# GUIDELINES FOR SUSTAINABLE MATERIALS

## Object of the guideline

The objective of this step-by-step guideline is to help the building owner, his project team and the contractor to make decisions that reduce the negative environmental impact from building materials. The building materials and products can have different environmental effects depending on their use in the building.

Based on Nordic collaboration and experiences from the Nordic countries, this is a common Nordic guideline on how to find solutions on sustainable building materials. The processes are based on common EU –standards and policies in order to achieve comparable results. A goal of this guideline is to encourage the building owner to set targets that are more strict than the general level in order to reach ambitious and significant changes to current situation in Nordic countries.

## Three levels in this guide

This guideline deals with materials in three levels. The first level Building design covers form and structure of the building, reuse of building components and design for reuse. The second level Choice of material covers life cycle analyses and reuse of materials together with environmental impact during service life. The third level Choice of building products covers functional criteria of a product group and individual product declarations.

| | |
|---|---|
| **Building design** | •Form and structure of the building<br>•Flexibility and material efficiency<br>•Reuse of components<br>•Design for reuse |
| **Choice of materials** | •Life Cycle Analysis<br>•Reuse of materials<br>•Low environmental impact during service life |
| **Choice of building products** | •Functional criteria for a product group<br>•Demand for product declaration |

## Four indicators with three different ambition levels

Greenhouse gas emissions, material resources, hazardous substances and indoor air emissions are the four indicators we have chosen to describe the sustainability of building materials. The ambitions are split into three levels: Best Nordic practice, high ambitious and good ambitious. For each indicator and chosen ambition level it is defined criteria that the most used building materials have to fulfill.

## Impact from decisions made in different levels in planning and design

Sustainability of materials depends on numerous of factors like flexibility and lifespan of the building, material efficiency, choice of single building components and materials, maintenance need of different components and materials and components, building process and choice of single products. However, the sustainability of a building will be concluded mostly during the project planning. Ability to influence on the sustainability of the building will decrease during the process all the time while, at the same time, effects of decisions in the beginning and during the building process will be constantly realized.

## Environmental Certification systems

Several environmental certification systems, like LEED, BREEAM (with national solutions), are in general use for assessing environmental quality of building. Those systems are constantly developed and the user must check how different systems deal with materials.

# FEASIBILITY ANALYSIS

Basis of the feasibility analysis is always the functionality of the spaces and accessibility. Those have a strong influence on operating costs as well as efficiency of operations in the building. As a whole these basis comes before material efficiency in construction project. Building owners have different ambition levels for the sustainability of the building. Some building owners want a sustainability certification label on his building and these systems decide what to focus on. In this guide we have defined three levels and the building owner can use them to decide ambition levels.

### Targets to be set to the building and the project:

- Level of sustainability – Best Nordic Practice, High or Good ambitions
- Sustainability class of building according to e.g. BREEAM, LEED, etc.
- Indoor air class of building
- Service life of building
- Energy efficiency of building

### Questions to be answered during this phase:

- Possibilities to reuse building components from the old building in refurbishments
- Choice of building form to make the building material efficient
- How to make a flexible building with a large life span
- Maintenance periods of the building and its components and materials in general

### Material efficiency

Set targets for energy efficiency class of the building have strong effect on material efficiency of building. High energy efficiency demands more or more efficient thermal insulation and better windows as well than regular building. On the other hand total energy consumption in low-energy or passive house is lower in long period and therefore total greenhouse gas emission are usually lower in long term.

### Form and structure of the building

After ball, the cubic form of building is the most efficient in energy use and consumption of building materials. In the first place the form and frame of the building must fulfil the requirements of users needs.

### Flexibility

The frame of the building is designed for 100 years service life in normal case. In individual projects financial or using period for the building is usually much lower. This means that in the material efficiency point of view, the flexibility requirements and usability of the building are more crucial than service life issues. For the new building must be planned also for the second use or even third use during project planning.

### Reuse of building components and design for reuse

Reusing of building components saves natural resources. Therefore it is sustainable to reuse building components like beams, columns and trusses if possible.

### Design building components for deconstruction (DfD)

Design building components for deconstruction (DfD) refers to the design of the building so that the parts are easily dismantled and separated from each other for re-use or recycling. Good design solutions promote further use of components and materials.

| CHECK AND ASK THE DESIGN TEAM TO DOCUMENT: |
| --- |
| Material efficiency: total material requirement per square meter (TMR)(ton/m$^2$) |
| Form and structure of the building |
| Flexibility |
| Reuse of building components and design for reuse |
| Design building components for deconstruction (DfD) |

# PROGRAM DEVELOPMENT AND SCHEMATIC DESIGN



From the sustainability point of view, the project planning phase is the most important phase in all building projects. To design as sustainable as possible, the most important decisions will be made in this phase. The most important decisions for materials, material efficiency and sustainability of the building will be made in the end of project planning. The materials used in a building have a large impact on the carbon footprint of the building, the amount of hazardous substances, the resource efficiency and the indoor air quality for the users.

### Form and structure of the building

Client's needs will be developed to design program for architects and technical designers. Based on architect's schematic design, structural designer will make the first plan for the frame of building and other technical designers will make their own sketch. These schematic plans will be estimated based on set goals. Structural engineer makes a proposal for the frame and structural system for the building based on architectural design. Materials for the building frame must meet demands on structural safety, fire safety and stability of the building in the first place. After those requirements come cost and material efficiency. Size of the building, different loads, long spans, etc. might reject free choice of frame materials.

### Service life

In the buildings with long service life, the material choices which will need as little maintenance, repair or renewal as possible during their service life are usually the best choices also for a material efficiency point of view, because the total consumption of materials is usually lowest as completeness. Minor repair and renewable needs have positive effect on the disturbance –free use of the building, too.

### Reuse of building components

Concrete buildings made with girder and post frame have a very high recovery potential, because girders and columns can usually be used as such in new construction. Warehouses, industrial and office buildings as well as commercial buildings are usually made with girder and post frame. In most cases, precast columns and beams are connected together with bolts, which can usually be disassembled relatively easily.

### Design for reuse

Easy and effective constructability has been the most common starting point for design for decades. In fact all development has been focused on easier and faster installing of construction materials and product on site. The shorter constructions time the lower costs.

| CHECK ANDASK THE DESIGN TEAM TO DOCUMENT: |
|---|
| Form and structure: How clients needs are realized? |
| Service life for materials and building components:<br>Foundations (years)<br>Frame (years)<br>Facades (years)<br>Wet rooms (years)<br>Roofs (years)<br>Supplementary building components (years), etc. |
| Material efficiency:<br>Total material requirement (TMR), (ton/m$^2$)<br>Material choice for frame and facades |
| Reuse of building components and design for reuse |

# DESIGN DEVELOPMENT AND WORKING DRAWINGS

During design phase schematic drawings will be developed for working drawings. *Building information modelling* (BIM) makes designing more efficient; all drawings needed on site or in prefabricated factories can be converted from the model. And for cost and sustainable point of view bill of quantities in every single materials used in the building is possible to get from the model. This means that every change made in structures or materials can instantly be seen in material efficiency of the building.

## Material efficiency

From the material efficiency point of view materials and new building components designed for a certain building should be designed so, that reuse of those components and materials is possible when the service life of designed building has ended.

## Service life for materials

Service life and maintenance needs during using phase should be kept in mind when considering materials exposed to outdoor climate or some other harsh environment like sea water or chemical stress.

## Energy efficiency

Wall assemblies, roofs, windows, etc. building components together with technical installations like HVAC solution effect on energy efficiency of the building.. Calculations must be made for all design choices keeping in mind national regulations and clients targets.

## Hygro-thermal performance of building

Hygro-thermal performance of materials and building components have strong influence on indoor air quality of the building. Several materials has demands for lower structures drying out before installing.

## Use of recycled materials, renewable resourses and reused building components

Several recycled materials and building components can be reused as they are or as a raw material of new products. For sustainable use of natural resources these possibilities should be checked.

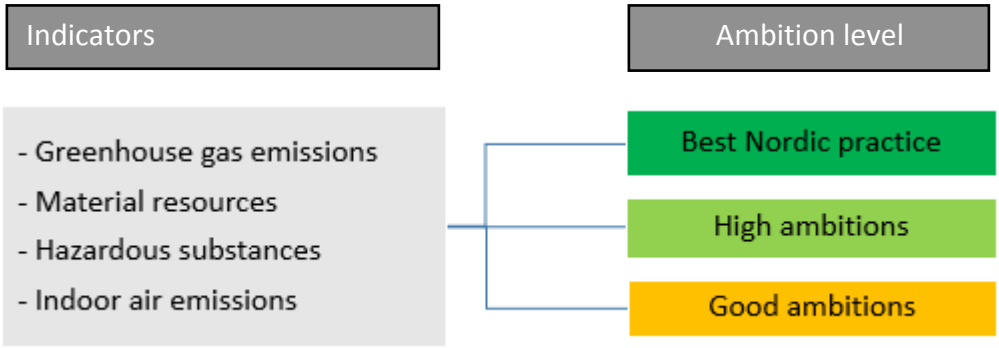
Using building components made of renewable materials is usually more sustainable than using materials made of virgin natural resources. If these are suitable for the purpose, it is preferred choice.

| CHECK AND ASK THE DESIGN TEAM TO DOCUMENT: |
|---|
| **Material efficiency:**<br>LCA (Life Cycle Assessment) calculations and material choice for frame, facades and all other building components |
| **Service life for materials and building components:**<br>Service life calculations for chosen materials and building components |
| **Energy efficiency:**<br>Calculations for all design choices -> selection of structures and products |
| **Hygro-thermal performance level of building:**<br>Calculations and material choices<br>Effect on indoor air quality |
| **Use of recycled materials:**<br>Calculations and material choices |
| **Use of renewable resources:**<br>Calculations and material choices |
| **Use of reused building components:**<br>Calculations and material choices |

# CHOICE OF MATERIALS

## Decide your ambition level

As mentioned, we have chosen four indicators to describe the sustainability of building materials. The ambitions are split into three levels. For each indicator and chosen ambition level it is defined functional criteria for the building products. These criteria for the three ambition levels are described in table 2 (Best Nordic Practice), table 3 (High ambition level) and table 4 (Good ambition level) in the end of this guidelines.




## Decide which product groups you want to be sustainable

The building owner then decides which product groups that have to fulfill the sustainable criteria. In this guideline we have described criteria for the most important product groups (see table 2,3 and 4) and we advice to describe some sustainable criteria for all of them if used in a project. But if you find it to ambitious to follow “Best Nordic practice” for all of them, you can perfectly well choose different ambitious levels for different product groups. You can also choose different ambition levels for different kind of projects; e.g. “Best Nordic practice” for some large pilot projects, “High ambition” for the rest of your new buildings and refurbishments and “Good ambition” for you ongoing maintenance projects.

Below follows examples of different combinations.

| | **Greenhouse gas emissions** | **Material resources** | **Hazardous substances** | **Indoor air emissions** |
|---|---|---|---|---|
| Building project 1 | Best Nordic practice | Best Nordic practice | Best Nordic practice | Best Nordic practice |
| Building project 2 | Best Nordic practice<br>1. Concrete and concrete slabs<br>2. Building boards<br>3. Insulation - mineralwool | Best Nordic practice<br>4. Steel reinforcement<br>5. Wooden products | Good ambitions | Best Nordic practice |
| | High ambitions<br>6. For other products | High ambitions<br>7. For other products | | |
| Building project 3 | | | Best Nordic practice | |

# PROCUREMENT

## Specify functional criteria for your chosen product groups

The building owner has now chosen which product groups that should fulfill the sustainability criteria and the ambition level for each group. Then you find the criteria for each product group in the tables 2, 3 and 4. See examples 1 and 2 below how these can be used. Some product groups lack criteria for some indicators because we consider them not to be important. To be able to handle all these criteria in a building project, its necessary to concentrate on the most important ones.
It is important to include these criteria in the procurement. We advice to not only describe the sustainable criteria in a general chapter in the procurement. We advice to describe the sustainable criteria and how to fulfill the criteria along with describing the amount and other functional criteria of each specific product group.

The background for the criteria in the tables is described in the report "Criteria for Nordic guide for sustainable materials". In this report, you also find more information about each criteria.

**Example 1** – Criteria corresponding to Best Nordic practice for all four indicators (dark green)

| | **Greenhouse gas emissions** | **Material resources** | **Hazardous substances** | **Indoor air emissions** |
|---|---|---|---|---|
| All wood based materials | | Certified /no tropical | Ref. Table 2, col. 2 | Low emission |
| Concrete, C30 | 200 kg $CO_2$-eqv/$m^3$ | > 5 % | Self decl, 0,1 % < Reach cand list | |
| Concrete, C35 | 220 kg $CO_2$-eqv/$m^3$ | > 5 % | Self decl, 0,1 % < Reach cand list | |
| Concrete, C45 | 240 kg $CO_2$-eqv/$m^3$ | > 5 % | Self decl, 0,1 % < Reach cand list | |
| Steel reinforcement | Verified documentation | > 95 % | Ref. Table 2, col. 2 | |
| Concrete slab elements | Verified documentation | > 5 % | Self decl, 0,1 % < Reach cand list | |
| Steel constructions | Verified documentation | > 20 % | Ref. Table 2, col. 2 | |
| Wooden constructions | Verified documentation | Certified /no tropical | Ref. Table 2, col. 2 | |
| Windows (60 years) | 160 kg $CO_2$-eqv/window, alt. 2,5 $CO_2$-ekv pr kg | > 0 % | Ref. Table 2, col. 2 | |
| Insulation | | | | |
| Mineral wool | 1,5 kg $CO_2$-eqv/$m^2$ and R=1 | > 20 % | Ref. Table 2, col. 2 | |
| EPS | 2,5 kg $CO_2$-eqv/$m^2$ and R=1 | | | |
| XPS | 5,0 kg $CO_2$-eqv/$m^2$ and R=1 | | | |
| Others | Verified documentation | | | |
| Outdoor cladding | Verified documentation | > 0 % | Ref. Table 2, col. 2 | |
| Outdoor paints | | | Ref. Table 2, col. 2 | |

# PROCUREMENT

## Formulate requirements in the procurements – examples of use of the criteria

Here you find examples of formulations that can be used directly into description texts.

**Gypsum boards** (corresponds to Best Nordic practice for all indicators)

***Sustainability criteria:***

X $m^2$ 13 mm gypsum board. The greenhouse gas emissions must not exceed 3,0 kg $CO_2$-eqv/$m^2$ calculated from cradle to gate. The boards should contain at least 30 % recycled materials. Hazardous substances must be less than the level of "Best Nordic practice" given in table 1, column 2 (enclosed). Indoor air emissions should be less than the criteria for “Low emitting materials” according to EN 15251 (enclosed).

***Documentation***: The criteria of maximum $CO_2$-emissions and use of secondary/recycled materials should be documented by 3. parts verified EPD (Environmental Product Declaration according to EN 15804). Fulfillment of the criteria for hazardous substances can be documented by The Nordic Swan, BVB (Byggvarubedömningen) level Recommended, Sunda Hus (Swedish system) level A, Ecoproduct (Norwegian system) level 1 or Safety Data Sheet with a selfi declaration declaring that the requirements are fulfilled. The criteria for indoor air emissions can be documented with a M1i certifikat (Finnish system), a lab report or a label with equal or more ambitious requirement (the requirement has to be described).

**Chipboards** (corresponds to Best Nordic Practice for Greenhouse gas emissions, Material resources and Indoor Air emissions, High ambitions for Hazardous substances)

***Sustainability criteria:***

x $m^2$ 12 mm chipboards. The greenhouse gas emissions must not exceed 3,0 kg $CO_2$-eqv/$m^2$ calculated from cradle to gate. The boards must not contain any tropical wood and the wood used in the products must be certified. Hazardous substances must be less than the level of "High" according to table 1, column 3.

***Documentation***:

The criteria of maximum $CO_2$-emissions should be documented by 3. part verified EPD (Environmental Product Declaration according to EN 15804). The absence of tropical wood has to be documented with PEFC or FCS certificate, The Swan or an EPD if it includes this information. Fulfillment of the criteria for hazardous substances can be documented by The Nordic Swan, BVB (Byggvarubedömningen) level: Accepted, Sunda Hus (Swedish system): level B, Ecoproduct (Norwegian system): level 3 or Safety Data Sheet with a selfi declaration. The criteria for indoor air emissions can be documented with a M1i certifikat (Finnish system), a lab report or a label with equal or more ambitious requirement (the requirement has to be described).

# PROCUREMENT

**Concrete** (corresponds to Best Nordic practice for all indicators)

***Sustainability criteria:***
x $m^3$ In-situ concrete with C35-quality. The concrete must not exceed 220 kg $CO_2$-ekv./$m^3$ calculated from cradle to gate. The concrete must contain at least 5 % recycled materials. Hazardous substances must be less than 0,1 % of substances on the Reach candidate list (EU system).

***Documentation***:
The criteria of maximum $CO_2$–emissions should be documented by 3. part verified EPD (Environmental Product Declaration according to EN 15804) or by being "Low carbon A concrete" according to "Lavkarbonbetong (2015) from Norsk betongforening (Norwegian system). The use of secondary/ recycled materials should be documented by 3. part verified EPD according to EN 15804. Accepted documentation for hazardous substances is BVB (Byggvarubedömningen): level Accepted or Sunda Hus (Swedish system): level B. A selfi declaration confirming that the demand is fulfilled is also acceptable documentation.

**Reinforcement** (High ambitions for Greenhouse gas emissions, Best Nordic practice for material resources and Hazardous substances)

***Sustainability criteria:***
The reinforcement must contain at least 90 % recycled materials. Hazardous substances must be less than the level of "Best Nordic practice" according to table 1, column 2.

***Documentation***:
The use of secondary/recycled materials should be documented by 3. parts verified EPD (Environmental Product Declaration according to EN 15804) . Accepted documentation for hazardous substances is at least BVB (Byggvarubedömningen): level recommended, Sunda Hus (Swedish system): level A or Ecoproduct (Norwegian system): level 1. A selfi declaration confirming that the criteria is fulfilled is also acceptable documentation.

**Sealants** (corresponds to Best Nordic Practice for all indicators)

***Sustainability criteria:***
Hazardous substances must be less than the level of "Best Nordic practice" according to table 1, column 2, for all types of sealants. Indoor air emissions should be less than the criteria for Low emitting materials according to EN 15251 (enclosed).

***Documentation***:
Fulfillment of the criteria for hazardous substances can be documented by The Nordic Swan, BVB (Byggvarubedömningen) level: Recommended, Sunda Hus (Swedish system): level A, Ecoproduct (Norwegian system): level 1 or Safety Data Sheet with a selfi declaration. The criteria for Indoor air emissions should be documented with a M1i certifikat (Finnish system), EC1 Plusi certificate, a lab report or a label with equal or more ambitious requirement. The requirement have then to be described.

# PROCUREMENT

## General description – the chapter "0"

For some products, it might not be possible to fulfill the sustainable criteria because of different reasons.

One reason could be that the critera for greenhouse gas emissions is too ambitious for a specific product that need to fulfill other functional requirements that is not compatible with low greenhouse gas emissions (e.g. white color or rapid solidification)

Another reason might be that one complex construction with a specific product that not meet the requirement on a product level has lower greenhouse gas emissions in total than an alternative construction with products that separately meets the requirements. In such cases the choice of materials and construction should be done at a construction level and not on a product level.
For cases that do not meet the requirements, the project manager in the project has to agree on the discrepancies. The discrepancies should be documented in a reporting system for the project.

# CONSTRUCTION PHASE

### Follow up the criteria during the construction phase

All products planned used at the building site need to be controlled and approved before use.
We advice the building owner to make a list including all specific building products that are offered and specified by the contractor/the provider and accepted for use in the project. To prevent other not accepted product to be used in the project, this list should be used as a checklist on the building site. A controller could for instance bring this list while regularly controlling safety on the building site
If products are used without being accepted the project should state sanctions.

### Control of moisture level

Avoiding wetting of uninstalled materials and already completed spaces can be saved both money and time as well as materials. Moisture level control is essential in all buildings where good indoor air quality is set goal.

### Cleanliness

Cleanliness of construction site is the key-factor for indoor air quality. Spaces should be clean before technical installations, like air-discharge pipes etc.

### Quality check

Its important that the building owner make quality check on building site that the provided product is actually used. By making a list over all approved products in the project, this list can be compared to used product during regularly quality checks at the building site.

### Waste management

Clever use of building materials produces as little waste as possible. Using prefabricated products as much as possible decreases remarkably cutting or other tooling on site and, therefore also less waste is produced.

| CHECK AND ASK THE DESIGN TEAM TO DOCUMENT: |
|---|
| **Control of moisture level:**<br>Moisture content of structures before coating<br>Sheltering construction materials from moisture and rain during storing and after installation |
| **Cleanliness of ready spaces:**<br>Sheltering rooms and installations from dust and dirt<br>Cleaning ready spaces before installations |
| **Quality check:**<br>Materials emissions<br>Response to plans |
| **Waste management**<br>Sorting construction waste<br>Reuse and recycling construction waste |

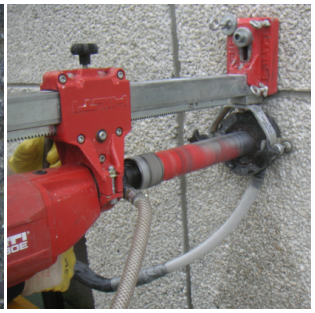
# COMMISSIONING PHASE

During commissioning the building operation has to be verified so that the designed outcome is reality. Usually the insurance policies and warranty repairs needs the check-up. In this stage it is also necessary to check that the estimated environmental target level is achieved e.g. for recycling rate determination.

| CHECK AND ASK THE DESIGN TEAM TO DOCUMENT: |
|---|
| **Material efficiency:**<br>Total waste amounts for project and calculate recycling rate<br>Total use of recycled materials<br>Building material EPD (Environmental Product Declaration) sheets are collected into the building service manual<br>Check that there are instructions for repairing and maintenance of selected building materials |
| **Service life for materials and building components:**<br>The right information is collected for maintenance into the building service manual (for cleaning and other maintenance)<br>Moisture protection and check-up schedule for maintenance |

# USE AND MAINTENANCE

Use and maintenance phase is the longest period in the building: it will take decades. During this period, ageing of the materials in the building will lead to maintenance and repair needs. In a sustainable building also maintenance of materials and building components should be programmed. In proactive maintenance measures are made before any degradation can be visually seen. With this kind of maintenance large repairs can usually be avoided and maintenance costs remains on a reasonable level if materials and products are chosen right.



| CHECK AND ASK THE DESIGN TEAM TO DOCUMENT: |
|---|
| **Material efficiency:**<br>Observation of material ageing<br>Maintenance of deteriorated materials<br>Following instructions of maintenance book<br>Using sustainable materials during maintenance and renovation |
| **Waste management**<br>Recycling of waste<br>Sorting of waste |

*Table 1. Criteria for the two most ambitious levels for Hazardous substances. For the good level it is "only" requirement for self-declaration and 0,1 % on the Reach candidate list.*

| | Best Nordic practice | High ambitions |
|---|---|---|
| H350 Carc. 1A or 1B | ≤ 0,01 % | < 0,1% |
| H351 Carc. 1A or 1B | ≤ 0,01 % | < 0,1% |
| H340 Muta. 1A or 1B | ≤ 0,01 % | < 0,1% |
| H341 Muta. 2 | ≤ 0,1 % | 1 % |
| H360 Repr. 1A or 1B | ≤ 0,01 % | 0,5 (0,1) % |
| H361 | ≤ 0,3 % | 5 (3) % |
| H362 Lact | ≤ 0,03 % | 0,3 (0,1) % |
| Endocrine disruptors | ≤ 0,01 % | < 0,1% |
| PBT | ≤ 0,01 % | < 0,1% |
| vPvP | ≤ 0,01 % | < 0,1% |
| Lead and compounds of lead | ≤ 0,01 % | < 0,1% |
| Mercury and compounds of mercury | Prohibited | < 0,1% |
| Cadmium and compounds of cadmium | ≤ 0,001 % | < 0,01% |
| H420 Harmful to the ozone layer | ≤ 0,01 % | < 0,1% |
| Brominated flame retardants | < 0,1% | < 0,1% |
| H334 Resp | ≤ 0,02 % | < 0,2 % |
| H317 Skin | ≤ 0,1 % | < 1 % |
| H300 Acute Tox. 1 | ≤ 0,01 % | < 0,1% |
| H300 Acute Tox. 2 | ≤ 0,1 % | < 0,1% |
| H301 Acute Tox | ≤ 1 % | < 3% |
| H310 Acute Tox. 1 | ≤ 0,01 % | < 0,1% |
| H330 Acute Tox. 1 | | < 0,1% |
| H311 Acute Tox | ≤ 1 % | < 3% |
| H331 Acute Tox | | < 3% |
| H370 STOT SE 1 | ≤ 0,1 % | < 1% |
| H371 STOT SE 2 | ≤ 1 % | < 25% |
| H372 STOT RE 1 | ≤ 0,1 % | < 1% |
| H373 STOT RE 2 | ≤ 1 % | < 25% |
| H400 Aqau Acute 1 | ≤ 2,5 % | < 25% |
| H410 Aqua Chronic 1 | ≤ 0,25 % | < 2,5% |
| H411 Aqua Chronic 2 | ≤ 2,5 % | < 25% |
| H413 Aqua Chronic 4 | ≤ 2,5 % | < 25% |
| H360 Repr. 1A | ≤ 0,01 % | 0,5 % |

*Table 2 Criteria for the Best Nordic level*

| | Greenhouse gases | Resources [2] | Hazardous substances | Indoor emissions |
|---|---|---|---|---|
| All wood based materials [1] | | Certified/no tropical | | |
| Concrete, C30 | 200 kg $CO_2$-eqv/$m^3$ | > 5 % | Self-decl, < 0,1 % cand. list | |
| Concrete, C35 | 220 kg $CO_2$-eqv/$m^3$ | > 5 % | Self-decl, < 0,1 % cand. list | |
| Concrete, C45 | 240 kg $CO_2$-eqv/$m^3$ | > 5 % | Self-decl, < 0,1 % cand. list | |
| Steel reinforcement | 0,6 kg $CO_2$-eqv/tonn | > 95 % | Table 2, col.2 | |
| Concrete slab elements | Verified documentation | > 5 % | Self-decl, < 0,1 % cand. list | |
| Steel constructions | Verified documentation | > 20 % | Table 1, col.2 | |
| Wooden constructions | Verified documentation | Certified/no tropical [4] | Table 1, col.2 | |
| Windows | 160 kg $CO_2$-eqv/window, alt. 2,5 $CO_2$-ekv pr kg | > 0 % | Table 1, col.2 | |
| Insulation | | | | |
| Mineral wool | 1,5 kg $CO_2$-eqv/$m^2$ and R=1 | > 20 % | Table 1, col.2 | |
| EPS | 2,5 kg $CO_2$-eqv/$m^2$ and R=1 | - | | |
| XPS | 5,0 kg $CO_2$-eqv/$m^2$ and R=1 | | | |
| Others | Verified documentation | > 0 % | Table 1, col.2 | |
| Outdoor cladding | Verified documentation | > 0 % | Table 1, col.2 | |
| Outdoor paints | | | Table 1, col.2 | |
| Roofing | 5 $CO_2$-eqv/$m^2$ | > 2 % | Table 1, col.2 | |
| All indoor building boards [3,4] | 3,0 kg $CO_2$-ekv pr $m^2$, alt. 0,30 $CO_2$-ekv pr kg | > 0 % | Table 1, col.2 | Low emission |
| Gypsum boards | | > 30 % | Table 1, col.2 | Low emission |
| Indoor paints and varnishes | | | Table 1, col.2 | Low emission |
| Floor coverings | | > 0 % | Table 1, col.2 | Low emission |
| Carpets | Verified documentation | > 40 % | Table 1, col.2 | Low emission |
| Vinyl and linoleum | | > 15 % | | |
| Others | | | | |
| Ceilings | | > 0 % | Table 1, col.2 | Low emission |
| Adhesives | | | Table 1, col.2 | Low emission |

*Table 3 Criteria for the High ambition level*

| | Greenhouse gases | Resources | Hazardous substances | Indoor emissions |
|---|---|---|---|---|
| All wood based materials [1] | | Verified doc. | | |
| Concrete | Verified doc. | Verified doc. | Self-decl, < 0,1 % cand. list | |
| Steel reinforcement | Verified doc. | Verified doc. | Table 2, col.3 | |
| Concrete slab elements | Verified doc. | Verified doc. | Self-decl, < 0,1 % cand. list | |
| Steel constructions | Verified doc. | Verified doc. | Table 1, col.3 | |
| Wooden constructions | Verified doc. | Verified doc. | Table 1, col.3 | |
| Windows | Verified doc. | Verified doc. | Table 1, col.3 | |
| Insulation, mineral wool | Verified doc. | Verified doc. | Table 1, col.3 | |
| Insulation, EPS, XPS .... | | | Table 1, col.3 | |
| Outdoor cladding | Verified doc. | Verified doc. | Table 1, col.3 | |
| Outdoor paints | | | Table 1, col.3 | |
| Roofing | Verified doc. | Verified doc. | Table 1, col.3 | |
| All indoor building boards | Verified doc. | Verified doc. | Table 1, col.3 | M2 or equiv. |
| Indoor paints and varnishes | | | Table 1, col.3 | M2 or equiv. |
| Floor coverings | Verified doc. | Verified doc. | Table 1, col.3 | M2 or equiv. |
| Ceilings | Verified doc. | Verified doc. | Table 1, col.3 | M2 or equiv. |
| Adhesives | | | Table 1, col.3 | M2 or equiv. |
| Sealants | | | Table 1, col.3 | M2 or equiv. |
| Screeds | | | Table 1, col.3 | M2 or equiv. |

*Table 4 Criteria for the "Good ambition level"*

| | Greenhouse gases | Resources | Hazardous substances [1] | Indoor emissions |
|---|---|---|---|---|
| All wood based materials | | Self decl. | S.f, < 0,1 % cand | Self decl. |
| Concrete | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| Steel reinforcement | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| Concrete slab elements | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| Steel constructions | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| Windows | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| Insulation | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| Outdoor cladding | Self decl. | | S.f, < 0,1 % cand | |
| Outdoor paints | | | S.f, < 0,1 % cand | |
| Roofing | Self decl. | Self decl. | S.f, < 0,1 % cand | |
| All indoor building boards | Self decl. | Self decl. | S.f, < 0,1 % cand | Self decl. |
| Indoor paints and varnishes | | | S.f, < 0,1 % cand | Self decl. |
| Floor coverings | | Self decl. | S.f, < 0,1 % cand | Self decl. |
| Ceilings | | Self decl. | S.f, < 0,1 % cand | Self decl. |
| Adhesives | | | S.f, < 0,1 % cand | Self decl. |
| Sealants | | | S.f, < 0,1 % cand | Self decl. |
| Screeds | | | S.f, < 0,1 % cand | Self decl. |