, e.g., a CV.

Background

Pollutants in the indoor air will often be more prevalent during renovations and remediations, compared to construction of new buildings. The pollutants originate from old materials being removed, new building materials, chemicals used, sawdust, concrete dust, and other particulate matter. Ventilation systems might spread these pollutants to other parts of the building, but ventilation also needs to be controlled for the sake of the work environment at the renovation site.

The plan for indoor air quality aims at ensuring a healthy working/living environment during the renovation phase and that the ventilation system will not spread pollutants and particulate matter, during or after renovation works.

Procedures for adequate ventilation, cleaning of the systems, and e.g., replacement of air filters before occupancy are essential to ensure satisfactory indoor air quality. In new buildings and renovated buildings, emissions and particles from different building elements, materials and various surface treatments will be greatest at the start. It is therefore important to minimise this before the building is occupied.

O36 Radon

The risk of high radon concentrations in the indoor air of occupiable rooms must be evaluated through measurements or a risk analysis. The annual average concentration must not exceed each country's legislation on highest permitted concentrations of radon for new buildings. The requirement can be met by alternative a), b) or c) below. However, option b is not applicable for Finland.

a) **Risk analysis with long term radon measurements conducted before renovation**
The risk of radon concentrations above the highest permitted concentrations in the renovated building must be evaluated before the renovation works start. Long-term measurements of the radon concentration in the indoor air must be combined with an assessment of

the risk of increasing radon exposure levels due to the renovation work. Ground/infill sampling, building material inventory and assessment of the air tightness of relevant structures can be part of the risk analysis. Based on the findings of the risk analysis, relevant measures for prevention of radon intrusion must be taken.

b) Risk analysis with no radon measurements available (Not applicable for Finland)

A risk analysis in line with a), but not supported by long term measurements can be accepted for buildings in areas where the ground conditions indicate a low radon risk, the building material inventory does not show elevated radon risks from materials, and where the building's structures are in a condition which effectively protects the building from radon intrusion. Ground and infill sampling or radon maps issued by authorities or geotechnical institutes are accepted as proof of low radon risk areas.

c) Measurements conducted after renovation

Long term radon concentration measurements during the heating season after finished renovation must show compliance with legislative limit values for new buildings, see table 12 below. If compliance is not reached, corrective measures must be taken.

Table 12 Limit values for radon in the indoor air.

Country	Limit value of annual average radon concentration in the indoor air
Denmark	100 Bq/m^3
Finland	200 Bq/m^3
Norway	200 Bq/m^3, action limit 100 Bq/m^3 *
Sweden	200 Bq/m^3

National regulations and methodologies with specified standards in the field must be complied with.

***** *Any measures taken due to the action limit must be accounted for.*

Projects in Iceland are exempt from the requirement.

☒ a) Long-term measurement(s) and calculated annual average radon exposure. Risk analysis according to specifications in the requirement.

☒ b) Risk analysis according to specifications in the requirement. Proof of the location's low radon risk, e.g., radon maps or ground and infill sampling. Review of the material inventory showing no elevated radon risks from the materials.

☒ c) Long-term measurement(s) and calculated annual average radon exposure. The measurements must be made in the heating season after finished renovation.

☒ Description of (any) radon prevention measures undertaken in the building.

Background

Radon can cause lung cancer. The risk of lung cancer increases with prolonged exposure and particularly in combination with smoking. Radon gas in the air inside buildings can have several causes, including air permeability in the building envelope, emissions from building materials and radon from tap water. The annual average concentration inside a building also depends on user habits, for example ventilation settings and how often rooms are aired.[33]

Renovation works on heating, water, ventilation systems, window replacements, insulation improvements or drilling of holes in the base plate, cellar walls or between apartments may increase radon exposure. The risk analysis required must therefore identify such risks and propose measures to avoid or mitigate the risk. Short term measurements (normally 2-4 weeks) are only advisory and are not accepted as verification of compliance.

The purpose of the requirement is to ensure a very low radon level in Nordic Swan Ecolabelled renovated buildings. Measurements of radon in the indoor air are the preferred basis of the risk evaluation, but have seasonal constraints tied to them. If measurements are not feasible before the start of the renovation, other information such as historic measurements, information from ground or groundwater sampling, radon level maps, the age of the building, the presence and state of air sealing materials and construction material inventory can be used.

There is no requirement for Iceland, due to low radon risk since the Icelandic bedrock does not contain much uranium[34].

Option b is not applicable for Finland as the whole country is considered to be high risk area.

O37 Measurement of PCB levels in indoor air

In cases where PCBs have been identified and remediated in the building, including bomb shelters, during the environmental analysis/survey (requirement O2) or in another stage before or during the Nordic Swan Ecolabelled renovation process, PCBs should be measured in the indoor air after remediation.

The air in the buildings where PCBs have previously (not in conjunction with Nordic Swan Ecolabelling) been decontaminated must also be measured to verify that the requirement has been met.

The PCB content must be below 300 ng PCB/m^3 in the indoor air.

If the level of PCBs exceeds the threshold limit value stated in the requirement, further action must be taken to trace the source of the PCB and then remove/remediate it. The indoor air must then be tested once again to analyse PCB levels.

The measurement must be conducted in compliance with "Instructions for measuring PCBs in the indoor climate". See https://pcb-

[33] Measurement of radon in housing - description of methods. Swedish Radiation Safety Authority, April 2013.
[34] http://www.gr.is/wp-content/uploads/2016/09/Indoor-and-outdoor-radon-levels-in-Iceland_NSFS_Final_FINAL_version.pdf

guiden.dk/Media/637968423794975979/pcb_maalemetode.pdf. If other test methods are used the methods must be verified by the Nordic Ecoabelling in advance.

The building envelope must be intact or rebuilt tightly insulated before testing.

The requirement shall also be verified by any bombshelter in the building.

✉ Analysis report showing measured PCB contents in the indoor air expressed as ng PCB/m^3 air.

Background

PCBs are a group of chemicals that affect the development of the brain and nervous system and are suspected carcinogens, immune system- and endocrine disruptors[35]. They were used in e.g., sealants, mastics, windows, paints, and electrical equipment until the 1970s. Much of the PCB in buildings has been removed, but materials might still be present, and adjacent materials might be contaminated due to the substances' migratory properties.

Nordic Swan Ecolabelled renovated buildings must be guaranteed to have low levels of PCBs that may pose a risk to health and the environment. Nordic Ecolabelling therefore requires measurements to be carried out in cases where PCBs have been identified in the environmental analysis/survey to determine whether any PCBs are present in the indoor air. The requirement also applies if PCBs have previously been found in the building before the Nordic Swan Ecolabelled renovation. Measurements must be made after remediation to show the extent to which PCBs have been removed from the building.

Nordic Ecolabelling's threshold limit value of 300 ng PCB/m^3 for indoor air is the same as the level set by the Danish Health Authority as guidance when no action is required. If the level of PCBs per cubic meter of indoor air is below 300 nanograms, this is considered an acceptable level where the exposure to PCBs is not expected to pose a significantly increased risk. If the level of PCBs exceeds the threshold limit value stated in the requirement, further action must be taken to trace the source of the PCB and then remove/remediate it. The indoor air must then be tested once again to analyse PCB levels.

O38 Noise environment in office buildings, hotels, pre-schools, and schools

Measured or calculated sound levels and design sound classes in the building project must comply with the limit values for reverberation time according to the national standards below. Compliance is verified through measurements or an acoustic plan showing calculated sound levels and designed sound classes for reverberation time.

The acoustic plan must be performed by an acoustic technician with minimum 2 years' experience within designing building acoustics.

[35] https://www.naturvardsverket.se/amnesomraden/miljofororeningar/organiska-miljogifter/pcb-i-miljon/ 2023-05-22

Educational buildings

Denmark: Reverberation time must fulfil the levels defined in BR18.

Finland: Noise class for reverberation time shall be class B according to SFS 5907:2004 or corresponding later standard.

Iceland: (according to IST 45):

- Schools: Sound class C for reverberation time.
- Preschools: Sound class B for reverberation time.

Norway: (according to NS 8175):

- Schools: according to national legislation.
- Preschools: Sound class B for reverberation time.

Sweden: Educational buildings must fulfil the essential sound class requirements for reverberation time according to the valid national sound class standard SS 25268.

Rooms that are occupied temporarily (such as hallways, corridors, bathrooms, changing rooms) are exempt from the requirement.

Hotels (with associated conference facilities)

Dining areas and associated conference facilities must fulfil the following:

Denmark: Reverberation time must fulfil the guideline levels given in BR18.

Finland: Noise class for reverberation time shall be class B according to SFS 5907:2004 or corresponding later standard.

Iceland: Sound class B for reverberation time according to IST 45.

Norway: According to national legislation.

Sweden: Reverberation time according to the essential sound class requirements in national sound class standard SS 25268.

Office buildings

Denmark: Reverberation time must fulfil the guideline levels given in "Bygningsreglementets vejledning om lydforhold, vejledning for kontorbyggeri", BR18.

Finland: Noise class for reverberation time shall be class B according to SFS 5907:2004 or corresponding later standard.

Iceland: Sound class B for reverberation time.

Norway: According to national legislation.

Sweden: Working spaces such as cellular offices, open floor plan offices, telephone booths and conference rooms must fulfil additional requirements regarding reverberation time, according to the valid national sound class standard SS 25268.

Rooms that are occupied temporarily (such as hallways, corridors, bathrooms, changing rooms) are exempt from the requirement.

National noise standards: Sweden SS 25268, Norway NS 8175, Finland SFS 5907. For Denmark, see "Vejledning om lydbestemmelser i Bygningsreglementet 2015 (akustisk Indeklima)" av Trafik- og Byggestyrelsen (Guideline on acoustic criteria in Building Regulations 2015 (acoustic indoor climate) by the Danish Transport, Construction and Housing Authority).

✉ Planned noise level stating the noise class achieved for all parameters in the rooms included in the assessment. Calculation of noise level must be performed by an acoustic technician or other professional with equivalent qualifications.

✉ Noise environment report to verify the results of planned noise class.

Background

Poor acoustics in a room gives a high noise level and a poor learning or productivity environment. Concentration, understanding of speech, memory capacity and ability to understand are all negatively affected. If acoustics are poor, the teacher has to strain his or her voice more. A strained voice will not have the same dynamic and content as a normal voice and will be more difficult to listen to.

In existing buildings, the improvement of acoustic parameters such as impact sound and noise from external sources might be difficult to achieve. The parameter reverberation time is however often possible to improve if needed. Reverberation time is defined as the time it takes for the sound level to decay by 60dB after a sound source has been switched off. Reverberation time is measured in seconds and is a measure of the area of the equivalent sound absorption in the room. Reverberation time increases with the volume of the room and decreases with the area of the equivalent sound absorption.

This requirement must be met in all rooms/spaces where people spend time. This includes cellular offices, open floor plan offices, classrooms, work rooms, playrooms, common rooms, wet playrooms, ateliers, canteens, rooms for rest and sleep, etc. The requirement only applies only to educational buildings, offices, hotels, and associated conference facilities.

14 Quality management of the demolition and construction process

O39 Moisture prevention

Moisture prevention in the building must be documented in line with sections A to C.

Proof of adherence to relevant national industry standards can be used as part of the documentation.

A. Plan for moisture prevention

A plan for moisture prevention must be submitted to Nordic Ecolabelling before construction work begins. The project-specific plan for moisture prevention must include the following, when relevant for the project:

- List of relevant moisture-sensitive materials and constructions.
- Weather protection of materials/elements during transport and storage.
- Plan for closure of the building and weather protection of relevant constructions.
- Description of procedures and methods for drying out the building.
- Description of how it is ensured that subcontractors adhere to applicant's moisture prevention plan.
- Description of the requirements set for manufacturers of prefabricated elements/modules in relation to moisture prevention during manufacturing, transport and installation.
- Description of design and quality measures in water and sewage installations, reducing the risk of damage by drip leakage during the building's use phase.

B. Plan for moisture measurements

A plan for moisture measurements must be made according to the following:

- Moisture measurements must be performed for all relevant materials and constructions in the building, according to the national legislation or official guidelines. The relevant structures and materials must be listed in the plan.
- In concrete-based materials that are covered by moisture-sensitive materials (e.g., parquet) the relative humidity must be verified by borehole/specimen measurements.
- Measured values must be below requirements from the manufacturer of surface materials (e.g., linoleum, parquet, etc.) or official national industry guidelines. Relevant target values must be stated.
- Measurement results must be documented and be available to Nordic Ecolabelling upon request.

C. Coordinator for moisture management

A moisture coordinator must monitor adherence to the moisture prevention plan. The coordinator must be educated in moisture prevention in buildings and have at least 2 years' experience in construction site moisture management/control or moisture damage investigations.

✉ A. Plan for moisture prevention.

✉ B. Plan for moisture measurements.

✉ B. Monitoring reports and measurement results must be available to Nordic Ecolabelling upon request.

✉ C. Competence description of the moisture coordinator such as CV.

Background

Moisture problems in buildings have environmental, health and financial effects. A building's lifetime might decrease due to moisture problems, with an increased need for renovations. Moisture in buildings increases the risk of respiratory infections and illness such as asthma and respiratory irritation.

Exposure of construction materials to moisture can lead to mould and increased emissions of volatile chemical substances. Timber structures and concrete slabs must be sufficiently dry before further installation of the surface layer. Materials and construction elements must be sufficiently weather protected during transport to the construction site and storing at the construction site. The building and its water- and sewage installations must be designed to minimise the risk of water damage from drip leakage.

Moisture measurements are needed to ensure compliance with the target values required by the manufacturer of the surface material. Surface moisture measurements are not sufficient to determine whether the concrete slab is dry enough, hence borehole/specimen measurements are required.

O40 Compliance with material and chemical requirements

The licensee must ensure fulfilment of all material and chemical requirements. A routine must be established for the whole construction process, including:

- Division of responsibilities for the material requirements (O10-O12 and O17-O31) in the design phase, construction phase(s) and procurement.
- Instructions for subcontractors, e.g., via agreements and control plans.
- Procedure for construction site inspections that covers:
  - Frequency of internal inspections/rounds during the construction period.
  - Extent of the internal inspections (minimum: material storage, active construction site and area for construction waste).
  - Documentation for internal inspections: inspected materials and their compliance with material requirements in the criteria must be documented, e.g., in the self-inspection system or inspection reports.

✉ Routines that as a minimum document the bullets above.

✉ Inspection reports must be documented and be available to Nordic Ecolabelling upon request.

Background

The requirement is intended to ensure fulfilment of the chemical and materials requirements at various stages of the process, and between the different parties

involved. Many questions may arise during the process. How should communication take place? Who requests attestation of products and chemicals, and how early? Who must be informed when products do not fulfil the requirements and approve any cost increases or delays? How should reconciliations be made? This requirement ensures that these questions are assessed early in the process by defining a set of routines that will contribute to improving control over the chemicals, materials and construction products used in the project.

O41 Information for those involved in the construction process

Employees involved in the construction process, including supervisors, site managers, project leaders, procurement manager, subcontractors etc., must have the relevant knowledge to be able to ensure fulfilment of the requirements in conjunction with the project design and construction of a Nordic Swan Ecolabelled renovated building.

The routines for the training and information programme must include at least the following:

- Content and scope of the training/information, depending on the participant's role.
- Frequency of the training/information.
- Division of responsibilities.

The applicant must ensure that training and information are available in relevant languages.

✉ Routine in the quality management system and training programme.

✉ List of participants that have completed the training programme must be available.

Background

The requirement covers the need for the licence applicant to define the training programme, showing the content and scope of the training/information. The aim is to provide information on the Nordic Ecolabelling requirements and how the requirements can affect standard processes and routines. All employees, supervisors, site managers, subcontractors and sub suppliers involved in the construction of a Nordic Swan Ecolabelled renovated building must have the relevant knowledge to be able to ensure fulfilment of the requirements in conjunction with the project.

O42 The contractor's self-monitoring system (construction phase)

In order to ensure compliance with the building legislation the contractor must have a documented robust quality self-monitoring system during the entire construction period. As a minimum, the self-monitoring system must include routines for:

- Overview of chain of responsibility for the control measures.

- System for management of documents, including archiving and revised versions of drawings.
- System for checks on material deliveries at time of receipt.
- System for process control, defining control levels and frequency of control for subcontractors, consultants and the construction site management.
- The license holders' procedures for control of the quality of the prefabricated elements and compliance with the requirements of the Nordic Swan Ecolabel.
- Procedure for the final inspection (municipality and internal inspection) and handover of the building.

Nordic Ecolabelling must have access to the quality self-monitoring system through the entire construction process. This can be handled in the contractor's digital quality assurance system or manually at audits.

✉ Routines describing the self-inspection system according to the requirement.

Background

The requirement aims to ensure a solid quality self-monitoring system for the construction of the Nordic Swan Ecolabelled building. The focus is on documentation, communication, and inspection through the construction period. The requirement is designed to include the most critical elements in a typical best-practice self-inspection system in the Nordics.

15 Changes compared to previous generation

Table 13 Overview of requirement changes in generation 2 compared with generation 1.

Generation 2		Generation 1		Change
No	**Name**	**No**	**Name**	
O1	Outline description of the renovation project	O1	Outline description of the renovation project	Updated and adjusted requirement.
O2	Environmental survey and remediation plan	O4	Environmental analysis/survey and remediation plan	Threshold limits are updated. Stating how the hazardous waste is now the remediation contractor responsibility.
O3	Mapping of components and materials suitable for reuse	O3	Building condition assessment and plan for resource use	The building condition assessment part is removed. Specified what should be included in the report from the mapping.
O4	Moisture survey	O5	Moisture survey	Updated and adjusted, previous appendix removed. Possible to survey parts of the building when relevant.
O5	Follow-up of remediation plan	O7	Follow-up of remediation plan	Clarified and updated. Remediation contractor must specify how the hazardous waste is removed.

O6	Follow-up of mapping of components and materials for reuse			New requirement.

O7	The energy use of the building after renovation	O14	The energy requirements of the building after renovation	Introduces more ways to document energy use, the alternatives are adjusted to EU Taxonomy and protected buildings and buildings worthy of preservation.
O8	Lighting management	O15	Lighting	Requirement is only obligatory when activated. Harmonised with Nordic Swan Ecolabelled New buildings. Hotels and conference facilities are included.
O9	Energy efficient white goods	O16	Energy-efficient white goods	Requirement is only obligatory when activated. Harmonised with Nordic Swan Ecolabelled New buildings.
O10	Cement and concrete			New requirement (relatively similar to Nordic Swan Ecolabelled New buildings).
O11	Steel production			New requirement (relatively similar to Nordic Swan Ecolabelled New buildings).
O12	Aluminium production			New requirement (relatively similar to Nordic Swan Ecolabelled New buildings).
O13	Waste management	O6	Waste plan and waste management	The requirement has been harmonised with Nordic Swan Ecolabelled New buildings. A new mandatory level for the handling has been introduced. Selective demolition implemented according to EU Taxonomy.
O14	Waste sorting inside the building			New requirement (similar to Nordic Swan Ecolabelled New buildings).
O15	Hazardous substances in reused construction products and materials	O30	Requirements for reused construction products	The requirement has been harmonised with Nordic Swan Ecolabelled New buildings.
O16	Logbook	O17	Product list and logbook of the building	Harmonised with Nordic Swan Ecolabelled New buildings.
O17	Classification of chemical products	O18	Classification of chemical products	Harmonised with Nordic Swan Ecolabelled New buildings.
O18	CMR substances	O19	CMR substances	Harmonised with Nordic Swan Ecolabelled New buildings.
O19	Preservatives in indoor paint and indoor varnish	O20	Preservatives in indoor paints and varnishes	Harmonised with Nordic Swan Ecolabelled New buildings.
O20	Preservatives in other chemical products intended for indoor use	O21	Preservatives in other chemical products for indoor use	Harmonised with Nordic Swan Ecolabelled New buildings.
O21	Prohibited substances	O22	Other substances excluded from use	Harmonised with Nordic Swan Ecolabelled New buildings.
O22	Nanoparticles in chemical products	O23	Nanoparticles in chemical products	Harmonised with Nordic Swan Ecolabelled New buildings.
O23	Epoxy relining	O28	Epoxy relining	Unchanged.
O24	Halogen free cables			New requirement. Harmonised with Nordic Swan Ecolabelled New buildings.
O25	Surface layers on floors, ceilings, walls, doors and windows	O27	Construction products made of polyvinyl chloride (PVC)	Harmonised with Nordic Swan Ecolabelled New buildings.
O26	Durable wood for outdoor use	O34	Durable/resistant wood for outdoor use	Harmonised with Nordic Swan Ecolabelled New buildings.

O27	Copper	O29	Copper in domestic water pipes and as façade and roofing material	Harmonised with Nordic Swan Ecolabelled New buildings.
O28	Plastic and rubber surfaces on playgrounds and outdoor areas			New requirement. Harmonised with Nordic Swan Ecolabelled New buildings.
O29	Excluded substances in construction products, construction goods and materials	O24	Excluded substances in construction products, construction goods and materials	Harmonised with Nordic Swan Ecolabelled New buildings.
O30	Antimicrobial surface treatments	O25	Nanoparticles and antibacterial additives in construction products and construction goods	Harmonised with Nordic Swan Ecolabelled New buildings.
O31	Formaldehyde emissions	O26	Formaldehyde emissions	Harmonised with Nordic Swan Ecolabelled New buildings.
O32	Ecolabelled products			New requirement.
O33	Prohibited and restricted tree species	O32	Tree species that may not be used in Nordic Swan Ecolabelled renovations	Harmonised with Nordic Swan Ecolabelled New buildings.
O34	Wood and bamboo, traceability and certification	O33	Wood raw materials	Harmonised with Nordic Swan Ecolabelled buildings.
O35	Plan for the indoor air quality	O8	Indoor air quality	Clarified and updated. Previous appendix removed.
O36	Radon	O9	Radon	Introduced more ways to document radon levels. Stricter limits for Finland.
O37	Measurement of PCB levels in indoor air	O12	Measurements of PCB levels in indoor air	Basically unchanged.
O38	Noise environment in office buildings, hotels, pre-schools and schools	O13	Noise environment in pre-schools and schools	Requirement for offices and hotels included. Only the most important acoustic parameters must be documented. Updated according to new building acoustics standards.
O39	Moisture prevention	O10	Moisture prevention	Harmonised with Nordic Swan Ecolabelled New buildings.
O40	Compliance with material and chemical requirements	O37	Management of requirements for products and materials	Harmonised with Nordic Swan Ecolabelled New buildings.
O41	Information for those involved in the construction process	O38	Information to those involved in the renovation process	Harmonised with Nordic Swan Ecolabelled New buildings.
O42	The contractor's self-monitoring system (construction phase)	O39	The contractor's self-monitoring	Harmonised with Nordic Swan Ecolabelled New buildings.